Final Report
Phase I RCRA Facility Investigation for Appendix I Sites

VOLUME III-C

SWMU-24/32, Industrial Wastewater Treatment Plant/
Sanitary Wastewater Treatment Plant

Department of the Air Force
Oklahoma City Air Logistics Center
Tinker Air Force Base, Oklahoma

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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFLC	Air Force Logistics Command
AFMC	Air Force Materiel Command
AFSC	Air Force Systems Command
AMC	Air Materiel Command
AOC	Area of concern
API	American Petroleum Institute
AQUIS	Air Quality Utility Information System
ASTM	American Society for Testing and Materials
AWAC	Airborne Warning and Control
BF	Bioconcentration factor
bgs	Below ground surface
BNA	Base/neutral/acid - extractable
BTEX	Benzene, toluene, ethylbenzene, xylenes
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfm	Cubic feet per minute
CFR	Code of Federal Regulations
cm/sec	Centimeters per second
CME	Central Mine Equipment Company
CMS	Corrective measures study
COD	Chemical oxygen demand
COE	US Army Corps of Engineers or USACE
CWA	Clean Water Act
DCA	Dichloroethane
DCE	Dichloroethene

DCQAP	Data Collection Quality Assurance Plan
DNPH	Dinitrophenylhydrazine
DOD	US Department of Defense
DQO	Data quality objective
EM	Environmental Management
EPA	Environmental Protection Agency
ES	Engineering-Science, Inc.
ESC	East Soldier Creek
FAA	Federal Aviation Administration
FID	Flame ionization detector
GC	Gas chromatograph
gpd	Gallons per day
gpm	Gallons per minute
H_2S	Hydrogen sulfide
ICP	Inductively coupled plasma atomic emission spectroscopy
ID	Identification
IRP	Installation Restoration Program
IRPIMS	Installation Restoration Program information management systems
IWTP	Industrial wastewater treatment plant
K_H	Henry's Law constant
K_{oc}	Organic carbon partition coefficient
L/min	Liters per minute
LDR	Land disposal restrictions
LEL	Lower explosive limit
m^3	Cubic meter
MDL	Method detection limit
MEK	2-Butanone (methyl ethyl ketone)
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mgd	Million gallons per day
min	Minute
mL	Milliliter

mL/min	Milliliters per minute
mph	Miles per hour
MQA	Method quantitation limit
MS/MSD	Matrix spike/matrix spike duplicate
NAAQS	National Ambient Air Quality Standards
NAD	North American Datum
ng/m^3	Nanograms per cubic meter
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OC-ALC	Oklahoma City Air Logistics Center
OCAMA	Oklahoma City Air Materiel Area
OSDH	Oklahoma State Department of Health
OSPC	Oklahoma State Planar Coordinates
OVA	Organic vapor analyzer
PAH	Polynuclear aromatic hydrocarbons
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
PID	Photoionization detector
POTW	Publicly owned treatment works
ppb	Parts per billion
ppm	Parts per million
ppmv	Parts per million, volume per volume
PQL	Practical quantitation limit
PSI	Professional Service Industries, Inc.
PUF	Polyurethane foam filter
PVC	Polyvinyl chloride
QA	Quality assurance
QA/QC	Quality assurance/quality control
RAS	Return activated sludge
RCP	Recirculation pit
RCRA	Resource Conservation and Recovery Act

RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial investigation
RI/FS	Remedial investigation/feasibility study
SCC	Solids contact clarifier
SCFH	Standard cubic feet per hour
SGB	Bioenvironmental Engineering Office
SVOC	Semivolatile organic compound
SWD	Sidewall depth
SWMU	Solid waste management unit
SWMU 24.1	Lift Station No. 2
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SWMU 32.4	Trickling Filters
SWMU 32.5	Final Clarifiers
SWMU 32.6	Former Chlorine Contact Chamber
SWMU 32.8	Drying Beds
SWTP	Sanitary wastewater treatment plant
TAC	Tactical Air Command

TCA	Trichloroethane
TCE	Trichloroethene
TCLP	Toxicity characterization leaching procedure
TPH	Total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
TSP	Total suspended particles
USAF	United States Air Force
USGS	United States Geological Survey
VLF	Very low frequency
VOA	Volatile organic analysis
VOC	Volatile organic compound
WWTF	Wastewater treatment facility
µg/kg	Micrograms per kilogram
µg/L	Micrograms per liter
°C	Degrees Celsius
°F	Degrees Fahrenheit
(')	Feet below ground surface

Appendix J

Wastewater, Sediment, and Soil Data QA/QC Report

APPENDIX J

QUALITY ASSURANCE SUMMARY REPORT

TINKER AIR FORCE BASE

1.0 INTRODUCTION

As part of the Air Force Installation Restoration Program (IRP), Engineering-Science (ES) conducted environmental sampling at Tinker Air Force Base (AFB) in Oklahoma County, Oklahoma. All work was performed in accordance with a Work Plan prepared by ES and approved by the USEPA. A data collection quality assurance plan (DCQAP) was also prepared and approved for use to ensure generation of legally defensible data.

A total of approximately 350 soil, sediment, wastewater and other water samples were collected in support of the investigation. A summary of samples, matrix and analytical parameters is presented in Attachment 1. The samples collected included the following QC sample types: trip blanks, equipment blanks, ambient blanks, matrix spikes, spike duplicates, field duplicates (for water samples), and field replicates (for soil and sediment samples). Table 1 presents a summary of field QC samples collected. The samples were shipped to the laboratory for analysis in 13 Sample Delivery Groups (SDGs) between October and November, 1993. Table 2 presents a summary of the samples by SDG. The samples were analyzed for volatile organics (VOCs), semivolatile organics (SVOCs), metals, total cyanide, total petroleum hydrocarbons (TPH) and polychlorinated biphenyls (PCBs). All analyses were performed by Southwest Laboratory of Oklahoma (SWLO) using USEPA-approved analytical methods (see Tables 3 and 4). All tables are located at the end of this section.

This quality assurance (QA) summary report presents a summary and assessment of the laboratory and field quality control (QC) samples generated during the investigation. The QC data have been evaluated using the quality assurance objectives described in section 4 of the DCQAP for precision, accuracy, completeness, comparability and representativeness. A brief description of the parameter used to evaluate each of these data quality indicators is presented below. A summary of the QA objectives is presented in Tables 3 through 6.

Accuracy is a measure of the difference between a measured value and the "true" or accepted reference value. The accuracy of laboratory and field QC data has been evaluated using the percent recovery of spiked samples including matrix, duplicate, surrogate and laboratory control spikes. The target analytes selected for spiking are specific to the analytical method.

Precision is an expression of the agreement between multiple measurements of the same parameter on the same sample under similar conditions. Precision has been evaluated using the relative percent difference (RPD) between the results from field and laboratory duplicate samples. The RPD is defined as the absolute difference between the two results divided by the average of the two results times 100.

Completeness is a measure of the amount of valid data obtained from the measurement system relative of the amount anticipated under ideal conditions. For purposes of evaluating completeness, valid data has been defined as all data (qualified or unqualified) deemed to be usable following validation.

Comparability expresses the confidence with which one data set can be compared to another. Comparability has been evaluated by comparing adherence to the approved sample collection and analytical procedures.

Representativeness is a measure of the consistency of the procedures used to collect and analyze the samples. Items evaluated to determine representativeness include: collection of samples from locations representative of site conditions; use of approved sampling equipment and procedures; use of approved analytical equipment and procedures; consistent detection limits; and analysis of samples within the designated holding time.

All data submitted by SWLO have been validated using the procedures described in section 9.3.3 of the DCQAP. The data packages submitted are equivalent to EPA Level III data packages. Each data package included a summary of results for environmental and field and laboratory QC samples. The data packages did not include the raw data supporting the sample results. All decisions made during the validation process have been based solely on the data submitted. Each package was reviewed for completeness and transcription errors. The fundamentals of the USEPA functional guidelines for evaluating organic and inorganic data have been used to evaluate the usability of the laboratory data. This QA summary report discusses non-conformance to the QA objectives described in the DCQAP and any limitations on the usability of the data due to the non-conformances. Non-conforming data have been qualified using the data validation qualifiers (see attachment 2) specified in appendix B of the DCQAP. The outline for this report is presented in the following paragraph.

QC problems leading to qualifying of data as unusable ("R") are summarized in the summary section of this report. Deviations from the DCQAP or the analytical methods and the general usability of the data are also discussed in this section. Details concerning qualification of data as unusable as well as the samples and target analytes affected are presented in the major problems section of this report. QC problems leading to qualifying of data as estimated are presented in the minor problems section of this report. Details concerning samples and target analytes affected are also presented in this section. QC items not requiring qualifying of data are presented in the other issues section of this report. Data validation worksheets and laboratory data summary pages including data validation qualifiers are presented in attachment 3.

TABLE 1
SUMMARY OF QUALITY CONTROL SAMPLES AND ANALYTICAL REQUIREMENTS

Quality Control Sample ID	SDG	Sample Type	Matrix	VOC	SVOC	MTLS	CYN	TPH	PCBs
I24.2SS2(0.17-0.5)	15873	FR	SO	X	X	X	X		
I24.2SS2(0.17-0.5)	15873	MS	SO	X	X	X	X		
I24.2SS2(0.17-0.5)	15873	SD	SO	X	X	X	X		
I24.3SS1(0.17-0.33)	15873	FR	SO					X	
I24.3SS1(0.17-0.33)	15873	MS	SO					X	
I24.3SS1(0.17-0.33)	15873	SD	SO					X	
TB101193	15873	TB	WA	X					
S32.8SS2(0.17-0.33)	15873	FR	SO	X	X	X	X		
ESC1SE3	15873	FR	SE	X	X	X	X		
ESC1SE3	15873	MS	SE	X	X	X	X		
ESC1SE3	15873	SD	SE	X	X	X	X		
TB101293	15873	TB	WA	X					
TB101393	15873	TB	WA	X					
TB111093	16298	TB	WA	X					
AB111093	16298	AB	WA	X					
EB111093	16298	EB	WA	X	X	X	X	X	
I24.2SB7(5.5-7)	16298	FR	SO	X	X	X	X	X	
I24.2SB7(5.5-7)	16298	MS	SO	X	X	X	X	X	
I24.2SB7(5.5-7)	16298	SD	SO	X	X	X	X	X	
I24.2SB8(5-6)	16298	FR	SO	X	X	X	X	X	
TB2111093	16298	TB	WA	X					
S32.5SB3(2-4)	16298	FR	SO	X	X	X	X		
I24.9SB2(2-4)	16298	MS	SO	X	X	X	X		
I24.9SB2(2-4)	16298	SD	SO	X	X	X	X		
TB110993	16298	TB	WA	X					

Note: FR-Field Replicate; FD-Field Duplicate; MS-Matrix Spike; SD-Spike Duplicate; TB-Trip Blank; EB-Equipment Blank; AB-Ambient Blank; MB-Matrix Blank; SO-Soil; WA-Water; SE-Sediment; WW-Wastewater

TABLE 1
SUMMARY OF QUALITY CONTROL SAMPLES AND ANALYTICAL REQUIREMENTS

Quality Control Sample ID	SDG	Sample Type	Matrix	VOC	SVOC	MTLS	CYN	TPH	PCBs
TB102693	16111	TB	WA	X					
I24.12SB4(6.5-8)	16111	FR	SO	X	X	X	X		
TB102793	16111	TB	WA	X					
S32.1SB1(14.5-15.5)	16111	FR	SO	X	X	X	X		
S32.1SB1(14.5-15.5)	16111	MS	SO	X	X	X	X		
S32.1SB1(14.5-15.5)	16111	SD	SO	X	X	X	X		
TB2102793	16111	TB	WA	X					
S32.2SB2(5-7)	16111	FR	SO	X	X	X	X		
S32.2SB2(12.5-15)	16111	MS	SO	X	X	X	X		
S32.2SB2(12.5-15)	16111	SD	SO	X	X	X	X		
TB102893	16111	TB	WA	X					
I24.6SB1(14-16)	16111	FR	SO	X	X	X	X		
TB2102893	16111	TB	WA	X					
I24.5SB2(15-16)	16111	FR	SO	X	X	X	X		
TB102993	16176	TB	WA	X					
EB102993	16176	EB	WA	X	X	X	X		
TB110193	16176	TB	WA	X					
TB110293	16176	TB	WA	X					
S32.8SB14(9,5-11.5)	16176	FR	SO	X	X	X	X		
S32.8SB13(16-18)	16176	MS	SO	X	X	X	X		
S32.8SB13(16-18)	16176	SD	SO	X	X	X	X		
TB110393	16220	TB	WA	X					
S32.8SB10(14.5-16)	16220	FR	SO	X	X	X	X		
TB110493	16220	TB	WA	X					
S32.8SB5(11.5-13.5)	16220	MS	SO	X	X	X	X		
S32.8SB5(11.5-13.5)	16220	SD	SO	X	X	X	X		

Note: FR-Field Replicate; FD-Field Duplicate; MS-Matrix Spike; SD-Spike Duplicate; TB-Trip Blank; EB-Equipment Blank; AB-Ambient Blank; MB-Matrix Blank; SO-Soil; WA-Water; SE-Sediment; WW-Wastewater

TABLE 1
SUMMARY OF QUALITY CONTROL SAMPLES AND ANALYTICAL REQUIREMENTS

Quality Control Sample ID	SDG	Sample Type	Matrix	VOC	SVOC	MTLS	CYN	TPH	PCBs
TB102093	16011	TB	WA	X					
TB102193	16011	TB	WA	X					
I24.8SB1(14-16)	16011	FR	SO	X	X	X	X		
TB102293	16011	TB	WA	X					
TB102593	16011	TB	WA	X					
EB110393	16250	EB	WA	X	X	X	X		
IWTLS2	16250	FD	WW	X	X	X	X		
IWTLS2	16250	MS	WW	X	X	X	X		
IWTLS2	16250	SD	WW	X	X	X	X		
TB110393	16250	TB	WA	X					
TB110593	16252	TB	WA	X					
EB110593	16252	EB	WA	X	X	X	X		
S32.3SB1(4-6)	16252	FR	SO	X	X	X	X		
TB2110593	16252	TB	WA	X					
S32.8SB16(4.5-6.5)	16252	FR	SO	X	X	X	X		
S32.8SB16(12.5-14.5)	16252	MS	SO	X	X	X	X		
S32.8SB16(12.5-14.5)	16252	SD	SO	X	X	X	X		
TB110693	16252	TB	WA	X					
S32.8SB7(13-14)	16252	FR	SO	X	X	X	X		
TB110793	16280	TB	WA	X					
EB110793	16280	EB	WA	X	X	X	X		
TB110893	16280	TB	WA	X					
AB110893	16280	AB	WA	X					

Note: FR-Field Replicate; FD-Field Duplicate; MS-Matrix Spike; SD-Spike Duplicate; TB-Trip Blank; EB-Equipment Blank; AB-Ambient Blank; MB-Matrix Blank; SO-Soil; WA-Water; SE-Sediment; WW-Wastewater

TABLE 1
SUMMARY OF QUALITY CONTROL SAMPLES AND ANALYTICAL REQUIREMENTS

Quality Control Sample ID	SDG	Sample Type	Matrix	VOC	SVOC	MTLS	CYN	TPH	PCBs
TB111193	16354	TB	WA	X					
EB111193	16354	EB	WA	X	X	X	X		
I24.19SB1(5-6)	16354	FR	SO	X	X	X	X		
TB2111193	16354	TB	WA	X					
ESC1SE5	16354	SD	SE	X	X	X	X		
ESC1SE5	16354	MS	SE	X	X	X	X		
ESC1SE5	16354	FR	SE	X	X	X	X		
TB111293	16354	TB	WA	X					
IWTLS2	16375	FD	WW	X	X	X		X	
EB2	16375	EB	WW	X					
TB3	16375	TB	WW	X					
TB111693	16443	TB	WA	X					
I24.11SB4(3-4)	16443	FR	SO	X	X	X	X		
TB111793	16443	TB	WA	X					
I24.11SB1(4-5)	16443	FR	SO	X	X	X	X		
I24.11SB1(4-5)	16443	MS	SO	X	X	X	X		
I24.11SB1(4-5)	16443	SD	SO	X	X	X	X		
MB111793	16443	MB	WA	X					
MB2111793	16443	MB	WA	X					
I24.2SS2(0.2-0.5)	16442	FR	SO						X
I24.2SS2(0.2-0.5)	16442	MS	SO						X
I24.2SS2(0.2-0.5)	16442	SD	SO						X

Note: FR-Field Replicate; FD-Field Duplicate; MS-Matrix Spike; SD-Spike Duplicate; TB-Trip Blank; EB-Equipment Blank; AB-Ambient Blank; MB-Matrix Blank; SO-Soil; WA-Water; SE-Sediment; WW-Wastewater

Table 2
SUMMARY OF SAMPLES BY SAMPLE DELIVERY GROUPS AND MATRIX

SDG(1)	TOTAL SAMPLES	SOIL SAMPLES	SEDIMENT SAMPLES	WASTEWATER SAMPLES	FIELD BLANKS(2)
15873	40	27	10		3
16011	28	24			4
16111	38	33			5
16176	31	27			4
16220	29	25			4
16250	15			13	2
16252	29	25			4
16280	23	19			4
16298	30	25			5
16354	24	10	10		4
16375	13			11	2
16442	34	24	10		
16443	17	13			4

1. **SDG-Sample Delivery Group**
2. **Field Blanks include: trip blanks, equipment blanks, ambient blanks, and matrix blanks.**

Table 3
SUMMARY OF PROJECT QA OBJECTIVES FOR SOIL/SEDIMENT SAMPLES

QA Parameter	Volatiles (VOCs)	Semivolatiles (SVOCs)	Metals (ICP/GFAA)	Total Cyanide	Total Petroleum Hydrocarbon (TPH)	PCBs
Precision for Field Replicates	+50% RPD	+50% RPD	+35% RPD	+50% RPD	+50% RPD	+50% RPD
Precision for MS/SD	See Table 6	See Table 6	+20% RPD	+20% RPD	+30% RPD	See Table 6
Accuracy for MS/SD	See Table 6	See Table 6	75-125%Rec.	75-125%Rec	75-125%Rec	50-150%R
Accuracy for Surrogates	See Table 5	See Table 5	NA	NA	See Table 5	See Table 5
Completeness	90%	90%	90%	90%	90%	90%
Holding Time(1)	14 days	14/40 days(2)	6 months except for mercury 28 days for mercury	14 days	14/40 days	14/40 days
Laboratory Blanks	<RL	<RL	<RL	<RL	<RL	<RL
Field Blanks (3)	<RL	<RL	< RL	<RL	<RL	<RL
Concentration Units	ug/kg	ug/kg	mg/kg	mg/kg	ug/kg	ug/kg
Analytical Method	SW-8240	SW-8270	SW-6010/7470	SW-9010	SW-8015	SW-8080

Note: NA-Not applicable; RL-Reporting Limit; RPD- Relative Percent Difference; %R- Percent Recovery; SW-Physical/Chemical Methods for Evaluating Solid Waste

1. Holding times based on date of sample collection.
2. 14 days for extraction; 40 days for analysis of the extracts.
3. Field blanks inlcude ambient, equipment, matrix, field and trip blanks.

Table 4
SUMMARY OF PROJECT QA OBJECTIVES FOR AQUEOUS SAMPLES

QA Parameter	Volatiles (VOCs)	Semivolatiles (SVOCs)	Metals (ICP/GFAA)	Total Cyanide	Total Petroleum Hydrocarbon (TPH)
Precision for Field Replicates	+50% RPD	+50% RPD	+35% RPD	+50% RPD	+50% RPD
Precision for MS/SD	See Table 6	See Table 6	+20% RPD	+20% RPD	+30% RPD
Accuracy for MS/SD	See Table 6	See Table 6	75-125%Rec.	75-125%Rec	75-125%Rec
Accuracy for Surrogates	See Table 5	See Table 5	NA	NA	See Table 5
Completeness	90%	90%	90%	90%	90%
Holding Time(1)	14 days	14/40 days(2)	6 months except for mercury 28 days for mercury	14 days	14/40 days
Laboratory Blanks	<RL	<RL	<RL	<RL	<RL
Field Blanks (3)	<RL	<RL	< RL	<RL	<RL
Concentration Units	ug/L	ug/L	ug/L	ug/L	ug/L
Analytical Methods	SW-8240	SW-8270	SW-6010/7470	SW-9010	SW-8015

Note: RPD-Relative Percent Difference; %R-Percent Recovery; NA-Not applicable; RL- Reporting Limit; SW-Physical/Chemical Methods for Evaluating Solid Waste

1. Holding times based on date of sample collection.
2. 14 days for extraction; 40 days for analysis of the extracts.
3. Field blanks inlcude equipment, ambient, matrix, field and trip blanks.

Table 5
SUMMARY OF QUALITY CONTROL ACCEPTANCE CRITERIA FOR SURROGATE COMPOUNDS

Parameter	Surrogate Compound	Water QC Limit(%)	Solid QC Limit(%)
Volatiles	Toluene-d8	88-110	81-117
	4-Bromofluorobenzene	86-115	74-121
	1,2-Dichloroethane-d4	76-114	70-121
Semivolatiles	Nitrobenzene	35-114	23-120
	2-Fluorobiphenyl	43-116	30-115
	Terphenyl-d14	33-141	18-137
	Phenol-d5	10-94	24-113
	2-Fluorophenol	21-100	25-121
	2,4,6-Tribromophenol	10-123	19-122
TPH-Gasoline	4-Bromofluorobenzene	65-135	65-135
TPH-Diesel	Naphthalene	21-166	21-166
PCBs	Tetrachlorometaxylene	NA	30-143
	Decachlorobiphenyl	NA	40-145

NA-Not analyzed for PCBs

Table 6
Summary of Quality Control Acceptance Criteria for MS/SD Compounds

Parameter	Matrix Spike Compound	Water QC Limit(%)	Solid QC Limit(%)	Water RPD Limit	Solid RPD Limit
Volatiles	1,1-Dichloroethene	61-145	60-141	14	22
	Trichloroethene	71-120	71-134	14	24
	Chlorobenzene	76-127	79-128	11	21
	Toluene	76-125	80-122	13	21
	Benzene	75-130	80-125	13	21
Semivolatiles	Phenol	12-89	26-90	35	35
	2-Chlorophenol	27-123	25-102	50	50
	1,4-Dichlorobenzene	36-97	28-104	27	27
	N-Nitroso-di-n-propylamine	41-116	41-126	38	38
	1,2,4-Trichlorobenzene	39-98	38-107	23	23
	4-Chloro-3-methylphenol	23-97	26-103	33	33
	Acenaphthene	46-118	31-137	19	19
	4-Nitrophenol	10-80	11-114	50	50
	2,4-Dinitrotoluene	24-96	28-89	47	47
	Pentachlorophenol	9-103	17-109	47	47
	Pyrene	26-127	35-142	36	36
Metals	All Metals	75-125	75-125	20	20
Total Cyanide	Total Cyanide	75-125	75-125	20	20
TPH-Gasoline	Gasoline	31-170	55-150	50	50
TPH-Diesel	Diesel	31-170	55-150	50	50
PCBs	Aroclor 1016	NA	13-122	NA	29
	Aroclor 1260	NA	23-122	NA	31

Note: RPD-Relative Percent Difference; %R-Percent Recovery; NA-Not applicable

2.0 SUMMARY

This section of this report discusses deviations from the DCQAP, other laboratory problems, QC problems leading to qualifying of data as unusable, and the overall usability of the data.. There were no significant deviations from the DCAQAP. The following issues were evaluated during the validation process and found to have no significant effect on the overall usability of the data generated during this investigation.

Selected samples were collected and analyzed for TPH using gas chromatography (GC). This parameter was not included in the DCQAP. TPH analysis was performed by the laboratory using EPA Method SW-8015 with appropriate modifications. The samples were analyzed for purgeable (e.g., gasoline) and extractable (e.g., diesel) hydrocarbons.

The matrix spike/spike duplicate (MS/SD) for TPH-gasoline for SDG 15873, sample I24.3SS1, were not analyzed as required. The laboratory called the error inadvertent. As corrective action, the laboratory analyzed a laboratory control spike (LCS/spike duplicate (LCSD). Results reported for the LCS/SD were acceptable. The missing results have been accounted for in calculation of the overall completeness for the project.

The MS/SD samples for metals and cyanide for SDG 16111 were not analyzed as required. Again the laboratory called the error inadvertent. The samples, S32.1SB1(14.5-15.5) and S32.2SB2(12.5-15) were not spiked for cyanide. Additionally, sample S32.1SB1(14.5-15.5) was not spiked for mercury (the sample was spiked for the other metals). As corrective action, the laboratory selected another sample, S32.1SB1(5-5.5) and spiked it for both mercury and cyanide. All results reported for the spiked sample were compliant. No qualification of data was necessary.

Some analyte results were reported by SWLO at concentrations below the laboratory's stated method detection limits. The detection limits were provided by SWLO and included in the DCAQAP and in section 3 of the RFI report. SWLO reported the concentrations as estimated when the results were confirmed after an internal QC review of the individual sample QA/QC. The data have been flagged with a 'Ò' and further qualified as necessary during the data validation process. The analytes affected are primarily semivolatile organic compounds in both wastewater and soil samples. Volatile organic analysis results were affected in three sediment samples and one surface soil sample. These results should be used cautiously.

The laboratory (SWLO) reported a problem of cross contamination during preparation of some samples for SVOC analysis. Specifically, the extraction blanks and some samples were contaminated with some of the matrix spike spiking compounds. The target analytes affected (all acid semivolatiles) were: phenol, 4-chloro-3-methylphenol, 2-chlorophenol, 4-methylphenol, 4-nitrophenol and pentachlorophenol. The laboratory determined the source of contamination was the surrogate spiking solution. Samples affected by this problem included those in

the following sample delivery groups: 16220, 16298, 16375 and 16443. Corrective actions taken by the laboratory included: removal of the source of contamination; re-extraction and reanalysis of the affected samples and submittal of all data (original and reanalyses) associated with the affected samples.

During data validation, each data set (SDG) has been evaluated and qualified based on the circumstances surrounding the data in question. For example, when samples were re-extracted and reanalyzed, both sets of data were evaluated to determine which set is more "usable." Considerations included whether the re-extractions or reanalyses were performed within holding time; the quality of the re-extraction blanks and a comparison of non-spike compounds detected in the samples. When re-extractions were not performed due to holding time considerations or insufficient sample volume, detection of the affected spiking compounds in the associated samples were qualified as estimated and should be considered biased high. When the re-extractions (within holding time) led to extraction blanks free of contamination, only results from the re-extractions and reanalyses were reported. When the re-extractions or reanalyses were performed outside holding time the re-extraction blanks and both sets of data were evaluated to determine the most usable data.

Except as indicated in this report, the samples were collected, prepared and analyzed following the procedures described in the work plan and the DCQAP. Except as indicated in this report, all samples were prepared and analyzed within the specified holding times using EPA-approved analytical procedures. Also, except as indicated in this report, all QA objectives have been met. The types and number of field and laboratory QC samples collected and analyzed met the QA objectives specified in the DCQAP. QC problems leading to qualifying of data as unusable included: poor surrogate percent recovery for semivolatiles and poor matrix spike recovery for chromium. SDGs affected were 16250 (semivolatiles) and 16354 (metals). Details concerning these problems and the samples affected are presented in the major problems section of this report.

Except for the QC problems noted above, the data as submitted by the laboratory and qualified following data validation are usable for the purposes of this project. Including the data qualified as unusable and the deviations noted above, the overall completeness for the data generated is greater than 98 percent, which exceeds the QA objective of 90 percent. Some samples required dilution due to matrix interferences of levels of target analytes above the calibration range for the analytical method. The reporting limits for affected samples were adjusted by the laboratory to reflect the necessary dilutions. Generally, the reporting limits for undiluted samples met the DCQAP objectives for detection limits.

Other QC problems leading to qualifying of data included: laboratory and field blank contamination; accuracy (% recovery) and precision (RPD) outliers; calibration outliers and laboratory errors. Details concerning these QC problems are presented in the minor problems section of this report. Data validation worksheets and laboratory data sheets with data validation qualifiers are presented in attachment 3 of this report.

3.0 MAJOR PROBLEMS

As indicated above, some results for semivolatile organics for SDG 16250 and some results for chromium for SDG 16354 have been qualified as unusable due to major QC problems. The affected sample results have been flagged "R." The "R" flag indicates the reported result is unusable. The "R" flag does not mean that the analyte is not present in the sample, it means that the test is not valid. If the data qualified is needed, resampling and reanalysis may be required. Details concerning the QC problems are presented below.

The surrogate percent recovery for the semivolatile organic surrogate, 2-fluorophenol, for sample IWTBG3221 (SDG 16250) was 5 percent. This result compares to the QA objective of 21-100 percent. The surrogate is an acid surrogate so the acid semivolatiles (phenolic semivolatiles) are most affected. Reported detections of phenolic compounds have been qualified as estimated and should be considered biased extremely low. Non detections of phenolic compounds for sample IWTBG3221 have been qualified as unusable due to the poor surrogate recovery for the acid surrogate. The reporting limits should also be considered biased extremely low. Only sample IWTBG3221 was affected by this problem.

No chromium (zero percent) was recovered from the matrix spike sample, ESC1SE5, associated with SDG 16354. Reported results for chromium in the following samples associated with the MS sample have been qualified as unusable ("R"): I24.19SB1(5-6), I24.19SB1(5-6)FR, I24.19SB1(16-17), I24.19SB9(7.5-8), I24.19SB9(17-18), I24.19SB10(5-6), I24.19SB10(17-18), RCP1SB1(6-8), I24.2SB2(8-8.5), I24.2SB2(17-18), ESC1SE1, ESC1SE2, ESC1SE3, ESC1SE4E, ESC1SE4W, ESC1SE5, ESC1SE5.FR, ESC1SE5MS, ESC1SE5.SD, and ESC1SE6.

4.0 MINOR PROBLEMS

This section of the QA summary report discusses QC problems leading to qualifying of data as estimated. The "J" qualifier is used to indicate estimated results. The flag indicates that the analyte was positively identified but the associated value may be imprecise due to QC problems. Subscripts (e.g., J1,J2,etc.) have been added to the "J" flag to indicate the nature of the QC problem. A glossary of data validation qualifiers and the subscripts is presented in Attachment.

QC problems leading to qualifying of data as estimated included: laboratory and field blank contamination; accuracy and precision outliers; calibration outliers and laboratory errors. Details concerning these problems are presented below.

4.1 SDG 15873

Volatiles

Chloroform (1.8 ppb) and toluene (1.1 ppb) were detected in some laboratory associated with the soil samples analyzed for VOCs. Reported detections of either or both of these analytes in the soil samples in this SDG have been qualified as estimated and should be considered biased high. The

qualified samples are: I24.2SS2, I24.2SS3, I24.2SS4, S32.1SS1, S32.3SS1, I24.5SS1, I24.5SS2, I24.3SS1, I24.3SS2, I24.3SS3, S32.8SS3 and ESC1SE4W.

The precision (relative percent difference [RPD]) calculated for the soil field replicate of sample I24.2SS2 exceeded the QA objective. The RPDs of 164% and 71% for methylene chloride and acetone respectively exceeded the QA objective of 50%. Reported detections of either or both of the analytes in the soil samples have been qualified as estimated.

The result reported for acetone for the field replicate of sample ESC1SE3(FR) exceeded the calibration range for the method. The result has been requalified as estimated. Only sample ESC1SE3.FR was affected by this problem.

Semivolatiles (SVOCs)

Bis(2-ethylhexyl)phthalate (BEHP) was detected in some laboratory blanks associated with the samples in this SDG. BEHP in the blanks ranged from 98 to 109 μg/kg. Reported detections of BEHP in the affected samples have been qualified as estimated and should be considered biased high. Samples qualified are: I24.2SS1, I24.2SS2, I24.2SS3, I24.2SS4, I24.3SS1, I24.3SS2, I24.3SS3, I24.5SS1, I24.5SS2, RCP1SS1, S32.1SS1, S32.8SS2, ESC1SE1, ESC1SE2 and ESC1SE3.

The RPD calculated for benzo(a)anthracene (68%) and chrysene (55%) for the sediment field replicate (ESC1SE3) exceeded the QA objective (50%). Reported detections of either or both of these analytes in the sediment samples have been qualified estimated.

The result reported for 4-nitrophenol for sample ESC1SE3 exceeded the calibration range. The result has been requalified as estimated.

Metals

The MS percent recovery reported for barium, cadmium, silver and lead for sample I24.2SS2(MS) exceeded the QA objective (75-125%). The percent recoveries ranged from 132% for lead to 487% for cadmium. Reported detections of the affected metals in the soil samples have been qualified as estimated and should be considered biased high. Non-detects of these metals have not been qualified.

The RPD reported for barium, cadmium, chromium and nickel for the MS/SD samples for sample I24.2SS2 exceeded the QA objective (20%). The RPDs ranged from 22% for barium to 32% for cadmium. Reported detections of the affected metals in the soil samples have been qualified as estimated.

The MS percent recovery reported for barium, nickel and zinc for sample ESC1SE3(MS) was below the QA objective (75-125%). The percent recoveries ranged from 23% for barium to 68% for nickel. Reported detections of the affected metals in the sediment samples have been qualified as estimated and should be considered biased low.

The RPD reported for barium (25%) for the laboratory duplicates for sample ESC1SE3 exceeded the QA objective (20%). Reported detections of barium in the sediment samples, already qualified due to the spike recovery outlier, have been further qualified as estimated.

The RPD reported for zinc (86%) for the field replicates of sample I24.2SS2 exceeded the QA objective (50%). Reported detections of zinc in the soil samples have been qualified as estimated.

The RPD calculated for silver and arsenic (109 and 58% respectively) for the field replicates of sample S32.8SS2. Reported detections for the affected metals in the soil samples have been qualified as estimated.

Total Cyanide

The MS percent recovery reported for cyanide (66%) for sample I24.2SS2 (MS) was below the QA objective (75-125%). Reported results for total cyanide in the soil samples have been qualified as estimated and should be considered biased low.

The RPD reported for cyanide (66%) for the field replicates of sample I24..2SS2 exceeded the QA objective (50%). Reported detections of cyanide in the associate soil samples have been qualified as estimated.

TPH

The RPD calculated for TPH-gasoline (58%) for the field replicates of sample I24.3SS1 exceeded the QA objective (50%). Reported detection of gasoline in the soil samples have been qualified as estimated.

4.2 SDG 16011

Volatiles(VOCs)

Methylene chloride (2.8 µg/L in water and 2.0 µg/kg in soil) was detected in the laboratory blanks associated with the samples. Reported detections of this analyte in the samples have been qualified as estimated and should be considered biased high. Samples qualified are: S32.4SB3(6-8), S32.4SB3(14-16), TB1, S32.3SB2(4-6), S32.3SB2(0-2), S32.4SB2(7.5-9), S32.4SB4(10-12), TB2, S32.3SB2(12-12.7), I24.12SB1(17-18), I24.8SB1(14-16).FR, I24.8SB1(14-16), S32.4SB5(5-7), TB3, TB4, I24.12SB3(4-6), I24.12SB3(14-16), I24.10SB2(9-10.5), I24.12SB2(8-9.5), I24.12SB2(14.5-16), I24.10SB1(4-6), I24.10SB2(16-18), and I24.10SB1(13-15).

Acetone (9.3 µg/kg) was detected in the laboratory blank associated with the soil samples. Reported detections of this analyte in the soil samples have been qualified as estimated. Qualified samples are: S32.4SB3(6-8), S32.4SB3(14-16), S32.3SB2(4-6), S32.4SB2(0-2), S32.4SB2(7.5-9), S32.4SB4(10-12), S32.4SB4(15-16), S32.3SB2(12-12.7), I24.12SB1(17-18), I24.8SB1(5-7), I24.8SB1(14-16).FR, I24.8SB1(14-16), S32.4SB5(5-7), S32.4SB5(13-15), S32.4SB5(15-16), I24.12SB3(4-6), I24.12SB3(14-16),

I24.10SB2(9-10.5), I24.12SB2(8-9.5), I24.12SB2(14.5-16), I24.10SB1(4-6), I24.10SB2(16-18), and I24.10SB1(13-15).

The result reported for acetone for sample S32.4SB3(6-8) exceeded the calibration range of the method. The result already qualified due to blank contamination has been further qualified as estimated.

Semivolatiles (SVOCs)

BEHP was detected in the laboratory blanks associated with the samples. All reported detections of BEHP in the samples have been qualified as estimated and should be considered biased high.

4.3 SDG 16111

Volatiles (VOCs)

Methylene chloride (1.6 µg/kg) was detected in one of the laboratory blanks associated with the soil samples in the SDG. All detections of this analyte in the soil samples have been qualified as estimated and should be considered biased high.

The RPD calculated for acetone for the field replicates of sample S32.2SB2(5-7). The RPD (84%) exceeded the QA objective of 50%. All detections of acetone in the soil samples associated with the field replicates have been qualified as estimated.

Semivolatiles (SVOCs)

BEHP (39.5 µg/kg) and di-n-butyl phthalate (75.8 µg/kg) were detected in the laboratory blanks associated with the soil samples in this SDG. Reported detections of these analytes in the soil samples have been qualified as estimated and should be considered biased high.

Metals

The MS percent recovery reported for mercury (144%) for sample S32.2SB2(5-7).MS exceeded the QA objective of 75-125%. Since mercury was not detected in any of the associate samples, only the reported results for mercury in the MS and SD samples have been qualified as estimated and considered biased high.

The MS percent recovery reported for chromium (60%) for sample S32.1SB1(14.5-15.5).MS was below the QA objective of 75-125%. All reported results for chromium in the associate samples have been qualified as estimated and should be considered biased low.

The RPDs calculated for chromium, lead, nickel and zinc for the field replicates of sample I24.5SB2(15-16). The RPDs ranged from 60.7% for nickel to 107.5% for lead compared to the QA objective of 50%. Reported detected of the affected analytes in the associate samples have been qualified as estimated.

4.4 SDG 16176

Volatiles (VOCs)

Methylene chloride (5.1 μg/kg) and acetone (26 μg/kg) were detected in the laboratory blanks associated with the soil samples in this SDG. Reported detections of these analytes in the soil samples have been qualified as estimated and should be considered biased high.

Acetone (240 μg/L), chloroform (4.3 μg/L), and tetrachloroethene (1.6 μg/L) were detected in the equipment blank associated with this SDG. All reported detections of these analytes in the associate sample have been qualified as estimated and should be considered biased high.

The result reported for acetone in the equipment exceeded the calibration range of the method. The result has been qualified as estimated.

Acetone (260 μg/L) was detected in the trip blank associated with some samples in this SDG. The reported result for acetone in the trip blank also exceeded the calibration range. The result has been qualified as estimated due to laboratory blank contamination and exceeded the calibration range. No data for associated samples have been qualified due to the trip blank contamination.

Chloroform was detected in the trip blank associated with the samples in work order 16195. Since chloroform was also detected in the equipment blank associated with the samples, the result for the trip blank has been qualified as estimated due to the equipment blank contamination.

Semivolatiles (SVOCs)

BEHP (48 μg/kg) was detected in a laboratory blank associated with this SDG. Reported detections of BEHP in the associate soil samples have been qualified as estimated and should be considered biased high.

The laboratory blank associated with the MS/SD samples contained low levels of some of the spiking compounds: phenol, 2-chlorophenol, 4-chloro-3-methylphenol and pentachlorophenol. Reported detections of these analytes in the MS and SD samples (S32.8SB13(16-18) have been qualified as estimated due to laboratory cross contamination.

Metals

The MS percent recovery reported for chromium (63%) for sample S32.8SB13(16-18).MS was below the QA objective of 75-125%. Reported results for chromium in the soil samples have been qualified as estimated and should be considered biased low.

4.5 SDG 16220

Volatiles (VOCs)

Methylene chloride (3.6 μg/kg), acetone (26 μg/kg) and 2-hexanone (8.5 μg/kg) were detected in the laboratory blanks associated with the soil

samples in this SDG. Reported detections of these analytes in the soil samples have been qualified as estimated and should be considered biased high.

Toluene (2 μg/L) and xylenes (4.8 μg/L) were detected in the trip blank associated with work order 16220. Of the samples associated with the contaminated trip blank, only sample S32.8SB10(11-12), was affected. The result reported for toluene in the sample has been qualified as estimated and should be considered biased high.

Semivolatiles (SVOCs)

BEHP (74 μg/kg) was detected in a soil laboratory blank associated with samples in this SDG. Reported detections of BEHP in soil sample have been qualified as estimated and should be considered biased high.

The laboratory indicated that the spiking compounds detected in sample I24.12SB6 are due to cross contamination in the laboratory from laboratory control samples. Reported detections of 2-chlorophenol, 4-chloro-3-methylphenol, acenaphthene, pentachlorophenol and pyrene in the sample have been qualified as estimated.

Metals

The RPD calculated for lead (59.3%) for the field replicates of sample S32.8SB10(14.5-16) exceeded the QA objective of 50%. Reported results for lead in the associate samples have been qualified as estimated.

4.6 SDG 16250

Volatiles (VOCs)

Methylene chloride (6.5 μg/L) was detected in the laboratory blanks associated with this SDG. Reported detections of this analyte in the samples have been qualified as estimated and should be considered biased high.

Chloroform (29 μg/L), toluene (2.5 μg/L) and xylenes (1.6 μg/L) were detected in the equipment blank (EB) associated with this SDG. Reported detections of these analytes in the associated samples have been qualified as estimated and should be considered biased high.

The RPDs calculated for chloroform (98%), 1,1,1-trichloroethane (76%), and 2-butanone (69%) exceeded the QA objective (50%) for the field replicates for sample IWTLS2. Reported detections of 1,1,1-trichloroethane and 2-butanone in the associate samples have been qualified as estimated. Reported results for chloroform, already qualified due to the contaminated equipment blank, have been further qualified as estimated due to the RPD outliers.

The results reported for methylene chloride, tetrachloroethene, and 2-butanone for the MS/SD samples (IWTLS2) exceeded the calibration range for the method. Reported results for the affected analytes in the MS and SD

samples, already qualified due to the RPD outliers, have been further qualified as estimated.

Semivolatiles (SVOCs)

Accuracy (%R) and precision (RPD) outliers were reported for the MS/SD samples (IWTLS2). Percent recovery outliers were reported for 5 of the 11 spike compounds. RPD outliers were reported for 8 of the 11 spike compounds. Reported detections of the affected compounds in the associated samples have been qualified as estimated.

Metals

Accuracy (31% recovery) and precision (49% RPD) outliers were reported for the MS sample (IWTLS2) for chromium. Reported results for chromium in the samples have been qualified as estimated due to the outliers.

TPH

Precision (76% RPD) and accuracy (243% recovery) outliers were reported for the MS/SD samples (IWTLS2) for the extractable hydrocarbons (e.g., diesel). All detections of extractable hydrocarbons in the associated samples have been qualified as estimated.

The result reported for kerosene (extractable hydrocarbon) for sample IWTLS10 exceeded the calibration range for the method. The result, already qualified due to the MS/SD outliers, have been further qualified as estimated.

4.7 SDG 16252

Volatiles (VOCs)

Acetone (13 µg/kg) was detected in laboratory blanks associated with the soil samples in this SDG. Reported detections of this analyte in the soil samples have been qualified as estimated and should be considered biased high.

The RPD calculated for acetone for the field replicates for sample S32.8SB7(13-14). Reported detections of acetone, already qualified due to blank contamination, have been further qualified as estimated.

Semivolatiles (SVOCs)

BEHP (47 µg/kg) was detected in the laboratory blanks associated with the samples in this SDG. Reported detections of BEHP in the samples have been qualified as estimated and should be considered biased high.

Metals

The MS percent recovery for chromium (35%) for sample S32.8SB16(12.5-14.5) was below the QA objective of 75-125%.. Reported results for chromium in the samples have been qualified as estimated and should be considered biased low.

The RPD calculated for barium (55%) for the field replicates of sample S32.8SB16(4.5-6.5) exceeded the QA objective of 50%. Reported detections of this analyte in the samples have been qualified as estimated.

The RPDs calculated for chromium (52%) and nickel (56%) for the field replicates of sample S32.8SB7(12.5-14.5) exceeded the QA objective of 50%. Reported detections of these analytes in the associate samples have been qualified as estimated. Results for chromium, already qualified due to the MS outliers, have been further qualified as estimated.

4.8 SDG 16280

Volatiles (VOCs)

Acetone (13 µg/kg) was detected in the laboratory blanks associated with the soil samples. All reported detections of this analyte in the soil samples have been qualified as estimated and should be considered biased high.

4.9 SDG 16298

Volatiles (VOCs)

Toluene (2.2 µg/kg) and 2-chloroethyl vinyl ether (10 µg/kg) were detected in the laboratory blanks associated with the samples in this SDG. Reported detections of these analytes in the samples have been qualified as estimated and should be considered biased high.

The RPDs calculated for acetone (79%), methylene chloride (108%), tetrachloroethene (129%) and toluene (62%) exceeded the QA objective of 50%. Reported detections of these analytes have been qualified as estimated.

The MS percent recovery for toluene (148%) exceeded the QA objective of 59-139%. Reported detections of toluene in the samples have been qualified as estimated and should be considered biased high.

Semivolatiles (SVOCs)

The water and soil extraction blanks associated with the samples in this SDG contained several target SVOCs. The contamination was due to cross contamination of the blanks with the spiking solution used for the MS/SD and the LCS samples. The analytes affected are: phenol, 2-chlorophenol, 4-chloro-3-methylphenol, 4-nitrophenol and pentachlorophenol. Reported detections of these analytes in the associated samples have been qualified as estimated and should be considered biased high.

The result reported for 4-nitrophenol in some samples exceeded the calibration range. These results have been qualified as estimated.

The MS percent recoveries for 4-nitrophenol (125%) and 2,4-dinitrotoluene (116%) exceeded the QA objectives of 11-114% and 28-89% respectively. Reported detections of these analytes in the associate samples have been qualified as estimated.

Metals

The RPDs calculated for barium (97%) and nickel (64%) for the field replicates of sample I24.2SB7(5.5-7) exceeded the QA objective of 50%. Reported detections of these analytes in the associated samples have been qualified as estimated.

The MS percent recoveries for barium (23%), chromium (37%) and zinc (58%) were below the QA objective of 75-125%. Reported detections of these analytes in the associated samples have been qualified as estimated and should be considered biased low.

The MS percent recovery for mercury (136%) exceeded the QA objective of 75-125%. Reported detections of mercury in the associated samples have been qualified as estimated.

The RPDs reported for chromium (21%) and mercury (43%) exceeded the QA objective of 20%. Reported results for these analytes in the associated samples have been qualified as estimated.

4.10 SDG 16354

Volatiles (VOCs)

Toluene (2.2 μg/kg) was detected in soil laboratory blanks associated with samples in this SDG. Reported detections of toluene in the associated samples have been qualified as estimated and should be considered biased high.

Accuracy (% recovery) and precision (RPD) outliers were reported for toluene and chlorobenzene for the MS/SD samples (ESC1SE5) associated with this SDG. The reported accuracy and precision results were outside the QA objectives. Reported results for these analytes in the associated samples have been qualified as estimated.

MS/SD precision (RPD) outliers were also reported for 1,1-dichloroethene, trichloroethene and benzene for sample ESC1SE5. Reported results for these analytes in associated samples have been qualified as estimated.

Surrogate outliers were reported for the VOC surrogate 1,2-dichloroethane-d4 for some samples in this SDG. Reported detections of VOCs in the affected samples have been qualified as estimated and should be considered biased high. Non-detects in the affected samples have not been qualified and are not affected. Samples with qualified results included all samples in this SDG except for the three trip blanks.

The reported result for 1,2-dichloroethene (total) for sample I24.19SB1(7.5-8) exceeded the calibration range for the method. The result has been qualified as estimated.

The reported result for acetone for sample I24.2SB2(8-8.5) exceeded the calibration range for the method. The result has been qualified as estimated.

Semivolatiles (SVOCs)

The soil and water extraction blanks associated with the samples in this SDG contained several MS spiking compounds. The laboratory indicated that the contaminants were due to cross contamination during preparation of the samples. The analytes affected are: phenol, 2-chlorophenol, 4-chloro-3-methylphenol, 4-nitrophenol and pentachlorophenol. Reported detections of these analytes in the associated samples have been qualified as estimated and should be considered biased high.

The results reported for phenol and BEHP for sample ESC1SE5.SD exceeded the calibration range for the method. The results have been qualified as estimated.

The results reported for phenol, 2-chlorophenol, n-nitroso-di-n-propylamine, 4-nitrophenol and BEHP exceeded the calibration range for the method. The results have been qualified as estimated.

MS percent recoveries for phenol and n-nitroso-di-n-propylamine exceeded the QA objectives for the respective analytes. Reported detections of these analytes in all soil samples in this SDG have been qualified as estimated and should be considered biased high.

RPD outliers were reported for several analytes in the field replicates of sample ESC1SE5. The affected analytes are: 4-methylphenol, phenanthrene, benzo(a)anthracene, BEHP, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene. Reported detections of these analytes in the associated samples have been qualified as estimated due to the outliers.

Metals

The MS percent recovery reported for cadmium (144%) for sample ESC1SE5.MS exceeded the QA objective of 75-125%. Reported detections of this analyte in the associated sediment samples have been qualified as estimated and should be considered biased high.

TPH

The laboratory reported that matrix interference in sample RCP1SB1 prevented recovery of the surrogate naphthalene. Reported results for TPH for this sample have been qualified as estimated.

4.11 SDG 16375

Volatiles (VOCs)

Acetone (5.1 μg/L) was detected in one of the laboratory blanks associated with the samples in this SDG. All reported detections of acetone in the samples have been qualified as estimated and should be considered biased high.

The result reported for xylene for sample IWTLS10 exceeded the calibration range. The result has been qualified as estimated.

The result reported for 2-butanone for sample IWTLS6NEW exceeded the calibration range for the method. The result has been qualified as estimated.

Field replicate RPD outliers were calculated for acetone (149%) and tetrachloroethene (56%) for sample IWTLS2. The calculated RPDs exceeded the QA objective of 50%. Reported results for the affected analytes have been qualified as estimated.

Semivolatiles (SVOCs)

The laboratory blanks associated with this SDG contained benzoic acid and di-n-butyl phthalate. Reported detections of these analytes in the associated samples have been qualified as estimated and should be considered biased high.

The laboratory control spike percent recovery for 4-nitrophenol exceeded the QA objective. Reported detections of this analyte in the associated samples have been qualified as estimated.

The holding time specified for extraction of SVOC samples was exceeded for some sample upon reanalyses due to cross contamination during sample preparation. All samples in this SDG requiring SVOC analysis were affected. Reported results for the affected samples (all except for the trip blank) have been qualified as estimated and should be considered biased low.

Metals

FR RPD outliers were calculated for barium (80%), cadmium (100%), lead (198%), nickel (89%) and zinc (177%). These results exceeded the QA objective of 50%. Reported results for these analytes in the affected samples have been qualified as estimated.

TPH

FR RPD outlier was calculated for kerosene for the field replicates of sample IWTLS2. The RPD (57%) exceeded the QA objective of 50%. Reported detections of this analyte in the associated samples have been qualified as estimated.

The diesel surrogate percent recovery for naphthalene (126%) for sample IWTBG2280 exceeded the QA objective. Reported detections of this analyte in the associated samples have been qualified as estimated.

4.12 SDG 16442

PCBs

Surrogate percent recoveries for some samples in this SDG were below the QA objective. Reported results for the affected samples have been qualified as estimated and should be considered biased low.

The laboratory reported that surrogate recovery could not be quantitated for some samples due to matrix interferences. Reported results for the affected samples have been qualified as estimated.

4.13 SDG 16443

Volatiles (VOCs)

Methylene chloride(5 μg/kg) and acetone (23 μg/kg) were detected in the soil laboratory blanks associated with this SDG. Reported detections of these analytes in the associated samples have been qualified as estimated and should be considered biased high.

Chloroform was detected in the water laboratory blank associated with this SDG. Reported detections of chloroform in the water samples have been qualified as estimated and should be considered biased high.

Semivolatiles (SVOCs)

The laboratory reported that the extraction blank associated with this SDG was cross contaminated during preparation of the samples. Several MS spiking compounds were detected in the blanks. The affected analytes are: phenol, 2-chlorophenol, 4-chloro-3-methylphenol, 4-nitrophenol and pentachlorophenol. Reported detections of these compounds in the associated samples have been qualified as estimated and should be considered biased high.

5.0 OTHER ISSUES

This section of the report summarizes those QA issues not leading to qualifying of sample results. These issues, while still violations of the QA objectives did not merit qualifying of sample results for the reasons detailed below.

Target analytes detected in laboratory or field blanks but not detected in the samples associated with the contaminated blanks have not been qualified.

QA outliers (e.g., surrogate, accuracy and precision outliers) exceeding the QA objectives did not result in qualifying of target analytes affected that were not detected in the samples. These outliers result in a high bias which has no effect on non-detects.

Some samples required dilutions which result in surrogates being diluted out. No qualifying of data due to this problem was necessary.

ATTACHMENT 1

SUMMARY OF SAMPLES, MATRIX, AND ANALYTICAL PARAMETERS

TABLE A1-1
SUMMARY OF SAMPLES, MATRIX AND ANALYTICAL PARAMETERS

SAMPLE ID	SDG(1)	SAMPLE TYPE	MATRIX	PARAMETERS(2)
I24.2SS1(0.17-0.25)	15873	N1	SO	V,SV,M,CN
I24.2SS2(0.17-0.5)	15873	N1	SO	V,SV,M,CN
I24.2SS2(0.17-0.5)	15873	FR	SO	V,SV,M,CN
I24.2SS2(0.17-0.5)	15873	MS	SO	V,SV,M,CN
I24.2SS2(0.17-0.5)	15873	SD	SO	V,SV,M,CN
I24.2SS3(0.33-0.5)	15873	N1	SO	V,SV,M,CN
I24.2SS4(0.17-0.33)	15873	N1	SO	V,SV,M,CN
S32.3SS1(0.17-0.33)	15873	N1	SO	V,SV,M,CN
S32.3SS1(0.17-0.33)	15873	N1	SO	V,SV,M,CN
I24.3SS1(0.17-0.33)	15873	N1	SO	V,SV,M,CN,TPH
I24.3SS1(0.17-0.33)	15873	FR	SO	TPH ONLY
I24.3SS1(0.17-0.33)	15873	MS	SO	TPH ONLY
I24.3SS1(0.17-0.33)	15873	SD	SO	TPH ONLY
I24.3SS2(0.33-0.5)	15873	N1	SO	V,SV,M,CN,TPH
I24.3SS3(0.33-0.5)	15873	N1	SO	V,SV,M,CN,TPH
RCP1SS1(0.17-0.33)	15873	N1	SO	V,SV,M,CN,TPH
I24.5SS1(0.17-0.33)	15873	N1	SO	V,SV,M,CN
I24.5SS2(0.17-0.33)	15873	N1	SO	V,SV,M,CN
TB1	15873	TB	WA	V
I24.19SS1(0.17-0.33)	15873	N1	SO	V,SV,M,CN
I24.19SS2(0.17-0.33)	15873	N1	SO	V,SV,M,CN
I24.19SS3(0.17-0.33)	15873	N1	SO	V,SV,M,CN
I24.19SS4(0.17-0.33)	15873	N1	SO	V,SV,M,CN
S32.8SS2(0.17-0.33)	15873	N1	SO	V,SV,M,CN
S32.8SS2(0.17-0.33)	15873	FR	SO	V,SV,M,CN
S32.8SS3(0.17-0.33)	15873	N1	SO	V,SV,M,CN
S32.8SS4(0.17-0.33)	15873	N1	SO	V,SV,M,CN
ESC1SE6	15873	N1	SE	V,SV,M,CN
ESC1SE5	15873	N1	SE	V,SV,M,CN
ESC1SE4E	15873	N1	SE	V,SV,M,CN
ESC1SE4W	15873	N1	SE	V,SV,M,CN
ESC1SE3	15873	N1	SE	V,SV,M,CN
ESC1SE3	15873	FR	SE	V,SV,M,CN
ESC1SE3	15873	MS	SE	V,SV,M,CN
ESC1SE3	15873	SD	SE	V,SV,M,CN
TB2	15873	TB	WA	V
ESC1SE2	15873	N1	SE	V,SV,M,CN
ESC1SE2	15873	N1	SE	V,SV,M,CN
TB3	15873	TB	WA	V
S32.4SB3(6-8)	16011	N1	SO	V,SV,M,CN
S32.4SB3(14-16)	16011	N1	SO	V,SV,M,CN
TB1	16011	TB	WA	V
S32.3SB2(4-6)	16011	N1	SO	V,SV,M,CN
S32.4SB2(0-2)	16011	N1	SO	V,SV,M,CN
S32.4SB2(7.5-9)	16011	N1	SO	V,SV,M,CN
S324SB4(10-12)	16011	N1	SO	V,SV,M,CN
S32.4SB4(15-16)	16011	N1	SO	V,SV,M,CN
TB2	16011	TB	WA	V

TABLE A1-1
SUMMARY OF SAMPLES, MATRIX AND ANALYTICAL PARAMETERS

SAMPLE ID	SDG(1)	SAMPLE TYPE	MATRIX	PARAMETERS(2)
S32.3SB2(12-12.7)	16011	N1	SO	V,SV,M,CN
I24.12SB1(9-14)	16011	N1	SO	V,SV,M,CN
I24.12SB1(17-18)	16011	N1	SO	V,SV,M,CN
I24.8SB1(5-7)	16011	N1	SO	V,SV,M,CN
I24.8SB1(14-16)	16011	N1	SO	V,SV,M,CN
I24.8SB1(14-16)	16011	FR	SO	V,SV,M,CN
S32.4SB5(5-7)	16011	N1	SO	V,SV,M,CN
S32.4SB5(15-16)	16011	N1	SO	V,SV,M,CN
TB3	16011	TB	WA	V
TB4	16011	TB	WA	V
I24.12SB3(4-6)	16011	N1	SO	V,SV,M,CN
I24.12SB3(14-16)	16011	N1	SO	V,SV,M,CN
I24.10SB2(9-10.5)	16011	N1	SO	V,SV,M,CN
I24.12SB2(8-9.5)	16011	N1	SO	V,SV,M,CN
I24.10SB1(4-6)	16011	N1	SO	V,SV,M,CN
I24.10SB2(16-18)	16011	N1	SO	V,SV,M,CN
I24.10SB1(13-15)	16011	N1	SO	V,SV,M,CN
TB1	16111	TB	WA	V
I24.12SB4(6.5-8)	16111	N1	SO	V,SV,M,CN
I24.12SB4(6.5-8)	16111	FR	SO	V,SV,M,CN
I24.12SB4(12.5-14)	16111	N1	SO	V,SV,M,CN
S32.1SB2(6.5-8)	16111	N1	SO	V,SV,M,CN
S32.1SB2(16-18)	16111	N1	SO	V,SV,M,CN
TB2	16111	TB	WA	V
S32.1SB1(5-5.5)	16111	N1	SO	V,SV,M,CN
S32.1SB1(14.5-15.5)	16111	N1	SO	V,SV,M,CN
S32.1SB1(8.5-9)	16111	N1	SO	V,SV,M,CN
S32.1SB1(14.5-15.5)	16111	FR	SO	V,SV,M,CN
S32.1SB1(14.5-15.5)	16111	MS	SO	V,SV,M,CN
S32.1SB1(14.5-15.5)	16111	SD	SO	V,SV,M,CN
S32.1SB3(8-8.5)	16111	N1	SO	V,SV,M,CN
TB3	16111	TB	WA	V
S32.3SB4(6-6.5)	16111	N1	SO	V,SV,M,CN
S32.3SB4(17-17.5)	16111	N1	SO	V,SV,M,CN
S32.1SB3(17.5-18)	16111	N1	SO	V,SV,M,CN
S32.2SB2(5-7)	16111	N1	SO	V,SV,M,CN
S32.2SB2(12.5-15)	16111	N1	SO	V,SV,M,CN
S32.2SB2(5-7)	16111	FR	SO	V,SV,M,CN
S32.2SB2(12.5-15)	16111	MS	SO	V,SV,M,CN
S32.2SB2(12.5-15)	16111	SD	SO	V,SV,M,CN
S32.2SB3(6-8)	16111	N1	SO	V,SV,M,CN
S32.2SB3(16-18)	16111	N1	SO	V,SV,M,CN
TB4	16111	TB	WA	V
I24.6SB1(14-16)	16111	N1	SO	V,SV,M,CN
I24.6SB1(14-16)	16111	FR	SO	V,SV,M,CN
S32.8SB1(5.5-7.5)	16111	N1	SO	V,SV,M,CN
S32.8SB1(14.5-16.5)	16111	N1	SO	V,SV,M,CN
I24.5SB3(3.5-5)	16111	N1	SO	V,SV,M,CN

TABLE A1-1
SUMMARY OF SAMPLES, MATRIX AND ANALYTICAL PARAMETERS

SAMPLE ID	SDG(1)	SAMPLE TYPE	MATRIX	PARAMETERS(2)
I24.6SB1(7-8.5)	16111	N1	SO	V,SV,M,CN
TB5	16111	TB	WA	V
I24.5SB2(3-3.5)	16111	N1	SO	V,SV,M,CN
I24.5SB2(15-16)	16111	N1	SO	V,SV,M,CN
I24.5SB2(15-16)	16111	FR	SO	V,SV,M,CN
I24.4SB1(4.5-5)	16111	N1	SO	V,SV,M,CN
I24.4SB1(10-11)	16111	N1	SO	V,SV,M,CN
TB1	16176	TB	WA	V
EB1	16176	EB	WA	V,SV,M,CN
S32.8SB2(0-2)	16176	N1	SO	V,SV,M,CN
S32.8SB2(9-12)	16176	N1	SO	V,SV,M,CN
S32.8SB2(12-15)	16176	N1	SO	V,SV,M,CN
S32.8SB3(6-8)	16176	N1	SO	V,SV,M,CN
S32.8SB3(12.5-14)	16176	N1	SO	V,SV,M,CN
S32.8SB17(16-18)	16176	N1	SO	V,SV,M,CN
S32.8SB17(14-16)	16176	N1	SO	V,SV,M,CN
S32.8SB17(9-11)	16176	N1	SO	V,SV,M,CN
S32.8SB15(9.5-11)	16176	N1	SO	V,SV,M,CN
S32.8SB15(17-18)	16176	N1	SO	V,SV,M,CN
S32.8SB15(15.5-17)	16176	N1	SO	V,SV,M,CN
TB2	16176	TB	WA	V
I24.10SB5(6-7)	16176	N1	SO	V,SV,M,CN
I24.10SB5(13-14)	16176	N1	SO	V,SV,M,CN
S32.4SB1(7-7.5)	16176	N1	SO	V,SV,M,CN
TB3	16176	TB	WA	V
I24.8SB3(6-7)	16176	N1	SO	V,SV,M,CN
I24.8SB3(17-18)	16176	N1	SO	V,SV,M,CN
I24.10SB4(9-10)	16176	N1	SO	V,SV,M,CN
I24.10SB4(13.5-14)	16176	N1	SO	V,SV,M,CN
S32.8SB14(9.5-11.5)	16176	N1	SO	V,SV,M,CN
S32.8SB14(9.5-11.5)	16176	FR	SO	V,SV,M,CN
S32.8SB14(16.5-18)	16176	N1	SO	V,SV,M,CN
S32.8SB13(13-14.5)	16176	N1	SO	V,SV,M,CN
S32.8SB13(16.5-18)	16176	N1	SO	V,SV,M,CN
S32.8SB13(16.5-18)	16176	MS	SO	V,SV,M,CN
S32.8SB13(16.5-18)	16176	SD	SO	V,SV,M,CN
S32.8SB12(10-11.5)	16176	N1	SO	V,SV,M,CN
S32.8SB12(17-18)	16176	N1	SO	V,SV,M,CN
TB1	16220	TB	WA	V
I24.12SB6(8-8.5)	16220	N1	SO	V,SV,M,CN
I24.12SB6(15-16)	16220	N1	SO	V,SV,M,CN
I24.11SB2(6-7)	16220	N1	SO	V,SV,M,CN
I24.11SB2(13-14)	16220	N1	SO	V,SV,M,CN
S32.8SB11(15-16.5)	16220	N1	SO	V,SV,M,CN
S32.8SB11(16.5-17.5)	16220	N1	SO	V,SV,M,CN
S32.8SB10(14.5-16)	16220	N1	SO	V,SV,M,CN
S32.8SB10(14.5-16)	16220	FR	SO	V,SV,M,CN

TABLE A1-1
SUMMARY OF SAMPLES, MATRIX AND ANALYTICAL PARAMETERS

SAMPLE ID	SDG(1)	SAMPLE TYPE	MATRIX	PARAMETERS(2)
S32.8SB10(11-12)	16220	N1	SO	V,SV,M,CN
S32.8SB9(14.5-15.5)	16220	N1	SO	V,SV,M,CN
S32.8SB9(16.5-18)	16220	N1	SO	V,SV,M,CN
I24.10SB3(6-7)	16220	N1	SO	V,SV,M,CN
I24.10SB3(15-16)	16220	N1	SO	V,SV,M,CN
TB2	16220	TB	WA	V
I24.9SB1(10.5-11.5)	16220	N1	SO	V,SV,M,CN
I24.9SB1(16.5-17.5)	16220	N1	SO	V,SV,M,CN
I24.9SB2(10-11)	16220	N1	SO	V,SV,M,CN
I24.9SB2(17-17.5)	16220	N1	SO	V,SV,M,CN
S32.8SB18(9.5-11.5)	16220	N1	SO	V,SV,M,CN
S32.8SB18(16-18)	16220	N1	SO	V,SV,M,CN
S32.8SB14(8-9)	16220	N1	SO	V,SV,M,CN
S32.8SB14(12-13.5)	16220	N1	SO	V,SV,M,CN
S32.8SB5(6-7)	16220	N1	SO	V,SV,M,CN
S32.8SB5(11.5-13.5)	16220	N1	SO	V,SV,M,CN
S32.8SB5(11.5-13.5)	16220	MS	SO	V,SV,M,CN
S32.8SB5(11.5-13.5)	16220	SD	SO	V,SV,M,CN
I24.2SB3(6-7)	16220	N1	SO	V,SV,M,CN
I24.2SB3(16.5-17.5)	16220	N1	SO	V,SV,M,CN
EB1	16250	EB	WA	V
IWTLS2	16250	N1	WW	V,SV,M,TPH
IWTLS2	16250	FR	WW	V,SV,M,TPH
IWTLS2	16250	MS	WW	V,SV,M,TPH
IWTLS2	16250	SD	WW	V,SV,M,TPH
IWTBE3221	16250	N1	WW	V,SV,M,TPH
TB1	16250	TB	WA	V
IWTLS3	16250	N1	WW	V,SV,M,TPH
IWTLS10	16250	N1	WW	V,SV,M,TPH
IWTBE3001	16250	N1	WW	V,SV,M,TPH
IWTBE2250	16250	N1	WW	V,SV,M,TPH
IWTBE2211	16250	N1	WW	V,SV,M,TPH
IWTBE2127	16250	N1	WW	V,SV,M,TPH
IWTLSGNEW	16250	N1	WW	V,SV,M,TPH
IWTLSGOLD	16250	N1	WW	V,SV,M,TPH
TB1	16252	TB	WA	V
EB1	16252	EB	WA	V,SV,M,CN
S32.3SB1(4-6)	16252	N1	SO	V,SV,M,CN
S32.3SB1(4-6)	16252	FR	SO	V,SV,M,CN
S32.3SB1(9.5-10)	16252	N1	SO	V,SV,M,CN
S32.4SB6(4.5-5)	16252	N1	SO	V,SV,M,CN
S32.4SB6(8-8.5)	16252	N1	SO	V,SV,M,CN
TB2	16252	TB	WA	V
S32.8SB6(11.5-13)	16252	N1	SO	V,SV,M,CN
S32.8SB6(17-18)	16252	N1	SO	V,SV,M,CN
I24.2SB4(8.5-9.5)	16252	N1	SO	V,SV,M,CN
S32.8SB16(4.5-6.5)	16252	N1	SO	V,SV,M,CN
S32.8SB16(4.5-6.5)	16252	FR	SO	V,SV,M,CN

TABLE A1-1
SUMMARY OF SAMPLES, MATRIX AND ANALYTICAL PARAMETERS

SAMPLE ID	SDG(1)	SAMPLE TYPE	MATRIX	PARAMETERS(2)
S32.8SB16(12.5-14.5)	16252	MS	SO	V,SV,M,CN
S32.8SB16(12.5-14.5)	16252	SD	SO	V,SV,M,CN
S32.8SB16(15.5-17)	16252	N1	SO	V,SV,M,CN
TB3	16252	TB	WA	V
I24.19SB3(5.5-6.5)	16252	N1	SO	V,SV,M,CN
I24.19SB3(17.5-18)	16252	N1	SO	V,SV,M,CN
I24.19SB4(8.5-9)	16252	N1	SO	V,SV,M,CN
I24.19SB4(16-17)	16252	N1	SO	V,SV,M,CN
I24.19SB6(6.5-7)	16252	N1	SO	V,SV,M,CN
I24.19SB6(15.5-16)	16252	N1	SO	V,SV,M,CN
S32.8SB7(8-9)	16252	N1	SO	V,SV,M,CN
S32.8SB7(13-14)	16252	N1	SO	V,SV,M,CN
S32.8SB7(13-14)	16252	FR	SO	V,SV,M,CN
S32.8SB8(2.5-3.5)	16252	N1	SO	V,SV,M,CN
S32.8SB8(14-15)	16252	N1	SO	V,SV,M,CN
TB1	16280	TB	WA	V
EB1	16280	EB	WA	V,SV,M,CN
I24.19SB5(7.5-8)	16280	N1	SO	V,SV,M,CN
I24.19SB5(15.5-16)	16280	N1	SO	V,SV,M,CN
I24.19SB2(7.5-8)	16280	N1	SO	V,SV,M,CN
I24.19SB2(17-17.5)	16280	N1	SO	V,SV,M,CN
I24.19SB7(6.5-7.5)	16280	N1	SO	V,SV,M,CN
I24.19SB7(17-18)	16280	N1	SO	V,SV,M,CN
I24.19SB8(6-7)	16280	N1	SO	V,SV,M,CN
I24.19SB8(17-17.5)	16280	N1	SO	V,SV,M,CN
TB2	16280	TB	WA	V
AB1	16280	AB	WA	V
I24.7SB2(11-13)	16280	N1	SO	V,SV,M,CN
I24.7SB1(4-6)	16280	N1	SO	V,SV,M,CN
I24.7SB1(8-10)	16280	N1	SO	V,SV,M,CN
I24.11SB3(4-6)	16280	N1	SO	V,SV,M,CN
I24.11SB3(8-9)	16280	N1	SO	V,SV,M,CN
I24.3SB1(5.5-6)	16280	N1	SO	V,SV,M,CN,TPH
I24.3SB1(13-14)	16280	N1	SO	V,SV,M,CN,TPH
I24.3SB4(6-7)	16280	N1	SO	V,SV,M,CN,TPH
I24.3SB4(11-11.5)	16280	N1	SO	V,SV,M,CN,TPH
I24.1SB1(5.5-6)	16280	N1	SO	V,SV,M,CN,TPH
I24.1SB1(16-16.5)	16280	N1	SO	V,SV,M,CN,TPH
TB1	16298	TB	WA	V
AB1	16298	AB	WA	V
EB1	16298	EB	WA	V,SV,M,CN,TPH
I24.2SB7(5.5-7)	16298	N1	SO	V,SV,M,CN
I24.2SB7(5.5-7)	16298	FR	SO	V,SV,M,CN
I24.2SB7(13.5-14.5)	16298	N1	SO	V,SV,M,CN
I24.2SB7(13.5-14.5	16298	MS	SO	V,SV,M,CN
I24.2SB7(13.5-14.5	16298	SD	SO	V,SV,M,CN

TABLE A1-1
SUMMARY OF SAMPLES, MATRIX AND ANALYTICAL PARAMETERS

SAMPLE ID	SDG(1)	SAMPLE TYPE	MATRIX	PARAMETERS(2)
I24.2SB8(5-6)	16298	N1	SO	V,SV,M,CN
I24.2SB8(5-6)	16298	FR	SO	V,SV,M,CN
I24.2SB8(15.5-16)	16298	N1	SO	V,SV,M,CN
TB2	16298	TB	WA	V
S32.5SB3(2-4)	16298	N1	SO	V,SV,M,CN
S32.5SB3(2-4)	16298	FR	SO	V,SV,M,CN
S32.5SB3(6-7.5)	16298	N1	SO	V,SV,M,CN
I24.9SB2(2-4)	16298	N1	SO	V,SV,M,CN
I24.9SB2(2-4)	16298	MS	SO	V,SV,M,CN
I24.9SB2(2-4)	16298	SD	SO	V,SV,M,CN
RCP1SB2(4-6)	16298	N1	SO	V,SV,M,CN,TPH
RCP1SB2(6-8)	16298	N1	SO	V,SV,M,CN,TPH
RCP.1SB3(0-1.5)	16298	N1	SO	V,SV,M,CN,TPH
RCP1SB3(4-6)	16298	N1	SO	V,SV,M,CN,TPH
TB3	16298	TB	WA	V
I24.2SB5(5-6)	16298	N1	SO	V,SV,M,CN
I24.2SB5(13-13.5)	16298	N1	SO	V,SV,M,CN
I24.2SB6(5.5-6.5)	16298	N1	SO	V,SV,M,CN
I24.2SB6(17-18)	16298	N1	SO	V,SV,M,CN
I24.8SB4(4-5.5)	16298	N1	SO	V,SV,M,CN
I24.8SB4(8-9.5)	16298	N1	SO	V,SV,M,CN
I24.12SB5(6-7.5)	16298	N1	SO	V,SV,M,CN
TB1	16354	TB	WA	V
ESC1SE1	16354	N1	SE	V,SV,M,CN
ESC1SE2	16354	N1	SE	V,SV,M,CN
ESC1SE3	16354	N1	SE	V,SV,M,CN
ESC1SE4E	16354	N1	SE	V,SV,M,CN
ESC1SE4W	16354	N1	SE	V,SV,M,CN
ESC1SE5	16354	N1	SE	V,SV,M,CN
ESC1SE5	16354	SD	SE	V,SV,M,CN
ESC1SE5	16354	MS	SE	V,SV,M,CN
ESC1SE5	16354	FR	SE	V,SV,M,CN
ESC1SE6	16354	N1	SE	V,SV,M,CN
TB2	16354	TB	WA	V
EB1	16354	EB	WA	V,SV,M,CN
I24.19SB1(5-6)	16354	N1	SO	V,SV,M,CN
I24.19SB1(5-6)	16354	FR	SO	V,SV,M,CN
I24.19SB1(16-17)	16354	N1	SO	V,SV,M,CN
I24.19SB9(7.5-8)	16354	N1	SO	V,SV,M,CN
I24.19SB9(17-18)	16354	N1	SO	V,SV,M,CN
I24.19SB10(5-6)	16354	N1	SO	V,SV,M,CN
I24.19SB10(17-18)	16354	N1	SO	V,SV,M,CN
TB1	16354	TB	WA	V
RCP1SB1(6-8)	16354	N1	SO	V,SV,M,CN,TPH
I24.2SB2(8-8.5)	16354	N1	SO	V,SV,M,CN,TPH

TABLE A1-1
SUMMARY OF SAMPLES, MATRIX AND ANALYTICAL PARAMETERS

SAMPLE ID	SDG(1)	SAMPLE TYPE	MATRIX	PARAMETERS(2)
I24.2SB2(17-18)	16354	N1	SO	V,SV,M,CN,TPH
IWTLS2	16375	N1	WW	V,SV,M,TPH
IWTLS2	16375	FR	WW	V,SV,M,TPH
IWTLS3	16375	N1	WW	V,SV,M,TPH
EB2	16375	EB	WA	V,SV,M,TPH
TB3	16375	TB	WA	V,SV,M,TPH
IWTBG3001	16375	N1	WW	V,SV,M,TPH
IWTLS10	16375	N1	WW	V,SV,M,TPH
IWTBG2127	16375	N1	WW	V,SV,M,TPH
IWTBG2211	16375	N1	WW	V,SV,M,TPH
IWTLSGOLD	16375	N1	WW	V,SV,M,TPH
IWTLSGNEW	16375	N1	WW	V,SV,M,TPH
IWTBG2280	16375	N1	WW	V,SV,M,TPH
IWTBG3221	16375	N1	WW	V,SV,M,TPH
ESC1SE6	16442	N1	SE	PCBS
ESC1SE5	16442	N1	SE	PCBS
ESC1SE5	16442	FR	SE	PCBS
ESC1SE5	16442	MS	SE	PCBS
ESC1SE5	16442	SD	SE	PCBS
ESC1SE4E	16442	N1	SE	PCBS
ESC1SE4W	16442	N1	SE	PCBS
ESC1SE3	16442	N1	SE	PCBS
S32.8SS1(0.2-0.5)	16442	N1	SO	PCBS
S32.8SS2(0.2-0.5)	16442	N1	SO	PCBS
S32.8SS2(0.2-0.5)	16442	N1	SO	PCBS
S32.8SS3(0.2-0.5)	16442	N1	SO	PCBS
S32.8SS4(0.2-0.5)	16442	N1	SO	PCBS
ESC1SE1	16442	N1	SE	PCBS
ESC1SE2	16442	N1	SE	PCBS
I24.2SS1(0.2-0.5)	16442	N1	SO	PCBS
I24.2SS2(0.2-0.5)	16442	N1	SO	PCBS
I24.2SS2(0.2-0.5)	16442	FR	SO	PCBS
I24.2SS2(0.2-0.5)	16442	MS	SO	PCBS
I24.2SS2(0.2-0.5)	16442	SD	SO	PCBS
I24.2SS3(0.2-0.5)	16442	N1	SO	PCBS
I24.2SS4(0.2-0.5)	16442	N1	SO	PCBS
I24.3SS1(0.2-0.5)	16442	N1	SO	PCBS
I24.3SS2(0.2-0.5)	16442	N1	SO	PCBS
I24.5SS1(0.2-0.5)	16442	N1	SO	PCBS
I24.5SS2(0.2-0.5)	16442	N1	SO	PCBS
I24.19SS1(0.1-0.3)	16442	N1	SO	PCBS
I24.19SS2(0.1-0.3)	16442	N1	SO	PCBS
I24.19SS3(0.1-0.3)	16442	N1	SO	PCBS
I24.19SS4(0.1-0.3)	16442	N1	SO	PCBS
S32.3SS1(0.2-0.5)	16442	N1	SO	PCBS

TABLE A1-1
SUMMARY OF SAMPLES, MATRIX AND ANALYTICAL PARAMETERS

SAMPLE ID	SDG(1)	SAMPLE TYPE	MATRIX	PARAMETERS(2)
S32.1SS1(0.2-0.5)	16442	N1	SO	PCBS
RCP1SS1(0.2-0.5)	16442	N1	SO	PCBS
TB1	16443	TB	WA	V
S32.5SB2(3.5-4)	16443	N1	SO	V,SV,M,CN
S32.5SB2(5.5-6)	16443	N1	SO	V,SV,M,CN
S32.5SB1(2-3)	16443	N1	SO	V,SV,M,CN
S32.5SB1(5-6)	16443	N1	SO	V,SV,M,CN
S32.6SB1(2-3)	16443	N1	SO	V,SV,M,CN
I24.11SB4(3-4)	16443	N1	SO	V,SV,M,CN
I24.11SB4(3-4)	16443	FR	SO	V,SV,M,CN
I24.11SB4(8-9)	16443	N1	SO	V,SV,M,CN
TB2	16443	TB	WA	V
I24.11SB1(4-5)	16443	N1	SO	V,SV,M,CN
I24.11SB1(4-5)	16443	FR	SO	V,SV,M,CN
I24.11SB1(4-5)	16443	MS	SO	V,SV,M,CN
I24.11SB1(4-5)	16443	SD	SO	V,SV,M,CN
I24.11SB1(8-9)	16443	N1	SO	V,SV,M,CN
MB1	16443	MB	WA	V
MB2	16443	MB	WA	V

NOTE: SO-Soil; WA-Water; SE-Sediment; WW-Wastewater; N1-Field sample; FR-Field replicate. MS-Matrix spike; SD-Spike duplicate; AB-Ambient blank; EB-Equipment blank; MB-Matrix blank.

1. **SDG-Sample Delivery Group**
2. **V-Volatile Organics; SV-Semivolatile Organics; M-Metals; CN-Total Cyanides; TPH-Total Petroleum Hydrocarbons; PCBs-Polychlorinated Biphenyls**

ATTACHMENT 2

GLOSSARY OF DATA VALIDATION QUALIFIERS

GLOSSARY OF DATA VALIDATION QUALIFIERS

U The analyte was analyzed for and is not present above the level of the associated value. The associated numerical value indicates the approximate concentration necessary to detect the analyte in the sample.

J The analyte was analyzed for and was positively identified, but the associated numerical value may be imprecise due to a QC anomaly. The data is considered usable for many purposes. A subscript has been appended to the "J" flag to indicate the QC anomaly involved:

J1 Laboratory or field blank contamination. Indicates possible high bias and or false positive.

J2 The calibration range for the method was exceeded. Indicates possible low bias.

J3 The preparation or analysis holding time specified for the parameter was exceeded.

J4 Other QC criteria violated (e.g., precision or accuracy outliers).

J5 Reported value falls between the MDL and MQL. The result should be considered estimated.

J6 Multiple QC criteria outside acceptance limits (e.g., precision and accuracy outliers).

UJ A combination of the "U" and "J" flags. The analyte was analyzed for but was not detected. The reported detection limit has been qualified due to a QC anomaly.

R The data are unusable; QC criteria violated.

ATTACHMENT 2

GLOSSARY OF DATA VALIDATION QUALIFIERS

GLOSSARY OF DATA VALIDATION QUALIFIERS

U The analyte was analyzed for and is not present above the level of the associated value. The associated numerical value indicates the approximate concentration necessary to detect the analyte in the sample.

J The analyte was analyzed for and was positively identified, but the associated numerical value may be imprecise due to a QC anomaly. The data is considered usable for many purposes. A subscript has been appended to the "J" flag to indicate the QC anomaly involved:

J1 Laboratory or field blank contamination. Indicates possible high bias and or false positive.

J2 The calibration range for the method was exceeded. Indicates possible low bias.

J3 The preparation or analysis holding time specified for the parameter was exceeded.

J4 Other QC criteria violated (e.g., precision or accuracy outliers).

J5 Reported value falls between the MDL and MQL. The result should be considered estimated.

J6 Multiple QC criteria outside acceptance limits (e.g., precision and accuracy outliers).

UJ A combination of the "U" and "J" flags. The analyte was analyzed for but was not detected. The reported detection limit has been qualified due to a QC anomaly.

R The data are unusable; QC criteria violated.

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.07

DATE: 11/16/93

SWLO #: 15888.07 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS2
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	690	U
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	90.1	J 5
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	690	U
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	578 J1	J
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

DYB
12.3.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.06

DATE: 11/16/93

SWLO #: 15888.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS2
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	690	U
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	119	J5
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	74	J5
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	217	J5
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	(310 J1)	✓
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	89.4	J5

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12.3.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.05

DATE: 11/16/93

SWLO #: 15888.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS1
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	690	U
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	690	U
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	690	U
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	72.7 J1	
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.04

DATE: 11/16/93

SWLO #: 15888.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS4
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	690	U
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	690	U
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	690	U
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	514 J1	
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

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12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.03

DATE: 11/16/93

SWLO #: 15888.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS3
LOCATION:
DATE ANALYZED : 10/22/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	690	U
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	690	U
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	690	U
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	611 J1	
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

DYB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.02

DATE: 11/16/93

SWLO #: 15888.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS2
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	90.6	J 5
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	690	U
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	690	U
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	197 J1	~~J 5~~
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

DYB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.01

DATE: 11/16/93

SWLO #: 15888.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS1
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	690	U
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	690	U
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	690	U
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	299 J1	
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.15

DATE: 11/16/93

SWLO #: 15873.15 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SS1
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	760	U	ACENAPHTHENE	760	U
BIS(2-CHLOROETHYL)ETHER	760	U	2,4-DINITROPHENOL	3700	U
2-CHLOROPHENOL	760	U	4-NITROPHENOL	3700	U
1,3-DICHLOROBENZENE	760	U	DIBENZOFURAN	760	U
1,4-DICHLOROBENZENE	760	U	2,4-DINITROTOLUENE	760	U
BENZYL ALCOHOL	760	U	2,6-DINITROTOLUENE	760	U
1,2-DICHLOROBENZENE	760	U	DIETHYLPHTHALATE	266	J S
2-METHYLPHENOL(O-CRESOL)	760	U	4-CHLOROPHENYL-PHENYLETHER	760	U
BIS(2-CHLOROISOPROPYL)ETHER	760	U	FLUORENE	760	U
4-METHYLPHENOL(P-CRESOL)	8120		4-NITROANILINE	3700	U
N-NITROSO-DI-N-PROPYLAMINE	760	U	4,6-DINITRO-2-METHYLPHENOL	3700	U
HEXACHLOROETHANE	760	U	N-NITROSODIPHENYLAMINE(1)	760	U
NITROBENZENE	760	U	4-BROMOPHENYL-PHENYLETHER	760	U
ISOPHORONE	760	U	HEXACHLOROBENZENE	760	U
2-NITROPHENOL	760	U	PENTACHLOROPHENOL	3700	U
2,4-DIMETHYLPHENOL	760	U	PHENANTHRENE	760	U
BENZOIC ACID	3700	U	ANTHRACENE	760	U
BIS(2-CHLOROETHOXY)METHANE	760	U	DI-N-BUTYL PHTHALATE	760	U
2,4-DICHLOROPHENOL	760	U	FLUORANTHENE	760	U
1,2,4-TRICHLOROBENZENE	760	U	PYRENE	760	U
NAPHTHALENE	760	U	BUTYL BENZYL PHTHALATE	760	U
4-CHLOROANILINE	760	U	3,3'-DICHLOROBENZIDINE	1500	U
HEXACHLOROBUTADIENE	760	U	BENZO(A)ANTHRACENE	760	U
4-CHLORO-3-METHYLPHENOL	760	U	BIS(2-ETHYLHEXYL)PHTHALATE	1480	JLB
2-METHYLNAPHTHALENE	1010		CHRYSENE	760	U
HEXACHLOROCYCLOPENTADIENE	760	U	DI-N-OCTYL PHTHALATE	110	J S
2,4,6-TRICHLOROPHENOL	760	U	BENZO(B)FLUORANTHENE	760	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.14

DATE: 11/16/93

SWLO #: 15873.14 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS3
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	730	U	ACENAPHTHENE	730	U
BIS(2-CHLOROETHYL)ETHER	730	U	2,4-DINITROPHENOL	3500	U
2-CHLOROPHENOL	730	U	4-NITROPHENOL	3500	U
1,3-DICHLOROBENZENE	730	U	DIBENZOFURAN	730	U
1,4-DICHLOROBENZENE	730	U	2,4-DINITROTOLUENE	730	U
BENZYL ALCOHOL	730	U	2,6-DINITROTOLUENE	730	U
1,2-DICHLOROBENZENE	730	U	DIETHYLPHTHALATE	287	J 5
2-METHYLPHENOL(O-CRESOL)	730	U	4-CHLOROPHENYL-PHENYLETHER	730	U
BIS(2-CHLOROISOPROPYL)ETHER	730	U	FLUORENE	730	U
4-METHYLPHENOL(P-CRESOL)	730	U	4-NITROANILINE	3500	U
N-NITROSO-DI-N-PROPYLAMINE	730	U	4,6-DINITRO-2-METHYLPHENOL	3500	U
HEXACHLOROETHANE	730	U	N-NITROSODIPHENYLAMINE(1)	730	U
NITROBENZENE	730	U	4-BROMOPHENYL-PHENYLETHER	730	U
ISOPHORONE	730	U	HEXACHLOROBENZENE	730	U
2-NITROPHENOL	730	U	PENTACHLOROPHENOL	3500	U
2,4-DIMETHYLPHENOL	730	U	PHENANTHRENE	730	U
BENZOIC ACID	3500	U	ANTHRACENE	730	U
BIS(2-CHLOROETHOXY)METHANE	730	U	DI-N-BUTYL PHTHALATE	134	J 5
2,4-DICHLOROPHENOL	730	U	FLUORANTHENE	730	U
1,2,4-TRICHLOROBENZENE	730	U	PYRENE	730	U
NAPHTHALENE	730	U	BUTYL BENZYL PHTHALATE	656	J 5
4-CHLOROANILINE	730	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	730	U	BENZO(A)ANTHRACENE	730	U
4-CHLORO-3-METHYLPHENOL	730	U	BIS(2-ETHYLHEXYL)PHTHALATE	4620	J 1 5
2-METHYLNAPHTHALENE	730	U	CHRYSENE	730	U
HEXACHLOROCYCLOPENTADIENE	730	U	DI-N-OCTYL PHTHALATE	730	U
2,4,6-TRICHLOROPHENOL	730	U	BENZO(B)FLUORANTHENE	730	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.13

DATE: 11/16/93

SWLO #: 15873.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS2
LOCATION:
DATE ANALYZED : 10/20/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	690	U
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	690	U
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	690	U
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	690	J1
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.12

DATE: 11/16/93

SWLO #: 15873.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS1
LOCATION:
DATE ANALYZED : 10/20/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	181	J 5
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	118	J 5
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	151	J 5
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	690	U
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	2380 J1	B
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	89	J 5
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.11

DATE: 11/16/93

SWLO #: 15873.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SS2
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	730	U	ACENAPHTHENE	730	U
BIS(2-CHLOROETHYL)ETHER	730	U	2,4-DINITROPHENOL	3500	U
2-CHLOROPHENOL	730	U	4-NITROPHENOL	3500	U
1,3-DICHLOROBENZENE	730	U	DIBENZOFURAN	730	U
1,4-DICHLOROBENZENE	730	U	2,4-DINITROTOLUENE	730	U
BENZYL ALCOHOL	730	U	2,6-DINITROTOLUENE	730	U
1,2-DICHLOROBENZENE	730	U	DIETHYLPHTHALATE	484	J 5
2-METHYLPHENOL(O-CRESOL)	730	U	4-CHLOROPHENYL-PHENYLETHER	730	U
BIS(2-CHLOROISOPROPYL)ETHER	730	U	FLUORENE	730	U
4-METHYLPHENOL(P-CRESOL)	730	U	4-NITROANILINE	3500	U
N-NITROSO-DI-N-PROPYLAMINE	730	U	4,6-DINITRO-2-METHYLPHENOL	3500	U
HEXACHLOROETHANE	730	U	N-NITROSODIPHENYLAMINE(1)	730	U
NITROBENZENE	730	U	4-BROMOPHENYL-PHENYLETHER	730	U
ISOPHORONE	730	U	HEXACHLOROBENZENE	730	U
2-NITROPHENOL	730	U	PENTACHLOROPHENOL	3500	U
2,4-DIMETHYLPHENOL	730	U	PHENANTHRENE	730	U
BENZOIC ACID	3500	U	ANTHRACENE	730	U
BIS(2-CHLOROETHOXY)METHANE	730	U	DI-N-BUTYL PHTHALATE	252	J 5
2,4-DICHLOROPHENOL	730	U	FLUORANTHENE	730	U
1,2,4-TRICHLOROBENZENE	730	U	PYRENE	100	J 5
NAPHTHALENE	730	U	BUTYL BENZYL PHTHALATE	730	U
4-CHLOROANILINE	730	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	730	U	BENZO(A)ANTHRACENE	730	U
4-CHLORO-3-METHYLPHENOL	730	U	BIS(2-ETHYLHEXYL)PHTHALATE	6060 J1	
2-METHYLNAPHTHALENE	730	U	CHRYSENE	730	U
HEXACHLOROCYCLOPENTADIENE	730	U	DI-N-OCTYL PHTHALATE	152	J 5
2,4,6-TRICHLOROPHENOL	730	U	BENZO(B)FLUORANTHENE	730	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.10

DATE: 11/16/93

SWLO #: 15873.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SS1
LOCATION:
DATE ANALYZED : 10/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	690	U
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	690	U
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	690	U
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	314 J	~~JB~~
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.09

DATE: 11/16/93

SWLO #: 15873.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.3SS1
LOCATION:
DATE ANALYZED : 10/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	690	U
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	690	U
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	87.8	J 5
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	73.5	J 5
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	235 J1	
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.08

DATE: 11/16/93

SWLO #: 15873.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SS1
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	3400	U	BENZO(K)FLUORANTHENE	93.5	J S
2-CHLORONAPHTHALENE	690	U	BENZO(A)PYRENE	81	J S
2-NITROANILINE	3400	U	INDENO(1,2,3-CD)PYRENE	690	U
DIMETHYL PHTHALATE	690	U	DIBENZ(A,H)ANTHRACENE	690	U
ACENAPHTHYLENE	690	U	BENZO(G,H,I)PERYLENE	690	U
3-NITROANILINE	3400	U			

DMB 12-3-93

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	45%	2-FLUOROBIPHENYL	(30-115)	51%
TERPHENYL-D14	(18-137)	68%	PHENOL-D5	(24-113)	40%
2-FLUOROPHENOL	(25-121)	37%	2,4,6-TRIBROMOPHENOL	(19-122)	57%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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REPORT: 15873.08

DATE: 11/16/93

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DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	90.5	J S
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	79.3	J S
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	201	J S
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	184	J S
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	78.5	J S
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	220 J1	~~J~~
2-METHYLNAPHTHALENE	690	U	CHRYSENE	117	J S
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	77.2	J S

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12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.07

DATE: 11/16/93

SWLO #: 15873.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS4
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	3500	U	BENZO(K)FLUORANTHENE	132	J 5
2-CHLORONAPHTHALENE	730	U	BENZO(A)PYRENE	117	J 5
2-NITROANILINE	3500	U	INDENO(1,2,3-CD)PYRENE	730	U
DIMETHYL PHTHALATE	730	U	DIBENZ(A,H)ANTHRACENE	730	U
ACENAPHTHYLENE	730	U	BENZO(G,H,I)PERYLENE	730	U
3-NITROANILINE	3500	U			

DYB 12-3-93

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	48%	2-FLUOROBIPHENYL	(30-115)	60%
TERPHENYL-D14	(18-137)	70%	PHENOL-D5	(24-113)	46%
2-FLUOROPHENOL	(25-121)	51%	2,4,6-TRIBROMOPHENOL	(19-122)	55%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.07

DATE: 11/16/93

SWLO #: 15873.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS4
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	730	U	ACENAPHTHENE	730	U
BIS(2-CHLOROETHYL)ETHER	730	U	2,4-DINITROPHENOL	3500	U
2-CHLOROPHENOL	730	U	4-NITROPHENOL	3500	U
1,3-DICHLOROBENZENE	730	U	DIBENZOFURAN	730	U
1,4-DICHLOROBENZENE	730	U	2,4-DINITROTOLUENE	730	U
BENZYL ALCOHOL	730	U	2,6-DINITROTOLUENE	730	U
1,2-DICHLOROBENZENE	730	U	DIETHYLPHTHALATE	730	U
2-METHYLPHENOL(O-CRESOL)	730	U	4-CHLOROPHENYL-PHENYLETHER	730	U
BIS(2-CHLOROISOPROPYL)ETHER	730	U	FLUORENE	730	U
4-METHYLPHENOL(P-CRESOL)	730	U	4-NITROANILINE	3500	U
N-NITROSO-DI-N-PROPYLAMINE	730	U	4,6-DINITRO-2-METHYLPHENOL	3500	U
HEXACHLOROETHANE	730	U	N-NITROSODIPHENYLAMINE(1)	730	U
NITROBENZENE	730	U	4-BROMOPHENYL-PHENYLETHER	730	U
ISOPHORONE	730	U	HEXACHLOROBENZENE	730	U
2-NITROPHENOL	730	U	PENTACHLOROPHENOL	3500	U
2,4-DIMETHYLPHENOL	730	U	PHENANTHRENE	202	J 5
BENZOIC ACID	3500	U	ANTHRACENE	730	U
BIS(2-CHLOROETHOXY)METHANE	730	U	DI-N-BUTYL PHTHALATE	730	U
2,4-DICHLOROPHENOL	730	U	FLUORANTHENE	298	J 5
1,2,4-TRICHLOROBENZENE	730	U	PYRENE	272	J 5
NAPHTHALENE	730	U	BUTYL BENZYL PHTHALATE	730	U
4-CHLOROANILINE	730	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	730	U	BENZO(A)ANTHRACENE	141	J 5
4-CHLORO-3-METHYLPHENOL	730	U	BIS(2-ETHYLHEXYL)PHTHALATE	203 J1	~~J5~~
2-METHYLNAPHTHALENE	730	U	CHRYSENE	151	J 5
HEXACHLOROCYCLOPENTADIENE	730	U	DI-N-OCTYL PHTHALATE	730	U
2,4,6-TRICHLOROPHENOL	730	U	BENZO(B)FLUORANTHENE	89.4	J 5

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.06

DATE: 11/16/93

SWLO #: 15873.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS3
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	3700	U	BENZO(K)FLUORANTHENE	162	J 5
2-CHLORONAPHTHALENE	760	U	BENZO(A)PYRENE	182	J 5
2-NITROANILINE	3700	U	INDENO(1,2,3-CD)PYRENE	115	J 5
DIMETHYL PHTHALATE	760	U	DIBENZ(A,H)ANTHRACENE	760	U
ACENAPHTHYLENE	760	U	BENZO(G,H,I)PERYLENE	142	J 5
3-NITROANILINE	3700	U			

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QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	41%	2-FLUOROBIPHENYL	(30-115)	54%
TERPHENYL-D14	(18-137)	72%	PHENOL-D5	(24-113)	39%
2-FLUOROPHENOL	(25-121)	34%	2,4,6-TRIBROMOPHENOL	(19-122)	62%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.06

DATE: 11/16/93

SWLO #: 15873.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS3
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	760	U	ACENAPHTHENE	760	U
BIS(2-CHLOROETHYL)ETHER	760	U	2,4-DINITROPHENOL	3700	U
2-CHLOROPHENOL	760	U	4-NITROPHENOL	3700	U
1,3-DICHLOROBENZENE	760	U	DIBENZOFURAN	760	U
1,4-DICHLOROBENZENE	760	U	2,4-DINITROTOLUENE	760	U
BENZYL ALCOHOL	760	U	2,6-DINITROTOLUENE	760	U
1,2-DICHLOROBENZENE	760	U	DIETHYLPHTHALATE	760	U
2-METHYLPHENOL(O-CRESOL)	760	U	4-CHLOROPHENYL-PHENYLETHER	760	U
BIS(2-CHLOROISOPROPYL)ETHER	760	U	FLUORENE	760	U
4-METHYLPHENOL(P-CRESOL)	760	U	4-NITROANILINE	3700	U
N-NITROSO-DI-N-PROPYLAMINE	760	U	4,6-DINITRO-2-METHYLPHENOL	3700	U
HEXACHLOROETHANE	760	U	N-NITROSODIPHENYLAMINE(1)	760	U
NITROBENZENE	760	U	4-BROMOPHENYL-PHENYLETHER	760	U
ISOPHORONE	760	U	HEXACHLOROBENZENE	760	U
2-NITROPHENOL	760	U	PENTACHLOROPHENOL	3700	U
2,4-DIMETHYLPHENOL	760	U	PHENANTHRENE	237	J S
BENZOIC ACID	3700	U	ANTHRACENE	760	U
BIS(2-CHLOROETHOXY)METHANE	760	U	DI-N-BUTYL PHTHALATE	760	U
2,4-DICHLOROPHENOL	760	U	FLUORANTHENE	454	J S
1,2,4-TRICHLOROBENZENE	760	U	PYRENE	397	J S
NAPHTHALENE	760	U	BUTYL BENZYL PHTHALATE	760	U
4-CHLOROANILINE	760	U	3,3'-DICHLOROBENZIDINE	1500	U
HEXACHLOROBUTADIENE	760	U	BENZO(A)ANTHRACENE	204	J S
4-CHLORO-3-METHYLPHENOL	760	U	BIS(2-ETHYLHEXYL)PHTHALATE	223 J1	~~JB~~
2-METHYLNAPHTHALENE	760	U	CHRYSENE	237	J S
HEXACHLOROCYCLOPENTADIENE	760	U	DI-N-OCTYL PHTHALATE	760	U
2,4,6-TRICHLOROPHENOL	760	U	BENZO(B)FLUORANTHENE	172	J S

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.05

DATE: 11/16/93

SWLO #: 15873.05 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	6530		ACENAPHTHENE	3410	
BIS(2-CHLOROETHYL)ETHER	730	U	2,4-DINITROPHENOL	9040	
2-CHLOROPHENOL	6170		4-NITROPHENOL	3500	U
1,3-DICHLOROBENZENE	730	U	DIBENZOFURAN	730	U
1,4-DICHLOROBENZENE	2050		2,4-DINITROTOLUENE	3280	
BENZYL ALCOHOL	730	U	2,6-DINITROTOLUENE	730	U
1,2-DICHLOROBENZENE	730	U	DIETHYLPHTHALATE	730	U
2-METHYLPHENOL(O-CRESOL)	730	U	4-CHLOROPHENYL-PHENYLETHER	730	U
BIS(2-CHLOROISOPROPYL)ETHER	730	U	FLUORENE	3770	
4-METHYLPHENOL(P-CRESOL)	730	U	4-NITROANILINE	3500	U
N-NITROSO-DI-N-PROPYLAMINE	2980		4,6-DINITRO-2-METHYLPHENOL	3500	U
HEXACHLOROETHANE	730	U	N-NITROSODIPHENYLAMINE(1)	730	U
NITROBENZENE	730	U	4-BROMOPHENYL-PHENYLETHER	730	U
ISOPHORONE	730	U	HEXACHLOROBENZENE	730	U
2-NITROPHENOL	730	U	PENTACHLOROPHENOL	7530	
2,4-DIMETHYLPHENOL	730	U	PHENANTHRENE	4730	
BENZOIC ACID	127	J5	ANTHRACENE	3560	
BIS(2-CHLOROETHOXY)METHANE	730	U	DI-N-BUTYL PHTHALATE	730	U
2,4-DICHLOROPHENOL	730	U	FLUORANTHENE	451	J5
1,2,4-TRICHLOROBENZENE	3340		PYRENE	3340	
NAPHTHALENE	3510		BUTYL BENZYL PHTHALATE	730	U
4-CHLOROANILINE	730	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	730	U	BENZO(A)ANTHRACENE	730	U
4-CHLORO-3-METHYLPHENOL	6660		BIS(2-ETHYLHEXYL)PHTHALATE	6300 J1	B
2-METHYLNAPHTHALENE	3850		CHRYSENE	730	U
HEXACHLOROCYCLOPENTADIENE	730	U	DI-N-OCTYL PHTHALATE	815	
2,4,6-TRICHLOROPHENOL	730	U	BENZO(B)FLUORANTHENE	730	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.04

DATE: 11/16/93

SWLO #: 15873.04 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	7120		ACENAPHTHENE	3530	
BIS(2-CHLOROETHYL)ETHER	730	U	2,4-DINITROPHENOL	3500	U
2-CHLOROPHENOL	6830		4-NITROPHENOL	10600	
1,3-DICHLOROBENZENE	730	U	DIBENZOFURAN	730	U
1,4-DICHLOROBENZENE	2020		2,4-DINITROTOLUENE	3420	
BENZYL ALCOHOL	730	U	2,6-DINITROTOLUENE	730	U
1,2-DICHLOROBENZENE	730	U	DIETHYLPHTHALATE	730	U
2-METHYLPHENOL(O-CRESOL)	730	U	4-CHLOROPHENYL-PHENYLETHER	730	U
BIS(2-CHLOROISOPROPYL)ETHER	730	U	FLUORENE	3890	
4-METHYLPHENOL(P-CRESOL)	730	U	4-NITROANILINE	3500	U
N-NITROSO-DI-N-PROPYLAMINE	3700		4,6-DINITRO-2-METHYLPHENOL	3500	U
HEXACHLOROETHANE	730	U	N-NITROSODIPHENYLAMINE(1)	730	U
NITROBENZENE	730	U	4-BROMOPHENYL-PHENYLETHER	730	U
ISOPHORONE	730	U	HEXACHLOROBENZENE	730	U
2-NITROPHENOL	730	U	PENTACHLOROPHENOL	7530	
2,4-DIMETHYLPHENOL	730	U	PHENANTHRENE	4760	
BENZOIC ACID	218	J S	ANTHRACENE	3690	
BIS(2-CHLOROETHOXY)METHANE	730	U	DI-N-BUTYL PHTHALATE	730	U
2,4-DICHLOROPHENOL	730	U	FLUORANTHENE	232	J S
1,2,4-TRICHLOROBENZENE	3500		PYRENE	3370	
NAPHTHALENE	3540		BUTYL BENZYL PHTHALATE	730	U
4-CHLOROANILINE	730	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	730	U	BENZO(A)ANTHRACENE	730	U
4-CHLORO-3-METHYLPHENOL	8200		BIS(2-ETHYLHEXYL)PHTHALATE	23700	J1 ~~B~~
2-METHYLNAPHTHALENE	4270		CHRYSENE	83.4	J S
HEXACHLOROCYCLOPENTADIENE	730	U	DI-N-OCTYL PHTHALATE	1110	
2,4,6-TRICHLOROPHENOL	730	U	BENZO(B)FLUORANTHENE	730	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.03

DATE: 11/16/93

SWLO #: 15873.03 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	730	U	ACENAPHTHENE	730	U
BIS(2-CHLOROETHYL)ETHER	730	U	2,4-DINITROPHENOL	3500	U
2-CHLOROPHENOL	730	U	4-NITROPHENOL	3500	U
1,3-DICHLOROBENZENE	730	U	DIBENZOFURAN	730	U
1,4-DICHLOROBENZENE	730	U	2,4-DINITROTOLUENE	730	U
BENZYL ALCOHOL	730	U	2,6-DINITROTOLUENE	730	U
1,2-DICHLOROBENZENE	730	U	DIETHYLPHTHALATE	730	U
2-METHYLPHENOL(O-CRESOL)	730	U	4-CHLOROPHENYL-PHENYLETHER	730	U
BIS(2-CHLOROISOPROPYL)ETHER	730	U	FLUORENE	730	U
4-METHYLPHENOL(P-CRESOL)	247	J 5	4-NITROANILINE	3500	U
N-NITROSO-DI-N-PROPYLAMINE	730	U	4,6-DINITRO-2-METHYLPHENOL	3500	U
HEXACHLOROETHANE	730	U	N-NITROSODIPHENYLAMINE(1)	730	U
NITROBENZENE	730	U	4-BROMOPHENYL-PHENYLETHER	730	U
ISOPHORONE	730	U	HEXACHLOROBENZENE	730	U
2-NITROPHENOL	730	U	PENTACHLOROPHENOL	3500	U
2,4-DIMETHYLPHENOL	730	U	PHENANTHRENE	730	U
BENZOIC ACID	150	J 5	ANTHRACENE	730	U
BIS(2-CHLOROETHOXY)METHANE	730	U	DI-N-BUTYL PHTHALATE	730	U
2,4-DICHLOROPHENOL	730	U	FLUORANTHENE	156	J 5
1,2,4-TRICHLOROBENZENE	730	U	PYRENE	129	J 5
NAPHTHALENE	730	U	BUTYL BENZYL PHTHALATE	730	U
4-CHLOROANILINE	730	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	730	U	BENZO(A)ANTHRACENE	730	U
4-CHLORO-3-METHYLPHENOL	730	U	BIS(2-ETHYLHEXYL)PHTHALATE	6730 J1	
2-METHYLNAPHTHALENE	730	U	CHRYSENE	730	U
HEXACHLOROCYCLOPENTADIENE	730	U	DI-N-OCTYL PHTHALATE	1060	
2,4,6-TRICHLOROPHENOL	730	U	BENZO(B)FLUORANTHENE	730	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1709 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2509

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.02

DATE: 11/16/93

SWLO #: 15873.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	760	U	ACENAPHTHENE	760	U
BIS(2-CHLOROETHYL)ETHER	760	U	2,4-DINITROPHENOL	3700	U
2-CHLOROPHENOL	760	U	4-NITROPHENOL	3700	U
1,3-DICHLOROBENZENE	760	U	DIBENZOFURAN	760	U
1,4-DICHLOROBENZENE	760	U	2,4-DINITROTOLUENE	760	U
BENZYL ALCOHOL	760	U	2,6-DINITROTOLUENE	760	U
1,2-DICHLOROBENZENE	760	U	DIETHYLPHTHALATE	760	U
2-METHYLPHENOL(O-CRESOL)	760	U	4-CHLOROPHENYL-PHENYLETHER	760	U
BIS(2-CHLOROISOPROPYL)ETHER	760	U	FLUORENE	760	U
4-METHYLPHENOL(P-CRESOL)	152	J5	4-NITROANILINE	3700	U
N-NITROSO-DI-N-PROPYLAMINE	760	U	4,6-DINITRO-2-METHYLPHENOL	3700	U
HEXACHLOROETHANE	760	U	N-NITROSODIPHENYLAMINE(1)	760	U
NITROBENZENE	760	U	4-BROMOPHENYL-PHENYLETHER	760	U
ISOPHORONE	760	U	HEXACHLOROBENZENE	760	U
2-NITROPHENOL	760	U	PENTACHLOROPHENOL	3700	U
2,4-DIMETHYLPHENOL	760	U	PHENANTHRENE	760	U
BENZOIC ACID	169	J5	ANTHRACENE	760	U
BIS(2-CHLOROETHOXY)METHANE	760	U	DI-N-BUTYL PHTHALATE	760	U
2,4-DICHLOROPHENOL	760	U	FLUORANTHENE	190	J5
1,2,4-TRICHLOROBENZENE	760	U	PYRENE	160	J5
NAPHTHALENE	760	U	BUTYL BENZYL PHTHALATE	760	U
4-CHLOROANILINE	760	U	3,3'-DICHLOROBENZIDINE	1500	U
HEXACHLOROBUTADIENE	760	U	BENZO(A)ANTHRACENE	760	U
4-CHLORO-3-METHYLPHENOL	760	U	BIS(2-ETHYLHEXYL)PHTHALATE	8850 JI	B
2-METHYLNAPHTHALENE	760	U	CHRYSENE	760	U
HEXACHLOROCYCLOPENTADIENE	760	U	DI-N-OCTYL PHTHALATE	1320	
2,4,6-TRICHLOROPHENOL	760	U	BENZO(B)FLUORANTHENE	760	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC
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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.01

DATE: 11/16/93

SWLO #: 15873.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS1
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.25
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	690	U	ACENAPHTHENE	690	U
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	690	U	4-NITROPHENOL	3400	U
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	690	U
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	144	J5	DIETHYLPHTHALATE	71.8	J5
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	690	U
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	3400	U
2,4-DIMETHYLPHENOL	96.7	J5	PHENANTHRENE	73.1	J5
BENZOIC ACID	3400	U	ANTHRACENE	690	U
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	70.4	J5
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	98.3	J5
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	690	U
NAPHTHALENE	690	U	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	690	U
4-CHLORO-3-METHYLPHENOL	690	U	BIS(2-ETHYLHEXYL)PHTHALATE	865 J1	B
2-METHYLNAPHTHALENE	690	U	CHRYSENE	690	U
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	690	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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Attn: KEVIN TYNES

REPORT: 15888.10

DATE: 11/16/93

SWLO #: 15888.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE6
LOCATION:
DATE ANALYZED : 10/20/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.31

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	13	U	TRICHLOROETHENE	2.3	J5
BROMOMETHANE	13	U	DIBROMOCHLOROMETHANE	6.6	U
VINYL CHLORIDE	13	U	1,1,2-TRICHLOROETHANE	6.6	U
CHLOROETHANE	13	U	BENZENE	6.6	U
METHYLENE CHLORIDE	6.6	U	CIS-1,3-DICHLOROPROPENE	6.6	U
ACETONE	38		2-CHLOROETHYL VINYL ETHER	13	U
CARBON DISULFIDE	6.6	U	BROMOFORM	6.6	U
1,1-DICHLOROETHENE	6.6	U	2-HEXANONE	13	U
1,1-DICHLOROETHANE	6.6	U	4-METHYL-2-PENTANONE	13	U
CHLOROFORM	6.6	U	TETRACHLOROETHENE	6.6	U
1,2-DICHLOROETHANE	6.6	U	TOLUENE	6.6	U
1,1,1-TRICHLOROETHANE	6.6	U	CHLOROBENZENE	6.6	U
CARBON TETRACHLORIDE	6.6	U	ETHYLBENZENE	6.6	U
VINYL ACETATE	13	U	STYRENE	6.6	U
BROMODICHLOROMETHANE	6.6	U	1,2-DICHLOROETHENE (TOTAL)	6.6	U
1,1,2,2-TETRACHLOROETHANE	6.6	U	XYLENE (TOTAL)	6.6	U
1,2-DICHLOROPROPANE	6.6	U	2-BUTANONE	13	U
TRANS-1,3-DICHLOROPROPENE	6.6	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	88%	BROMOFLUOROBENZENE	(74-121) 115%
1,2-DICHLOROETHANE-D4	(70-121)	142% *		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.13

DATE: 11/16/93

SWLO #: 15888.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4W
LOCATION:
DATE ANALYZED : 10/20/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.36

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	14	U	TRICHLOROETHENE	6.8	U
BROMOMETHANE	14	U	DIBROMOCHLOROMETHANE	6.8	U
VINYL CHLORIDE	14	U	1,1,2-TRICHLOROETHANE	6.8	U
CHLOROETHANE	14	U	BENZENE	6.8	U
METHYLENE CHLORIDE	6.8	U	CIS-1,3-DICHLOROPROPENE	6.8	U
ACETONE	28		2-CHLOROETHYL VINYL ETHER	14	U
CARBON DISULFIDE	6.8	U	BROMOFORM	6.8	U
1,1-DICHLOROETHENE	6.8	U	2-HEXANONE	14	U
1,1-DICHLOROETHANE	6.8	U	4-METHYL-2-PENTANONE	14	U
CHLOROFORM	6.8	U	TETRACHLOROETHENE	6.8	U
1,2-DICHLOROETHANE	6.8	U	TOLUENE	2.3 J1	J
1,1,1-TRICHLOROETHANE	6.8	U	CHLOROBENZENE	6.8	U
CARBON TETRACHLORIDE	6.8	U	ETHYLBENZENE	6.8	U
VINYL ACETATE	14	U	STYRENE	6.8	U
BROMODICHLOROMETHANE	6.8	U	1,2-DICHLOROETHENE (TOTAL)	6.8	U
1,1,2,2-TETRACHLOROETHANE	6.8	U	XYLENE (TOTAL)	6.8	U
1,2-DICHLOROPROPANE	6.8	U	2-BUTANONE	14	U
TRANS-1,3-DICHLOROPROPENE	6.8	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 91%	BROMOFLUOROBENZENE	(74-121) 99%
1,2-DICHLOROETHANE-D4	(70-121) 107%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
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Attn: KEVIN TYNES

REPORT: 15888.12

DATE: 11/16/93

SWLO #: 15888.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4E
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	1.4	J5	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	23		2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	54	
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	90%	BROMOFLUOROBENZENE	(74-121) 102%
1,2-DICHLOROETHANE-D4	(70-121)	113%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.17

DATE: 11/16/93

SWLO #: 15888.17 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.52

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	15	U	TRICHLOROETHENE	50	
BROMOMETHANE	15	U	DIBROMOCHLOROMETHANE	7.6	U
VINYL CHLORIDE	15	U	1,1,2-TRICHLOROETHANE	7.6	U
CHLOROETHANE	15	U	BENZENE	66	
METHYLENE CHLORIDE	7.6	U	CIS-1,3-DICHLOROPROPENE	7.6	U
ACETONE	290		2-CHLOROETHYL VINYL ETHER	15	U
CARBON DISULFIDE	7.6	U	BROMOFORM	7.6	U
1,1-DICHLOROETHENE	52		2-HEXANONE	15	U
1,1-DICHLOROETHANE	7.6	U	4-METHYL-2-PENTANONE	15	U
CHLOROFORM	7.6	U	TETRACHLOROETHENE	7.6	U
1,2-DICHLOROETHANE	7.6	U	TOLUENE	75	
1,1,1-TRICHLOROETHANE	7.6	U	CHLOROBENZENE	70	
CARBON TETRACHLORIDE	7.6	U	ETHYLBENZENE	7.6	U
VINYL ACETATE	15	U	STYRENE	7.6	U
BROMODICHLOROMETHANE	7.6	U	1,2-DICHLOROETHENE (TOTAL)	7.6	U
1,1,2,2-TETRACHLOROETHANE	7.6	U	XYLENE (TOTAL)	7.6	U
1,2-DICHLOROPROPANE	7.6	U	2-BUTANONE	3.3	J5
TRANS-1,3-DICHLOROPROPENE	7.6	U			

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12/3/93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 123% *	BROMOFLUOROBENZENE	(74-121) 68% *
1,2-DICHLOROETHANE-D4	(70-121) 95%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.15

DATE: 11/16/93

SWLO #: 15888.15 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.52

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	15	U	TRICHLOROETHENE	7.6	U
BROMOMETHANE	15	U	DIBROMOCHLOROMETHANE	7.6	U
VINYL CHLORIDE	15	U	1,1,2-TRICHLOROETHANE	7.6	U
CHLOROETHANE	15	U	BENZENE	7.6	U
METHYLENE CHLORIDE	7.6	U	CIS-1,3-DICHLOROPROPENE	7.6	U
ACETONE	310 J2	E	2-CHLOROETHYL VINYL ETHER	15	U
CARBON DISULFIDE	7.6	U	BROMOFORM	7.6	U
1,1-DICHLOROETHENE	7.6	U	2-HEXANONE	15	U
1,1-DICHLOROETHANE	7.6	U	4-METHYL-2-PENTANONE	15	U
CHLOROFORM	7.6	U	TETRACHLOROETHENE	7.6	U
1,2-DICHLOROETHANE	7.6	U	TOLUENE	7.6	U
1,1,1-TRICHLOROETHANE	7.6	U	CHLOROBENZENE	3.9	J5
CARBON TETRACHLORIDE	7.6	U	ETHYLBENZENE	7.6	U
VINYL ACETATE	15	U	STYRENE	7.6	U
BROMODICHLOROMETHANE	7.6	U	1,2-DICHLOROETHENE (TOTAL)	7.6	U
1,1,2,2-TETRACHLOROETHANE	7.6	U	XYLENE (TOTAL)	7.6	U
1,2-DICHLOROPROPANE	7.6	U	2-BUTANONE	3	J5
TRANS-1,3-DICHLOROPROPENE	7.6	U			

DYB
12-3-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	115%	BROMOFLUOROBENZENE	(74-121)	74%
1,2-DICHLOROETHANE-D4	(70-121)	100%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.14

DATE: 11/16/93

SWLO #: 15888.14 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.65

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	16	U	TRICHLOROETHENE	8.3	U
BROMOMETHANE	16	U	DIBROMOCHLOROMETHANE	8.3	U
VINYL CHLORIDE	16	U	1,1,2-TRICHLOROETHANE	8.3	U
CHLOROETHANE	16	U	BENZENE	8.3	U
METHYLENE CHLORIDE	8.3	U	CIS-1,3-DICHLOROPROPENE	8.3	U
ACETONE	290		2-CHLOROETHYL VINYL ETHER	16	U
CARBON DISULFIDE	8.3	U	BROMOFORM	8.3	U
1,1-DICHLOROETHENE	8.3	U	2-HEXANONE	16	U
1,1-DICHLOROETHANE	8.3	U	4-METHYL-2-PENTANONE	16	U
CHLOROFORM	8.3	U	TETRACHLOROETHENE	8.3	U
1,2-DICHLOROETHANE	8.3	U	TOLUENE	8.3	U
1,1,1-TRICHLOROETHANE	8.3	U	CHLOROBENZENE	8.3	U
CARBON TETRACHLORIDE	8.3	U	ETHYLBENZENE	8.3	U
VINYL ACETATE	16	U	STYRENE	8.3	U
BROMODICHLOROMETHANE	8.3	U	1,2-DICHLOROETHENE (TOTAL)	8.3	U
1,1,2,2-TETRACHLOROETHANE	8.3	U	XYLENE (TOTAL)	8.3	U
1,2-DICHLOROPROPANE	8.3	U	2-BUTANONE	2.2	J 5
TRANS-1,3-DICHLOROPROPENE	8.3	U			

DMB
12.2.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 114%	BROMOFLUOROBENZENE	(74-121) 79%
1,2-DICHLOROETHANE-D4	(70-121) 108%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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:ERING SCIENCE, INC.
:HOAL CREEK BLVD.
222W
, TX 78757
KEVIN TYNES

REPORT: 15888.09

DATE: 11/16/93

: 15888.09 N1
T : TINKER AFB RFI
#: S32.8SS4
ON:
NALYZED : 10/21/93
REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.12

LE ORGANIC COMPOUNDS
S REPORT IN ug/kg

TER	RESULTS**		PARAMETER	RESULTS**	
METHANE	11	U	TRICHLOROETHENE	5.6	U
ETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
ETHANE	11	U	BENZENE	5.6	U
ENE CHLORIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
E	11	U	2-CHLOROETHYL VINYL ETHER	11	U
DISULFIDE	5.6	U	BROMOFORM	5.6	U
CHLOROETHENE	5.6	U	2-HEXANONE	11	U
CHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
FORM	5.6	U	TETRACHLOROETHENE	2.2	J 5
CHLOROETHANE	5.6	U	TOLUENE	5.6	U
TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
ACETATE	11	U	STYRENE	5.6	U
ICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE (TOTAL)	5.6	U
2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
CHLOROPROPANE	5.6	U	2-BUTANONE	11	U
1,3-DICHLOROPROPENE	5.6	U			

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12-2-93

QA/QC SURROGATE RECOVERIES

E-D8	(81-117) 100%	BROMOFLUOROBENZENE	(74-121) 91%
CHLOROETHANE-D4	(70-121) 102%		

TS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.08

DATE: 11/16/93

SWLO #: 15888.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS3
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.06

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	11	U	BENZENE	5.3	U
METHYLENE CHLORIDE	1.7 J4 ~~J5~~		CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	16 J4		2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	2.6	J5
1,2-DICHLOROETHANE	5.3	U	TOLUENE	1.1 J1	~~J~~
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	11	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	1,2-DICHLOROETHENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	96%	BROMOFLUOROBENZENE	(74-121)	94%
2-DICHLOROETHANE-D4	(70-121)	99%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.07

DATE: 11/16/93

SWLO #: 15888.07 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS2
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.04

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.2	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5.2	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5.2	U
CHLOROETHANE	10	U	BENZENE	5.2	U
METHYLENE CHLORIDE	2.8 J4 ~~J5~~		CIS-1,3-DICHLOROPROPENE	5.2	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5.2	U	BROMOFORM	5.2	U
1,1-DICHLOROETHENE	5.2	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5.2	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5.2	U	TETRACHLOROETHENE	1.8	JS
1,2-DICHLOROETHANE	5.2	U	TOLUENE	5.2	U
1,1,1-TRICHLOROETHANE	5.2	U	CHLOROBENZENE	5.2	U
CARBON TETRACHLORIDE	5.2	U	ETHYLBENZENE	5.2	U
VINYL ACETATE	10	U	STYRENE	5.2	U
BROMODICHLOROMETHANE	5.2	U	1,2-DICHLOROETHENE (TOTAL)	5.2	U
1,1,2,2-TETRACHLOROETHANE	5.2	U	XYLENE (TOTAL)	5.2	U
1,2-DICHLOROPROPANE	5.2	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5.2	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	102%	BROMOFLUOROBENZENE	(74-121)	80%
1,2-DICHLOROETHANE-D4	(70-121)	92%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.06

DATE: 11/16/93

SWLO #: 15888.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS2
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.04

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.2	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5.2	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5.2	U
CHLOROETHANE	10	U	BENZENE	5.2	U
METHYLENE CHLORIDE	1.7 J4 J5		CIS-1,3-DICHLOROPROPENE	5.2	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5.2	U	BROMOFORM	5.2	U
1,1-DICHLOROETHENE	5.2	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5.2	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5.2	U	TETRACHLOROETHENE	1.8 J5	
1,2-DICHLOROETHANE	5.2	U	TOLUENE	5.2	U
1,1,1-TRICHLOROETHANE	5.2	U	CHLOROBENZENE	5.2	U
CARBON TETRACHLORIDE	5.2	U	ETHYLBENZENE	5.2	U
VINYL ACETATE	10	U	STYRENE	5.2	U
BROMODICHLOROMETHANE	5.2	U	1,2-DICHLOROETHENE (TOTAL)	5.2	U
1,1,2,2-TETRACHLOROETHANE	5.2	U	XYLENE (TOTAL)	5.2	U
1,2-DICHLOROPROPANE	5.2	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5.2	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98%	BROMOFLUOROBENZENE	(74-121)	88%
1,2-DICHLOROETHANE-D4	(70-121)	91%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.05

DATE: 11/16/93

SWLO #: 15888.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS1
LOCATION:
DATE ANALYZED : 10/20/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	11	U	BENZENE	5.3	U
METHYLENE CHLORIDE	5.3	U	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	86		2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	2.6	J 5
1,2-DICHLOROETHANE	5.3	U	TOLUENE	5.3	U
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	11	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE (TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

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12.2.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	100%	BROMOFLUOROBENZENE	(74-121)	98%
1,2-DICHLOROETHANE-D4	(70-121)	108%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.04

DATE: 11/16/93

SWLO #: 15888.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS4
LOCATION:
DATE ANALYZED : 10/20/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	2.8	J 5
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	5.4	U
METHYLENE CHLORIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	11	U	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	3.4	J 5
1,2-DICHLOROETHANE	5.4	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

DMB 12-2-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 99%	BROMOFLUOROBENZENE	(74-121) 91%
1,2-DICHLOROETHANE-D4	(70-121) 104%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.02

DATE: 11/16/93

SWLO #: 15888.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS2
LOCATION:
DATE ANALYZED : 10/20/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.05

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	10	U	BENZENE	5.3	U
METHYLENE CHLORIDE	5.3	U	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	1.4	J 5
1,2-DICHLOROETHANE	5.3	U	TOLUENE	5.3	U
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	10	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE (TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

DYB
12.2-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	89%	BROMOFLUOROBENZENE	(74-121)	83%
1,2-DICHLOROETHANE-D4	(70-121)	97%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.01

DATE: 11/16/93

SWLO #: 15888.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS1
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.4	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	5.4	U
METHYLENE CHLORIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	42 J4		2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	5.4	U
1,2-DICHLOROETHANE	5.4	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

DYB
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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 109%	BROMOFLUOROBENZENE	(74-121) 90%
1,2-DICHLOROETHANE-D4	(70-121) 93%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.11

DATE: 11/16/93

SWLO #: 15873.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SS2
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 5.57

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	56	U	TRICHLOROETHENE	28	U
BROMOMETHANE	56	U	DIBROMOCHLOROMETHANE	28	U
VINYL CHLORIDE	56	U	1,1,2-TRICHLOROETHANE	28	U
CHLOROETHANE	56	U	BENZENE	28	U
METHYLENE CHLORIDE	40 J4		CIS-1,3-DICHLOROPROPENE	28	U
ACETONE	36 J4	J	2-CHLOROETHYL VINYL ETHER	56	U
CARBON DISULFIDE	28	U	BROMOFORM	28	U
1,1-DICHLOROETHENE	28	U	2-HEXANONE	56	U
1,1-DICHLOROETHANE	28	U	4-METHYL-2-PENTANONE	56	U
CHLOROFORM	8.3 J1	~~JB~~	TETRACHLOROETHENE	18	J5
1,2-DICHLOROETHANE	28	U	TOLUENE	28	U
1,1,1-TRICHLOROETHANE	28	U	CHLOROBENZENE	28	U
CARBON TETRACHLORIDE	28	U	ETHYLBENZENE	28	U
VINYL ACETATE	56	U	STYRENE	28	U
BROMODICHLOROMETHANE	28	U	1,2-DICHLOROETHENE (TOTAL)	28	U
1,1,2,2-TETRACHLOROETHANE	28	U	XYLENE (TOTAL)	28	U
1,2-DICHLOROPROPANE	28	U	2-BUTANONE	56	U
TRANS-1,3-DICHLOROPROPENE	28	U			

DMB 12-2-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	104%	BROMOFLUOROBENZENE	(74-121)	80%
1,2-DICHLOROETHANE-D4	(70-121)	71%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.10

DATE: 11/16/93

SWLO #: 15873.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SS1
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.04

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.2	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5.2	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5.2	U
CHLOROETHANE	10	U	BENZENE	5.2	U
METHYLENE CHLORIDE	15 J4		CIS-1,3-DICHLOROPROPENE	5.2	U
ACETONE	30 J4		2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5.2	U	BROMOFORM	5.2	U
1,1-DICHLOROETHENE	5.2	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5.2	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1.7 J1	JB	TETRACHLOROETHENE	7.5	
1,2-DICHLOROETHANE	5.2	U	TOLUENE	3.1 J1	
1,1,1-TRICHLOROETHANE	5.2	U	CHLOROBENZENE	5.2	U
CARBON TETRACHLORIDE	5.2	U	ETHYLBENZENE	5.2	U
VINYL ACETATE	10	U	STYRENE	5.2	U
BROMODICHLOROMETHANE	5.2	U	1,2-DICHLOROETHENE (TOTAL)	5.2	U
1,1,2,2-TETRACHLOROETHANE	5.2	U	XYLENE (TOTAL)	5.2	U
1,2-DICHLOROPROPANE	5.2	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5.2	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 108%	BROMOFLUOROBENZENE	(74-121) 87%
1,2-DICHLOROETHANE-D4	(70-121) 106%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.15

DATE: 11/16/93

SWLO #: 15873.15 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SS1
LOCATION:
DATE ANALYZED : 10/20/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	5.9	U	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	12	U	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	2.9	J 5
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE (TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	102%	BROMOFLUOROBENZENE	(74-121)	86%
1,2-DICHLOROETHANE-D4	(70-121)	120%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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Attn: KEVIN TYNES

REPORT: 15873.14

DATE: 11/16/93

SWLO #: 15873.14 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS3
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50
DATE PREPARED : / /
DILUTION FACTOR: 1.11

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	5.5	U
METHYLENE CHLORIDE	10 J4		CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	11	U	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	1.7 J1	JB	TETRACHLOROETHENE	7.3	
1,2-DICHLOROETHANE	5.5	U	TOLUENE	5.5	U
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE (TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 81%
1,2-DICHLOROETHANE-D4	(70-121) 91%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.13

DATE: 11/16/93

SWLO #: 15873.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS2
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50
DATE PREPARED : / /
DILUTION FACTOR: 1.04

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.2	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5.2	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5.2	U
CHLOROETHANE	10	U	BENZENE	5.2	U
METHYLENE CHLORIDE	8.7 J4		CIS-1,3-DICHLOROPROPENE	5.2	U
ACETONE	12 J4		2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5.2	U	BROMOFORM	5.2	U
1,1-DICHLOROETHENE	5.2	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5.2	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1.7 J1	~~JB~~	TETRACHLOROETHENE	2	J5
1,2-DICHLOROETHANE	5.2	U	TOLUENE	5.2	U
1,1,1-TRICHLOROETHANE	5.2	U	CHLOROBENZENE	5.2	U
CARBON TETRACHLORIDE	5.2	U	ETHYLBENZENE	5.2	U
VINYL ACETATE	10	U	STYRENE	5.2	U
BROMODICHLOROMETHANE	5.2	U	1,2-DICHLOROETHENE (TOTAL)	5.2	U
1,1,2,2-TETRACHLOROETHANE	5.2	U	XYLENE (TOTAL)	5.2	U
1,2-DICHLOROPROPANE	5.2	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5.2	U			

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12-2-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	104%	BROMOFLUOROBENZENE	(74-121) 89%
1,2-DICHLOROETHANE-D4	(70-121)	87%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.12

DATE: 11/16/93

SWLO #: 15873.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS1
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 131.25

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	1300	U	TRICHLOROETHENE	660	U
BROMOMETHANE	1300	U	DIBROMOCHLOROMETHANE	660	U
VINYL CHLORIDE	1300	U	1,1,2-TRICHLOROETHANE	660	U
CHLOROETHANE	1300	U	BENZENE	660	U
METHYLENE CHLORIDE	660	U	CIS-1,3-DICHLOROPROPENE	660	U
ACETONE	1300	U	2-CHLOROETHYL VINYL ETHER	1300	U
CARBON DISULFIDE	660	U	BROMOFORM	660	U
1,1-DICHLOROETHENE	660	U	2-HEXANONE	3100	
1,1-DICHLOROETHANE	660	U	4-METHYL-2-PENTANONE	1300	U
CHLOROFORM	660	U	TETRACHLOROETHENE	660	U
1,2-DICHLOROETHANE	660	U	TOLUENE	170 J1	J
1,1,1-TRICHLOROETHANE	660	U	CHLOROBENZENE	660	U
CARBON TETRACHLORIDE	660	U	ETHYLBENZENE	660	U
VINYL ACETATE	1300	U	STYRENE	660	U
BROMODICHLOROMETHANE	660	U	1,2-DICHLOROETHENE (TOTAL)	660	U
1,1,2,2-TETRACHLOROETHANE	660	U	XYLENE (TOTAL)	460 J5	J
1,2-DICHLOROPROPANE	660	U	2-BUTANONE	1300	U
TRANS-1,3-DICHLOROPROPENE	660	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	80% *	BROMOFLUOROBENZENE	(74-121)	78%
1,2-DICHLOROETHANE-D4	(70-121)	76%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.09

DATE: 11/16/93

SWLO #: 15873.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.3SS1
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.06

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	11	U	BENZENE	5.3	U
METHYLENE CHLORIDE	10 J4		CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	11	U	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	1.8 J1	~~JB~~	TETRACHLOROETHENE	7.8	
1,2-DICHLOROETHANE	5.3	U	TOLUENE	5.3	U
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	11	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE (TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

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12-2-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	106%	BROMOFLUOROBENZENE	(74-121)	89%
1,2-DICHLOROETHANE-D4	(70-121)	105%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.06

DATE: 11/16/93

SWLO #: 15873.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS3
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50
DATE PREPARED : / /
DILUTION FACTOR: 1.13

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	12 J4		CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	11	U	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	2 J1	J5	TETRACHLOROETHENE	9.2	
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE (TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

DMB 12.2.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 110%	BROMOFLUOROBENZENE	(74-121) 82%
1,2-DICHLOROETHANE-D4	(70-121) 113%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2509

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.07

DATE: 11/16/93

SWLO #: 15873.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS4
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.4	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	5.4	U
METHYLENE CHLORIDE	10 J4		CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	13 J4		2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	1.9 J1	~~J3~~	TETRACHLOROETHENE	5.4	U
1,2-DICHLOROETHANE	5.4	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

DMB
12.2.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	102%	BROMOFLUOROBENZENE	(74-121) 91%
1,2-DICHLOROETHANE-D4	(70-121)	100%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.08

DATE: 11/16/93

SWLO #: 15873.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SS1
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.06

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	10	U	BENZENE	5.3	U
METHYLENE CHLORIDE	9.1 J4		CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1.1 J1	~~JB~~	TETRACHLOROETHENE	7.9	
1,2-DICHLOROETHANE	5.3	U	TOLUENE	5.3	U
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	10	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE (TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

DYB 12-2-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 87%
1,2-DICHLOROETHANE-D4	(70-121) 102%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.05

DATE: 11/16/93

SWLO #: 15873.05 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	49	
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	58	
METHYLENE CHLORIDE	16 J4		CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	48 J4		2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	46		2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	1.8 J1	~~JB~~	TETRACHLOROETHENE	7.1	
1,2-DICHLOROETHANE	5.5	U	TOLUENE	62	
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	55	
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE (TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

DMB 12.2.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	109%	BROMOFLUOROBENZENE	(74-121)	78%
1,2-DICHLOROETHANE-D4	(70-121)	100%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.04

DATE: 11/16/93

SWLO #: 15873.04 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	43	
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	54	
METHYLENE CHLORIDE	22		CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	64		2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	41		2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	1.7 (J1)	~~JB~~	TETRACHLOROETHENE	8.6	
1,2-DICHLOROETHANE	5.5	U	TOLUENE	58	
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	50	
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE (TOTAL)	1.2	(J5)
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

DMB 12.2.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 113%	BROMOFLUOROBENZENE	(74-121) 76%
1,2-DICHLOROETHANE-D4	(70-121) 102%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.03

DATE: 11/16/93

SWLO #: 15873.03 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 10/20/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	5.5	U
METHYLENE CHLORIDE	1.6	J4	CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	30	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.5	U	TETRACHLOROETHENE	1.1	J5
1,2-DICHLOROETHANE	5.5	U	TOLUENE	5.5	U
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE (TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

DMB
12.3.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	109%	BROMOFLUOROBENZENE	(74-121)	79%
1,2-DICHLOROETHANE-D4	(70-121)	97%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.02

DATE: 11/16/93

SWLO #: 15873.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 10/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	16	J4	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	63	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	2	J1	TETRACHLOROETHENE	1.8	J5
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE (TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

DMB
12.3.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 116%	BROMOFLUOROBENZENE	(74-121) 79%
1,2-DICHLOROETHANE-D4	(70-121) 99%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

15873

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: Tinker AFB RFI

PROJECT NUMBER: AU401.07

CARRIER: [x] Federal Express [ ] UPS Other

AIRBILL OR CARRIER ID #: 8010145360

SAMPLER(S): Julie Burdey Michelle Town

(Signature): Julie Burdey Michelle Town

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	PRESERVATIVE: VOAs SW8240 ice	SV SW8270/SW3550 ice	total metals SW6010/SW3050 ice	total cyanides SW9010/SW3050 ice	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	FIELD LOT CONTROL NUMBER	REMARKS
10/13/93	0855	ESC1SE2		NI	SE	DS	0	0	2	✓	✓	✓	✓			0	0	1	A		
10/13/93	0950	ESC1SE1		NI	SE		0	0	2	✓	✓	✓	✓			0	0	1	A		
10/13/93	—	FIELDQC		TB1	WQ	NA	0	0	2	✓						0	0	1	A		TB1 is preserved with HCl

Relinquished by: Julie Burdey Date: 10/13/93 Time: 1130

(Signature)

Received by: Date: Time:

(Signature)

Relinquished by: Date: Time:

(Signature)

Received by: [signature] Date: 10/14/93 Time: 0900

(Signature)

Relinquished by: Date: Time:

(Signature)

Received by: Date: Time:

(Signature)

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy

3?

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PG 2 OF 2

15873

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: Tinker AFB RFI

CARRIER: [ ] Federal Express [ ] UPS

Other

PROJECT NUMBER: AU401.01

AIRBILL OR CARRIER ID #: 8010145356

SAMPLER(S): Michelle Town, Julie Burdey

(Signature) Michelle Town, Julie Burdey

PRESERVATIVE

ANALYSIS REQUIRED

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOAs SW8240 ice	SV SW8270/SW3050 ice	Total metals SW6010/SW3050 ice	Total cyan SW9010/SW3050 ice	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
10/12/93	1650	ESC1SE3		N1	SE	DS	0	0	2	✓	✓	✓	✓	0	0	1	A	
10/12/93	1650	ESC1SE3		FR1	SE	DS	0	0	2	✓	✓	✓	✓	0	0	1	A	
10/12/93	1650	ESC1SE3		MS1	SE	DS	0	0	2	✓	✓	✓	✓	0	0	1	A	
10/12/93	1650	ESC1SE3		SD1	SE	DS	0	0	1	✓	✓	✓	✓	0	0	1	A	
10/12/93	—	FIELDQC		TB1	WQ	NA	0	0	2	✓				0	0	1	A	TB1 is preserved with HCl

Relinquished by:	Date	Time	Relinquished by:	Date	Time	Relinquished by:	Date	Time
Julie Burdey (Signature)	10/12/93	1900	(Signature)			(Signature)		
Received by: K Follis (Signature)	10/13/93	0900	Received by: (Signature)			Received by: (Signature)		

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

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15873

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: Tinker AFB RFI

PROJECT NUMBER: AU401.01

CARRIER: [X] Federal Express [ ] UPS Other

AIRBILL OR CARRIER ID #: 8010145356

SAMPLER(S): Michelle Town, Julie Burdey

Signature: Michelle Town, Julie Burdey

PRESERVATIVE: ice

ANALYSIS REQUIRED: VOCs SW8240 ice; SVOCs SW8270 ice; total metals SW6010 ice; total cyanide SW9010 ice

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOCs SW8240	SVOCs SW8270	total metals SW6010	total cyanide SW9010	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	FIELD LOT CONTROL NUMBER	REMARKS
10/12/93	0810	I24.19551		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	0815	I24.19552		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	0825	I24.19553		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	0844	I24.19554		N1	SO	G	0.17	0.5	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	0855	S32.8551		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	0922	S32.8552		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	0922	S32.8552		FR1	SO	G	0.17	0.33	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	0945	S32.8553		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	0955	S32.8554		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	1405	ESC1SE6		N1	SE	DS	0	0	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	1455	ESC1SE5		N1	SE	DS	0	0	2	✓	✓	✓	✓	0	0	1	A		
10/12/93	1545	ESC1SE4E		N1	SE	DS	0	0	2	✓	✓	✓	✓	0	0	1	A		HOLD**
10/12/93	1535	ESC1SE4W		N1	SE	DS	0	0	2	✓	✓	✓	✓	0	0	1	A		HOLD**

Relinquished by: Julie Burdey Date: 10/12/93 Time: 1900

Received by: K Hollis Date: 10/13/93 Time: 0900

Relinquished by: (Signature) Date Time

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: (Signature) Date Time

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

ino dwg

15873

CHAIN OF CUSTODY RECORD

PG. 2 OF 2

ENGINEERING-SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: Tinker AFB RFI

CARRIER: [✓] Federal Express [ ] UPS

Other

PROJECT NUMBER: AU401.01

AIRBILL OR CARRIER ID #: 8010145371

SAMPLER(S): Julie Burdey, Christina Vail

(Signature) Julie Burdey, Christina Scully Vail

PRESERVATIVE: Volatiles SW8240 ice; SV SW8270/SW3050 ice; Tot. metals SW3050/SW6010 ice; Tot. cyanide SW3050/SW4010 ice; TPH

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	Volatiles SW8240 ice	SV SW8270/SW3050 ice	Tot. metals SW3050/SW6010 ice	Tot. cyanide SW3050/SW4010 ice	TPH	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
10/11/93	1510	I24.3SS2		N1	SO	G	0.33	0.5	2	✓	✓	✓	✓	✓	0	0	1	A	
10/11/93	1525	I24.3SS3		N1	SO	G	0.33	0.5	2	✓	✓	✓	✓	✓	0	0	1	A	
10/11/93	1540	RCPISS1		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓	✓	0	0	1	A	
10/11/93	1555	I24.5SS1		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	1600	I24.5SS2		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	—	FIELDQC		TB1	WQ	NA	0	0	2	✓					0	0	1	A	TB1 is preserved with HCl

Relinquished by: Julie Burdey (Signature) Date 10/11/93 Time 2000

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: [signature] (Signature) Date 10/12/93 Time [illegible]

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

15873

PG. 1 OF 2

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: Tinker AFB RFI

CARRIER: [✓] Federal Express [ ] UPS

Other

PROJECT NUMBER: AU401.01

AIRBILL OR CARRIER ID #: 8010145371

SAMPLER(S): Julie Burdey, Chris Vail

Signature: Julie Burdey, Christine Bailey Vail

PRESERVATIVE: ice, ice, ice, ice

ANALYSIS REQUIRED: Volatiles SW8240, SVOA SW3050/SW8270, Total metals SW3050/SW6010, Total cyanide SW3050/SW9010, TPH

FIELD LOT CONTROL NUMBER

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	Number of Containers	Volatiles SW8240	SVOA SW3050/SW8270	Total metals SW3050/SW6010	Total cyanide SW3050/SW9010	TPH	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	Remarks
10/11/93	1000	I24.2SS1		N1	SO	G	0.17	0.25	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	1015	I24.2SS2		N1	SO	G	0.17	0.5	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	1015	I24.2SS2		FR1	SO	G	0.17	0.5	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	1015	I24.2SS2		MS1	SO	G	0.17	0.5	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	1015	I24.2SS2		SD1	SO	G	0.17	0.5	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	1040	I24.2SS3		N1	SO	G	0.33	0.5	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	1055	I24.2SS4		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	1145	S32.1SS1		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	1200	S32.3SS1		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓		0	0	1	A	
10/11/93	1450	I24.3SS1		N1	SO	G	0.17	0.33	2	✓	✓	✓	✓	✓	0	0	1	A	
10/11/93	1450	I24.3SS1		FR1	SO	G	0.17	0.33	1					✓	0	0	1	A	
10/11/93	1450	I24.3SS1		MS1	SO	G	0.17	0.33	1					✓	0	0	1	A	
10/11/93	1450	I24.3SS1		SD1	SO	G	0.17	0.33	1					✓	0	0	1	A	

Relinquished by:	Date	Time	Relinquished by:	Date	Time	Relinquished by:	Date	Time
Julie Burdey (Signature)	10/11/93	2000	(Signature)			(Signature)		
Received by:	**Date**	**Time**	**Received by:**	**Date**	**Time**	**Received by:**	**Date**	**Time**
(Signature)			(Signature)			(Signature) [signature]	10/12/93	[illegible]

White: [illegible]tory returns with data; yellow: laboratory copy; pink: sampler c[illegible]

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING SCIENCE

SDG: 15873d
REPORT DATE: 11/15/93

MATRIX: **SOIL**
SAMPLE ID: **I24.2SS2 SD1**

MATRIX SPIKE DUPLICATE PRECISION DATA

PARAMETER	MS CONC. (mg/kg)	MSD CONC. (mg/kg)	RELATIVE PERCENT DIFFERENCE	CONTROL LIMIT MAX RPD
BARIUM	579	462	22*	20
CADMIUM	43.0	31.0	32*	20
CHROMIUM	511	399	25*	20
NICKEL	779	617	23*	20
ZINC	136	126	7.6	20
SILVER	31.7	30.5	3.9	20
ARSENIC	199	213	6.8	20
LEAD	110	93.4	16	20
SELENIUM	196	212	7.8	20
MERCURY	0.68	0.68	0.0	20
TOTAL CN-	7.4	9.0	20	20

SAMPLE ID: **ESC1SE3 SD1**

BARIUM	549	705	25*	20
CADMIUM	20.7	18.7	10	20
CHROMIUM	298	315	5.6	20
NICKEL	113	115	1.8	20
ZINC	154	166	7.5	20
SILVER	11.2	10.3	8.4	20
ARSENIC	280	289	3.2	20
LEAD	99.1	105	5.8	20
SELENIUM	274	283	3.2	20
MERCURY	0.85	0.82	3.6	20
TOTAL CN-	5.8	5.6	3.5	20

*OUTSIDE QC LIMITS

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE

SDG: 15873c
REPORT DATE: 11/15/93

MATRIX: **SOIL**
SAMPLE ID: **I24.2SS2 MS1**

MATRIX SPIKE

PARAMETER	DATE ANALYZED	SAMPLE CONC. (mg/kg)	SPIKE CONC. (mg/kg)	MS CONC. (mg/kg)	MS % RECOVERY	CONTROL LIMITS
BARIUM	10/18/93	171	220	579	185*	75-125
CADMIUM	10/18/93	16.2	5.5	43.0	487*	75-125
CHROMIUM	10/18/93	254	22.0	511	1168*	75-125
NICKEL	10/18/93	370	55.0	779	743*	75-125
ZINC	10/18/93	262	55.0	136	0*	75-125
SILVER	10/26/93	16.1	5.5	31.7	284*	75-125
ARSENIC	10/19/93	<1.2	220	199	90	75-125
LEAD	10/19/93	37.4	55	110	132*	75-125
SELENIUM	10/19/93	<0.6	220	196	89	75-125
MERCURY	10/18/93	0.16	0.55	0.68	95	75-125
TOTAL CN-	10/18/93	3.7	5.5	7.4	66*	75-125

SAMPLE ID: **ESC1SE3 MS1**

BARIUM	10/22/93	478	304	549	23*	75-125
CADMIUM	10/22/93	14.2	7.6	20.7	86	75-125
CHROMIUM	10/22/93	382	30.4	298	0*	75-125
NICKEL	10/22/93	61.7	76	113	68*	75-125
ZINC	10/22/93	124	76	154	39*	75-125
SILVER	10/25/93	2.5	7.6	11.2	114	75-125
ARSENIC	10/21/93	<1.7	304	280	92	75-125
LEAD	10/21/93	42.5	76	99.1	75	75-125
SELENIUM	10/21/93	1.3	304	274	90	75-125
MERCURY	10/20/93	0.25	0.76	0.85	79	75-125
TOTAL CN-	10/18/93	<0.76	7.6	5.8	76	75-125

*OUTSIDE QC LIMITS

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873

DATE: 11/11/93

SWLO QAQC#: 931102-001
PROJECT : TINKER AFB RFI
SAMPLE #: BNA BLK LB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	660	U	ACENAPHTHENE	660	U
BIS(2-CHLOROETHYL)ETHER	660	U	2,4-DINITROPHENOL	3200	U
2-CHLOROPHENOL	660	U	4-NITROPHENOL	3200	U
1,3-DICHLOROBENZENE	660	U	DIBENZOFURAN	660	U
1,4-DICHLOROBENZENE	660	U	2,4-DINITROTOLUENE	660	U
BENZYL ALCOHOL	660	U	2,6-DINITROTOLUENE	660	U
1,2-DICHLOROBENZENE	660	U	DIETHYLPHTHALATE	660	U
2-METHYLPHENOL(O-CRESOL)	660	U	4-CHLOROPHENYL-PHENYLETHER	660	U
BIS(2-CHLOROISOPROPYL)ETHER	660	U	FLUORENE	660	U
4-METHYLPHENOL(P-CRESOL)	660	U	4-NITROANILINE	3200	U
N-NITROSO-DI-N-PROPYLAMINE	660	U	4,6-DINITRO-2-METHYLPHENOL	3200	U
HEXACHLOROETHANE	660	U	N-NITROSODIPHENYLAMINE(1)	660	U
NITROBENZENE	660	U	4-BROMOPHENYL-PHENYLETHER	660	U
ISOPHORONE	660	U	HEXACHLOROBENZENE	660	U
2-NITROPHENOL	660	U	PENTACHLOROPHENOL	3200	U
2,4-DIMETHYLPHENOL	660	U	PHENANTHRENE	660	U
BENZOIC ACID	3200	U	ANTHRACENE	660	U
BIS(2-CHLOROETHOXY)METHANE	660	U	DI-N-BUTYL PHTHALATE	660	U
2,4-DICHLOROPHENOL	660	U	FLUORANTHENE	660	U
1,2,4-TRICHLOROBENZENE	660	U	PYRENE	660	U
NAPHTHALENE	660	U	BUTYL BENZYL PHTHALATE	660	U
4-CHLOROANILINE	660	U	3,3'-DICHLOROBENZIDINE	1300	U
HEXACHLOROBUTADIENE	660	U	BENZO(A)ANTHRACENE	660	U
4-CHLORO-3-METHYLPHENOL	660	U	BIS(2-ETHYLHEXYL)PHTHALATE	109	J
2-METHYLNAPHTHALENE	660	U	CHRYSENE	660	U
HEXACHLOROCYCLOPENTADIENE	660	U	DI-N-OCTYL PHTHALATE	660	U
2,4,6-TRICHLOROPHENOL	660	U	BENZO(B)FLUORANTHENE	660	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873

DATE: 11/03/93

SWLO QAQC#: 931019-001
PROJECT : TINKER AFB RFI
SAMPLE #: BNA BLANK LB1
LOCATION:
DATE ANALYZED : 10/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	660	U	ACENAPHTHENE	660	U
BIS(2-CHLOROETHYL)ETHER	660	U	2,4-DINITROPHENOL	3200	U
2-CHLOROPHENOL	660	U	4-NITROPHENOL	3200	U
1,3-DICHLOROBENZENE	660	U	DIBENZOFURAN	660	U
1,4-DICHLOROBENZENE	660	U	2,4-DINITROTOLUENE	660	U
BENZYL ALCOHOL	660	U	2,6-DINITROTOLUENE	660	U
1,2-DICHLOROBENZENE	660	U	DIETHYLPHTHALATE	660	U
2-METHYLPHENOL(O-CRESOL)	660	U	4-CHLOROPHENYL-PHENYLETHER	660	U
BIS(2-CHLOROISOPROPYL)ETHER	660	U	FLUORENE	660	U
4-METHYLPHENOL(P-CRESOL)	660	U	4-NITROANILINE	3200	U
N-NITROSO-DI-N-PROPYLAMINE	660	U	4,6-DINITRO-2-METHYLPHENOL	3200	U
HEXACHLOROETHANE	660	U	N-NITROSODIPHENYLAMINE(1)	660	U
NITROBENZENE	660	U	4-BROMOPHENYL-PHENYLETHER	660	U
ISOPHORONE	660	U	HEXACHLOROBENZENE	660	U
2-NITROPHENOL	660	U	PENTACHLOROPHENOL	3200	U
2,4-DIMETHYLPHENOL	660	U	PHENANTHRENE	660	U
BENZOIC ACID	3200	U	ANTHRACENE	660	U
BIS(2-CHLOROETHOXY)METHANE	660	U	DI-N-BUTYL PHTHALATE	660	U
2,4-DICHLOROPHENOL	660	U	FLUORANTHENE	660	U
1,2,4-TRICHLOROBENZENE	660	U	PYRENE	660	U
NAPHTHALENE	660	U	BUTYL BENZYL PHTHALATE	660	U
4-CHLOROANILINE	660	U	3,3'-DICHLOROBENZIDINE	1300	U
HEXACHLOROBUTADIENE	660	U	BENZO(A)ANTHRACENE	660	U
4-CHLORO-3-METHYLPHENOL	660	U	BIS(2-ETHYLHEXYL)PHTHALATE	93 JH	
2-METHYLNAPHTHALENE	660	U	CHRYSENE	660	U
HEXACHLOROCYCLOPENTADIENE	660	U	DI-N-OCTYL PHTHALATE	660	U
2,4,6-TRICHLOROPHENOL	660	U	BENZO(B)FLUORANTHENE	660	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.15

DATE: 11/16/93

SWLO #: 15888.15 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.52

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	15	U	TRICHLOROETHENE	7.6	U
BROMOMETHANE	15	U	DIBROMOCHLOROMETHANE	7.6	U
VINYL CHLORIDE	15	U	1,1,2-TRICHLOROETHANE	7.6	U
CHLOROETHANE	15	U	BENZENE	7.6	U
METHYLENE CHLORIDE	7.6	U	CIS-1,3-DICHLOROPROPENE	7.6	U
ACETONE	310 J2 E	NOTE 4	2-CHLOROETHYL VINYL ETHER	15	U
CARBON DISULFIDE	7.6	U	BROMOFORM	7.6	U
1,1-DICHLOROETHENE	7.6	U	2-HEXANONE	15	U
1,1-DICHLOROETHANE	7.6	U	4-METHYL-2-PENTANONE	15	U
CHLOROFORM	7.6	U	TETRACHLOROETHENE	7.6	U
1,2-DICHLOROETHANE	7.6	U	TOLUENE	7.6	U
1,1,1-TRICHLOROETHANE	7.6	U	CHLOROBENZENE	3.9	J
CARBON TETRACHLORIDE	7.6	U	ETHYLBENZENE	7.6	U
VINYL ACETATE	15	U	STYRENE	7.6	U
BROMODICHLOROMETHANE	7.6	U	1,2-DICHLOROETHENE (TOTAL)	7.6	U
1,1,2,2-TETRACHLOROETHANE	7.6	U	XYLENE (TOTAL)	7.6	U
1,2-DICHLOROPROPANE	7.6	U	2-BUTANONE	3	J
TRANS-1,3-DICHLOROPROPENE	7.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 115%	BROMOFLUOROBENZENE	(74-121) 74%
1,2-DICHLOROETHANE-D4	(70-121) 100%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : C931019A
INST. BATCH: 12736
REPORTED : 11/09/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : C931019A
LOCATION:

PREPARED :
ANALYZED : 10/19/93 12:06
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : WATER
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/L

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	ND	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	ND	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE (TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	1.1 J
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	91%	BROMOFLUOROBENZENE	(74-121)	105%
1,2-DICHLOROETHANE-D4	(70-121)	95%			

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : U931018A
INST. BATCH: 931
REPORTED : 11/09/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : U931018A
LOCATION:

PREPARED :
ANALYZED : 10/18/93 10:38
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	ND	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	ND	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE (TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	1.8 J	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 103%	BROMOFLUOROBENZENE	(74-121) 87%
1,2-DICHLOROETHANE-D4	(70-121) 90%		

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
= ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
= UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

TABLE ___ PAGE 1 OF 1

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: I24.3551 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
TPH	Gasoline	22.8	12.5	58.4*

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

TABLE ___

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: ESC1SE3 SAMPLE MATRIX: Sediment UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
Metals	Cadmium	14.2	10	34.7
	Chromium	382	270	34.4
	Lead	42.5	35.9	16.8
	Nickel	61.7	49.4	22.1
	Selenium	1.32	1.06	21.8
	Zinc	124	92.1	29.5
Cyanide	Total Cyanide	U	U	—

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

DATA VALIDATOR(Name/Signature) Date

TABLE ___ PAGE 1 OF 2

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: ESC1SE3 SAMPLE MATRIX: Sediment UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Acetone	290	310	6.7
	2-Butanone	2.2	3	30.8
	Chlorobenzene	U	3.9	NC
SVOCs	Phenanthrene	249	371	39.4
	Fluoranthene	965	1420	38.2
	Pyrene	956	878	8.5
	Benzo(a) Anthracene	192	389	67.8*
	Bis(2-ethylhexyl) phthalate	15300	11500	28.4
	Chrysene	349	616	55.3*
	Di-n-octyl phthalate	1540	1310	24.9
	Benzo(b) Fluoranthene	344	504	37.7
	Benzo(k)Fluoranthene	U	269	NC
	Benzo(a) Pyrene	247	314	23.9
	Indeno(1,2,3-cd) pyrene	209	274	29.3
	Benzo(g,h,i) Perylene	195	297	41.5
Metals	Mercury	0.248	0.213	15.2
	Silver	1.65	2.13	25.4
	Barium	478	384	21.8

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

DATA VALIDATOR(Name/Signature) Date

TABLE ___ PAGE 1 OF 1

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 532.8552 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	1.7	2.8	48.9
	Tetrachloroethene	1.8	1.8	0
SVOCs	Fluoranthene	119	90.1	27.6
	Pyrene	74	U	NC
	Butylbenzyl phthalate	217	U	NC
	Bis(2-ethylhexyl) phthalate	310	578	60.4*
	Benzo(b)Fluoranthene	89.4	U	NC
Metals	Mercury	0.415	0.312	28.3
	Silver	1.56	5.3	109*
	Arsenic	1.14	1.66	57.8*
	Barium	400	271	38.5
	Cadmium	1.66	1.98	17.6
	Chromium	59.4	67.4	12.6
	Lead	48.1	40.3	17.6
	Nickel	46.3	57.3	21.2
	Zinc	41.6	38.4	8
Cyanide	Total Cyanide	U	U	—

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

NC - not calculated.

DATA VALIDATOR(Name/Signature) Date

tafbdup.wq1

TABLE ___ PAGE 2 OF 2

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: I24.2552 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
Cyanide	Total Cyanide	3.68	1.86	65.7*

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

DATA VALIDATOR(Name/Signature) Date

tafbdup.wq1

TABLE ___

PAGE 1 OF 2

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: I24·2552 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	16	1.6	164 *
	Acetone	63	30	71 *
	Chloroform	2	U	NC
	Tetrachloroethene	1.8	1.1	48
SVOCs	4-Methylphenol	152	247	47.6
	Benzoic acid	169	150	11.9
	Fluoranthene	190	156	19.6
	Pyrene	160	129	21.4
	Bis(2-ethylhexyl) phthalate	8850	6730	27.2
	Di-n-octyl phthalate	1320	1060	21.8
Metals	Mercury	0.161	0.198	20.6
	Silver	16.1	25.7	45.9
	Barium	171	257	40.2
	Cadmium	16.2	25	42.7
	Chromium	254	412	47.4
	Lead	37.4	43.2	14.6
	Nickel	370	549	39
	Zinc	262	105	85.6 *

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

U - Not detected; NC - Not calculated

DATA VALIDATOR(Name/Signature) Date

Table ____

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

TINKER AIR FORCE BASE RFI

SDG: 15873

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
Cyanide	CN-1	14. The cyanide MS % Recovery for sample I24.2552 was below the QA objective (66 vs 75-125 %). Reported detections of cyanide in the soil samples have been qualified estimated.
	CN2	15. The cyanide %RPD for the field replicates for soil sample I24.2552 exceeded the QA objective (66 vs 20%). Reported detections of cyanide in the associate soil samples ~~have~~ have been ~~should be considered~~ qualified as estimated.
TPH	TPH-1	16. The gasoline (TPH) %RPD for field replicates for soil sample I24.3551 exceeded the QA objective (58 vs 50%). Reported detections of gasoline in the associate soil samples have been qualified as estimated.

1. Item number should correspond with the item number on the worksheet.

Data Validator (Name/Signature/Date)

Table ____
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG: 15873

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
Metals	M4	10. An RPD outlier was reported for the spike duplicate for sample ESC1SE3 for barium. The RPD (25%) exceeded the QA objective of 20%. Reported detections of barium in the sediment samples have already been qualified estimated due to the MS outlier (See note 9).
	M5	12 An RPD outlier was reported for the field replicates of sample I24.2552 for zinc. The calculated RPD for zinc (86%) exceeded the QA objective of 50%. Reported detections of zinc in the "I24" soil samples have been qualified estimated and considered biased high.
	M6	13. RPD outliers were reported for the soil field replicates of sample 532-5552 for silver and arsenic. The calculated RPDs were 109% and 58% respectively. Reported detections for the affected metals in the "532" soil samples have been qualified estimated and considered biased high.

1. Item number should correspond with the item number on the worksheet.

DAVID BADIO DEBADIO J. 12-2-93
Data Validator (Name/Signature/Date)

Table ____
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG: 15873

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
Metals	M1	Matrix spike (MS) % Recovery outliers were reported for sample I24.2552 for barium, cadmium, silver and lead. The % recoveries ranged from 132% for lead to 487% for cadmium. Reported detections of the affected metals in the soil samples have been qualified estimated and considered biased high.
	M2	Spike duplicate (SD) % RPD outliers were reported for sample I24.2552 for barium, cadmium, ~~chromium~~ nickel and ~~nickel~~ lead. The RPDs ranged from 22% for barium to 32% for cadmium, compared to the QA objective of 20%. Reported detections of the affected metals in the soil samples have been qualified estimated and considered biased high.
	M3	MS % recovery outliers were reported for sample ESCISE3 for barium, nickel and zinc. The % recoveries ranged from 23% for barium to 68% for nickel compared to the QA objective of 75-125%. Reported detections for the affected metals in the sediment samples have been qualified estimated and considered biased low.

1. Item number should correspond with the item number on the worksheet.

DAVID BADIO DEBADIOI 12-2-93
Data Validator (Name/Signature/Date)

Table ____
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG: 15873

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
SVOCs	SV1	4. Bis (2-ethylhexyl) phthalate (BEHP) was detected in two SVOC lab blanks associated with these samples. Reported concentrations were 98 and 109 ug/kg. Reported detections of BEHP in samples have been qualified estimated and should be considered biased high. Affected samples are: I24.2SS1, I24.2SS2, I24.2SS3, I24.2SS4, I24.3SS1, I24.3SS2, I24.3SS3, I24.5SS1, I24.5SS2, RCP1SS1, S32.1SS1, S32.8SS2, ESC1SE1, ESC1SE2 and ESC1SE3.
	SV2	5. The %RPD calculated for BEHP (60%) for the soil field replicates of sample I24.8SS2 exceeded the QA objective of 50%. Since the reported detections of BEHP in the affected samples have already been qualified as estimated (See note 4), no additional qualification is necessary.
	SV3	6. The %RPD calculated for the sediment field replicates (ESC1SE3) for Benzo(a)anthracene (68%) and chrysene (55%) exceeded the QA objective of 50%. Reported detections of either or both of these analytes in the sediment samples have been qualified estimated and should be considered biased high.
	SV4	7. The calibration range exceeded for 4-nitrophenol for ESC1SE3. The reported result has been qualified estimated.

1. Item number should correspond with the item number on the worksheet.

DAVID BADIO DEBADIO 12-2-93
Data Validator (Name/Signature/Date)

Table ____

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

TINKER AIR FORCE BASE RFI

SDG: 15873

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Chloroform (1.8ug/kg) and toluene (1.1ug/kg) were detected in some lab blanks associated with the samples. Reported detections of either or both of these analytes in the samples **have** been qualified as estimated and should be considered biased high. Affected samples: I24.2553, I24.2553, I24.2554, S32.1551, S32.3551, I24.5551, I24.5552, I24.3551 I24.3552, I24.3553, S32.8553 and ESC1SE4W.
	V2	2. The % RPD calculated for the soil field replicates of sample I24.2552 for methylene chloride and acetone exceeded the QA objective. RPDs of 164% and 71% respectively were calculated, compared to the QA objective of 50% for soil samples. Reported detections of either or both of the analytes in I24 soil samples have been qualified as estimated and should be considered biased high.
	V3	3. The acetone result for the sediment field replicate (ESC1SE3) was qualified "E" by the lab. The "E" flag indicates the reported result was above the calibration range. The result has been requalified as estimated.

1. Item number should correspond with the Item number on the worksheet.

DAVID BADIO [signature] 12-2-93

Data Validator (Name/Signature/Date)

TABLE ___
TINKER AIR FORCE BASE RFI
DATA VALIDATION WORKSHEET

SDG: 15873

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4
Cyanide	CN 1	MS % Rec. outlier for I24.2552	See Note 14	J6
	CN 2	Field replicate %RPD outlier for I24.2552	See Note 15	J6
TPH	TPH 1	Field replicate %RPD outliers for I24.3551	See Note 16	J4

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

D. BADIO DEBADIO L.
DATA VALIDATOR(Name/Signature)

12.2.93
Date

TABLE ___
TINKER AIR FORCE BASE RFI
DATA VALIDATION WORKSHEET

SDG: 15873

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4
VOCs	V1	Lab blank contamination	See Note 1	J1
	V2	Field replicate (RPD) outliers for I24.2SS2	See Note 2	J4
	V3	Calibration range exceeded for acetone - ESC1SE3	See Note 3	J2
SVOCs	SV1	Lab blank contamination	See Note 4.	J1
	SV2	Field replicate (RPD) outliers for S32-8SS2 (soil)	See Note 5	J4
	SV3	Field replicate (RPD) outliers for ESC1SE3 (Sediment)	See Note 6	J4
	SV4	Calibration range exceeded for 4-nitrophenol for ESC1SE3	See Note 7	J2
Metals	M1	Matrix spike (MS) % Recovery outliers for I24.2SS2.MS	See Note 8	J4
	M2	Spike duplicate (SD) %RPD outliers for I24.2SS2-SD	See Note 9	J4, J6
	M3	MS % Rec. outliers for ESC1SE3 MS	See Note 10	J4
	M4	SD %RPD outliers for ESC1SE3-SD	See Note 11	J4, J6
	M5	Field replicate %RPD outliers for I24.2SS2	See Note 12	J4
	M6	Field replicate %RPD outlier for S32.8SS2-FR	See Note 13	J4

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

D. BADIO (DEBADIO)
DATA VALIDATOR(Name/Signature)

12.2.93
Date

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.08

DATE: 11/16/93

SWLO #: 15888.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS3
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	730	U	ACENAPHTHENE	730	U
BIS(2-CHLOROETHYL)ETHER	730	U	2,4-DINITROPHENOL	3500	U
2-CHLOROPHENOL	730	U	4-NITROPHENOL	3500	U
1,3-DICHLOROBENZENE	730	U	DIBENZOFURAN	730	U
1,4-DICHLOROBENZENE	730	U	2,4-DINITROTOLUENE	730	U
BENZYL ALCOHOL	730	U	2,6-DINITROTOLUENE	730	U
1,2-DICHLOROBENZENE	730	U	DIETHYLPHTHALATE	730	U
2-METHYLPHENOL(O-CRESOL)	730	U	4-CHLOROPHENYL-PHENYLETHER	730	U
BIS(2-CHLOROISOPROPYL)ETHER	730	U	FLUORENE	730	U
4-METHYLPHENOL(P-CRESOL)	730	U	4-NITROANILINE	3500	U
N-NITROSO-DI-N-PROPYLAMINE	730	U	4,6-DINITRO-2-METHYLPHENOL	3500	U
HEXACHLOROETHANE	730	U	N-NITROSODIPHENYLAMINE(1)	730	U
NITROBENZENE	730	U	4-BROMOPHENYL-PHENYLETHER	730	U
ISOPHORONE	730	U	HEXACHLOROBENZENE	730	U
2-NITROPHENOL	730	U	PENTACHLOROPHENOL	3500	U
2,4-DIMETHYLPHENOL	730	U	PHENANTHRENE	730	U
BENZOIC ACID	3500	U	ANTHRACENE	730	U
BIS(2-CHLOROETHOXY)METHANE	730	U	DI-N-BUTYL PHTHALATE	730	U
2,4-DICHLOROPHENOL	730	U	FLUORANTHENE	730	U
1,2,4-TRICHLOROBENZENE	730	U	PYRENE	730	U
NAPHTHALENE	730	U	BUTYL BENZYL PHTHALATE	730	U
4-CHLOROANILINE	730	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	730	U	BENZO(A)ANTHRACENE	730	U
4-CHLORO-3-METHYLPHENOL	730	U	BIS(2-ETHYLHEXYL)PHTHALATE	88.7 J1	J
2-METHYLNAPHTHALENE	730	U	CHRYSENE	730	U
HEXACHLOROCYCLOPENTADIENE	730	U	DI-N-OCTYL PHTHALATE	730	U
2,4,6-TRICHLOROPHENOL	730	U	BENZO(B)FLUORANTHENE	730	U

DYB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.09

DATE: 11/16/93

SWLO #: 15888.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS4
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.60

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	860	U	ACENAPHTHENE	860	U
BIS(2-CHLOROETHYL)ETHER	860	U	2,4-DINITROPHENOL	4200	U
2-CHLOROPHENOL	860	U	4-NITROPHENOL	4200	U
1,3-DICHLOROBENZENE	860	U	DIBENZOFURAN	860	U
1,4-DICHLOROBENZENE	860	U	2,4-DINITROTOLUENE	860	U
BENZYL ALCOHOL	860	U	2,6-DINITROTOLUENE	860	U
1,2-DICHLOROBENZENE	860	U	DIETHYLPHTHALATE	860	U
2-METHYLPHENOL(O-CRESOL)	860	U	4-CHLOROPHENYL-PHENYLETHER	860	U
BIS(2-CHLOROISOPROPYL)ETHER	860	U	FLUORENE	860	U
4-METHYLPHENOL(P-CRESOL)	860	U	4-NITROANILINE	4200	U
N-NITROSO-DI-N-PROPYLAMINE	860	U	4,6-DINITRO-2-METHYLPHENOL	4200	U
HEXACHLOROETHANE	860	U	N-NITROSODIPHENYLAMINE(1)	860	U
NITROBENZENE	860	U	4-BROMOPHENYL-PHENYLETHER	860	U
ISOPHORONE	860	U	HEXACHLOROBENZENE	860	U
2-NITROPHENOL	860	U	PENTACHLOROPHENOL	4200	U
2,4-DIMETHYLPHENOL	860	U	PHENANTHRENE	860	U
BENZOIC ACID	4200	U	ANTHRACENE	860	U
BIS(2-CHLOROETHOXY)METHANE	860	U	DI-N-BUTYL PHTHALATE	860	U
2,4-DICHLOROPHENOL	860	U	FLUORANTHENE	860	U
1,2,4-TRICHLOROBENZENE	860	U	PYRENE	860	U
NAPHTHALENE	860	U	BUTYL BENZYL PHTHALATE	860	U
4-CHLOROANILINE	860	U	3,3'-DICHLOROBENZIDINE	1700	U
HEXACHLOROBUTADIENE	860	U	BENZO(A)ANTHRACENE	860	U
4-CHLORO-3-METHYLPHENOL	860	U	BIS(2-ETHYLHEXYL)PHTHALATE	206 J1	
2-METHYLNAPHTHALENE	860	U	CHRYSENE	860	U
HEXACHLOROCYCLOPENTADIENE	860	U	DI-N-OCTYL PHTHALATE	860	U
2,4,6-TRICHLOROPHENOL	860	U	BENZO(B)FLUORANTHENE	860	U

DMB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.10

DATE: 11/16/93

SWLO #: 15888.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE6
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.60

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	860	U	ACENAPHTHENE	860	U
BIS(2-CHLOROETHYL)ETHER	860	U	2,4-DINITROPHENOL	4200	U
2-CHLOROPHENOL	860	U	4-NITROPHENOL	4200	U
1,3-DICHLOROBENZENE	860	U	DIBENZOFURAN	860	U
1,4-DICHLOROBENZENE	860	U	2,4-DINITROTOLUENE	860	U
BENZYL ALCOHOL	860	U	2,6-DINITROTOLUENE	860	U
1,2-DICHLOROBENZENE	860	U	DIETHYLPHTHALATE	860	U
2-METHYLPHENOL(O-CRESOL)	860	U	4-CHLOROPHENYL-PHENYLETHER	860	U
BIS(2-CHLOROISOPROPYL)ETHER	860	U	FLUORENE	860	U
4-METHYLPHENOL(P-CRESOL)	860	U	4-NITROANILINE	4200	U
N-NITROSO-DI-N-PROPYLAMINE	860	U	4,6-DINITRO-2-METHYLPHENOL	4200	U
HEXACHLOROETHANE	860	U	N-NITROSODIPHENYLAMINE(1)	860	U
NITROBENZENE	860	U	4-BROMOPHENYL-PHENYLETHER	860	U
ISOPHORONE	860	U	HEXACHLOROBENZENE	860	U
2-NITROPHENOL	860	U	PENTACHLOROPHENOL	4200	U
2,4-DIMETHYLPHENOL	860	U	PHENANTHRENE	860	U
BENZOIC ACID	4200	U	ANTHRACENE	860	U
BIS(2-CHLOROETHOXY)METHANE	860	U	DI-N-BUTYL PHTHALATE	860	U
2,4-DICHLOROPHENOL	860	U	FLUORANTHENE	129	J 5
1,2,4-TRICHLOROBENZENE	860	U	PYRENE	860	U
NAPHTHALENE	860	U	BUTYL BENZYL PHTHALATE	860	U
4-CHLOROANILINE	860	U	3,3'-DICHLOROBENZIDINE	1700	U
HEXACHLOROBUTADIENE	860	U	BENZO(A)ANTHRACENE	860	U
4-CHLORO-3-METHYLPHENOL	860	U	BIS(2-ETHYLHEXYL)PHTHALATE	574	J1 ✓
2-METHYLNAPHTHALENE	860	U	CHRYSENE	860	U
HEXACHLOROCYCLOPENTADIENE	860	U	DI-N-OCTYL PHTHALATE	860	U
2,4,6-TRICHLOROPHENOL	860	U	BENZO(B)FLUORANTHENE	860	U

DMB 12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.11

DATE: 11/16/93

SWLO #: 15888.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	760	U	ACENAPHTHENE	760	U
BIS(2-CHLOROETHYL)ETHER	760	U	2,4-DINITROPHENOL	3700	U
2-CHLOROPHENOL	760	U	4-NITROPHENOL	3700	U
1,3-DICHLOROBENZENE	760	U	DIBENZOFURAN	760	U
1,4-DICHLOROBENZENE	760	U	2,4-DINITROTOLUENE	760	U
BENZYL ALCOHOL	760	U	2,6-DINITROTOLUENE	760	U
1,2-DICHLOROBENZENE	760	U	DIETHYLPHTHALATE	760	U
2-METHYLPHENOL(O-CRESOL)	760	U	4-CHLOROPHENYL-PHENYLETHER	760	U
BIS(2-CHLOROISOPROPYL)ETHER	760	U	FLUORENE	760	U
4-METHYLPHENOL(P-CRESOL)	760	U	4-NITROANILINE	3700	U
N-NITROSO-DI-N-PROPYLAMINE	760	U	4,6-DINITRO-2-METHYLPHENOL	3700	U
HEXACHLOROETHANE	760	U	N-NITROSODIPHENYLAMINE(1)	760	U
NITROBENZENE	760	U	4-BROMOPHENYL-PHENYLETHER	760	U
ISOPHORONE	760	U	HEXACHLOROBENZENE	760	U
2-NITROPHENOL	760	U	PENTACHLOROPHENOL	3700	U
2,4-DIMETHYLPHENOL	760	U	PHENANTHRENE	125	J 5
BENZOIC ACID	3700	U	ANTHRACENE	760	U
BIS(2-CHLOROETHOXY)METHANE	760	U	DI-N-BUTYL PHTHALATE	760	U
2,4-DICHLOROPHENOL	760	U	FLUORANTHENE	354	J 5
1,2,4-TRICHLOROBENZENE	760	U	PYRENE	164	J 5
NAPHTHALENE	760	U	BUTYL BENZYL PHTHALATE	760	U
4-CHLOROANILINE	760	U	3,3'-DICHLOROBENZIDINE	1500	U
HEXACHLOROBUTADIENE	760	U	BENZO(A)ANTHRACENE	70.9	J 4
4-CHLORO-3-METHYLPHENOL	760	U	BIS(2-ETHYLHEXYL)PHTHALATE	2200 J	
2-METHYLNAPHTHALENE	760	U	CHRYSENE	127	J 4
HEXACHLOROCYCLOPENTADIENE	760	U	DI-N-OCTYL PHTHALATE	253	J 5
2,4,6-TRICHLOROPHENOL	760	U	BENZO(B)FLUORANTHENE	167	J 5

DMB 12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.11

DATE: 11/16/93

SWLO #: 15888.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	3700	U	BENZO(K)FLUORANTHENE	760	U
2-CHLORONAPHTHALENE	760	U	BENZO(A)PYRENE	78.6	J 5
2-NITROANILINE	3700	U	INDENO(1,2,3-CD)PYRENE	760	U
DIETHYL PHTHALATE	760	U	DIBENZ(A,H)ANTHRACENE	760	U
ACENAPHTHYLENE	760	U	BENZO(G,H,I)PERYLENE	760	U
3-NITROANILINE	3700	U			

DMB 12-2-93

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	37%	2-FLUOROBIPHENYL	(30-115)	43%
TERPHENYL-D14	(18-137)	52%	PHENOL-D5	(24-113)	34%
2-FLUOROPHENOL	(25-121)	30%	2,4,6-TRIBROMOPHENOL	(19-122)	60%

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.12

DATE: 11/16/93

SWLO #: 15888.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4E
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	760	U	ACENAPHTHENE	760	U
BIS(2-CHLOROETHYL)ETHER	760	U	2,4-DINITROPHENOL	3700	U
2-CHLOROPHENOL	760	U	4-NITROPHENOL	3700	U
1,3-DICHLOROBENZENE	760	U	DIBENZOFURAN	760	U
1,4-DICHLOROBENZENE	269	J 5	2,4-DINITROTOLUENE	760	U
BENZYL ALCOHOL	760	U	2,6-DINITROTOLUENE	760	U
1,2-DICHLOROBENZENE	760	U	DIETHYLPHTHALATE	760	U
2-METHYLPHENOL(O-CRESOL)	760	U	4-CHLOROPHENYL-PHENYLETHER	760	U
BIS(2-CHLOROISOPROPYL)ETHER	760	U	FLUORENE	760	U
4-METHYLPHENOL(P-CRESOL)	760	U	4-NITROANILINE	3700	U
N-NITROSO-DI-N-PROPYLAMINE	760	U	4,6-DINITRO-2-METHYLPHENOL	3700	U
HEXACHLOROETHANE	760	U	N-NITROSODIPHENYLAMINE(1)	760	U
NITROBENZENE	760	U	4-BROMOPHENYL-PHENYLETHER	760	U
ISOPHORONE	760	U	HEXACHLOROBENZENE	760	U
2-NITROPHENOL	760	U	PENTACHLOROPHENOL	3700	U
2,4-DIMETHYLPHENOL	760	U	PHENANTHRENE	760	U
BENZOIC ACID	3700	U	ANTHRACENE	760	U
BIS(2-CHLOROETHOXY)METHANE	760	U	DI-N-BUTYL PHTHALATE	760	U
2,4-DICHLOROPHENOL	760	U	FLUORANTHENE	214	J 5
1,2,4-TRICHLOROBENZENE	760	U	PYRENE	83.1	J 5
NAPHTHALENE	760	U	BUTYL BENZYL PHTHALATE	760	U
4-CHLOROANILINE	760	U	3,3'-DICHLOROBENZIDINE	1500	U
HEXACHLOROBUTADIENE	760	U	BENZO(A)ANTHRACENE	760	U
4-CHLORO-3-METHYLPHENOL	760	U	BIS(2-ETHYLHEXYL)PHTHALATE	846 J1	
2-METHYLNAPHTHALENE	760	U	CHRYSENE	760	U
HEXACHLOROCYCLOPENTADIENE	760	U	DI-N-OCTYL PHTHALATE	1010	
2,4,6-TRICHLOROPHENOL	760	U	BENZO(B)FLUORANTHENE	760	U

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12.2.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.12

DATE: 11/16/93

SWLO #: 15888.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4E
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	3700	U	BENZO(K)FLUORANTHENE	105	J
2-CHLORONAPHTHALENE	760	U	BENZO(A)PYRENE	760	U
2-NITROANILINE	3700	U	INDENO(1,2,3-CD)PYRENE	760	U
DIMETHYL PHTHALATE	760	U	DIBENZ(A,H)ANTHRACENE	760	U
ACENAPHTHYLENE	760	U	BENZO(G,H,I)PERYLENE	760	U
3-NITROANILINE	3700	U			

DMB
12-2-93

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	35%	2-FLUOROBIPHENYL	(30-115)	51%
TERPHENYL-D14	(18-137)	55%	PHENOL-D5	(24-113)	31%
2-FLUOROPHENOL	(25-121)	22% *	2,4,6-TRIBROMOPHENOL	(19-122)	58%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 15888.13

DATE: 11/16/93

SWLO #: 15888.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4W
LOCATION:
DATE ANALYZED : 10/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.70

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	890	U	ACENAPHTHENE	890	U
BIS(2-CHLOROETHYL)ETHER	890	U	2,4-DINITROPHENOL	4300	U
2-CHLOROPHENOL	890	U	4-NITROPHENOL	4300	U
1,3-DICHLOROBENZENE	890	U	DIBENZOFURAN	890	U
1,4-DICHLOROBENZENE	890	U	2,4-DINITROTOLUENE	890	U
BENZYL ALCOHOL	890	U	2,6-DINITROTOLUENE	890	U
1,2-DICHLOROBENZENE	890	U	DIETHYLPHTHALATE	890	U
2-METHYLPHENOL(O-CRESOL)	890	U	4-CHLOROPHENYL-PHENYLETHER	890	U
BIS(2-CHLOROISOPROPYL)ETHER	890	U	FLUORENE	890	U
4-METHYLPHENOL(P-CRESOL)	890	U	4-NITROANILINE	4300	U
N-NITROSO-DI-N-PROPYLAMINE	890	U	4,6-DINITRO-2-METHYLPHENOL	4300	U
HEXACHLOROETHANE	890	U	N-NITROSODIPHENYLAMINE(1)	890	U
NITROBENZENE	890	U	4-BROMOPHENYL-PHENYLETHER	890	U
ISOPHORONE	890	U	HEXACHLOROBENZENE	890	U
2-NITROPHENOL	890	U	PENTACHLOROPHENOL	4300	U
2,4-DIMETHYLPHENOL	890	U	PHENANTHRENE	890	U
BENZOIC ACID	4300	U	ANTHRACENE	890	U
BIS(2-CHLOROETHOXY)METHANE	890	U	DI-N-BUTYL PHTHALATE	890	U
2,4-DICHLOROPHENOL	890	U	FLUORANTHENE	184	J 5
1,2,4-TRICHLOROBENZENE	890	U	PYRENE	117	J 5
NAPHTHALENE	890	U	BUTYL BENZYL PHTHALATE	890	U
4-CHLOROANILINE	890	U	3,3'-DICHLOROBENZIDINE	1800	U
HEXACHLOROBUTADIENE	890	U	BENZO(A)ANTHRACENE	890	U
4-CHLORO-3-METHYLPHENOL	890	U	BIS(2-ETHYLHEXYL)PHTHALATE	91 J 1	J
2-METHYLNAPHTHALENE	890	U	CHRYSENE	890	U
HEXACHLOROCYCLOPENTADIENE	890	U	DI-N-OCTYL PHTHALATE	890	U
2,4,6-TRICHLOROPHENOL	890	U	BENZO(B)FLUORANTHENE	118	J 5

DMB 12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.14

DATE: 11/16/93

SWLO #: 15888.14 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 3.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	1100	U	ACENAPHTHENE	1100	U
BIS(2-CHLOROETHYL)ETHER	1100	U	2,4-DINITROPHENOL	5300	U
2-CHLOROPHENOL	1100	U	4-NITROPHENOL	5300	U
1,3-DICHLOROBENZENE	1100	U	DIBENZOFURAN	1100	U
1,4-DICHLOROBENZENE	1100	U	2,4-DINITROTOLUENE	1100	U
BENZYL ALCOHOL	1100	U	2,6-DINITROTOLUENE	1100	U
1,2-DICHLOROBENZENE	1100	U	DIETHYLPHTHALATE	1100	U
2-METHYLPHENOL(O-CRESOL)	1100	U	4-CHLOROPHENYL-PHENYLETHER	1100	U
BIS(2-CHLOROISOPROPYL)ETHER	1100	U	FLUORENE	1100	U
4-METHYLPHENOL(P-CRESOL)	1100	U	4-NITROANILINE	5300	U
N-NITROSO-DI-N-PROPYLAMINE	1100	U	4,6-DINITRO-2-METHYLPHENOL	5300	U
HEXACHLOROETHANE	1100	U	N-NITROSODIPHENYLAMINE(1)	1100	U
NITROBENZENE	1100	U	4-BROMOPHENYL-PHENYLETHER	1100	U
ISOPHORONE	1100	U	HEXACHLOROBENZENE	1100	U
2-NITROPHENOL	1100	U	PENTACHLOROPHENOL	5300	U
2,4-DIMETHYLPHENOL	1100	U	PHENANTHRENE	249	J5
BENZOIC ACID	5300	U	ANTHRACENE	1100	U
BIS(2-CHLOROETHOXY)METHANE	1100	U	DI-N-BUTYL PHTHALATE	1100	U
2,4-DICHLOROPHENOL	1100	U	FLUORANTHENE	965	J5
1,2,4-TRICHLOROBENZENE	1100	U	PYRENE	956	J5
NAPHTHALENE	1100	U	BUTYL BENZYL PHTHALATE	1100	U
4-CHLOROANILINE	1100	U	3,3'-DICHLOROBENZIDINE	2200	U
HEXACHLOROBUTADIENE	1100	U	BENZO(A)ANTHRACENE	192	J4
4-CHLORO-3-METHYLPHENOL	1100	U	BIS(2-ETHYLHEXYL)PHTHALATE	15300	J1
2-METHYLNAPHTHALENE	1100	U	CHRYSENE	349	J4
HEXACHLOROCYCLOPENTADIENE	1100	U	DI-N-OCTYL PHTHALATE	1540	
2,4,6-TRICHLOROPHENOL	1100	U	BENZO(B)FLUORANTHENE	344	J5

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12.3.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.14

DATE: 11/16/93

SWLO #: 15888.14 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 3.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	5300	U	BENZO(K)FLUORANTHENE	269	J S
2-CHLORONAPHTHALENE	1100	U	BENZO(A)PYRENE	247	J S
2-NITROANILINE	5300	U	INDENO(1,2,3-CD)PYRENE	204	J S
DIMETHYL PHTHALATE	1100	U	DIBENZ(A,H)ANTHRACENE	1100	U
ACENAPHTHYLENE	1100	U	BENZO(G,H,I)PERYLENE	195	J S
3-NITROANILINE	5300	U			

AJB 12-3-93

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	45%	2-FLUOROBIPHENYL	(30-115)	47%
TERPHENYL-D14	(18-137)	88%	PHENOL-D5	(24-113)	40%
2-FLUOROPHENOL	(25-121)	37%	2,4,6-TRIBROMOPHENOL	(19-122)	41%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.15

DATE: 11/16/93

SWLO #: 15888.15 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 3.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	990	U	ACENAPHTHENE	990	U
BIS(2-CHLOROETHYL)ETHER	990	U	2,4-DINITROPHENOL	4800	U
2-CHLOROPHENOL	990	U	4-NITROPHENOL	4800	U
1,3-DICHLOROBENZENE	990	U	DIBENZOFURAN	990	U
1,4-DICHLOROBENZENE	990	U	2,4-DINITROTOLUENE	990	U
BENZYL ALCOHOL	990	U	2,6-DINITROTOLUENE	990	U
1,2-DICHLOROBENZENE	990	U	DIETHYLPHTHALATE	990	U
2-METHYLPHENOL(O-CRESOL)	990	U	4-CHLOROPHENYL-PHENYLETHER	990	U
BIS(2-CHLOROISOPROPYL)ETHER	990	U	FLUORENE	990	U
4-METHYLPHENOL(P-CRESOL)	990	U	4-NITROANILINE	4800	U
N-NITROSO-DI-N-PROPYLAMINE	990	U	4,6-DINITRO-2-METHYLPHENOL	4800	U
HEXACHLOROETHANE	990	U	N-NITROSODIPHENYLAMINE(1)	990	U
NITROBENZENE	990	U	4-BROMOPHENYL-PHENYLETHER	990	U
ISOPHORONE	990	U	HEXACHLOROBENZENE	990	U
2-NITROPHENOL	990	U	PENTACHLOROPHENOL	4800	U
2,4-DIMETHYLPHENOL	990	U	PHENANTHRENE	371	J5
BENZOIC ACID	4800	U	ANTHRACENE	990	U
BIS(2-CHLOROETHOXY)METHANE	990	U	DI-N-BUTYL PHTHALATE	990	U
2,4-DICHLOROPHENOL	990	U	FLUORANTHENE	1420	
1,2,4-TRICHLOROBENZENE	990	U	PYRENE	878	J5
NAPHTHALENE	990	U	BUTYL BENZYL PHTHALATE	990	U
4-CHLOROANILINE	990	U	3,3'-DICHLOROBENZIDINE	2000	U
HEXACHLOROBUTADIENE	990	U	BENZO(A)ANTHRACENE	389	J4
4-CHLORO-3-METHYLPHENOL	990	U	BIS(2-ETHYLHEXYL)PHTHALATE	11500	J1
2-METHYLNAPHTHALENE	990	U	CHRYSENE	616	J4
HEXACHLOROCYCLOPENTADIENE	990	U	DI-N-OCTYL PHTHALATE	1310	
2,4,6-TRICHLOROPHENOL	990	U	BENZO(B)FLUORANTHENE	504	J5

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12-3-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.15

DATE: 11/16/93

SWLO #: 15888.15 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 3.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	4800	U	BENZO(K)FLUORANTHENE	990	U
2-CHLORONAPHTHALENE	990	U	BENZO(A)PYRENE	314	J S
2-NITROANILINE	4800	U	INDENO(1,2,3-CD)PYRENE	274	J S
DIMETHYL PHTHALATE	990	U	DIBENZ(A,H)ANTHRACENE	990	U
ACENAPHTHYLENE	990	U	BENZO(G,H,I)PERYLENE	297	J S
3-NITROANILINE	4800	U			

DMB
12-3-93

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	46%	2-FLUOROBIPHENYL	(30-115)	70%
TERPHENYL-D14	(18-137)	104%	PHENOL-D5	(24-113)	41%
2-FLUOROPHENOL	(25-121)	28%	2,4,6-TRIBROMOPHENOL	(19-122)	81%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.16

DATE: 11/17/93

SWLO #: 15888.16 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 3.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	9390		ACENAPHTHENE	6750	
BIS(2-CHLOROETHYL)ETHER	990	U	2,4-DINITROPHENOL	4800	U
2-CHLOROPHENOL	9460		4-NITROPHENOL	13400	
',3-DICHLOROBENZENE	990	U	DIBENZOFURAN	990	U
,4-DICHLOROBENZENE	4340		2,4-DINITROTOLUENE	5310	
BENZYL ALCOHOL	990	U	2,6-DINITROTOLUENE	990	U
1,2-DICHLOROBENZENE	990	U	DIETHYLPHTHALATE	990	U
2-METHYLPHENOL(O-CRESOL)	990	U	4-CHLOROPHENYL-PHENYLETHER	990	U
BIS(2-CHLOROISOPROPYL)ETHER	990	U	FLUORENE	9520	
4-METHYLPHENOL(P-CRESOL)	990	U	4-NITROANILINE	4800	U
N-NITROSO-DI-N-PROPYLAMINE	6960		4,6-DINITRO-2-METHYLPHENOL	4800	U
HEXACHLOROETHANE	990	U	N-NITROSODIPHENYLAMINE(1)	990	U
NITROBENZENE	990	U	4-BROMOPHENYL-PHENYLETHER	990	U
ISOPHORONE	990	U	HEXACHLOROBENZENE	990	U
2-NITROPHENOL	990	U	PENTACHLOROPHENOL	14800	
2,4-DIMETHYLPHENOL	990	U	PHENANTHRENE	9810	
BENZOIC ACID	4800	U	ANTHRACENE	8250	
BIS(2-CHLOROETHOXY)METHANE	990	U	DI-N-BUTYL PHTHALATE	990	U
2,4-DICHLOROPHENOL	990	U	FLUORANTHENE	1510	
1,2,4-TRICHLOROBENZENE	5350		PYRENE	7390	
NAPHTHALENE	6210		BUTYL BENZYL PHTHALATE	990	U
4-CHLOROANILINE	990	U	3,3'-DICHLOROBENZIDINE	2000	U
HEXACHLOROBUTADIENE	990	U	BENZO(A)ANTHRACENE	360	J4
4-CHLORO-3-METHYLPHENOL	10700		BIS(2-ETHYLHEXYL)PHTHALATE	11800 J1	
2-METHYLNAPHTHALENE	5760		CHRYSENE	647	J4
HEXACHLOROCYCLOPENTADIENE	990	U	DI-N-OCTYL PHTHALATE	1480	
2,4,6-TRICHLOROPHENOL	990	U	BENZO(B)FLUORANTHENE	517	J5

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12-2-93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.16

DATE: 11/16/93

SWLO #: 15888.16 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 11/06/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 3.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	4800	U	BENZO(K)FLUORANTHENE	990	U
2-CHLORONAPHTHALENE	990	U	BENZO(A)PYRENE	279	J S
2-NITROANILINE	4800	U	INDENO(1,2,3-CD)PYRENE	277	J S
DIMETHYL PHTHALATE	990	U	DIBENZ(A,H)ANTHRACENE	990	U
ACENAPHTHYLENE	990	U	BENZO(G,H,I)PERYLENE	273	J S
3-NITROANILINE	4800	U			

DYB
12-2-93

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	56%	2-FLUOROBIPHENYL	(30-115)	79%
TERPHENYL-D14	(18-137)	94%	PHENOL-D5	(24-113)	42%
2-FLUOROPHENOL	(25-121)	36%	2,4,6-TRIBROMOPHENOL	(19-122)	76%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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NGINEERING SCIENCE, INC.
800 SHOAL CREEK BLVD.
UITE 222W
USTIN, TX 78757
ttn: KEVIN TYNES

REPORT: 15888.17

DATE: 11/17/93

WLO #: 15888.17 SD1
ROJECT : TINKER AFB RFI
AMPLE #: ESC1SE3
OCATION:
ATE ANALYZED : 11/06/93
ETHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 3.00

EMIVOLATILE ORGANIC COMPOUNDS
ESULTS REPORT IN ug/kg

ARAMETER	RESULTS**		PARAMETER	RESULTS**	
IENOL	9440		ACENAPHTHENE	6480	
S(2-CHLOROETHYL)ETHER	990	U	2,4-DINITROPHENOL	4800	U
-CHLOROPHENOL	9440		4-NITROPHENOL	18200 J2	E
-DICHLOROBENZENE	990	U	DIBENZOFURAN	990	U
-DICHLOROBENZENE	4300		2,4-DINITROTOLUENE	5460	
NZYL ALCOHOL	990	U	2,6-DINITROTOLUENE	990	U
2-DICHLOROBENZENE	990	U	DIETHYLPHTHALATE	990	U
-METHYLPHENOL(O-CRESOL)	990	U	4-CHLOROPHENYL-PHENYLETHER	990	U
S(2-CHLOROISOPROPYL)ETHER	990	U	FLUORENE	9210	
-METHYLPHENOL(P-CRESOL)	990	U	4-NITROANILINE	4800	U
-NITROSO-DI-N-PROPYLAMINE	7100		4,6-DINITRO-2-METHYLPHENOL	4800	U
XACHLOROETHANE	990	U	N-NITROSODIPHENYLAMINE(1)	990	U
TROBENZENE	990	U	4-BROMOPHENYL-PHENYLETHER	990	U
OPHORONE	990	U	HEXACHLOROBENZENE	990	U
-NITROPHENOL	990	U	PENTACHLOROPHENOL	14600	
4-DIMETHYLPHENOL	990	U	PHENANTHRENE	9480	
NZOIC ACID	4800	U	ANTHRACENE	8360	
S(2-CHLOROETHOXY)METHANE	990	U	DI-N-BUTYL PHTHALATE	990	U
4-DICHLOROPHENOL	990	U	FLUORANTHENE	1500	
2,4-TRICHLOROBENZENE	5190		PYRENE	7050	
PHTHALENE	5900		BUTYL BENZYL PHTHALATE	990	U
CHLOROANILINE	990	U	3,3'-DICHLOROBENZIDINE	2000	U
XACHLOROBUTADIENE	990	U	BENZO(A)ANTHRACENE	402	J4
CHLORO-3-METHYLPHENOL	10300		BIS(2-ETHYLHEXYL)PHTHALATE	10900 J1	
METHYLNAPHTHALENE	6020		CHRYSENE	612	J4
XACHLOROCYCLOPENTADIENE	990	U	DI-N-OCTYL PHTHALATE	1750	
4,6-TRICHLOROPHENOL	990	U	BENZO(B)FLUORANTHENE	731	J5

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

DYB 12-2-93

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GINEERING SCIENCE, INC.
00 SHOAL CREEK BLVD.
ITE 222W
STIN, TX 78757
tn: KEVIN TYNES

REPORT: 15888.17

DATE: 11/16/93

LO #: 15888.17 SD1
OJECT : TINKER AFB RFI
MPLE #: ESC1SE3
CATION:
TE ANALYZED : 11/06/93
THOD REFERENCE: SW846-8270

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 3.00

MIVOLATILE ORGANIC COMPOUNDS
SULTS REPORT IN ug/kg

RAMETER	RESULTS**		PARAMETER	RESULTS**	
4,5-TRICHLOROPHENOL	4800	U	BENZO(K)FLUORANTHENE	990	U
CHLORONAPHTHALENE	990	U	BENZO(A)PYRENE	323	J 5
NITROANILINE	4800	U	INDENO(1,2,3-CD)PYRENE	323	J 5
METHYL PHTHALATE	990	U	DIBENZ(A,H)ANTHRACENE	990	U
ENAPHTHYLENE	990	U	BENZO(G,H,I)PERYLENE	318	J 5
NITROANILINE	4800	U			

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12-2-93

QA/QC SURROGATE RECOVERIES

TROBENZENE-D5	(23-120)	54%	2-FLUOROBIPHENYL	(30-115)	74%
RPHENYL-D14	(18-137)	92%	PHENOL-D5	(24-113)	42%
FLUOROPHENOL	(25-121)	38%	2,4,6-TRIBROMOPHENOL	(19-122)	71%

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15906.01

DATE: 11/16/93

SWLO #: 15906.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE2
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/13/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 3.90

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	1300	U	ACENAPHTHENE	592	J 5
BIS(2-CHLOROETHYL)ETHER	1300	U	2,4-DINITROPHENOL	6200	U
2-CHLOROPHENOL	1300	U	4-NITROPHENOL	6200	U
1,3-DICHLOROBENZENE	1300	U	DIBENZOFURAN	382	J 5
1,4-DICHLOROBENZENE	1300	U	2,4-DINITROTOLUENE	1300	U
BENZYL ALCOHOL	1300	U	2,6-DINITROTOLUENE	1300	U
1,2-DICHLOROBENZENE	1300	U	DIETHYLPHTHALATE	1300	U
2-METHYLPHENOL(O-CRESOL)	1300	U	4-CHLOROPHENYL-PHENYLETHER	1300	U
BIS(2-CHLOROISOPROPYL)ETHER	1300	U	FLUORENE	712	J 5
4-METHYLPHENOL(P-CRESOL)	1300	U	4-NITROANILINE	6200	U
N-NITROSO-DI-N-PROPYLAMINE	1300	U	4,6-DINITRO-2-METHYLPHENOL	6200	U
HEXACHLOROETHANE	1300	U	N-NITROSODIPHENYLAMINE(1)	1300	U
NITROBENZENE	1300	U	4-BROMOPHENYL-PHENYLETHER	1300	U
ISOPHORONE	1300	U	HEXACHLOROBENZENE	1300	U
2-NITROPHENOL	1300	U	PENTACHLOROPHENOL	6200	U
2,4-DIMETHYLPHENOL	1300	U	PHENANTHRENE	9240	
BENZOIC ACID	229	J 5	ANTHRACENE	1710	
BIS(2-CHLOROETHOXY)METHANE	1300	U	DI-N-BUTYL PHTHALATE	1300	U
2,4-DICHLOROPHENOL	1300	U	FLUORANTHENE	13400	
1,2,4-TRICHLOROBENZENE	1300	U	PYRENE	12500	
NAPHTHALENE	324	J 5	BUTYL BENZYL PHTHALATE	1300	U
4-CHLOROANILINE	1300	U	3,3'-DICHLOROBENZIDINE	2600	U
HEXACHLOROBUTADIENE	1300	U	BENZO(A)ANTHRACENE	7260 J4	
4-CHLORO-3-METHYLPHENOL	1300	U	BIS(2-ETHYLHEXYL)PHTHALATE	(5300 J1) B	
2-METHYLNAPHTHALENE	133	J 5	CHRYSENE	7830 J4	
HEXACHLOROCYCLOPENTADIENE	1300	U	DI-N-OCTYL PHTHALATE	589	J 5
2,4,6-TRICHLOROPHENOL	1300	U	BENZO(B)FLUORANTHENE	7810	

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15906.01

DATE: 11/16/93

SWLO #: 15906.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE2
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/13/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 3.90

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	6200	U	BENZO(K)FLUORANTHENE	2970	
2-CHLORONAPHTHALENE	1300	U	BENZO(A)PYRENE	4640	
2-NITROANILINE	6200	U	INDENO(1,2,3-CD)PYRENE	678	J 5
DIMETHYL PHTHALATE	1300	U	DIBENZ(A,H)ANTHRACENE	616	J 5
ACENAPHTHYLENE	1300	U	BENZO(G,H,I)PERYLENE	192	J 5
3-NITROANILINE	6200	U			

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QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	77%	2-FLUOROBIPHENYL	(30-115)	88%
TERPHENYL-D14	(18-137)	106%	PHENOL-D5	(24-113)	66%
2-FLUOROPHENOL	(25-121)	76%	2,4,6-TRIBROMOPHENOL	(19-122)	99%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15906.02

DATE: 11/16/93

SWLO #: 15906.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/13/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.70

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	890	U	ACENAPHTHENE	262	J5
BIS(2-CHLOROETHYL)ETHER	890	U	2,4-DINITROPHENOL	4300	U
2-CHLOROPHENOL	890	U	4-NITROPHENOL	4300	U
1,3-DICHLOROBENZENE	890	U	DIBENZOFURAN	140	J5
1,4-DICHLOROBENZENE	890	U	2,4-DINITROTOLUENE	890	U
BENZYL ALCOHOL	890	U	2,6-DINITROTOLUENE	890	U
1,2-DICHLOROBENZENE	890	U	DIETHYLPHTHALATE	890	U
2-METHYLPHENOL(O-CRESOL)	890	U	4-CHLOROPHENYL-PHENYLETHER	890	U
BIS(2-CHLOROISOPROPYL)ETHER	890	U	FLUORENE	270	J5
4-METHYLPHENOL(P-CRESOL)	890	U	4-NITROANILINE	4300	U
N-NITROSO-DI-N-PROPYLAMINE	890	U	4,6-DINITRO-2-METHYLPHENOL	4300	U
HEXACHLOROETHANE	890	U	N-NITROSODIPHENYLAMINE(1)	890	U
NITROBENZENE	890	U	4-BROMOPHENYL-PHENYLETHER	890	U
ISOPHORONE	890	U	HEXACHLOROBENZENE	890	U
2-NITROPHENOL	890	U	PENTACHLOROPHENOL	4300	U
2,4-DIMETHYLPHENOL	890	U	PHENANTHRENE	3940	
BENZOIC ACID	97.4	J5	ANTHRACENE	782	J5
BIS(2-CHLOROETHOXY)METHANE	890	U	DI-N-BUTYL PHTHALATE	890	U
2,4-DICHLOROPHENOL	890	U	FLUORANTHENE	7020	
1,2,4-TRICHLOROBENZENE	890	U	PYRENE	6380	
NAPHTHALENE	143	J5	BUTYL BENZYL PHTHALATE	890	U
4-CHLOROANILINE	890	U	3,3'-DICHLOROBENZIDINE	1800	U
HEXACHLOROBUTADIENE	890	U	BENZO(A)ANTHRACENE	4050	J4
4-CHLORO-3-METHYLPHENOL	890	U	BIS(2-ETHYLHEXYL)PHTHALATE	3290	J1 B
2-METHYLNAPHTHALENE	890	U	CHRYSENE	5500	J4
HEXACHLOROCYCLOPENTADIENE	890	U	DI-N-OCTYL PHTHALATE	890	U
2,4,6-TRICHLOROPHENOL	890	U	BENZO(B)FLUORANTHENE	4390	

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15906.02

DATE: 11/16/93

SWLO #: 15906.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/13/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/14/93
DILUTION FACTOR: 2.70

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	4300	U	BENZO(K)FLUORANTHENE	2960	
2-CHLORONAPHTHALENE	890	U	BENZO(A)PYRENE	3220	
2-NITROANILINE	4300	U	INDENO(1,2,3-CD)PYRENE	1950	
DIMETHYL PHTHALATE	890	U	DIBENZ(A,H)ANTHRACENE	719	J 5
ACENAPHTHYLENE	890	U	BENZO(G,H,I)PERYLENE	2020	
3-NITROANILINE	4300	U			

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QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	79%	2-FLUOROBIPHENYL	(30-115)	83%
TERPHENYL-D14	(18-137)	104%	PHENOL-D5	(24-113)	62%
2-FLUOROPHENOL	(25-121)	75%	2,4,6-TRIBROMOPHENOL	(19-122)	95%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.01

DATE: 11/16/93

SWLO #: 15873.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS1
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.25

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.982		mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	26.8 J4		mg/kg	10/18/93	10/26/93	SW846-7761
ARSENIC	1.04	U	mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	317 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	49.2 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	945 J4		mg/kg	10/18/93	10/18/93	SW846-6010
EAD	104 J4		mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	1510 J4		mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.522	U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	93.4 J4		mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12.2.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

NGINEERING SCIENCE, INC.
800 SHOAL CREEK BLVD.
UITE 222W
USTIN, TX 78757
ttn: KEVIN TYNES

REPORT: 15873.02

DATE: 11/16/93

WLO #: 15873.02 N1
ROJECT : TINKER AFB RFI
AMPLE #: I24.2SS2
OCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50

ETAL PARAMETER

ARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ERCURY	0.161		mg/kg	10/18/93	10/18/93	SW846-7471
ILVER	16.1 J4		mg/kg	10/18/93	10/26/93	SW846-7761
RSENIC	1.15	U	mg/kg	10/18/93	10/19/93	SW846-6010
ARIUM	171 J6		mg/kg	10/18/93	10/18/93	SW846-6010
ADMIUM	16.2 J6		mg/kg	10/18/93	10/18/93	SW846-6010
HROMIUM	254 J4		mg/kg	10/18/93	10/18/93	SW846-6010
EAD	37.4 J4		mg/kg	10/18/93	10/19/93	SW846-6010
ICKEL	370 J4		mg/kg	10/18/93	10/18/93	SW846-6010
ELENIUM	0.574	U	mg/kg	10/18/93	10/19/93	SW846-6010
INC	262 J4		mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12-3-93

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.03

DATE: 11/16/93

SWLO #: 15873.03 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.198		mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	25.7 J4		mg/kg	10/18/93	10/28/93	SW846-7761
ARSENIC	1.1	U	mg/kg	10/22/93	10/25/93	SW846-6010
BARIUM	257 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	25 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	412 J4		mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	43.2 J4		mg/kg	10/22/93	10/25/93	SW846-6010
NICKEL	549 J4		mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.549	U	mg/kg	10/22/93	10/25/93	SW846-6010
ZINC	105 J4		mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12.3.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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NGINEERING SCIENCE, INC.
800 SHOAL CREEK BLVD.
UITE 222W
USTIN, TX 78757
ttn: KEVIN TYNES

REPORT: 15873.04

DATE: 11/16/93

WLO #: 15873.04 MS1
ROJECT : TINKER AFB RFI
AMPLE #: I24.2SS2
OCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50

ETAL PARAMETER

ARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ERCURY	0.68	mg/kg	10/18/93	10/18/93	SW846-7471
ILVER	31.7 J4	mg/kg	10/18/93	10/28/93	SW846-7761
RSENIC	199	mg/kg	10/22/93	10/25/93	SW846-6010
ARIUM	579 J6	mg/kg	10/18/93	10/18/93	SW846-6010
ADMIUM	43 J6	mg/kg	10/18/93	10/18/93	SW846-6010
HROMIUM	511 J4	mg/kg	10/18/93	10/18/93	SW846-6010
EAD	110 J4	mg/kg	10/22/93	10/25/93	SW846-6010
ICKEL	779 J4	mg/kg	10/18/93	10/18/93	SW846-6010
ELENIUM	196	mg/kg	10/22/93	10/25/93	SW846-6010
INC	136 J4	mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12.3.93

*RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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GINEERING SCIENCE, INC.
00 SHOAL CREEK BLVD.
ITE 222W
STIN, TX 78757
tn: KEVIN TYNES

REPORT: 15873.05

DATE: 11/16/93

LO #: 15873.05 SD1
OJECT : TINKER AFB RFI
MPLE #: I24.2SS2
CATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50

TAL PARAMETER

RAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
RCURY	0.68	mg/kg	10/18/93	10/18/93	SW846-7471
LVER	30.5 J4	mg/kg	10/18/93	10/28/93	SW846-7761
SENIC	213	mg/kg	10/22/93	10/25/93	SW846-6010
RIUM	462 J6	mg/kg	10/18/93	10/18/93	SW846-6010
DMIUM	31 J6	mg/kg	10/18/93	10/18/93	SW846-6010
ROMIUM	399 J4	mg/kg	10/18/93	10/18/93	SW846-6010
KEL	93.4 J4	mg/kg	10/22/93	10/25/93	SW846-6010
LENIUM	617 J4	mg/kg	10/18/93	10/18/93	SW846-6010
NC	212	mg/kg	10/22/93	10/25/93	SW846-6010
	126 J4	mg/kg	10/18/93	10/18/93	SW846-6010

MB
12-3-93

ESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.06

DATE: 11/16/93

SWLO #: 15873.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS3
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.113		mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	5.33 J4		mg/kg	10/18/93	10/26/93	SW846-7761
ARSENIC	4.08		mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	250 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	4.08 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	120 J4		mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	21 J4		mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	39.7 J4		mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.567	U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	50.8 J4		mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.07

DATE: 11/16/93

SWLO #: 15873.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS4
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.109	U	mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	6.43 J4		mg/kg	10/18/93	10/26/93	SW846-7761
ARSENIC	1.63		mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	208 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	31.5 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	343 J4		mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	46.7 J4		mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	102 J4		mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.545	U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	39.7 J4		mg/kg	10/18/93	10/18/93	SW846-6010

BMB
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*RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.08

DATE: 11/16/93

SWLO #: 15873.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SS1
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.297		mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	1.91 J4		mg/kg	10/18/93	10/25/93	SW846-7761
ARSENIC	2.97 J4		mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	252		mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	2.76		mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	92.4		mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	25		mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	25.6		mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.53	U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	94.1		mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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GINEERING SCIENCE, INC.
00 SHOAL CREEK BLVD.
ITE 222W
STIN, TX 78757
tn: KEVIN TYNES

REPORT: 15873.09

DATE: 11/16/93

LO #: 15873.09 N1
OJECT : TINKER AFB RFI
MPLE #: S32.3SS1
CATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

TAL PARAMETER

RAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
RCURY	0.106	U	mg/kg	10/18/93	10/18/93	SW846-7471
LVER	1.06	J4	mg/kg	10/18/93	10/25/93	SW846-7761
SENIC	4.15	J4	mg/kg	10/18/93	10/19/93	SW846-6010
RIUM	286		mg/kg	10/18/93	10/18/93	SW846-6010
)MIUM	2.13		mg/kg	10/18/93	10/18/93	SW846-6010
ROMIUM	52.2		mg/kg	10/18/93	10/18/93	SW846-6010
AD	12.4		mg/kg	10/18/93	10/19/93	SW846-6010
EL	35		mg/kg	10/18/93	10/18/93	SW846-6010
ENIUM	0.532	U	mg/kg	10/18/93	10/19/93	SW846-6010
NC	31.9		mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12-2-93

ESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.10

DATE: 11/16/93

SWLO #: 15873.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SS1
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.104 U	mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	1.04 J4	mg/kg	10/18/93	10/25/93	SW846-7761
ARSENIC	3.34	mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	300 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	1.88 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	85.3 J4	mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	11.6 J4	mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	26.2 J4	mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.521 U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	46.1 J4	mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.11

DATE: 11/16/93

SWLO #: 15873.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SS2
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.167		mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	2	J4	mg/kg	10/18/93	10/25/93	SW846-7761
ARSENIC	1.34		mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	177	J6	mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	3.23	J6	mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	45.1	J4	mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	14.5	J4	mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	23.4	J4	mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.557	U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	41.7	J4	mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12.2.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.12

DATE: 11/16/93

SWLO #: 15873.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS1
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.105	mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	7.87 J4	mg/kg	10/18/93	10/26/93	SW846-7761
ARSENIC	7.66	mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	304 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	8.92 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	180 J4	mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	71.3 J4	mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	335 J4	mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.525 U J4	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	494 J4	mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.13

DATE: 11/16/93

SWLO #: 15873.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS2
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.104	U	mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	1.04 J4		mg/kg	10/18/93	10/25/93	SW846-7761
ARSENIC	1.56		mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	69.5 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	0.935 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	44.1 J4		mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	80.7 J4		mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	36.6 J4		mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.52	U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	71 J4		mg/kg	10/18/93	10/18/93	SW846-6010

AYB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.14

DATE: 11/16/93

SWLO #: 15873.14 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS3
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.111 U	mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	9.98 J4	mg/kg	10/18/93	10/26/93	SW846-7761
ARSENIC	3.77	mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	354 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	7.88 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	212 J4	mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	31.6 J4	mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	212 J4	mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.555 U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	51.1 J4	mg/kg	10/18/93	10/18/93	SW846-6010

AYB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.15

DATE: 11/16/93

SWLO #: 15873.15 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SS1
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.13	mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	7.56 J4	mg/kg	10/18/93	10/26/93	SW846-7761
ARSENIC	1.3	mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	273 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	62.8 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	239 J4	mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	98.6 J4	mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	123 J4	mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.591 U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	90.9 J4	mg/kg	10/18/93	10/18/93	SW846-6010

DYB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.01

DATE: 11/16/93

SWLO #: 15888.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS1
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.214	mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	16.6 J4	mg/kg	10/18/93	10/26/93	SW846-7761
ARSENIC	1.07 U	mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	263 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	60.6 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	2650 J4	mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	142 J4	mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	312 J4	mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.536 U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	55.8 J4	mg/kg	10/18/93	10/18/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.02

DATE: 11/16/93

SWLO #: 15888.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS2
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.105 U	mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	11.5 J4	mg/kg	10/18/93	10/26/93	SW846-7761
ARSENIC	1.05 U	mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	196 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	15.5 J6	mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	473 J4	mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	25.3 J4	mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	523 J4	mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.527 U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	39.3 J4	mg/kg	10/18/93	10/18/93	SW846-6010

DWB
12.2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.03

DATE: 11/16/93

SWLO #: 15888.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS3
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.107		mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	2.14	J4	mg/kg	10/18/93	10/25/93	SW846-7761
ARSENIC	1.07	U	mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	538	J6	mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	2.89	J6	mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	78.6	J4	mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	13.4	J4	mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	562	J4	mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.536	U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	24.9	J4	mg/kg	10/18/93	10/18/93	SW846-6010

DYB
12.2.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.04

DATE: 11/16/93

SWLO #: 15888.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS4
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.107	U	mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	5.56 J4		mg/kg	10/18/93	10/26/93	SW846-7761
ARSENIC	1.07	U	mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	222 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	3.64 J6		mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	86.5 J4		mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	215 J4		mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	304 J4		mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.535	U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	51.6 J4		mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12.2.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.05

DATE: 11/16/93

SWLO #: 15888.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS1
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.128		mg/kg	10/18/93	10/18/93	SW846-7471
SILVER	8.74	J4	mg/kg	10/18/93	10/26/93	SW846-7761
ARSENIC	1.07	U	mg/kg	10/18/93	10/19/93	SW846-6010
BARIUM	428		mg/kg	10/18/93	10/18/93	SW846-6010
CADMIUM	9.06		mg/kg	10/18/93	10/18/93	SW846-6010
CHROMIUM	322		mg/kg	10/18/93	10/18/93	SW846-6010
LEAD	19.8		mg/kg	10/18/93	10/19/93	SW846-6010
NICKEL	63.3		mg/kg	10/18/93	10/18/93	SW846-6010
SELENIUM	0.533	U	mg/kg	10/18/93	10/19/93	SW846-6010
ZINC	40.5		mg/kg	10/18/93	10/18/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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INEERING SCIENCE, INC.
O SHOAL CREEK BLVD.
TE 222W
TIN, TX 78757
n: KEVIN TYNES

REPORT: 15888.06

DATE: 11/16/93

O #: 15888.06 N1
JECT : TINKER AFB RFI
PLE #: S32.8SS2
ATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

AL PARAMETER

AMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
CURY	0.415		mg/kg	10/18/93	10/18/93	SW846-7471
VER	1.56 J4		mg/kg	10/18/93	10/25/93	SW846-7761
ENIC	1.14 J4		mg/kg	10/18/93	10/19/93	SW846-6010
IUM	400		mg/kg	10/18/93	10/18/93	SW846-6010
MIUM	1.66		mg/kg	10/18/93	10/18/93	SW846-6010
OMIUM	59.4		mg/kg	10/18/93	10/18/93	SW846-6010
	48.1		mg/kg	10/18/93	10/19/93	SW846-6010
L	46.3		mg/kg	10/18/93	10/18/93	SW846-6010
ENIUM	0.519	U	mg/kg	10/18/93	10/19/93	SW846-6010
	41.6		mg/kg	10/18/93	10/18/93	SW846-6010

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SULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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NGINEERING SCIENCE, INC.
300 SHOAL CREEK BLVD.
JITE 222W
JSTIN, TX 78757
:tn: KEVIN TYNES

REPORT: 15888.07

DATE: 11/16/93

VLO #: 15888.07 FR1
ROJECT : TINKER AFB RFI
AMPLE #: S32.8SS2
OCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

ETAL PARAMETER

ARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ERCURY	0.312		mg/kg	10/18/93	10/18/93	SW846-7471
LVER	5.3 J4		mg/kg	10/18/93	10/26/93	SW846-7761
RSENIC	1.66 J4		mg/kg	10/18/93	10/19/93	SW846-6010
ARIUM	271		mg/kg	10/18/93	10/18/93	SW846-6010
DMIUM	1.98		mg/kg	10/18/93	10/18/93	SW846-6010
ROMIUM	67.4		mg/kg	10/18/93	10/18/93	SW846-6010
AL	40.3		mg/kg	10/18/93	10/19/93	SW846-6010
CKEL	57.3		mg/kg	10/18/93	10/18/93	SW846-6010
LENIUM	0.52	U	mg/kg	10/18/93	10/19/93	SW846-6010
NC	38.4		mg/kg	10/18/93	10/18/93	SW846-6010

DMB
12-3-93

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.08

DATE: 11/16/93

SWLO #: 15888.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS3
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.117		mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	1.06 J4		mg/kg	10/21/93	10/25/93	SW846-7761
ARSENIC	1.06	U	mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	343		mg/kg	10/21/93	10/21/93	SW846-6010
CADMIUM	19.4		mg/kg	10/21/93	10/21/93	SW846-6010
CHROMIUM	3050		mg/kg	10/21/93	10/21/93	SW846-6010
LEAD	32.1		mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	54.4		mg/kg	10/21/93	10/21/93	SW846-6010
SELENIUM	0.638		mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	37		mg/kg	10/21/93	10/21/93	SW846-6010

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12-2-93

*RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.09

DATE: 11/16/93

SWLO #: 15888.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS4
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.214		mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	1.57	J4	mg/kg	10/21/93	10/25/93	SW846-7761
ARSENIC	3.04	J4	mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	228		mg/kg	10/21/93	10/21/93	SW846-6010
CADMIUM	2.47		mg/kg	10/21/93	10/21/93	SW846-6010
CHROMIUM	85.4		mg/kg	10/21/93	10/21/93	SW846-6010
LEAD	11.2		mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	36.1		mg/kg	10/21/93	10/21/93	SW846-6010
SELENIUM	0.562	U	mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	31.4		mg/kg	10/21/93	10/21/93	SW846-6010

DMB
12.2.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.10

DATE: 11/16/93

SWLO #: 15888.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE6
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.17		mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	0.524		mg/kg	10/21/93	10/25/93	SW846-7761
ARSENIC	1.31	U	mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	170	J6	mg/kg	10/21/93	10/22/93	SW846-6010
CADMIUM	3.15		mg/kg	10/21/93	10/22/93	SW846-6010
CHROMIUM	38.3		mg/kg	10/21/93	10/22/93	SW846-6010
LEAD	48.1		mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	8.52	J4	mg/kg	10/21/93	10/22/93	SW846-6010
SELENIUM	0.656	U	mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	21.5	J4	mg/kg	10/21/93	10/22/93	SW846-6010

AMB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.11

DATE: 11/16/93

SWLO #: 15888.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.172		mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	1.99		mg/kg	10/21/93	10/25/93	SW846-7761
ARSENIC	1.32	U	mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	307 J6		mg/kg	10/21/93	10/22/93	SW846-6010
CADMIUM	17		mg/kg	10/21/93	10/22/93	SW846-6010
CHROMIUM	159		mg/kg	10/21/93	10/22/93	SW846-6010
LEAD	43.3		mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	31.9 J4		mg/kg	10/21/93	10/22/93	SW846-6010
SELENIUM	0.662	U	mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	54.2 J4		mg/kg	10/21/93	10/22/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.12

DATE: 11/17/93

SWLO #: 15888.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4E
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.12	U	mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	0.817		mg/kg	10/21/93	10/25/93	SW846-7761
ARSENIC	1.17	U	mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	158	J6	mg/kg	10/21/93	10/22/93	SW846-6010
CADMIUM	3.73		mg/kg	10/21/93	10/22/93	SW846-6010
CHROMIUM	68.1		mg/kg	10/21/93	10/22/93	SW846-6010
LEAD	37.8		mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	12.1	J4	mg/kg	10/21/93	10/22/93	SW846-6010
SELENIUM	0.583		mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	12	J4	mg/kg	10/21/93	10/22/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.13

DATE: 11/16/93

SWLO #: 15888.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4W
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.136	U	mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	0.136	U	mg/kg	10/21/93	10/25/93	SW846-7761
ARSENIC	2.31		mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	598 J6		mg/kg	10/21/93	10/22/93	SW846-6010
CADMIUM	2.58		mg/kg	10/21/93	10/22/93	SW846-6010
CHROMIUM	29.7		mg/kg	10/21/93	10/22/93	SW846-6010
LEAD	14.7		mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	12.2 J4		mg/kg	10/21/93	10/22/93	SW846-6010
SELENIUM	0.679	U	mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	41.4 J4		mg/kg	10/21/93	10/22/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.14

DATE: 11/16/93

SWLO #: 15888.14 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.248		mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	2.48		mg/kg	10/21/93	10/25/93	SW846-7761
ARSENIC	1.65	U	mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	478	J6	mg/kg	10/21/93	10/22/93	SW846-6010
CADMIUM	14.2		mg/kg	10/21/93	10/22/93	SW846-6010
CHROMIUM	382		mg/kg	10/21/93	10/22/93	SW846-6010
LEAD	42.5		mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	61.7	J4	mg/kg	10/21/93	10/22/93	SW846-6010
SELENIUM	1.32		mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	124	J4	mg/kg	10/21/93	10/22/93	SW846-6010

AMB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.15

DATE: 11/16/93

SWLO #: 15888.15 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.213	mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	2.13	mg/kg	10/21/93	10/25/93	SW846-7761
ARSENIC	1.52 U	mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	384 J6	mg/kg	10/21/93	10/22/93	SW846-6010
CADMIUM	10	mg/kg	10/21/93	10/22/93	SW846-6010
CHROMIUM	270	mg/kg	10/21/93	10/22/93	SW846-6010
LEAD	35.9	mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	49.4 J4	mg/kg	10/21/93	10/22/93	SW846-6010
SELENIUM	1.06	mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	92.1 J4	mg/kg	10/21/93	10/22/93	SW846-6010

DMB
12.2.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.16

DATE: 11/16/93

SWLO #: 15888.16 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.851	mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	11.2	mg/kg	10/21/93	10/25/93	SW846-7761
ARSENIC	280	mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	549 J6	mg/kg	10/21/93	10/22/93	SW846-6010
CADMIUM	20.7	mg/kg	10/21/93	10/22/93	SW846-6010
CHROMIUM	298	mg/kg	10/21/93	10/22/93	SW846-6010
LEAD	99.1	mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	113 J4	mg/kg	10/21/93	10/22/93	SW846-6010
SELENIUM	274	mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	154 J4	mg/kg	10/21/93	10/22/93	SW846-6010

DMB
12.2.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.17

DATE: 11/16/93

SWLO #: 15888.17 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.821	mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	10.3	mg/kg	10/21/93	10/26/93	SW846-7761
ARSENIC	289	mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	705 J6	mg/kg	10/21/93	10/22/93	SW846-6010
CADMIUM	18.7	mg/kg	10/21/93	10/22/93	SW846-6010
CHROMIUM	315	mg/kg	10/21/93	10/22/93	SW846-6010
LEAD	105	mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	115 J4	mg/kg	10/21/93	10/22/93	SW846-6010
SELENIUM	283	mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	166 J4	mg/kg	10/21/93	10/22/93	SW846-6010

MB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15906.01

DATE: 11/17/93

SWLO #: 15906.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE2
LOCATION:

DATE SAMPLED: 10/13/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.354		mg/kg	10/20/93	10/20/93	SW846-7471
SILVER	3.94		mg/kg	10/21/93	10/25/93	SW846-7761
ARSENIC	5.91		mg/kg	10/21/93	10/21/93	SW846-6010
BARIUM	559	J6	mg/kg	10/21/93	10/22/93	SW846-6010
CADMIUM	44.7		mg/kg	10/21/93	10/22/93	SW846-6010
CHROMIUM	260		mg/kg	10/21/93	10/22/93	SW846-6010
LEAD	112		mg/kg	10/21/93	10/21/93	SW846-6010
NICKEL	74.8	J4	mg/kg	10/21/93	10/22/93	SW846-6010
SELENIUM	0.985	U	mg/kg	10/21/93	10/21/93	SW846-6010
ZINC	374	J4	mg/kg	10/21/93	10/22/93	SW846-6010

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12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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NGINEERING SCIENCE, INC.
300 SHOAL CREEK BLVD.
JITE 222W
JSTIN, TX 78757
:tn: KEVIN TYNES

REPORT: 15906.02

DATE: 11/17/93

ILO #: 15906.02 N1
ROJECT : TINKER AFB RFI
AMPLE #: ESC1SE1
OCATION:

DATE SAMPLED: 10/13/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 0.00

TAL PARAMETER

RAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
RCURY	0.204		mg/kg	10/20/93	10/20/93	SW846-7471
LVER	1.77		mg/kg	10/21/93	10/25/93	SW846-7761
SENIC	1.36	U	mg/kg	10/21/93	10/21/93	SW846-6010
RIUM	268 J6		mg/kg	10/21/93	10/22/93	SW846-6010
DMIUM	3.54		mg/kg	10/21/93	10/22/93	SW846-6010
ROMIUM	59.8		mg/kg	10/21/93	10/22/93	SW846-6010
AD	37.9		mg/kg	10/21/93	10/21/93	SW846-6010
CKEL	26.8 J4		mg/kg	10/21/93	10/22/93	SW846-6010
LENIUM	0.681	U	mg/kg	10/21/93	10/21/93	SW846-6010
NC	89 J4		mg/kg	10/21/93	10/22/93	SW846-6010

DMB
12-2-93

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.12

DATE: 11/16/93

SWLO #: 15873.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS1
LOCATION:
DATE ANALYZED : 10/22/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.00

TOTAL PURGEABLE HYDROCARBONS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**	PARAMETER	RESULTS**
GASOLINE	22.8 J4		

DYB
12-3-93

QA/QC SURROGATE RECOVERIES
4-BROMOFLUOROBENZENE (65-135) 48% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

IGINEERING SCIENCE, INC.
00 SHOAL CREEK BLVD.
ITE 222W
STIN, TX 78757
tn: KEVIN TYNES

REPORT: 15873.16

DATE: 11/16/93

LO #: 15873.16 FR1
OJECT : TINKER AFB RFI
MPLE #: I24.3SS1
CATION:
TE ANALYZED : 10/23/93
THOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.00

TAL PURGEABLE HYDROCARBONS
SULTS REPORT IN ug/kg

RAMETER	RESULTS**	PARAMETER	RESULTS**
SOLINE	12.5 J4		

DYB
12.3.93

QA/QC SURROGATE RECOVERIES
4-BROMOFLUOROBENZENE (65-135) 53% *

ESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.17

DATE: 11/16/93

SWLO #: 15873.17 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS1
LOCATION:
DATE ANALYZED : 10/23/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.00

TOTAL PURGEABLE HYDROCARBONS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**	PARAMETER	RESULTS**
GASOLINE	50.7 J4		

DMB
12.3.93

QA/QC SURROGATE RECOVERIES
4-BROMOFLUOROBENZENE (65-135) 43% *

*RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

NGINEERING SCIENCE, INC.
800 SHOAL CREEK BLVD.
UITE 222W
USTIN, TX 78757
ttn: KEVIN TYNES

REPORT: 15873.18

DATE: 11/16/93

WLO #: 15873.18 SD1
ROJECT : TINKER AFB RFI
AMPLE #: I24.3SS1
OCATION:
ATE ANALYZED : 10/23/93
ETHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33
DATE PREPARED : / /
DILUTION FACTOR: 1.00

OTAL PURGEABLE HYDROCARBONS
ESULTS REPORT IN ug/kg

ARAMETER	RESULTS**	PARAMETER	RESULTS**
ASOLINE	29.6 J4		

DMB 12-3-93

QA/QC SURROGATE RECOVERIES
4-BROMOFLUOROBENZENE (65-135) 40% *

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

NGINEERING SCIENCE, INC.
800 SHOAL CREEK BLVD.
UITE 222W
USTIN, TX 78757
ttn: KEVIN TYNES

REPORT: 15873.01

DATE: 11/16/93

WLO #: 15873.01 N1
ROJECT : TINKER AFB RFI
AMPLE #: I24.2SS1
OCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.25

ISCELLANEOUS

ARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
OTAL CYANIDE	5.43 JC	mg/kg	/ /	10/18/93	SW846-9010

DMB
12.2.93

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

NEERING SCIENCE, INC.
SHOAL CREEK BLVD.
E 222W
IN, TX 78757
: KEVIN TYNES

REPORT: 15873.02

DATE: 11/16/93

#: 15873.02 N1
ECT : TINKER AFB RFI
LE #: I24.2SS2
TION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50

ELLANEOUS

METER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
L CYANIDE	3.68 J6	mg/kg	/ /	10/18/93	SW846-9010

SULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

INEERING SCIENCE, INC.
O SHOAL CREEK BLVD.
TE 222W
TIN, TX 78757
a: KEVIN TYNES

REPORT: 15873.03

DATE: 11/16/93

O #: 15873.03 FR1
JECT : TINKER AFB RFI
PLE #: I24.2SS2
ATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50

CELLANEOUS

AMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
AL CYANIDE	1.86 J6	mg/kg	/ /	10/18/93	SW846-9010

SULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.04

DATE: 11/16/93

SWLO #: 15873.04 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50

MISCELLANEOUS

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TOTAL CYANIDE	7.35	JG	mg/kg	/ /	10/18/93	SW846-9010

DyB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.05

DATE: 11/16/93

SWLO #: 15873.05 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.50

MISCELLANEOUS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TOTAL CYANIDE	9 J6	mg/kg	/ /	10/18/93	SW846-9010

DJB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.07

DATE: 11/16/93

SWLO #: 15873.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS4
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

MISCELLANEOUS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TOTAL CYANIDE	0.763 J6	mg/kg	/ /	10/18/93	SW846-9010

DYB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.14

DATE: 11/16/93

SWLO #: 15873.14 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS3
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.33
DEPTH TO : 0.50

MISCELLANEOUS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TOTAL CYANIDE	0.788 J6	mg/kg	/ /	10/18/93	SW846-9010

DYB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15873.15

DATE: 11/16/93

SWLO #: 15873.15 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SS1
LOCATION:

DATE SAMPLED: 10/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

MISCELLANEOUS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TOTAL CYANIDE	1.66 J6	mg/kg	/ /	10/18/93	SW846-9010

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12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.01

DATE: 11/16/93

SWLO #: 15888.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS1
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

MISCELLANEOUS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TOTAL CYANIDE	5.15 J6	mg/kg	/ /	10/18/93	SW846-9010

DMB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.02

DATE: 11/16/93

SWLO #: 15888.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS2
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

MISCELLANEOUS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TOTAL CYANIDE	0.875 J6	mg/kg	/ /	10/18/93	SW846-9010

AMB
12-2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 15888.08

DATE: 11/16/93

SWLO #: 15888.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS3
LOCATION:

DATE SAMPLED: 10/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.17
DEPTH TO : 0.33

MISCELLANEOUS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TOTAL CYANIDE	0.936 J6	mg/kg	/ /	10/18/93	SW846-9010

DMB
12.2-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

TABLE ___

TINKER AIR FORCE BASE RFI

DATA VALIDATION WORKSHEET

SDG: 16111

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4)
VOCs	V1	Lab blank contamination	See Note 1	J1
	V2	Field replicate precision outlier	See Note 2	J4
SVOCs	SV1	Lab blank contamination	See Note 3	J1
Metals	M1	Spike %R outlier for mercury	See Note 4	J4
	M2	Spike %R outlier for chromium	See Note 5	J4
	M3	Precision (RPD) outliers for chromium, lead, nickel and zinc	See Note 6	J4

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

David Y. Badio DEBADW

DATA VALIDATOR(Name/Signature)

12-15-93

Date

Table ____

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

TINKER AIR FORCE BASE RFI

SDG: 16111

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Methylene chloride was detected (1.6 ug/kg) in one of the lab blanks associated with the soil samples. All detections of this analyte in the samples have been qualified as estimated (J1)
	V2	2. A precision outlier was calculated for acetone for sample S32.25B2 and its field replicate. The RPD calculated (84%) exceeded the QA objective of 50%. All detections of acetone in soil samples with "S32.25B" prefix have been qualified as estimated.
SVOCs	SV1	3. Bis(2-ethylhexyl)phthalate (39.5 ug/kg) and Di-n-butyl phthalate (75.8 ug/kg) were detected in lab blanks associated with this SDG. All detections of these analytes in the samples have been qualified estimated.
Metals	M1	4. Spike %R outlier reported for mercury for MS/SD sample (S32.25B2). The %R (144%) exceeded the QA objective of 75-125%. Since mercury was not detected in any of the associate samples, only reported results for the MS and SD samples have been qualified as estimated.

1. Item number should correspond with the item number on the worksheet.

David Y. Badio [signature] 12.15.93

Data Validator (Name/Signature/Date)

Table ____
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG:

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
Metals	M2	Spike %R outlier reported for chromium for MS for sample S32.1SB1. The %R (60%) was below the QA objective of 75-125%. All reported results for chromium in the "S32" ~~and~~ samples have been qualified as estimated.
	M3	Precision outliers calculated for chromium, lead, nickel and zinc. The RPDs calculated for these analytes for sample I24.55B2 and its field replicate, exceeded the QA objective of 50%. The calculated RPDs ranged from 60.7% for nickel to 107.5% for lead. All reported detections of the affected analytes in "I24.55B" soil samples have been qualified estimated.

1. Item number should correspond with the item number on the worksheet.

David Y. Badio DEBARRO L. 12-15-93

Data Validator (Name/Signature/Date)

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : U931103A
INST. BATCH: 2349
REPORTED : 11/22/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : U931103A
LOCATION:

ANALYZED : 11/03/93 11:25
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE NOTE 1	5	1.6 J	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	ND	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	95%	BROMOFLUOROBENZENE	(74-121)	92%
1,2-DICHLOROETHANE-D4	(70-121)	92%			

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

TABLE ___ PAGE 4 OF 5

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: S32-2582 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene chloride	12	8.7	31.9
	Acetone (10)	59	24	84.3*
SVOCs	Bis(2-ethylhexyl)phthalate	79.4	52.5	40.8
	Di-n-butyl phthalate	ND	38	—
Metals	Arsenic	12.8	13.1	2.3
	Barium	300	272	9.8
	Chromium	23.8	20.5	12.2
	Lead	5.4	5.27	2.4
	Nickel	29.1	28.8	1.0
	Zinc	40.2	37.6	6.7
Cyanide	Total Cyanide	U	U	—

Note

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

DATA VALIDATOR(Name/Signature) Date

tafbdup.wq1

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111

DATE: 11/19/93

SWLO QAQC#: 931028-001
PROJECT : TINKER AFB RFI
SAMPLE #: BNA BLANK6111 LB1
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/28/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	39.5	J - Note 3
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111

DATE: 11/19/93

SWLO QAQC#: 931029-001
PROJECT : TINKER AFB RFI
SAMPLE #: BNA BLANK6144 LB1
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	75.8	J
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	330	U
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

Note

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING SCIENCE

SDG: 16111cd
REPORT DATE: 11-29-93

MATRIX: **SOIL**
SAMPLE ID: **S32.2SB2 MS1**
REPORTED ON DRY WT BASIS

MATRIX SPIKE

PARAMETER	DATE ANALYZED	SAMPLE CONC. (mg/Kg)	SPIKE CONC. (mg/Kg)	MS CONC. (mg/Kg)	MS % RECOVERY	CONTROL LIMITS
SILVER	11/11/93	< 0.109	5.46	4.91	90	75-125
ARSENIC	11/04/93	< 1.09	218	211	97	75-125
LEAD	11/04/93	< 0.328	54.6	50.3	92	75-125
SELENIUM	11/04/93	< 0.546	218	217	100	75-125
BARIUM	11/08/93	27.4	218	233	94	75-125
CADMIUM	11/08/93	< 0.328	5.46	5.35	98	75-125
CHROMIUM	11/08/93	4.37	21.8	23.5	88	75-125
NICKEL	11/08/93	3.71	54.6	55.7	95	75-125
ZINC	11/08/93	3.6	54.6	54.0	92	75-125
MERCURY	11/1/93	< 0.109	0.546	0.786	144*	75-125
					Note 4	
MATRIX SPIKE	**S32.1SB1MS114.5-15.5**					
SILVER	11/11/93	< 0.109	5.41	4.87	90	75-125
ARSENIC	11/04/93	< 1.09	217	195	90	75-125
LEAD	11/04/93	3.28	54.1	48.5	84	75-125
SELENIUM	11/04/93	< 0.547	217	192	88	75-125
BARIUM	11/08/93	72.4	217	254	84	75-125
CADMIUM	11/08/93	< 0.328	5.41	4.87	90	75-125
CHROMIUM	11/08/93	7.76	21.7	20.8	60* Note 5	75-125
NICKEL	11/08/93	5.9	54.1	53.4	88	75-125
ZINC	11/08/93	7.11	54.1	52.2	83	75-125
MATRIX SPIKE	**S32.1SB1 N1 5-5.5**					
MERCURY	11/01/93	< 0.112	0.562	0.562	100	75-125
TOTAL CN	11/03/93	< 0.563	5.62	5.55	99	75-125

*OUTSIDE QC LIMITS

TABLE ___
TINKER AIR FORCE BASE RFI
DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: I24.5SB2 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	13	12	8
	Acetone	28	26	7.4
SVOCs	Bis(2-ethylhexyl)phthalate	67.2	ND	—
Metals	Arsenic (1.0)	4.06	2.09	64.1*
	Barium	48.6	31.9	41.5
	Chromium (0.5)	17	8.92	62.3*
	Lead (0.3)	5.85	1.76	107.5*
	Nickel (1.0)	16.9	9.03	60.7*
	Zinc (1.5)	22.6	9.8	79*
Cyanide	Total Cyanide	U	U	—

Note 2

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

DATA VALIDATOR(Name/Signature) Date

Reported results for the affected analytes in all I24.5SB samples have been qualified as estimated.

TABLE ___

PAGE 1 OF 5

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: I24.125B4 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	11	9.3	16.7
	Acetone	37	32	14.5
SVOCs	Di-n-butyl phthalate (33)	51.3	104	67.9*
	Bis-(2ethylhexyl) phthalate	61.9	ND	—
Metals	Arsenic	1.74	U	—
	Barium	270	355	27.2
	Chromium	10.2	6.87	39
	Lead	3.8	2.91	26.5
	Nickel	8.15	8.62	5.6
	Zinc	12.5	10.7	15.5
Cyanide	Total Cyanide	U	U	—

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

DATA VALIDATOR(Name/Signature) Date

tafbdup.wq1

TABLE ___ PAGE 4 OF 5

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: S32-2SB2 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene chloride	12	8.7	31.9
	Acetone (10)	59	24	84.3*
SVOCs	Bis(2-ethylhexyl)phthalate	79.4	52.5	40.8
	Di-n-butyl phthalate	ND	38	—
Metals	Arsenic	12.8	13.1	2.3
	Barium	300	272	9.8
	Chromium	23.8	20.5	12.2
	Lead	5.4	5.27	2.4
	Nickel	29.1	28.8	1.0
	Zinc	40.2	37.6	6.7
Cyanide	Total Cyanide	U	U	—

Note 2

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

DATA VALIDATOR(Name/Signature) Date

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111

DATE: 11/19/93

SWLO QAQC#: 931028-001
PROJECT : TINKER AFB RFI
SAMPLE #: BNA BLANK6111 LB1
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/28/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	39.5	J - Note 3
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111

DATE: 11/19/93

SWLO QAQC#: 931029-001
PROJECT : TINKER AFB RFI
SAMPLE #: BNA BLANK6144 LB1
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	75.8	J Note [illegible]
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	330	U
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING SCIENCE

SDG: 16111cd
REPORT DATE: 11-29-93

MATRIX: **SOIL**
SAMPLE ID: **S32.2SB2 MS1**
REPORTED ON DRY WT BASIS

MATRIX SPIKE

PARAMETER	DATE ANALYZED	SAMPLE CONC. (mg/Kg)	SPIKE CONC. (mg/Kg)	MS CONC. (mg/Kg)	MS % RECOVERY	CONTROL LIMITS
SILVER	11/11/93	< 0.109	5.46	4.91	90	75-125
ARSENIC	11/04/93	< 1.09	218	211	97	75-125
LEAD	11/04/93	< 0.328	54.6	50.3	92	75-125
SELENIUM	11/04/93	< 0.546	218	217	100	75-125
BARIUM	11/08/93	27.4	218	233	94	75-125
CADMIUM	11/08/93	< 0.328	5.46	5.35	98	75-125
CHROMIUM	11/08/93	4.37	21.8	23.5	88	75-125
NICKEL	11/08/93	3.71	54.6	55.7	95	75-125
ZINC	11/08/93	3.6	54.6	54.0	92	75-125
MERCURY	11/1/93	< 0.109	0.546	0.786	144* note 4	75-125
MATRIX SPIKE	**S32.1SB1MS1 14.5-15.5**					
SILVER	11/11/93	< 0.109	5.41	4.87	90	75-125
ARSENIC	11/04/93	< 1.09	217	195	90	75-125
LEAD	11/04/93	3.28	54.1	48.5	84	75-125
SELENIUM	11/04/93	< 0.547	217	192	88	75-125
BARIUM	11/08/93	72.4	217	254	84	75-125
CADMIUM	11/08/93	< 0.328	5.41	4.87	90	75-125
CHROMIUM	11/08/93	7.76	21.7	20.8	60* note 5	75-125
NICKEL	11/08/93	5.9	54.1	53.4	88	75-125
ZINC	11/08/93	7.11	54.1	52.2	83	75-125
MATRIX SPIKE	**S32.1SB1 N1 5-5.5**					
MERCURY	11/01/93	< 0.112	0.562	0.562	100	75-125
TOTAL CN	11/03/93	< 0.563	5.62	5.55	99	75-125

*OUTSIDE QC LIMITS

TABLE ___ PAGE 5 OF 5

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: I24.5SB2 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	13	12	8
	Acetone	28	26	7.4
SVOCs	Bis(2-ethylhexyl)phthalate	67.2	ND	—
Metals	Arsenic (1.0)	4.06	2.09	64.1*
	Barium	48.6	31.9	41.5
	Chromium (0.5)	17	8.92	62.3*
	Lead (0.3)	5.85	1.76	107.5*
	Nickel (1.0)	16.9	9.03	60.7*
	Zinc (1.5)	22.6	9.8	79*
Cyanide	Total Cyanide	U	U	—

Note

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

DATA VALIDATOR(Name/Signature) Date

Reported results for the affected analytes in all I24.5SB samples have been qualified as estimated.

TABLE ___ PAGE 1 OF 5

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: I24.125B4 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	11	9.3	16.7
	Acetone	37	32	14.5
SVOCs	Di-n-butyl phthalate (33)	51.3	104	67.9*
	Bis-(2ethylhexyl)phthalate	61.9	ND	—
Metals	Arsenic	1.74	U	—
	Barium	270	355	27.2
	Chromium	10.2	6.87	39
	Lead	3.8	2.91	26.5
	Nickel	8.15	8.62	5.6
	Zinc	12.5	10.7	15.5
Cyanide	Total Cyanide	U	U	—

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

DATA VALIDATOR(Name/Signature) Date

tafbdup.wq1

No 111

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: ☒ Federal Express ☐ UPS
Other

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 8010145393

SAMPLER(S): M. HARDER J. OSWEILER

(Signature) M. W. Harder John C. Osweiler

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	PRESERVATIVE	ANALYSIS REQUIRED: VOA (SW8240)	ANALYSIS REQUIRED: SemiVOA (SW8270)	ANALYSIS REQUIRED: METALS (SW6010)	ANALYSIS REQUIRED: CN (SW9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	FIELD LOT CONTROL NUMBER	REMARKS
10/26/93	-	FIELDQC		TB1	WQ	NA	0	0	2		X				0	0	1	A		
	0935	I24.12SB4		N1	SO	SS	6.5'	8'	3		X	X	X	X	0	0	1	A		
	0935	I24.12SB4		FR1	SO	SS	6.5'	8'	3		X	X	X	X	0	0	1	A		
	1004	I24.12SB4		N1	SO	SS	12.5'	14'	3		X	X	X	X	0	0	1	A		
	1537	S32.1SB2		N1	SO	SS	6.5	8	3		X	X	X	X	0	0	1	A		
	1700	S32.1SB2		N1	SO	SS	16'	18'	3		X	X	X	X	0	0	1	A		

No IRPIMS diskette included in todays shipment - information for 25 OCT & 27 OCT WILL BE INCLUDED IN 27 OCT SHIPMENT

Relinquished by: (Signature) M. W. Harder Date 10/26/93 Time 1730

Received by: (Signature)

Relinquished by: (Signature) Date Time

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: (Signature) Date 10/27/93 Time 0845

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

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116144

COOLER ID.
COC 1CF2

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS ES

PROJECT NAME/LOCATION: TINKER AFB

CARRIER: ☒ Federal Express ☐ UPS
Other

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #

SAMPLER(S): M. HARDER R. NELSON

(Signature) M.W. Harder

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	No. of Containers	VOA (SW8240)	Metals (SW6010)	SemiVOA (SW8270)	CN (SW9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	Field Lot Control Number	REMARKS
10/27/93	—	FIELDQC		TB1	WQ	NA	0	0	2	X					0	0	2X	A	
	0900	S32.1SB1		N1	SO	SS	5'	5.5'	3	X	X	X	X		0	0	2X	A	
	1010	S32.1SB1		N1	SO	SS	14.5'	15.5	3	X	X	X	X		0	0	2X	A	
	0920	S32.1SB1		N1	SO	SS	8.5	9	3	X	X	X	X		0	0	2X	A	
	~~0810~~ 1010	S32.1SB1		FR1	SO	SS	14.5	15.5	3	X	X	X	X		0	0	2X	A	
	1010	S32.1SB1		MS1	SO	SS	14.5	15.5	3	X	X	X	X		0	0	2X	A	
	1240	S32.1SB3		N1	SO	SS	8	8.5	3	X	X	X	X		0	0	2X	A	
	1010	S32.1SB1		SD1	SO	SS	14.5	15.5	3	X	X	X	X		0	0	2X	A	

NOTE: SAMPLES SHIPPED ON 10/21/93 labeled S32.2 SB2 Depth 4-6' TIME 1122 WAS Labeled incorrectly SAMPLE SHOULD BE S32.3SB2. ALSO SAMPLES SHIPPED ON 10/22/93 labeled S32.2 SB2 Depth 12-12.7' TIME 1025 SHOULD BE RELABELED S32.3SB2. Please make necessary changes on COC and on the IRDMS data diskette. Julie E. Harder

Relinquished by: (Signature)	Date	Time
M.W. Harder	10/27/93	1800
Received by: (Signature)	Date	Time
K. Kellis	10/28/93	0845

Relinquished by: (Signature)	Date	Time
Received by: (Signature)	Date	Time

Relinquished by: (Signature)	Date	Time
Received by: (Signature)	Date	Time

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116114

COC 24

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: TINKER AFB

PROJECT NUMBER: AU401.08

CARRIER: [X] Federal Express [ ] UPS

Other

AIRBILL OR CARRIER ID #

SAMPLER(S): M. HARDER R. NELSON

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	PRESERVATIVE	ANALYSIS REQUIRED: SW8240	SW8010	SW8270	SW9010	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	FIELD LOT CONTROL NUMBER	REMARKS
10/27/93	-	FIELDQC		TB	WQ	NA	0	0	1		X									
10/27/93	1615	S32.3SB4		N1	SO	SS	6	6.5	3		X	X	X	X	0	0	2X	B		
10/27/93	1715	S32.3SB4		N1	SO	SS	17	17.5	3		X	X	X	X	0	0	2X	B		
	1410	S32.1SB3		N1	SO	SS	17.5	18	3		X	X	X	X	0	0	2X	B		
	0950	S32.2SB2		N1	SO	SS	5	7	3		X	X	X	X	0	0	2X	B		
	1100	S32.2SB2		N1	SO	SS	12.5	15	3		X	X	X	X	0	0	2X	B		
	0950	S32.2SB2		FR1	SO	SS	5	7	3		X	X	X	X	0	0	2X	B		
	1100	S32.2SB2		MS1	SO	SS	12.5	15	3		X	X	X	X	0	0	2X	B		
	1100	S32.2SB2		SD1	SO	SS	12.5	15	3		X	X	X	X	0	0	2X	B		
	1310	S32.2SB3		N1	SO	SS	6	8	3		X	X	X	X	0	0	2X	B		
	1400	S32.2SB3		N1	SO	SS	16	18	3		X	X	X	X	0	0	2X	B		

Relinquished by: (Signature) — Date 10/27/93 Time 1800

Received by: (Signature) — Date 10/28/93 Time 0845

Relinquished by: (Signature) — Date — Time

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) — Date — Time

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16168

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

ES

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: ☒ Federal Express ☐ UPS

Other

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #

SAMPLER(S): M. HARDER R. NELSON

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	PRESERVATIVE	ANALYSIS REQUIRED: SW8240	SW6010	SW9010	SW8270	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	FIELD LOT CONTROL NUMBER	REMARKS
10/28/93	—	FIELDQC		FD2	WQ	NA	0	0	2	X					0	0	2	B		
	1125	I24.6SB1		N1	SO	SS	14	16	3	X	X	X	X		0	0	2	B		
	1125	I24.6SB1		FD1	SO	SS	14	16	3	X	X	X	X		0	0	2	B		
	1540	S32.8SB1		N1	SO	SS	5.5	7.5	3	X	X	X	X		0	0	2	B		
	1630	S32.8SB1		N1	SO	SS	14.5	16.5	3	X	X	X	X		0	0	2	B		
	0910	I24.5SB3		N1	SO	SS	3.5'	5'	3	X	X	X	X		0	0	2	B		
	1035	I24.6SB1		N1	SO	SS	7	8.5	3	X	X	X	X		0	0	2	B		

Relinquished by: (Signature)	Date	Time
M. W. Harder	10/28/93	1755
Received by: (Signature) K. Hollis	10/29/93	0915

Relinquished by: (Signature)	Date	Time
Received by: (Signature)	Date	Time

Relinquished by: (Signature)	Date	Time
Received by: (Signature)	Date	Time

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11,168

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: ☒ Federal Express ☐ UPS
Other _____

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #

SAMPLER(S): M. HARDER R. NELSON

(Signature) M.W. R.L. Nelson

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	SW8240 (VOA)	SW9010 (CN)	SW8270 (SemiVOA)	SW6010 (Metals)	PRESERVATIVE	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	FIELD LOT CONTROL NUMBER	REMARKS
10/28/93	--	FIELDQC		TB1	WQ	NA	0	0	2	X					0	0	2	A		
	1115	I24.5SB2		N1	SO	SS	3	3.5	3	X	X	X	X		0	0	2	A		
	1503	I24.5SB2		N1	SO	SS	15	16	3	X	X	X	X		0	0	2	A		
	1503	I24.5SB2		FR1	SO	SS	15	16	3	X	X	X	X		0	0	2	A		
	0830	I24.4SB1		N1	SO	SS	4.5	5	3	X	X	X	X		0	0	2	A		
	0930	I24.4SB1		N1	SO	SS	10	11	3	X	X	X	X		0	0	2	A		

NOTE: SAMPLES SHIPPED 10/22/93 WERE INCORRECTLY MARKED I24.12SB2, 12-12.7 & I24.12SB2 17'-18' - THEY SHOULD BE I24.12SB1, 9-14 & I24.12SB1 17'-18', RESPECTIVELY

Relinquished by: (Signature) M.W. Date 10/28/93 Time 1755
Received by: (Signature) K. Collis Date 10/29/93 Time 0915

Relinquished by: (Signature) Date Time
Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time
Received by: (Signature) Date Time

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111.01

DATE: 12/01/93

SWLO #: 16111.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.12SB4
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	11 JL	B	1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	37		BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DMB 12.9.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	97%	BROMOFLUOROBENZENE	(74-121)	102%
1,2-DICHLOROETHANE-D4	(70-121)	96%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111.02

DATE: 12/01/93

SWLO #: 16111.02 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.12SB4
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	9.3	J1	1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	32		BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
TOTAL 1,2-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	5.8	U
METHYL ETHYL KETONE(2-BUTANONE	12	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U			

DMB 12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	97%	BROMOFLUOROBENZENE	(74-121)	96%
1,2-DICHLOROETHANE-D4	(70-121)	97%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111.03

DATE: 12/02/93

SWLO #: 16111.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.12SB4
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	12	JI	1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	92		BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
TOTAL 1,2-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	5.8	U
METHYL ETHYL KETONE(2-BUTANONE	12	U	TOLUENE	1.7	J 5
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U			

DWB
12.9.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 105%	BROMOFLUOROBENZENE	(74-121) 104%
1,2-DICHLOROETHANE-D4	(70-121) 105%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111.04

DATE: 12/01/93

SWLO #: 16111.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB2
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	11	JL	1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	46		BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
TOTAL 1,2-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	5.8	U
METHYL ETHYL KETONE(2-BUTANONE	12	U	TOLUENE	1.4	J5
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U			

DMB 12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 101%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121) 101%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111.05

DATE: 12/01/93

SWLO #: 16111.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB2
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	10	J1	1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	33		BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	1.4	J5
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DVB
12.9.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	97%	BROMOFLUOROBENZENE	(74-121)	98%
1,2-DICHLOROETHANE-D4	(70-121)	99%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.18

DATE: 12/01/93

SWLO #: 16144.18 TB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	1,2-DICHLOROPROPANE	5	U
BROMOMETHANE	10	U	TRANS-1,3-DICHLOROPROPENE	5	U
VINYL CHLORIDE	10	U	TRICHLOROETHENE	5	U
CHLOROETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
METHYLENE CHLORIDE	5	U	1,1,2-TRICHLOROETHANE	5	U
ACETONE	10	U	BENZENE	5	U
CARBON DISULFIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
1,1-DICHLOROETHENE	5	U	2-CHLOROETHYL VINYL ETHER	10	U
1,1-DICHLOROETHANE	5	U	BROMOFORM	5	U
TOTAL 1,2-DICHLOROETHENE	5	U	2-HEXANONE	10	U
CHLOROFORM	1	J5	4-METHYL-2-PENTANONE	10	U
1,2-DICHLOROETHANE	5	U	TETRACHLOROETHENE	5	U
METHYL ETHYL KETONE(2-BUTANONE	10	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	XYLENE (TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U			

DMB 12.13.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 102%	BROMOFLUOROBENZENE	(86-115) 105%
1,2-DICHLOROETHANE-D4	(76-114) 92%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
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REPORT: 16144.01

DATE: 12/01/93

SWLO #: 16144.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 5.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.6	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.6	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.6	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
METHYLENE CHLORIDE	32	J1	1,1,2-TRICHLOROETHANE	5.6	U
ACETONE	56		BENZENE	5.6	U
CARBON DISULFIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.6	U	BROMOFORM	5.6	U
TOTAL 1,2-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
CHLOROFORM	5.6	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.6	U	TETRACHLOROETHENE	5.6	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U			

DVB 12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	95%	BROMOFLUOROBENZENE	(74-121)	91%
1,2-DICHLOROETHANE-D4	(70-121)	96%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
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Attn: KEVIN TYNES

REPORT: 16144.02

DATE: 12/01/93

SWLO #: 16144.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.50
DEPTH TO : 9.00
DATE PREPARED : / /
DILUTION FACTOR: 1.11

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.6	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.6	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.6	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
METHYLENE CHLORIDE	28	JL	1,1,2-TRICHLOROETHANE	5.6	U
ACETONE	11	U	BENZENE	5.6	U
CARBON DISULFIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.6	U	BROMOFORM	5.6	U
TOTAL 1,2-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
CHLOROFORM	5.6	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.6	U	TETRACHLOROETHENE	5.6	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U			

DMB 12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 110%	BROMOFLUOROBENZENE	(74-121) 107%
1,2-DICHLOROETHANE-D4	(70-121) 96%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.03

DATE: 12/01/93

SWLO #: 16144.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	24 J1		1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	65		BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DMB 12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	107%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121)	88%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.04

DATE: 12/01/93

SWLO #: 16144.04 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	24	J1	1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	73		BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DMB 12.9.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 101%	BROMOFLUOROBENZENE	(74-121) 103%
1,2-DICHLOROETHANE-D4	(70-121) 81%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.05

DATE: 12/01/93

SWLO #: 16144.05 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	57.7	
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	26	JL	1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	60		BENZENE	48.3	
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	46.9		2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	55.6	
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	57.9	
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DYB 12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 102%
1,2-DICHLOROETHANE-D4	(70-121) 92%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.06

DATE: 12/01/93

SWLO #: 16144.06 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	60.1	
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	23 J1		1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	60		BENZENE	49.6	
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	42.2		2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	54.7	
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	58	
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

AMB 12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 101%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121) 86%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.07

DATE: 12/01/93

SWLO #: 16144.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB3
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50
DATE PREPARED : / /
DILUTION FACTOR: 1.13

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.6	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.6	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.6	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
METHYLENE CHLORIDE	19	J1	1,1,2-TRICHLOROETHANE	5.6	U
ACETONE	19		BENZENE	5.6	U
CARBON DISULFIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.6	U	BROMOFORM	5.6	U
TOTAL 1,2-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
CHLOROFORM	5.6	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.6	U	TETRACHLOROETHENE	5.6	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U			

DYB 12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	91%	BROMOFLUOROBENZENE	(74-121)	87%
1,2-DICHLOROETHANE-D4	(70-121)	80%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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Attn: KEVIN TYNES

REPORT: 16144.08

DATE: 12/01/93

SWLO #: 16144.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.3SB4
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 6.50
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	10 JI		1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	42		BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
TOTAL 1,2-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	5.8	U
METHYL ETHYL KETONE(2-BUTANONE	12	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U			

DAB 12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98%	BROMOFLUOROBENZENE	(74-121)	91%
1,2-DICHLOROETHANE-D4	(70-121)	87%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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Attn: KEVIN TYNES

REPORT: 16144.19

DATE: 12/01/93

SWLO #: 16144.19 TB2
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	1,2-DICHLOROPROPANE	5	U
BROMOMETHANE	10	U	TRANS-1,3-DICHLOROPROPENE	5	U
VINYL CHLORIDE	10	U	TRICHLOROETHENE	5	U
CHLOROETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
METHYLENE CHLORIDE	5	U	1,1,2-TRICHLOROETHANE	5	U
ACETONE	10	U	BENZENE	5	U
CARBON DISULFIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
1,1-DICHLOROETHENE	5	U	2-CHLOROETHYL VINYL ETHER	10	U
1,1-DICHLOROETHANE	5	U	BROMOFORM	5	U
TOTAL 1,2-DICHLOROETHENE	5	U	2-HEXANONE	10	U
CHLOROFORM	5	U	4-METHYL-2-PENTANONE	10	U
1,2-DICHLOROETHANE	5	U	TETRACHLOROETHENE	5	U
METHYL ETHYL KETONE(2-BUTANONE	10	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	XYLENE (TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	99%	BROMOFLUOROBENZENE	(86-115) 103%
1,2-DICHLOROETHANE-D4	(76-114)	103%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16144.09

DATE: 12/01/93

SWLO #: 16144.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.3SB4
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 17.50
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	8.8	J1	1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	27		BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DMB
12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 109%	BROMOFLUOROBENZENE	(74-121) 104%
1,2-DICHLOROETHANE-D4	(70-121) 86%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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Attn: KEVIN TYNES

REPORT: 16144.10

DATE: 12/01/93

SWLO #: 16144.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB3
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.50
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	13	J1	1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	24		BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DMB
12.9.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	95%	BROMOFLUOROBENZENE	(74-121)	89%
1,2-DICHLOROETHANE-D4	(70-121)	92%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.11

DATE: 12/01/93

SWLO #: 16144.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.6	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.6	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.6	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
METHYLENE CHLORIDE	12 J1		1,1,2-TRICHLOROETHANE	5.6	U
ACETONE	59 J4		BENZENE	5.6	U
CARBON DISULFIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.6	U	BROMOFORM	5.6	U
TOTAL 1,2-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
CHLOROFORM	5.6	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.6	U	TETRACHLOROETHENE	5.6	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U			

DVB
12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	93%	BROMOFLUOROBENZENE	(74-121)	81%
1,2-DICHLOROETHANE-D4	(70-121)	93%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.12

DATE: 12/01/93

SWLO #: 16144.12 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.6	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.6	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.6	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
METHYLENE CHLORIDE	8.7 J1		1,1,2-TRICHLOROETHANE	5.6	U
ACETONE	24 J4		BENZENE	5.6	U
CARBON DISULFIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.6	U	BROMOFORM	5.6	U
TOTAL 1,2-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
CHLOROFORM	5.6	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.6	U	TETRACHLOROETHENE	5.6	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U			

DWB
12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 102%
1,2-DICHLOROETHANE-D4	(70-121) 90%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.13

DATE: 12/01/93

SWLO #: 16144.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 15.00
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	7.3	J1	1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	32	J4	BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DMB
12.9.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	105%	BROMOFLUOROBENZENE	(74-121)	99%
1,2-DICHLOROETHANE-D4	(70-121)	86%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.14

DATE: 12/01/93

SWLO #: 16144.14 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 15.00
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	58.9	
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	8 J1		1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	37 J4		BENZENE	47	
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	43		2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	54.9	
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	58.2	
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DMB 12-4-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 102%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121) 86%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.15

DATE: 12/01/93

SWLO #: 16144.15 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 15.00
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	57.1	
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	9 J1		1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	68 J4		BENZENE	45.8	
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	38.8		2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	49.1	
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	55.5	
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DWB
12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 100%	BROMOFLUOROBENZENE	(74-121) 100%
1,2-DICHLOROETHANE-D4	(70-121) 86%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.16

DATE: 12/01/93

SWLO #: 16144.16 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB3
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	13 J1		1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	36 J4		BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
TOTAL 1,2-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	5.8	U
METHYL ETHYL KETONE(2-BUTANONE	12	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U			

DMB
12.9.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	89%	BROMOFLUOROBENZENE	(74-121)	85%
1,2-DICHLOROETHANE-D4	(70-121)	88%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.17

DATE: 12/01/93

SWLO #: 16144.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB3
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.06

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**			PARAMETER	RESULTS**	
CHLOROMETHANE	11		U	1,2-DICHLOROPROPANE	5.3	U
BROMOMETHANE	11		U	TRANS-1,3-DICHLOROPROPENE	5.3	U
VINYL CHLORIDE	11		U	TRICHLOROETHENE	5.3	U
CHLOROETHANE	11		U	DIBROMOCHLOROMETHANE	5.3	U
METHYLENE CHLORIDE	7.5	J1		1,1,2-TRICHLOROETHANE	5.3	U
ACETONE	150	J4		BENZENE	5.3	U
CARBON DISULFIDE	5.3		U	CIS-1,3-DICHLOROPROPENE	5.3	U
1,1-DICHLOROETHENE	5.3		U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.3		U	BROMOFORM	5.3	U
TOTAL 1,2-DICHLOROETHENE	5.3		U	2-HEXANONE	11	U
CHLOROFORM	5.3		U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.3		U	TETRACHLOROETHENE	5.3	U
METHYL ETHYL KETONE(2-BUTANONE	11		U	TOLUENE	5.3	U
1,1,1-TRICHLOROETHANE	5.3		U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3		U	ETHYLBENZENE	5.3	U
VINYL ACETATE	11		U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3		U	XYLENE (TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3		U			

DMB
12.9.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 106%	BROMOFLUOROBENZENE	(74-121) 99%
1,2-DICHLOROETHANE-D4	(70-121) 92%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.01

DATE: 12/01/93

SWLO #: 16168.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.6SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	8.5 JI		1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	37		BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DMB
12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	96%	BROMOFLUOROBENZENE	(74-121)	98%
1,2-DICHLOROETHANE-D4	(70-121)	98%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.02

DATE: 12/01/93

SWLO #: 16168.02 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.6SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	10 J1		1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	58		BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DYB
12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 108%	BROMOFLUOROBENZENE	(74-121) 110%
1,2-DICHLOROETHANE-D4	(70-121) 108%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.03

DATE: 12/01/93

SWLO #: 16168.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.50
DEPTH TO : 7.50
DATE PREPARED : / /
DILUTION FACTOR: 1.21

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	6	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	6	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	6	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
METHYLENE CHLORIDE	9.3	J1	1,1,2-TRICHLOROETHANE	6	U
ACETONE	23		BENZENE	6	U
CARBON DISULFIDE	6	U	CIS-1,3-DICHLOROPROPENE	6	U
1,1-DICHLOROETHENE	6	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	6	U	BROMOFORM	6	U
TOTAL 1,2-DICHLOROETHENE	6	U	2-HEXANONE	12	U
CHLOROFORM	6	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	6	U	TETRACHLOROETHENE	6	U
METHYL ETHYL KETONE(2-BUTANONE	12	U	TOLUENE	6	U
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	XYLENE (TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U			

DMB
12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	97%	BROMOFLUOROBENZENE	(74-121)	98%
1,2-DICHLOROETHANE-D4	(70-121)	97%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.04

DATE: 12/01/93

SWLO #: 16168.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.50
DATE PREPARED : / /
DILUTION FACTOR: 1.05

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	1,2-DICHLOROPROPANE	5.2	U
BROMOMETHANE	10	U	TRANS-1,3-DICHLOROPROPENE	5.2	U
VINYL CHLORIDE	10	U	TRICHLOROETHENE	5.2	U
CHLOROETHANE	10	U	DIBROMOCHLOROMETHANE	5.2	U
METHYLENE CHLORIDE	11	J1	1,1,2-TRICHLOROETHANE	5.2	U
ACETONE	32		BENZENE	5.2	U
CARBON DISULFIDE	5.2	U	CIS-1,3-DICHLOROPROPENE	5.2	U
1,1-DICHLOROETHENE	5.2	U	2-CHLOROETHYL VINYL ETHER	10	U
1,1-DICHLOROETHANE	5.2	U	BROMOFORM	5.2	U
TOTAL 1,2-DICHLOROETHENE	5.2	U	2-HEXANONE	10	U
CHLOROFORM	5.2	U	4-METHYL-2-PENTANONE	10	U
1,2-DICHLOROETHANE	5.2	U	TETRACHLOROETHENE	1.5	J 5
METHYL ETHYL KETONE(2-BUTANONE	10	U	TOLUENE	1.5	J 5
1,1,1-TRICHLOROETHANE	5.2	U	CHLOROBENZENE	5.2	U
CARBON TETRACHLORIDE	5.2	U	ETHYLBENZENE	5.2	U
VINYL ACETATE	10	U	STYRENE	5.2	U
BROMODICHLOROMETHANE	5.2	U	XYLENE (TOTAL)	5.2	U
1,1,2,2-TETRACHLOROETHANE	5.2	U			

DYB
12-9-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98%	BROMOFLUOROBENZENE	(74-121)	96%
1,2-DICHLOROETHANE-D4	(70-121)	97%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.05

DATE: 12/01/93

SWLO #: 16168.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SB3
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 3.50
DEPTH TO : 5.00
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.9	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.9	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.9	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
METHYLENE CHLORIDE	9.6 JI		1,1,2-TRICHLOROETHANE	5.9	U
ACETONE	56		BENZENE	5.9	U
CARBON DISULFIDE	5.9	U	CIS-1,3-DICHLOROPROPENE	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.9	U	BROMOFORM	5.9	U
TOTAL 1,2-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
CHLOROFORM	5.9	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.9	U	TETRACHLOROETHENE	5.9	U
METHYL ETHYL KETONE(2-BUTANONE	12	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 103%	BROMOFLUOROBENZENE	(74-121) 102%
1,2-DICHLOROETHANE-D4	(70-121) 101%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.06

DATE: 12/01/93

SWLO #: 16168.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.6SB1
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.00
DEPTH TO : 8.50
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	10	J1	1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	26		BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	1.1	J5
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

DMB
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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	97%	BROMOFLUOROBENZENE	(74-121)	98%
1,2-DICHLOROETHANE-D4	(70-121)	99%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.07

DATE: 12/01/93

SWLO #: 16168.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SB2
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 3.00
DEPTH TO : 3.50
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	30 J1	B	1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	390		BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
TOTAL 1,2-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	3.8	J 5
METHYL ETHYL KETONE(2-BUTANONE	12	U	TOLUENE	3.3	J 5
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U			

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12-8-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121) 100%
1,2-DICHLOROETHANE-D4	(70-121)	99%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.08

DATE: 12/01/93

SWLO #: 16168.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SB2
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.62

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	16	U	1,2-DICHLOROPROPANE	8.1	U
BROMOMETHANE	16	U	TRANS-1,3-DICHLOROPROPENE	8.1	U
VINYL CHLORIDE	16	U	TRICHLOROETHENE	8.1	U
CHLOROETHANE	16	U	DIBROMOCHLOROMETHANE	8.1	U
METHYLENE CHLORIDE	13	J1	1,1,2-TRICHLOROETHANE	8.1	U
ACETONE	28		BENZENE	8.1	U
CARBON DISULFIDE	8.1	U	CIS-1,3-DICHLOROPROPENE	8.1	U
1,1-DICHLOROETHENE	8.1	U	2-CHLOROETHYL VINYL ETHER	16	U
1,1-DICHLOROETHANE	8.1	U	BROMOFORM	8.1	U
TOTAL 1,2-DICHLOROETHENE	8.1	U	2-HEXANONE	16	U
CHLOROFORM	8.1	U	4-METHYL-2-PENTANONE	16	U
1,2-DICHLOROETHANE	8.1	U	TETRACHLOROETHENE	8.1	U
METHYL ETHYL KETONE(2-BUTANONE	16	U	TOLUENE	1.9	J5
1,1,1-TRICHLOROETHANE	8.1	U	CHLOROBENZENE	8.1	U
CARBON TETRACHLORIDE	8.1	U	ETHYLBENZENE	8.1	U
VINYL ACETATE	16	U	STYRENE	8.1	U
BROMODICHLOROMETHANE	8.1	U	XYLENE (TOTAL)	8.1	U
1,1,2,2-TETRACHLOROETHANE	8.1	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 100%	BROMOFLUOROBENZENE	(74-121) 100%
1,2-DICHLOROETHANE-D4	(70-121) 101%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.09

DATE: 12/01/93

SWLO #: 16168.09 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SB2
LOCATION:
DATE ANALYZED : 11/02/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.5	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.5	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.5	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
METHYLENE CHLORIDE	12	J1	1,1,2-TRICHLOROETHANE	5.5	U
ACETONE	26		BENZENE	5.5	U
CARBON DISULFIDE	5.5	U	CIS-1,3-DICHLOROPROPENE	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.5	U	BROMOFORM	5.5	U
TOTAL 1,2-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
CHLOROFORM	5.5	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.5	U	TETRACHLOROETHENE	5.5	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	1.5	J5
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 103%
1,2-DICHLOROETHANE-D4	(70-121) 103%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16168.10

DATE: 12/01/93

SWLO #: 16168.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.4SB1
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.50
DEPTH TO : 5.00
DATE PREPARED : / /
DILUTION FACTOR: 6.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	61	U	TRICHLOROETHENE	31	U
BROMOMETHANE	61	U	DIBROMOCHLOROMETHANE	31	U
VINYL CHLORIDE	61	U	1,1,2-TRICHLOROETHANE	31	U
CHLOROETHANE	61	U	BENZENE	31	U
METHYLENE CHLORIDE	60	J1 B	CIS-1,3-DICHLOROPROPENE	31	U
ACETONE	980		2-CHLOROETHYL VINYL ETHER	61	U
CARBON DISULFIDE	31	U	BROMOFORM	31	U
1,1-DICHLOROETHENE	31	U	2-HEXANONE	61	U
1,1-DICHLOROETHANE	31	U	4-METHYL-2-PENTANONE	61	U
CHLOROFORM	31	U	TETRACHLOROETHENE	31	U
1,2-DICHLOROETHANE	31	U	TOLUENE	7	J5
1,1,1-TRICHLOROETHANE	31	U	CHLOROBENZENE	31	U
CARBON TETRACHLORIDE	31	U	ETHYLBENZENE	31	U
VINYL ACETATE	61	U	STYRENE	31	U
BROMODICHLOROMETHANE	31	U	1,2-DICHLOROETHENE(TOTAL)	31	U
1,1,2,2-TETRACHLOROETHANE	31	U	XYLENE (TOTAL)	31	U
1,2-DICHLOROPROPANE	31	U	2-BUTANONE	61	U
TRANS-1,3-DICHLOROPROPENE	31	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 98%	BROMOFLUOROBENZENE	(74-121) 96%
1,2-DICHLOROETHANE-D4	(70-121) 100%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111.01

DATE: 12/01/93

SWLO #: 16111.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.12SB4
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 8.00
DATE PREPARED : 10/28/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	51.3	JL
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	61.9	JL
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16111.02

DATE: 12/01/93

SWLO #: 16111.02 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.12SB4
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 8.00
DATE PREPARED : 10/28/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	104	J1
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	400	U
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
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Attn: KEVIN TYNES

REPORT: 16111.03

DATE: 12/01/93

SWLO #: 16111.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.12SB4
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.00
DATE PREPARED : 10/28/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	87.9	J1
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	74.5	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111.04

DATE: 12/01/93

SWLO #: 16111.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB2
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 8.00
DATE PREPARED : 10/28/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	172	J1
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	40.7	J
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	81.4	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111.05

DATE: 12/01/93

SWLO #: 16111.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB2
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : 10/28/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	115	J1
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	39.7	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.01

DATE: 12/01/93

SWLO #: 16144.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 5.50
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	70.8	J
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
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Attn: KEVIN TYNES

REPORT: 16144.02

DATE: 12/01/93

SWLO #: 16144.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.50
DEPTH TO : 9.00
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	77.7	J1 ~~J5~~
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	61.7	J1 ~~J~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.03

DATE: 12/01/93

SWLO #: 16144.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	59.3	J1 ~~JB~~
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	56.8	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.04

DATE: 12/01/93

SWLO #: 16144.04 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	59.2	J1 ~~JB~~
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	360	U
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.05

DATE: 12/01/93

SWLO #: 16144.05 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	5290		ACENAPHTHENE	3160	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	5790		4-NITROPHENOL	5070	
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2640		2,4-DINITROTOLUENE	2880	
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	3310		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	4050	
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	2500		PYRENE	3080	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	4770		BIS(2-ETHYLHEXYL)PHTHALATE	84.1	JL
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.07

DATE: 12/01/93

SWLO #: 16144.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB3
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	44	JL ~~JB~~
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	112	JL ~~J~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.08

DATE: 12/01/93

SWLO #: 16144.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.3SB4
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 6.50
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	53.8	J1 ~~JB~~
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	59.3	J1 ~~J~~
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.09

DATE: 12/01/93

SWLO #: 16144.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.3SB4
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 17.50
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	39	J1
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	60	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.10

DATE: 12/01/93

SWLO #: 16144.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB3
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.50
DEPTH TO : 18.00
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	47.5	J1 ~~J5~~
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	265	J1 ~~J5~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	60.2	J5
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.11

DATE: 12/01/93

SWLO #: 16144.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 7.00
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	79.4	J1 ~~J~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.12

DATE: 12/01/93

SWLO #: 16144.12 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 7.00
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	38	J1 ~~JB~~
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	52.5	J1 ~~J~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.14

DATE: 12/01/93

SWLO #: 16144.14 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 15.00
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	5400		ACENAPHTHENE	3210	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	5550		4-NITROPHENOL	4620	
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2450		2,4-DINITROTOLUENE	2460	
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	2700		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	4260	
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	2620		PYRENE	3120	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	4830		BIS(2-ETHYLHEXYL)PHTHALATE	41	J1.0
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.15

DATE: 12/01/93

SWLO #: 16144.15 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 15.00
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	5410		ACENAPHTHENE	3300	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	5740		4-NITROPHENOL	4700	
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2500		2,4-DINITROTOLUENE	2490	
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	2840		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	4380	
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	2620		PYRENE	3120	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	4890		BIS(2-ETHYLHEXYL)PHTHALATE	55.9	J
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.16

DATE: 12/01/93

SWLO #: 16144.16 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB3
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	85.8	J1 ~~JB~~
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	67.5	J1 ~~J~~
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.17

DATE: 12/01/93

SWLO #: 16144.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB3
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : 10/29/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	90.4	J ~~JB~~
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	57.4	J ~~J~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.01

DATE: 12/01/93

SWLO #: 16168.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.6SB1
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : 11/02/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	56.2	J
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.02

DATE: 12/01/93

SWLO #: 16168.02 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.6SB1
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : 11/02/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	37.4	J
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.03

DATE: 12/01/93

SWLO #: 16168.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB1
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.50
DEPTH TO : 7.50
DATE PREPARED : 11/02/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	49.7	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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12.9.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.04

DATE: 12/01/93

SWLO #: 16168.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB1
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.50
DATE PREPARED : 11/02/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	48.1	J
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.05

DATE: 12/01/93

SWLO #: 16168.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SB3
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 3.50
DEPTH TO : 5.00
DATE PREPARED : 11/02/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	65.3	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.08

DATE: 12/01/93

SWLO #: 16168.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SB2
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : 11/02/93
DILUTION FACTOR: 1.60

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	530	U	ACENAPHTHENE	530	U
BIS(2-CHLOROETHYL)ETHER	530	U	2,4-DINITROPHENOL	2600	U
2-CHLOROPHENOL	530	U	4-NITROPHENOL	2600	U
1,3-DICHLOROBENZENE	530	U	DIBENZOFURAN	530	U
1,4-DICHLOROBENZENE	530	U	2,4-DINITROTOLUENE	530	U
BENZYL ALCOHOL	530	U	2,6-DINITROTOLUENE	530	U
1,2-DICHLOROBENZENE	530	U	DIETHYLPHTHALATE	530	U
2-METHYLPHENOL(O-CRESOL)	530	U	4-CHLOROPHENYL-PHENYLETHER	530	U
BIS(2-CHLOROISOPROPYL)ETHER	530	U	FLUORENE	530	U
4-METHYLPHENOL(P-CRESOL)	530	U	4-NITROANILINE	2600	U
N-NITROSO-DI-N-PROPYLAMINE	530	U	4,6-DINITRO-2-METHYLPHENOL	2600	U
HEXACHLOROETHANE	530	U	N-NITROSODIPHENYLAMINE(1)	530	U
NITROBENZENE	530	U	4-BROMOPHENYL-PHENYLETHER	530	U
ISOPHORONE	530	U	HEXACHLOROBENZENE	530	U
2-NITROPHENOL	530	U	PENTACHLOROPHENOL	2600	U
2,4-DIMETHYLPHENOL	530	U	PHENANTHRENE	530	U
BENZOIC ACID	2600	U	ANTHRACENE	530	U
BIS(2-CHLOROETHOXY)METHANE	530	U	DI-N-BUTYL PHTHALATE	530	U
2,4-DICHLOROPHENOL	530	U	FLUORANTHENE	530	U
1,2,4-TRICHLOROBENZENE	530	U	PYRENE	530	U
NAPHTHALENE	530	U	BUTYL BENZYL PHTHALATE	530	U
4-CHLOROANILINE	530	U	3,3'-DICHLOROBENZIDINE	1000	U
HEXACHLOROBUTADIENE	530	U	BENZO(A)ANTHRACENE	530	U
4-CHLORO-3-METHYLPHENOL	530	U	BIS(2-ETHYLHEXYL)PHTHALATE	67.2	J1
2-METHYLNAPHTHALENE	530	U	CHRYSENE	530	U
HEXACHLOROCYCLOPENTADIENE	530	U	DI-N-OCTYL PHTHALATE	530	U
2,4,6-TRICHLOROPHENOL	530	U	BENZO(B)FLUORANTHENE	530	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.10

DATE: 12/01/93

SWLO #: 16168.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.4SB1
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.50
DEPTH TO : 5.00
DATE PREPARED : 11/02/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	56	J
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.11

DATE: 12/01/93

SWLO #: 16168.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.4SB1
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 10.00
DEPTH TO : 11.00
DATE PREPARED : 11/02/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	65.4	J
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111.04

DATE: 12/01/93

SWLO #: 16111.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB2
LOCATION:

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 8.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.117	U	mg/kg	11/03/93	11/03/93	SW846-7471
SILVER	0.117	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	3.74		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	215		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.35	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	13.2	J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	6.54		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	8.87		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.584		mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	18.9		mg/kg	11/03/93	11/08/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16111.05

DATE: 12/01/93

SWLO #: 16111.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB2
LOCATION:

DATE SAMPLED: 10/26/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.109	U	mg/kg	11/03/93	11/03/93	SW846-7471
SILVER	0.109	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	1.31		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	470		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.328	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	7.33	J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	2.3		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	6.46		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.547	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	6.68		mg/kg	11/03/93	11/08/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.01

DATE: 12/01/93

SWLO #: 16144.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 5.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.112	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.112	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	2.59		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	430		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.338	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	33.5	J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	8.89		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	18.9		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.563	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	26.3		mg/kg	11/03/93	11/08/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.02

DATE: 12/01/93

SWLO #: 16144.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.50
DEPTH TO : 9.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.112	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.112	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	2.69		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	230		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.336	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	19.6	J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	7.05		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	15.1		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.56	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	19.6		mg/kg	11/03/93	11/08/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.03

DATE: 12/01/93

SWLO #: 16144.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.109	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.109	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	1.09	U	mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	72.4		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.328	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	7.76 J4		mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	3.28		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	5.9		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.547	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	7.11		mg/kg	11/03/93	11/08/93	SW846-6010

DMB
12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.04

DATE: 12/01/93

SWLO #: 16144.04 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.108	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.108	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	1.08	U	mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	79.7		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.325	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	9.42 J4		mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	4.33		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	8.55		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.541	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	9.42		mg/kg	11/03/93	11/08/93	SW846-6010

DMB
12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.05

DATE: 12/02/93

SWLO #: 16144.05 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
SILVER	4.87	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	195	mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	254	mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	4.87	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	20.8 J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	48.5	mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	53.4	mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	192	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	52.2	mg/kg	11/03/93	11/08/93	SW846-6010

DMB
12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.06

DATE: 12/02/93

SWLO #: 16144.06 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB1
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
SILVER	4.66	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	202	mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	268	mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	4.98	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	22.2 J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	50.7	mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	56	mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	201	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	54.4	mg/kg	11/03/93	11/08/93	SW846-6010

DYB
12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.07

DATE: 12/01/93

SWLO #: 16144.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB3
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.113	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.113	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	3.96		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	226		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.339	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	26.6	J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	9.38		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	19.1		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.565	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	25.8		mg/kg	11/03/93	11/08/93	SW846-6010

DMB
12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.08

DATE: 12/01/93

SWLO #: 16144.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.3SB4
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 6.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.116	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.116	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	1.62		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	84.7		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.348	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	11.5 J4		mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	4.64		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	12.1		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.696		mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	14.4		mg/kg	11/03/93	11/08/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.09

DATE: 12/01/93

SWLO #: 16144.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.3SB4
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 17.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.108	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.108	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	1.18		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	66.7		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.323	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	6.46 J4		mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	1.94		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	7.97		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.539	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	8.08		mg/kg	11/03/93	11/08/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.10

DATE: 12/01/93

SWLO #: 16144.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.1SB3
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.50
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.11	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.11	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	1.1	U	mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	53.2		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.329	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	8.12 J4		mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	2.74		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	7.46		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.549	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	8.56		mg/kg	11/03/93	11/08/93	SW846-6010

DMB
12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.11

DATE: 12/01/93

SWLO #: 16144.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.112	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.112	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	12.8		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	300		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.338	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	23.8	J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	5.4		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	29.1		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.563	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	40.2		mg/kg	11/03/93	11/08/93	SW846-6010

DMB
12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.12

DATE: 12/01/93

SWLO #: 16144.12 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.112	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.112	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	13.1		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	272		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.336	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	20.5 J4		mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	5.27		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	28.8		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.561		mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	37.6		mg/kg	11/03/93	11/08/93	SW846-6010

DYB
12.9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.13

DATE: 12/01/93

SWLO #: 16144.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 15.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.109	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.109	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	1.09	U	mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	27.4		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.328	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	4.37 J4		mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	0.328	U	mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	3.71		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.546	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	3.6		mg/kg	11/03/93	11/08/93	SW846-6010

DMB
12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.14

DATE: 12/01/93

SWLO #: 16144.14 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 15.00

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.786 J4	mg/kg	11/01/93	11/03/93	SW846-7471
SILVER	4.91	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	211	mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	233	mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	5.35	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	23.5 J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	50.3	mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	55.7	mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	217	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	54	mg/kg	11/03/93	11/08/93	SW846-6010

DMB
12.9.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.15

DATE: 12/01/93

SWLO #: 16144.15 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB2
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 15.00

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.83 J4	mg/kg	11/01/93	11/03/93	SW846-7471
SILVER	4.8	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	211	mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	236	mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	4.91	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	22.6 J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	50	mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	55.7	mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	218	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	54	mg/kg	11/03/93	11/08/93	SW846-6010

DMB
12.9.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.16

DATE: 12/01/93

SWLO #: 16144.16 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB3
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.118	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.118	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	2.83		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	324		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	0.354	U	mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	8.37	J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	5.3		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	5.77		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.589	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	120		mg/kg	11/03/93	11/08/93	SW846-6010

DMB
12.9.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16144.17

DATE: 12/01/93

SWLO #: 16144.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.2SB3
LOCATION:

DATE SAMPLED: 10/27/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.107	U	mg/kg	11/01/93	11/01/93	SW846-7471
SILVER	0.107	U	mg/kg	11/03/93	11/11/93	SW846-7761
ARSENIC	1.17		mg/kg	11/03/93	11/04/93	SW846-6010
BARIUM	53.6		mg/kg	11/03/93	11/08/93	SW846-6010
CADMIUM	102		mg/kg	11/03/93	11/08/93	SW846-6010
CHROMIUM	50.6	J4	mg/kg	11/03/93	11/08/93	SW846-6010
LEAD	3.73		mg/kg	11/03/93	11/04/93	SW846-6010
NICKEL	98.8		mg/kg	11/03/93	11/08/93	SW846-6010
SELENIUM	0.533	U	mg/kg	11/03/93	11/04/93	SW846-6010
ZINC	109		mg/kg	11/03/93	11/08/93	SW846-6010

DYB
12-9-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.03

DATE: 12/01/93

SWLO #: 16168.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB1
LOCATION:

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.50
DEPTH TO : 7.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.121	U	mg/kg	11/03/93	11/03/93	SW846-7471
SILVER	0.121	U	mg/kg	11/05/93	11/11/93	SW846-7761
ARSENIC	1.21	U	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	34.8		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.363	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	5.33	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.21		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	4.48		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.606	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	5.69		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.04

DATE: 12/01/93

SWLO #: 16168.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB1
LOCATION:

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.105	U	mg/kg	11/03/93	11/03/93	SW846-7471
SILVER	0.105	U	mg/kg	11/05/93	11/11/93	SW846-7761
ARSENIC	1.05	U	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	36.1		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.315	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	5.25	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	0.525		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	3.78		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.525	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	4.1		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.05

DATE: 12/01/93

SWLO #: 16168.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SB3
LOCATION;

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 3.50
DEPTH TO : 5.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.119	U	mg/kg	11/03/93	11/03/93	SW846-7471
SILVER	0.119	U	mg/kg	11/05/93	11/11/93	SW846-7761
ARSENIC	1.19	U	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	78.1		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.392		mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	7.85 J4		mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.07 J4		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	3.21 J4		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.595	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	3.92 J4		mg/kg	11/05/93	11/06/93	SW846-6010

DYB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.07

DATE: 12/01/93

SWLO #: 16168.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SB2
LOCATION:

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 3.00
DEPTH TO : 3.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.116	U	mg/kg	11/03/93	11/03/93	SW846-7471
SILVER	0.116	U	mg/kg	11/05/93	11/11/93	SW846-7761
ARSENIC	3.13		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	695		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.348	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	34.6 J4		mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	4.18 J4		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	18.9 J4		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.812		mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	25.3 J4		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.08

DATE: 12/01/93

SWLO #: 16168.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SB2
LOCATION;

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.162	U	mg/kg	11/03/93	11/03/93	SW846-7471
SILVER	0.162	U	mg/kg	11/05/93	11/11/93	SW846-7761
ARSENIC	4.06		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	48.6		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.487	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	17 J4		mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	5.85 J4		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	16.9 J4		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.812	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	22.6 J4		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16168.09

DATE: 12/01/93

SWLO #: 16168.09 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SB2
LOCATION:

DATE SAMPLED: 10/28/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.11	U	mg/kg	11/03/93	11/03/93	SW846-7471
SILVER	0.11	U	mg/kg	11/05/93	11/11/93	SW846-7761
ARSENIC	2.09		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	31.9		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.33	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	8.92	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.76	J4	mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	9.03	J4	mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.55	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	9.8	J4	mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

TABLE ___

TINKER AIR FORCE BASE RFI

DATA VALIDATION WORKSHEET

SDG: [illegible]

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4)
VOCs	V1	Lab blank contamination (water and soil) - methylene chloride.	See Note 1	J1
	V2	Lab blank contamination (soil) and LCS/LCSD results out of criteria Copies of summary pages for LCS/LCSD included.	See Note 2	J6
	V3	Concentration of acetone above the calibration range ("E"). Also see Note 2	See Note 3	J6
SVOCs	SV4	Lab blank contamination (soil) - bis(2-ethylhexyl) phthalate.	See Note 4	J1

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

Sandra M. Czarnecki / Sandra M. Czarnecki
DATA VALIDATOR(Name/Signature)

12/14/93
Date

tafbwkst.wq1

Table _____

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

TINKER AIR FORCE BASE RFI

SDG:

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Methylene chloride (2.8 ug/L in water and 2.0 ug/kg in soil) was detected in the lab blanks associated with the samples. Reported detections of this analyte in the samples have been qualified as estimated and should be considered biased high. Affected samples: 16013.01 - 16013.03, 16039.01 - 16039.04, 16039.06, 16063.01, 16063.03, 16063.05, 16063.06, 16063.08, 16063.10, 16088.01 - 16088.09. (See cross-reference Table for samp. ID's)
	V2	2. Acetone (9.3 ug/kg in soil) was detected in the soil lab blank and the LCS/LCSD results were out of criteria. Both affected all applicable samples. These samples have been qualified as estimated. Affected samples: 16013.01, 16013.02, 16039.01 - 16039.05, 16063.01, 16063.03 - 16063.09, 16088.02 - 16088.09. (See cross-reference Table for sample ID's)
	V3	3. The acetone result for sample 16013.01 was qualified "E" by the lab. The "E" flag indicates that the reported result was above the calibration range. The result has been qualified as estimated.
SVOCs	SV4	4. Bis(2-ethylhexyl) phthalate (83 ug/kg and 123 ug/kg) was detected in the lab blanks associated with the samples. Reported detections of this analyte in the samples have been qualified as estimated and should be considered biased high. Affected samples: 16013.01, 16013.02, 16039.01 - 16039.05, 16063.01 - 16063.05, 16063.07, 16063.09, 16088.06, 16088.07, 16088.09. (See cross-reference table for samp. ID's)

1. Item number should correspond with the item number on the worksheet.

Sandra M. Czarnecki / Sandra M. Czarnecki 12/14/93

Data Validator (Name/Signature/Date)

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS **ES**

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: ☒ Federal Express ☐ UPS — Other

PROJECT NUMBER: AV401.08

AIRBILL OR CARRIER ID #: 8010145522

SAMPLER(S): M. HARDER J. OSWEILER

(Signature)

PRESERVATIVE

ANALYSIS REQUIRED

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (8240)	Metals (6010)	CN (9010)	SemiVOA (8270)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS	FIELD LOT CONTROL NUMBER
~~10/20/93~~	~~1205~~	~~S32.4~~	~~S32.4SB3~~	~~N1~~	~~SO~~	~~SS~~	~~6'~~	~~8'~~	~~3~~	~~X~~	~~X~~	~~X~~	~~X~~						
~~10/20/93~~	~~1410~~	~~S32.4~~	~~S32.4SB3~~	~~N1~~	~~SO~~	~~SS~~	~~14'~~	~~16'~~	~~3~~	~~X~~	~~X~~	~~X~~	~~X~~						
~~10/20/93~~	~~-~~	~~FIELDQC~~	~~TRIP BLANK~~	~~TB1~~	~~WQ~~	~~NA~~	~~0~~	~~0~~	~~2~~	~~X~~									
10/20/93	1205	S32.4SB3		N1	SO	SS	6'	8'	3	X	X	X	X	0	0	1	A	CS	
↓	1410	S32.4SB3		TB1	SO	SS	14'	16'	3	X	X	X	X	0	0	1	A	CS	
↓	-	FIELDQC		TB1	WQ	NA	0	0	2	X				0	0	1	A	CS	

Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time
	10/20/93	1640						
Received by: (Signature)	**Date**	**Time**	**Received by:** (Signature)	**Date**	**Time**	**Received by:** (Signature)	**Date**	**Time**
							10/21/93	0930

White : laboratory returns with data; yellow : laboratory copy; pink : sampler copy.

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: [X] Federal Express [ ] UPS

Other:

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 8010145382

SAMPLER(S): M. HARDER J. OSWEILER

(Signature) Mark Harder John C. Osweiler

Date	Time	Loc ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (SW8240)	METALS (6010)	SEMI VOA (8270)	CN (9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	FIELD LOT CONTROL NUMBER	REMARKS
10/21/93	1122	SB2		N1	SO	SS	4'	6'	3	X	X	X	X			001	A		
	0950	SB2		N1	SO	SS	0'	2'	3	X	X	X	X			001	A		
	1045	SB2		N1	SO	SS	7.5'	9.0'	3	X	X	X	X			001	A		
	1507	SB4		N1	SO	SS	10'	12'	3	X	X	X	X			001	A		
	1600	SB4		N1	SO	SS	15'	16'	3	X	X	X	X			001	A		
	-	FIELDQC		TB1	WQ	NA	0	0	2	X						001	A		

Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time
Mark Harder	10/21/93	6:00pm						
Received by: (Signature)	**Date**	**Time**	**Received by:** (Signature)	**Date**	**Time**	**Received by:** (Signature)	**Date**	**Time**
[illegible]	10/22/93	0900						

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy

chainc.dwg

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: TINKER AFB

CARRIER: [X] Federal Express [ ] UPS
Other: 8010145404

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #:

SAMPLER(S): M. HARDER (Signature) [signature] J OSWEILLER [signature]

Date	Time	Loc. ID 10/22/93	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOAs (8240)	Semi VOA (8270)	Metals (6010)	CN (9010)								Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
10/22/93	1025	S32.~~8~~3SB2		N1	SO	SS	12'	12.7'	3	x	x	x	x								0	0	1	A	
	~~0915~~ CS													CS											
10/22/93	1605	I24.12SB~~2~~1		N1	SO	SS	9 ~~12'~~	~~12.7'~~ 14	3	x	x	x	x								0	0	1	A	
	1635	~~I24.12SB2~~ CS		N1	SO	SS	17'	18'	3	x	x	x	x								0	0	1	A	
	1510	I24.8SB1		N1	SO	SS	5'	7'	3	x	x	x	x								0	0	1	A	
	1530	I24.8SB1		FR1	SO	SS	14'	16'	3	x	x	x	x								0	0	1	A	
	1550	I24.8SB1		N1	SO	SS	14'	16'	3	x	x	x	x								0	0	1	A	
	0900	S32.4SB5		N1	SO	SS	5'	7'	3	x	x	x	x								0	0	1	A	
	1020	S32.4SB5		N1	SO	SS	13'	15'	3	x	x	x	x								0	0	1	A	
	1055	S32.4SB5		N1	SO	SS	15'	16'	3	x	x	x	x								0	0	1	A	
	–	FIELDQX		TB1	WQ	NA	0	0	2	x											0	0	1	A	

Relinquished by:	Date	Time	Relinquished by:	Date	Time	Relinquished by:	Date	Time
(Signature) [signature]	10/22/93		(Signature)			(Signature)		
Received by:	**Date**	**Time**	**Received by:**	**Date**	**Time**	**Received by:**	**Date**	**Time**
(Signature) [signature]	10/23/93	0910	(Signature)			(Signature)		

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

CHAIN OF CUSTODY RECORD

ENGINEERING—SCIENCE
AUSTIN, TEXAS

ES

10088

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: ☒ Federal Express ☐ UPS

Other: ~~8010145415~~ CS

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 8010145415

SAMPLER(S): M. HARDER J. OSWEILER

(Signature) [signature] John C. Osweiler

PRESERVATIVE

ANALYSIS REQUIRED

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	SW8240-VOA	SW6010-METALS	SW9010-CN	SW8270-SEMIVOA								Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
10/25/93	—	FIELDQC		TB1	WQ	NA	0	0	2	X											0	0	1	A	
	1000	I24.12SB3		N1	SO	SS	4	6	3	X	X	X	X								0	0	1	A	
	1116	I24.12SB3		N1	SO	SS	14	16	3	X	X	X	X								0	0	1	A	
	1330	I24.10SB2		N1	SO	SS	9	10.5	3	X	X	X	X								0	0	1	A	
	1025	I24.12SB2		N1	SO	SS	8'	9.5'	3	X	X	X	X								0	0	1	A	
	1100	I24.12SB2		N1	SO	SS	14.5'	16'	3	X	X	X	X								0	0	1	A	
	1340	I24.10SB1		N1	SO	SS	4'	6'	3	X	X	X	X								0	0	1	A	
	1532	I24.10SB2		N1	SO	SS	16'	18'	3	X	X	X	X								0	0	1	A	
	1500	I24.10SB1		N1	SO	SS	13'	15'	3	X	X	X	X								0	0	1	A	

Relinquished by:	Date	Time	Relinquished by:	Date	Time	Relinquished by:	Date	Time
(Signature) [signature]	10/25/93	1706	(Signature)			(Signature)		
Received by:	**Date**	**Time**	**Received by:**	**Date**	**Time**	**Received by:**	**Date**	**Time**
(Signature)			(Signature)			(Signature) [signature]	10/26/93	0915

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

chaino.dwg

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : U931025A
INST. BATCH: 207
REPORTED : 11/17/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : U931025A
LOCATION:

PREPARED :
ANALYZED : 10/25/93 12:40
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	2 J	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	ND	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 108%
1,2-DICHLOROETHANE-D4	(70-121) 100%		

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
= ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
. = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : U931101A
INST. BATCH: 2139
REPORTED : 11/17/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : U931101A
LOCATION:

PREPARED :
ANALYZED : 11/01/93 11:12
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	ND Note 2	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	9.3 J	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE (TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	97%
1,2-DICHLOROETHANE-D4	(70-121)	97%			

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATI

Methodology: SM - STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985
SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SML 12/14/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16013.01

DATE: 11/24/93

SWLO #: 16013.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB3
LOCATION:
DATE ANALYZED : 10/25/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/20/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	25	B	1,1,2-TRICHLOROETHANE	5.4	U
ACETONE Note =	240	E	BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	1.8	J
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : R931103A
INST. BATCH: 2351
REPORTED : 11/17/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : R931103A
LOCATION:

PREPARED :
ANALYZED : 11/03/93 10:55
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : WATER
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/L

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND Note 1	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	1.5 J	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	ND	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	102%	BROMOFLUOROBENZENE	(86-115) 100%
1,2-DICHLOROETHANE-D4	(76-114)	95%		

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

JMC
12/14/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16013

DATE: 11/18/93

SWLO QAQC#: 931027-001
PROJECT : TINKER AFB-RFI
SAMPLE #: SBLK LB1
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/27/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	83	J
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

Note 4

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16013

DATE: 11/18/93

SWLO QAQC#: 931026-002
PROJECT : TINKER AFB-RFI
SAMPLE #: SBLK2 LB2
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 10/26/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U Note 4
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	123	J
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/14/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16013.01

DATE: 11/24/93

SWLO #: 16013.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB3
LOCATION:
DATE ANALYZED : 10/25/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/20/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
HLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	25	~~B~~	1,1,2-TRICHLOROETHANE	5.4	U
ACETONE (NOTE 2,3)	240	~~B~~	BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
TOTAL 1,2-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
METHYL ETHYL KETONE(2-BUTANONE	11	U	TOLUENE	1.8	J5
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/13/93

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16013.02

DATE: 11/24/93

SWLO #: 16013.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB3
LOCATION:
DATE ANALYZED : 10/25/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/20/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	31	1 B	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	76	6	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	2.3	J5
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 106%
1,2-DICHLOROETHANE-D4	(70-121) 109%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16013.03

DATE: 11/24/93

SWLO #: 16013.03 TB1
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 10/26/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/20/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	2.8	J	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1.6	J	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	1.2	J
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	1.3	J
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 103%	BROMOFLUOROBENZENE	(86-115) 102%
1,2-DICHLOROETHANE-D4	(76-114) 100%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

DMC

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.01

DATE: 11/24/93

SWLO #: 16039.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB2
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.4	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	5.4	U
METHYLENE CHLORIDE	13	J1	CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	190	J6	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	5.4	U
1,2-DICHLOROETHANE	5.4	U	TOLUENE	1.1	J5
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE(TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	1.5	J5
TRANS-1,3-DICHLOROPROPENE	5.4	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 105%
1,2-DICHLOROETHANE-D4	(70-121) 106%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.02

DATE: 11/24/93

SWLO #: 16039.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB2
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 2.00
DATE PREPARED : / /
DILUTION FACTOR: 1.05

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5.3	U
HLOROETHANE	10	U	BENZENE	5.3	U
METHYLENE CHLORIDE	14	J1	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	58	J6	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	3.7	J5
1,2-DICHLOROETHANE	5.3	U	TOLUENE	1.9	J5
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	10	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE(TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

QA/QC SURROGATE RECOVERIES

OLUENE-D8	(81-117)	98%	BROMOFLUOROBENZENE	(74-121)	98%
1,2-DICHLOROETHANE-D4	(70-121)	100%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
2/15/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.03

DATE: 11/24/93

SWLO #: 16039.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB2
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.50
DEPTH TO : 9.00
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	13	J1	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	84	J6	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98%	BROMOFLUOROBENZENE	(74-121)	99%
1,2-DICHLOROETHANE-D4	(70-121)	100%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/13/93

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.05

DATE: 11/24/93

SWLO #: 16039.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB4
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	22	J1	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	34	J6	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	1.6	J5
1,2-DICHLOROETHANE	5.8	U	TOLUENE	1.8	J5
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	96%	BROMOFLUOROBENZENE	(74-121)	96%
1,2-DICHLOROETHANE-D4	(70-121)	96%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/13-03

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.04

DATE: 11/24/93

SWLO #: 16039.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB4
LOCATION:
DATE ANALYZED : 10/28/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 10.00
DEPTH TO : 12.00
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.4	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	5.4	U
METHYLENE CHLORIDE	11	J1	CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	69	J6	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	5.4	U
1,2-DICHLOROETHANE	5.4	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE(TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121) 100%
1,2-DICHLOROETHANE-D4	(70-121)	100%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

DMC
1-13-93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16063.01

DATE: 11/24/93

SWLO #: 16063.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB2
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.00
DEPTH TO : 12.70
DATE PREPARED : / /
DILUTION FACTOR: 5.52

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	55	U	TRICHLOROETHENE	28	U
BROMOMETHANE	55	U	DIBROMOCHLOROMETHANE	28	U
VINYL CHLORIDE	55	U	1,1,2-TRICHLOROETHANE	28	U
HLOROETHANE	55	U	BENZENE	28	U
ETHYLENE CHLORIDE	32	J	CIS-1,3-DICHLOROPROPENE	28	U
ACETONE	1100	J	2-CHLOROETHYL VINYL ETHER	55	U
CARBON DISULFIDE	28	U	BROMOFORM	28	U
1,1-DICHLOROETHENE	28	U	2-HEXANONE	55	U
1,1-DICHLOROETHANE	28	U	4-METHYL-2-PENTANONE	55	U
CHLOROFORM	28	U	TETRACHLOROETHENE	28	U
1,2-DICHLOROETHANE	28	U	TOLUENE	28	U
1,1,1-TRICHLOROETHANE	28	U	CHLOROBENZENE	28	U
CARBON TETRACHLORIDE	28	U	ETHYLBENZENE	28	U
VINYL ACETATE	55	U	STYRENE	28	U
BROMODICHLOROMETHANE	28	U	1,2-DICHLOROETHENE(TOTAL)	28	U
1,1,2,2-TETRACHLOROETHANE	28	U	XYLENE (TOTAL)	28	U
1,2-DICHLOROPROPANE	28	U	2-BUTANONE	55	U
TRANS-1,3-DICHLOROPROPENE	28	U			

QA/QC SURROGATE RECOVERIES

OLUENE-D8	(81-117)	96%	BROMOFLUOROBENZENE	(74-121)	91%
,2-DICHLOROETHANE-D4	(70-121)	92%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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Attn: KEVIN TYNES

REPORT: 16039.06

DATE: 11/24/93

SWLO #: 16039.06 TB1
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 10/27/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	2.9	J	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1	J	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 101%	BROMOFLUOROBENZENE	(86-115) 100%
1,2-DICHLOROETHANE-D4	(76-114) 106%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 2/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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Attn: KEVIN TYNES

REPORT: 16063.03

DATE: 11/24/93

SWLO #: 16063.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB1
LOCATION:
DATE ANALYZED : 10/29/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
ILOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	16	J1	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	61	J6	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

QA/QC SURROGATE RECOVERIES

LUENE-D8	(81-117)	92%	BROMOFLUOROBENZENE	(74-121)	82%
,2-DICHLOROETHANE-D4	(70-121)	91%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16063.04

DATE: 11/24/93

SWLO #: 16063.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB1
LOCATION:
DATE ANALYZED : 10/29/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.11

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	42	B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	103%	BROMOFLUOROBENZENE	(74-121)	89%
1,2-DICHLOROETHANE-D4	(70-121)	84%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16063.05

DATE: 11/24/93

SWLO #: 16063.05 FR1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB1
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	10	J1	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	84	J6	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	104%	BROMOFLUOROBENZENE	(74-121)	95%
1,2-DICHLOROETHANE-D4	(70-121)	89%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/15/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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Attn: KEVIN TYNES

REPORT: 16063.06

DATE: 11/24/93

SWLO #: 16063.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB1
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.13

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	9.2	J1	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	110	J6	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	97%
1,2-DICHLOROETHANE-D4	(70-121)	91%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/13/93

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16063.07

DATE: 11/24/93

SWLO #: 16063.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB5
LOCATION:
DATE ANALYZED : 10/29/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
LOROETHANE	11	U	BENZENE	5.7	U
ETHYLENE CHLORIDE	5.7	U	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	32	J6	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

QA/QC SURROGATE RECOVERIES

UENE-D8	(81-117)	88%	BROMOFLUOROBENZENE	(74-121)	85%
2-DICHLOROETHANE-D4	(70-121)	78%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/13/93

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REPORT: 16063.08

DATE: 11/24/93

SWLO #: 16063.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB5
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 15.00
DATE PREPARED : / /
DILUTION FACTOR: 1.13

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	10	J1	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	75	J6	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	96%	BROMOFLUOROBENZENE	(74-121)	97%
1,2-DICHLOROETHANE-D4	(70-121)	91%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/13/93

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REPORT: 16063.09

DATE: 11/24/93

SWLO #: 16063.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB5
LOCATION:
DATE ANALYZED : 10/29/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	5.7	U	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	60	J6	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	88%
1,2-DICHLOROETHANE-D4	(70-121)	82%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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Attn: KEVIN TYNES

REPORT: 16063.10

DATE: 11/24/93

SWLO #: 16063.10 TB1
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 10/27/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	2.1	J	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1.4	J5	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	100%	BROMOFLUOROBENZENE	(86-115)	96%
1,2-DICHLOROETHANE-D4	(76-114)	105%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/13/93

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16088.01

DATE: 11/24/93

SWLO #: 16088.01 TB1
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/25/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	3.4	J1 JB	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1.8	J5	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	102%	BROMOFLUOROBENZENE	(86-115)	98%
1,2-DICHLOROETHANE-D4	(76-114)	94%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/15/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16088.02

DATE: 11/24/93

SWLO #: 16088.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB3
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/25/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	5.5	U
METHYLENE CHLORIDE	11	J1	CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	29	J6 ~~B~~	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.5	U	TETRACHLOROETHENE	33	
1,2-DICHLOROETHANE	5.5	U	TOLUENE	1.4	J5
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE(TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 100%	BROMOFLUOROBENZENE	(74-121) 102%
1,2-DICHLOROETHANE-D4	(70-121) 104%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

DMC 12/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16088.03

DATE: 11/24/93

SWLO #: 16088.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB3
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/25/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.19

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	12	U	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	42	U B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	1.9	J
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 100%	BROMOFLUOROBENZENE	(74-121) 100%
,2-DICHLOROETHANE-D4	(70-121) 105%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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Attn: KEVIN TYNES

REPORT: 16088.04

DATE: 11/24/93

SWLO #: 16088.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB2
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/25/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.00
DEPTH TO : 10.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	10	J1	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	69	J6 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	1.2	J5
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	99%
1,2-DICHLOROETHANE-D4	(70-121)	102%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/13/93

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Attn: KEVIN TYNES

REPORT: 16088.05

DATE: 11/24/93

SWLO #: 16088.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB2
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 9.50
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	15	J1	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	58	56 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	1.7	J5
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 99%	BROMOFLUOROBENZENE	(74-121) 100%
1,2-DICHLOROETHANE-D4	(70-121) 105%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16088.06

DATE: 11/24/93

SWLO #: 16088.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB2
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	11	J1	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	54	J6 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	1.3	J5
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 96%	BROMOFLUOROBENZENE	(74-121) 96%	
1,2-DICHLOROETHANE-D4	(70-121) 101%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

JMC
12/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16088.07

DATE: 11/24/93

SWLO #: 16088.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB1
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.06

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	10	U	BENZENE	5.3	U
METHYLENE CHLORIDE	12	J1	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	16	J6 B	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	7.4	
1,2-DICHLOROETHANE	5.3	U	TOLUENE	1.2	J5
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	10	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE(TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

QA/QC SURROGATE RECOVERIES

OLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121) 98%
,2-DICHLOROETHANE-D4	(70-121)	105%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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7800 SHOAL CREEK BLVD.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16088.08

DATE: 11/24/93

SWLO #: 16088.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB2
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/25/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.20

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	15	J1	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	48	~~B~~	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	5.6	J5
1,2-DICHLOROETHANE	6	U	TOLUENE	1.8	J5
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	6	U
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 105%
1,2-DICHLOROETHANE-D4	(70-121) 112%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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Attn: KEVIN TYNES

REPORT: 16088.09

DATE: 11/24/93

SWLO #: 16088.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB1
LOCATION:
DATE ANALYZED : 11/01/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/25/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 15.00
DATE PREPARED : / /
DILUTION FACTOR: 1.20

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	16	J1	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	37	J6 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	1.3	J5
1,2-DICHLOROETHANE	6	U	TOLUENE	2	J5
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	6	U
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 100%	BROMOFLUOROBENZENE	(74-121) 100%
1,2-DICHLOROETHANE-D4	(70-121) 104%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

MC
2/13/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16063.09

DATE: 11/24/93

SWLO #: 16063.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB5
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : 10/26/93
DILUTION FACTOR: 2.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	760	U	ACENAPHTHENE	760	U
BIS(2-CHLOROETHYL)ETHER	760	U	2,4-DINITROPHENOL	3700	U
2-CHLOROPHENOL	760	U	4-NITROPHENOL	3700	U
1,3-DICHLOROBENZENE	760	U	DIBENZOFURAN	760	U
1,4-DICHLOROBENZENE	760	U	2,4-DINITROTOLUENE	760	U
BENZYL ALCOHOL	760	U	2,6-DINITROTOLUENE	760	U
1,2-DICHLOROBENZENE	760	U	DIETHYLPHTHALATE	760	U
2-METHYLPHENOL(O-CRESOL)	760	U	4-CHLOROPHENYL-PHENYLETHER	760	U
BIS(2-CHLOROISOPROPYL)ETHER	760	U	FLUORENE	760	U
4-METHYLPHENOL(P-CRESOL)	760	U	4-NITROANILINE	3700	U
N-NITROSO-DI-N-PROPYLAMINE	760	U	4,6-DINITRO-2-METHYLPHENOL	3700	U
HEXACHLOROETHANE	760	U	N-NITROSODIPHENYLAMINE(1)	760	U
NITROBENZENE	760	U	4-BROMOPHENYL-PHENYLETHER	760	U
ISOPHORONE	760	U	HEXACHLOROBENZENE	760	U
2-NITROPHENOL	760	U	PENTACHLOROPHENOL	3700	U
2,4-DIMETHYLPHENOL	760	U	PHENANTHRENE	760	U
BENZOIC ACID	3700	U	ANTHRACENE	760	U
BIS(2-CHLOROETHOXY)METHANE	760	U	DI-N-BUTYL PHTHALATE	760	U
2,4-DICHLOROPHENOL	760	U	FLUORANTHENE	760	U
1,2,4-TRICHLOROBENZENE	760	U	PYRENE	760	U
NAPHTHALENE	760	U	BUTYL BENZYL PHTHALATE	760	U
4-CHLOROANILINE	760	U	3,3'-DICHLOROBENZIDINE	1500	U
HEXACHLOROBUTADIENE	760	U	BENZO(A)ANTHRACENE	760	U
4-CHLORO-3-METHYLPHENOL	760	U	BIS(2-ETHYLHEXYL)PHTHALATE	57	JB
2-METHYLNAPHTHALENE	760	U	CHRYSENE	760	U
HEXACHLOROCYCLOPENTADIENE	760	U	DI-N-OCTYL PHTHALATE	760	U
2,4,6-TRICHLOROPHENOL	760	U	BENZO(B)FLUORANTHENE	760	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/14/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16088.06

DATE: 11/24/93

SWLO #: 16088.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB2
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.00
DATE PREPARED : 10/27/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	61	JB
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/14/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16088.07

DATE: 11/24/93

SWLO #: 16088.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB1
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : 10/27/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	89	JB
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16088.09

DATE: 11/24/93

SWLO #: 16088.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB1
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/25/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 15.00
DATE PREPARED : 10/27/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	50	JB
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16013.01

DATE: 11/24/93

SWLO #: 16013.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB3
LOCATION:
DATE ANALYZED : 10/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/20/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : 10/23/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	46	J 1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/14/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16013.02

DATE: 11/24/93

SWLO #: 16013.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB3
LOCATION:
DATE ANALYZED : 10/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/20/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : 10/23/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	49	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.01

DATE: 11/24/93

SWLO #: 16039.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB2
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : 10/26/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	224	J 1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	71	J 5
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	153	J 5

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/14/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.01

DATE: 11/24/93

SWLO #: 16039.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB2
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : 10/26/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	1800	U	BENZO(K)FLUORANTHENE	360	U
2-CHLORONAPHTHALENE	360	U	BENZO(A)PYRENE	74	J S
2-NITROANILINE	1800	U	INDENO(1,2,3-CD)PYRENE	42	J S
DIMETHYL PHTHALATE	360	U	DIBENZ(A,H)ANTHRACENE	360	U
ACENAPHTHYLENE	360	U	BENZO(G,H,I)PERYLENE	105	J S
3-NITROANILINE	1800	U			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	81%	2-FLUOROBIPHENYL	(30-115)	81%
TERPHENYL-D14	(18-137)	141% *	PHENOL-D5	(24-113)	66%
2-FLUOROPHENOL	(25-121)	75%	2,4,6-TRIBROMOPHENOL	(19-122)	67%

** RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/14/93

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.02

DATE: 11/24/93

SWLO #: 16039.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB2
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 2.00
DATE PREPARED : 10/26/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	37	JI
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

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12/14/93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.03

DATE: 11/24/93

SWLO #: 16039.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB2
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.50
DEPTH TO : 9.00
DATE PREPARED : 10/26/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	160	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.04

DATE: 11/24/93

SWLO #: 16039.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB4
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 10.00
DEPTH TO : 12.00
DATE PREPARED : 10/26/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1700	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1700	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1700	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1700	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1700	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1700	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	710	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	270	J 1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16039.05

DATE: 11/24/93

SWLO #: 16039.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB4
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/21/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : 10/26/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	69	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16063.01

DATE: 11/24/93

SWLO #: 16063.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB2
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.00
DEPTH TO : 12.70
DATE PREPARED : 10/26/93
DILUTION FACTOR: 2.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	730	U	ACENAPHTHENE	730	U
BIS(2-CHLOROETHYL)ETHER	730	U	2,4-DINITROPHENOL	3500	U
2-CHLOROPHENOL	730	U	4-NITROPHENOL	3500	U
1,3-DICHLOROBENZENE	730	U	DIBENZOFURAN	730	U
1,4-DICHLOROBENZENE	730	U	2,4-DINITROTOLUENE	730	U
BENZYL ALCOHOL	730	U	2,6-DINITROTOLUENE	730	U
1,2-DICHLOROBENZENE	730	U	DIETHYLPHTHALATE	730	U
2-METHYLPHENOL(O-CRESOL)	730	U	4-CHLOROPHENYL-PHENYLETHER	730	U
BIS(2-CHLOROISOPROPYL)ETHER	730	U	FLUORENE	730	U
4-METHYLPHENOL(P-CRESOL)	730	U	4-NITROANILINE	3500	U
N-NITROSO-DI-N-PROPYLAMINE	730	U	4,6-DINITRO-2-METHYLPHENOL	3500	U
HEXACHLOROETHANE	730	U	N-NITROSODIPHENYLAMINE(1)	730	U
NITROBENZENE	730	U	4-BROMOPHENYL-PHENYLETHER	730	U
ISOPHORONE	730	U	HEXACHLOROBENZENE	730	U
2-NITROPHENOL	730	U	PENTACHLOROPHENOL	3500	U
2,4-DIMETHYLPHENOL	730	U	PHENANTHRENE	730	U
BENZOIC ACID	3500	U	ANTHRACENE	730	U
BIS(2-CHLOROETHOXY)METHANE	730	U	DI-N-BUTYL PHTHALATE	730	U
2,4-DICHLOROPHENOL	730	U	FLUORANTHENE	730	U
1,2,4-TRICHLOROBENZENE	730	U	PYRENE	730	U
NAPHTHALENE	730	U	BUTYL BENZYL PHTHALATE	730	U
4-CHLOROANILINE	730	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	730	U	BENZO(A)ANTHRACENE	730	U
4-CHLORO-3-METHYLPHENOL	730	U	BIS(2-ETHYLHEXYL)PHTHALATE	210	JB
2-METHYLNAPHTHALENE	730	U	CHRYSENE	730	U
HEXACHLOROCYCLOPENTADIENE	730	U	DI-N-OCTYL PHTHALATE	730	U
2,4,6-TRICHLOROPHENOL	730	U	BENZO(B)FLUORANTHENE	730	U

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12/14/93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16063.02

DATE: 11/24/93

SWLO #: 16063.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB1
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/22/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.00
DEPTH TO : 14.00
DATE PREPARED : 10/26/93
DILUTION FACTOR: 2.40

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	790	U	ACENAPHTHENE	790	U
BIS(2-CHLOROETHYL)ETHER	790	U	2,4-DINITROPHENOL	3800	U
2-CHLOROPHENOL	790	U	4-NITROPHENOL	3800	U
1,3-DICHLOROBENZENE	790	U	DIBENZOFURAN	790	U
1,4-DICHLOROBENZENE	790	U	2,4-DINITROTOLUENE	790	U
BENZYL ALCOHOL	790	U	2,6-DINITROTOLUENE	790	U
1,2-DICHLOROBENZENE	790	U	DIETHYLPHTHALATE	790	U
2-METHYLPHENOL(O-CRESOL)	790	U	4-CHLOROPHENYL-PHENYLETHER	790	U
BIS(2-CHLOROISOPROPYL)ETHER	790	U	FLUORENE	790	U
4-METHYLPHENOL(P-CRESOL)	790	U	4-NITROANILINE	3800	U
N-NITROSO-DI-N-PROPYLAMINE	790	U	4,6-DINITRO-2-METHYLPHENOL	3800	U
HEXACHLOROETHANE	790	U	N-NITROSODIPHENYLAMINE(1)	790	U
NITROBENZENE	790	U	4-BROMOPHENYL-PHENYLETHER	790	U
ISOPHORONE	790	U	HEXACHLOROBENZENE	790	U
2-NITROPHENOL	790	U	PENTACHLOROPHENOL	3800	U
2,4-DIMETHYLPHENOL	790	U	PHENANTHRENE	790	U
BENZOIC ACID	3800	U	ANTHRACENE	790	U
BIS(2-CHLOROETHOXY)METHANE	790	U	DI-N-BUTYL PHTHALATE	790	U
2,4-DICHLOROPHENOL	790	U	FLUORANTHENE	790	U
1,2,4-TRICHLOROBENZENE	790	U	PYRENE	790	U
NAPHTHALENE	790	U	BUTYL BENZYL PHTHALATE	790	U
4-CHLOROANILINE	790	U	3,3'-DICHLOROBENZIDINE	1600	U
HEXACHLOROBUTADIENE	790	U	BENZO(A)ANTHRACENE	790	U
4-CHLORO-3-METHYLPHENOL	790	U	BIS(2-ETHYLHEXYL)PHTHALATE	41	JB
2-METHYLNAPHTHALENE	790	U	CHRYSENE	790	U
HEXACHLOROCYCLOPENTADIENE	790	U	DI-N-OCTYL PHTHALATE	790	U
2,4,6-TRICHLOROPHENOL	790	U	BENZO(B)FLUORANTHENE	790	U

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12/14/93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

TABLE ___
DATA VALIDATION WORKSHEET

PROJECT: TINKER AFB SDG: 16176

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4)
VOCs	V1	Lab blank Contamination	See Note 1	J1, J6
	V2	Equipment blank Contamination	See Note 2	J1, J6
	V3	Trip blank Contamination (16176)	See Note 3	J6
	V4	Trip blank Contamination (16195)	See Note 4	J1
	V5	RPD outlier for field replicate	See Note 5	No Action
SVOCs	SV1	Lab blank Contamination	See Note 6	J1
	SV2	lab blank Contamination	See Note 7	J1
Metals	M1	MS %R outlier for Chromium	See Note 8	J4

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

David Y. Badio DEBADIO

DATA VALIDATOR(Name/Signature)

12.20.93
Date

Table ____

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

PROJECT: TINKER AFB

SDG: 16176

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Methylene chloride (5.1) and acetone (26) were detected in lab blanks associated with this SDG. Reported detections of these analytes in the soil samples have been qualified as estimated (J1)
	V2	2. Acetone (240), chloroform (4.3) and tetrachloroethene (1.6) were detected in the equipment blank (EB1-16176.06) associated with this SDG. All reported detections of these analytes in the samples have been qualified as estimated. (See note 4). The result for acetone exceeded the calibration range and has been further qualified estimated (J6)
	V3	3. Acetone (260) was detected in the trip blank associated with w/o 16176. Since acetone was also detected in the lab and equipment blanks, the result for acetone in the trip blanc has been qualified as estimated. The acetone result exceeded the calibration range resulting in further qualification (J6).
	V4	4. The acetone result for the equipment blank ~~and sample 16176.05~~ exceeded ~~the~~ calibration range. The result has been further qualified as estimates (J6).

1. Item number should correspond with the item number on the worksheet.

Data Validator (Name/Signature/Date)

Table ____
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
PROJECT: TINKER AFB

SDG: 16176

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
SVOCs	SV1	1. BEHP (48) was detected in a lab blank associated with this SDG. Reported detections of BEHP in the samples have been qualified as estimated (J1).
	V3	3. Chloroform was detected in the trip blank associated with W/O 16195. Since chloroform was also detected in the equipment blank, the result for chloroform in the trip blank (16195-10) has been qualified as estimated.
	V6	6. An RPD outlier was calculated for acetone for the field replicates for this SDG (16205-05/16205.06). Results for acetone already qualified as estimated due to lab blank contamination have not been further qualified.
	M1	8. A matrix spike %R outlier was reported for chromium for the MS sample (532.85B13.MS). The %R reported (63%) was below the QA Obj (75-125%). All reported results for chromium in the soil samples have been qualified as estimated.

1. Item number should correspond with the item number on the worksheet.

Data Validator (Name/Signature/Date)

SV2 7. The lab. blk associated with the MS/MSD samples contained low levels of some of the spike cpds: phenol, 2-chlorophenol, 4-chloro-3-methylphenol and p-?. Reported results for these cpds in the MS/MSD samples (16705-10/11 have been qualified as estimated J, -).

tafbcom.wq1

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : U931103A
INST. BATCH: 2349
REPORTED : 11/30/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : U931103A
LOCATION:

ANALYZED : 11/03/93 11:25
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	1.6 J	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	ND	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	95%	BROMOFLUOROBENZENE	(74-121)	92%
1,2-DICHLOROETHANE-D4	(70-121)	92%			

D = NOT DETECTED ABOVE QUANTITATION LIMIT
= ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
= UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
A = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : K931104A
INST. BATCH: 13690
REPORTED : 11/30/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : K931104A
LOCATION:

ANALYZED : 11/04/93 15:18
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	5.1	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	ND	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	95%	BROMOFLUOROBENZENE	(74-121)	100%
1,2-DICHLOROETHANE-D4	(70-121)	92%			

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : K931108A
INST. BATCH: 13795
REPORTED : 11/30/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : K931108A
LOCATION:

ANALYZED : 11/08/93 10:08
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	3.6 J	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	26	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

NOTE 1

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	100%	BROMOFLUOROBENZENE	(74-121)	86%
1,2-DICHLOROETHANE-D4	(70-121)	96%			

D = NOT DETECTED ABOVE QUANTITATION LIMIT
= ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
= UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
A = NOT APPLICABLE
ethodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.06

DATE: 12/03/93

SWLO #: 16176.06 EB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	240	J6 B	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	4.3	J5	TETRACHLOROETHENE	1.6	J5
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

DMB 12.20.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	99%	BROMOFLUOROBENZENE	(86-115) 103%
1,2-DICHLOROETHANE-D4	(76-114)	100%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-25

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.07

DATE: 12/03/93

SWLO #: 16176.07 TB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	NOTE 3 260 J6 E		2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

DMB 12.20.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 102%	BROMOFLUOROBENZENE	(86-115) 103%
1,2-DICHLOROETHANE-D4	(76-114) 102%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.10

DATE: 12/03/93

SWLO #: 16195.10 TB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1.5	J5	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

DYB
12-21-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 99%	BROMOFLUOROBENZENE	(86-115) 102%
1,2-DICHLOROETHANE-D4	(76-114) 102%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

TABLE ___

PAGE 1 OF 1

DATA VALIDATION FIELD REPLICATE WORKSHEET

PROJECT: Tinker AFB

SAMPLE ID: S32.85814 SAMPLE MATRIX: Soil SDG: 16176

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	U	31	—
	Acetone	43	98	78*
				NOTE 5 No action
SVOCs	BEHP	U	62	—
Metals	Barium	142	127	11.1
	Chromium	28.2	26.9	4.7
	Lead	1.57	2.29	37.3
	Nickel	5.94	6.76	12.9
	Zinc	4.48	5.61	22.4
Cyanide	Total Cyanide	U	U	—

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

* Results for acetone have already been qualified as estimated due to blk cont. No add'l qualification necessary.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176

DATE: 12/03/93

SWLO QAQC#: 931104-001
PROJECT : TINKER AFB RFI
SAMPLE #: BL110417S LB1
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/04/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	48	J
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

NOTE 6

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

December 8, 1993

Mr. Kevin Tynes
ENGINEERING-SCIENCE, INC.
7800 Shoal Creek Boulevard, Suite 222W
Austin, TX 78757

Subject: Tinker AFB RFI
SDG#: 16176
SWLO #: 16176.01 - 16176.07, 16195.01 - 16195.10
16205.01 - 16205.14

Dear Mr. Tynes:

Enclosed we are submitting the hardcopy report and diskette deliverable for your samples received in our laboratory on the 2nd and 3rd of Novemberr, 1993 for the above-captioned project.

Semivolatile Analysis: Samples S32.8SB13 MS116-18 (16205.10)MS, and S32.8SB13 SD116-18 (16205.11)MSD were not originally spiked with matrix spikes. Both samples were re-extracted and spiked with matrix spikes. Both the non-spiked and the spiked samples have been reported. The re-extracted blank had low level contamination of some spiking compounds at levels below CRQL.

Please Note: QC SA codes MS9, and SD9 were created in order to report seperate QC for semivolatile re-analysis of the matrix spike, and the matrix spike duplicate results.

In addition, please note that QC Tool gave the following error because there was no valid parlabel for the following compound.

Xylene

If in your review you have any questions or require additional information, please call.

Sincerely,

Daryl Alstatt
Project Officer

DA/jc

Enclosures

1700 West Albany • Broken Arrow, OK 74012-1421 • (918) 251-2858 • Fax (918) 251-2599

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176

DATE: 12/03/93

SWLO QAQC#: 931116-001
PROJECT : TINKER AFB RFI
SAMPLE #: BL111501S LB1
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/15/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	305	J	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	301	J	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	140	J
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	250	J	BIS(2-ETHYLHEXYL)PHTHALATE	330	U
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING SCIENCES, INC.

SDG: 16176cd
REPORT DATE: 12-01-93

MATRIX: **SOIL**
SAMPLE ID: **S32.8SB13 MS116-18**
REPORTED ON DRY WT BASIS

MATRIX SPIKE

PARAMETER	DATE ANALYZED	SAMPLE CONC. (mg/Kg)	SPIKE CONC. (mg/Kg)	MS CONC. (mg/Kg)	MS % RECOVERY	CONTROL LIMITS
ARSENIC	11/08/93	3.14	232	204	87	75-125
LEAD	11/08/93	2.67	58.1	49.7	81	75-125
SELENIUM	11/08/93	< 0.581	232	200	86	75-125
BARIUM	11/06/93	34.8	232	251	93	75-125
CADMIUM	11/06/93	< 0.348	5.81	4.93	85	75-125
CHROMIUM	11/06/93	12.0	23.2	26.7	63*	75-125
NICKEL	11/06/93	4.42	58.1	54.0	85	75-125
ZINC	11/06/93	5.93	58.1	54.2	83	75-125
MERCURY	11/05/93	< 0.116	0.581	0.585	101	75-125
SILVER	11/12/93	< 0.116	5.81	4.70	81	75-125
TOTAL CN	11/08/93	< 0.581	5.81	5.62	97	75-125

* OUTSIDE CONTROL LIMITS

:/dn

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176

DATE: 12/03/93

SWLO QAQC#: 931116-001
PROJECT : TINKER AFB RFI
SAMPLE #: BL111501S LB1
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/15/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	305	J	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	301	J	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	140	J
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	250	J	BIS(2-ETHYLHEXYL)PHTHALATE	330	U
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: [X] Federal Express [ ] UPS
Other _____

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 8010145500

SAMPLER(S): M. HARDER R. NELSON
(Signature) [signature] [signature]

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (8240)	Semi VOA (8270)	Metals (6010)	CN (9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/2/93	-	FIELDQC		TB1	WQ	NA	0	0	2	X				0	0	1	A	
	0930	I24.8SB3		N1	SO	H	6	7	3	X	X	X	X	0	0	1	A	
	1130	↓		N1	SO	H	17	18	3	X	X	X	X	0	0	1	A	
	1520	I24.10SB4		N1	SO	H	9	10	3	X	X	X	X	0	0	1	A	
	1620	↓		N1	SO	H	13.5	14	3	X	X	X	X	0	0	1	A	
	0940	S32.8SB14		N1	SO	H	9.5	11.5	3	X	X	X	X	0	0	1	A	
	0940	↓		FR1	SO	H	9.5	11.5	3	X	X	X	X	0	0	1	A	
	1020	↓		N1	SO	H	16.5	18	3	X	X	X	X	0	0	1	A	
	1230	S32.8SB13		N1	SO	H	13	14.5	3	X	X	X	X	0	0	1	A	
	1250	↓		N1	SO	H	16	18	3	X	X	X	X	0	0	1	A	
	1250	↓		MS1	SO	H	16	18	3	X	X	X	X	0	0	1	A	
	1250	↓		SD1	SO	H	16	18	2	X	X	X	X	0	0	1	A	only one VOA bottle for SO1

CS

Relinquished by:	Date	Time	Relinquished by:	Date	Time	Relinquished by:	Date	Time
(Signature) [signature]	11/02/93	1700	(Signature)			(Signature)		
Received by:	Date	Time	Received by:	Date	Time	Received by:	Date	Time
(Signature)			(Signature)			(Signature) [signature]	11/3/93	0845

38

White: laboratory returns with data; yellow: laboratory copy; pink: sample

chaina dwg

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: TINKER AFB, OK

PROJECT NUMBER: AU401.08

CARRIER: ☒ Federal Express ☐ UPS
Other
AIRBILL OR CARRIER ID #: 8010145500

SAMPLER(S): M. HARDER R. NELSON

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	PRESERVATIVE	ANALYSIS REQUIRED: VOA (8240)	ANALYSIS REQUIRED: semiVOA (8270)	ANALYSIS REQUIRED: Metals (6010)	ANALYSIS REQUIRED: CN (9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	FIELD LOT CONTROL NUMBER	REMARKS
11/2/93	1540	S32.8SB12		N1	SO	H	10	11.5	3		X	X	X	X						
	1615	↓		N1	SO	H	17	18	3		X	X	X	X						
															0	0	1	A		
															0	0	1	A		

NOTE: In the IRPIMS database for 27 Oct 93, S32.2SB2 was incorrectly entered as S32.3SB2. Please make the appropriate changes. - CS

Relinquished by:	Date	Time	Received by:	Date	Time
(Signature)	11/02/93	1700	(Signature)		
(Signature)			(Signature)		
Relinquished by:	Date	Time	Received by:	Date	Time
(Signature)			(Signature)	11/3/93	0845

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: Tinker AFB, OK

CARRIER: [X] Federal Express [ ] UPS
Other

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 8010145463

SAMPLER(S): Marc Harder ~~Dan Hacks~~ Rick Nelson

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (SW8340)	Metals (6010)	SVOA (8270)	CN (9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/01/93	0925	S32.8SB17		N1	SO	SS	16'	18'	3	X	X	X	X			001	A	
	0903	S32.8SB17		N1	SO	SS	14'	16'	3	X	X	X	X			001	A	
	0847	S32.8SB17		N1	SO	SS	9'	11'	3	X	X	X	X			001	A	
	1515	S32.8SB15		N1	SO	SS	9.5'	11'	3	X	X	X	X			001	A	
	1630	S32.8SB15		N1	SO	SS	17.0	18.0	3	X	X	X	X			001	A	
	1600	S32.8SB15		N1	SO	SS	15.5'	17.0	3	X	X	X	X			001	A	
	-	FieldQC		TB1	WQ	NA	0	0	2	X						001	A	
	0945	I24.1CSB5		N1	SO	SS	6	7	3	X	X	X	X			001	A	
	1730	I24.1CSB5		N1	SO	SS	13	14	3	X	X	X	X			001	A	
	1400	S32.4SB1		N1	SO	SS	7	7.5	3	X	X	X	X			001	A	

PRESERVATIVE

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

Relinquished by: (Signature)	Date	Time
	11/01/93	1800

Received by: (Signature)	Date	Time
	11/2/93	0910

Relinquished by: (Signature)	Date	Time

Received by: (Signature)	Date	Time

Relinquished by: (Signature)	Date	Time

Received by: (Signature)	Date	Time
	11/2/93	1130

W[illegible]boratory returns with data; yellow: laboratory copy; pink: sampl[illegible]

chain.dwg

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS **ES**

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: ☒ Federal Express ☐ UPS — Other

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 801014545 2

SAMPLER(S): M. HARDER, Rick Nelson

(Signature): M.W. Harder, Rick Nelson

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	PRESERVATIVE: SW8240	SW8270	SW9010	SW6010	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	FIELD LOT CONTROL NUMBER	REMARKS
29 OCT 93	-	FIELDQC		TB1	WQ	NA	0	0	2	X									
11	1145	FIELDQC	~~S32.8SB3~~ MH	EB1	WQ	NA	0	0	5	X	X	X	X						
11	0810	S32.8SB2	~~S32.8SB2~~ MH	N1	SO	SS	0	2	3	X	X	X	X	C	1	1	A		
11	0850	S32.8SB2		N1	SO	SS	9	12	3	X	X	X	X	0	1	1	A		
11	0915	S32.8SB2		N1	SO	SS	12	15	3	X	X	X	X	0	1	1	A		
11	1100	S32.8SB3		N1	SO	SS	6	8	3	X	X	X	X	0	1	1	A		
11	1123	S32.8SB3		N1	SO	SS	12.5	14.0	3	X	X	X	X	0	1	1	A		
														0	1	1	A		

NO IR PIMS DISKETTES INCLUDED IN TODAYS SHIPMENT
INFORMATION FOR OCT 29 & NOV. 1 WILL BE INCLUDED IN THE NOV. 1 SHIPMENT, ALSO DUPLICATE INFORMATION REQUESTED FOR OCTOBER 26 & 28 WILL BE INCLUDED IN NOV. 1 SHIPMENT

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
M.W. Harder	10/29/93	1300			
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)	10/30/93	1100

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chainp.dwg

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.01

DATE: 12/03/93

SWLO #: 16176.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB2
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 2.00
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	5.5	U
METHYLENE CHLORIDE	55	J1 B	CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	110	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.5	U	TETRACHLOROETHENE	5.5	U
1,2-DICHLOROETHANE	5.5	U	TOLUENE	4.2	J5
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE(TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

DMB 12.20.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 106%	BROMOFLUOROBENZENE	(74-121) 106%
1,2-DICHLOROETHANE-D4	(70-121) 106%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.02

DATE: 12/03/93

SWLO #: 16176.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB2
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.00
DEPTH TO : 12.00
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	56	J1 B	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	100	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	4.5	J 5
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

DYB
12.20.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 105%
1,2-DICHLOROETHANE-D4	(70-121) 105%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.03

DATE: 12/03/93

SWLO #: 16176.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB2
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.00
DEPTH TO : 15.00
DATE PREPARED : / /
DILUTION FACTOR: 1.19

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	56	J1 B	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	88	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	6	U
1,2-DICHLOROETHANE	6	U	TOLUENE	4.6	J 5
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	6	U
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6	U			

DHB
12.20.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 103%	BROMOFLUOROBENZENE	(74-121)	99%
1,2-DICHLOROETHANE-D4	(70-121) 101%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.04

DATE: 12/03/93

SWLO #: 16176.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB3
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	50	J1 B	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	58	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	4.2	J 5
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

DMB
12.20.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 103%	BROMOFLUOROBENZENE	(74-121) 104%
1,2-DICHLOROETHANE-D4	(70-121) 103%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.05

DATE: 12/03/93

SWLO #: 16176.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB3
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.00
DATE PREPARED : / /
DILUTION FACTOR: 1.20

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	54	J1 B	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	300	J5 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	1.8 J1	J
1,2-DICHLOROETHANE	6	U	TOLUENE	4.6	J5
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	6	U
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 103%	
1,2-DICHLOROETHANE-D4	(70-121) 103%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.06

DATE: 12/03/93

SWLO #: 16176.06 EB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	240	J6 E	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	4.3	JS	TETRACHLOROETHENE	1.6	JS
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

DYB
12-20-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 99%	BROMOFLUOROBENZENE	(86-115) 103%
1,2-DICHLOROETHANE-D4	(76-114) 100%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.07

DATE: 12/03/93

SWLO #: 16176.07 TB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	260	J6 ~~B~~	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 102%	BROMOFLUOROBENZENE	(86-115) 103%
1,2-DICHLOROETHANE-D4	(76-114) 102%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.01

DATE: 12/03/93

SWLO #: 16195.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB17
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	38	J1	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	55	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 96%	BROMOFLUOROBENZENE	(74-121) 99%
1,2-DICHLOROETHANE-D4	(70-121) 109%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.02

DATE: 12/03/93

SWLO #: 16195.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB17
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	30	J1	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	24	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	86%	BROMOFLUOROBENZENE	(74-121)	88%
1,2-DICHLOROETHANE-D4	(70-121)	100%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.03

DATE: 12/03/93

SWLO #: 16195.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB17
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.00
DEPTH TO : 11.00
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	11	U	BENZENE	5.3	U
METHYLENE CHLORIDE	27	JI	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	37	JI	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	5.3	U
1,2-DICHLOROETHANE	5.3	U	TOLUENE	5.3	U
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	11	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE(TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	93%	BROMOFLUOROBENZENE	(74-121)	89%
1,2-DICHLOROETHANE-D4	(70-121)	87%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.04

DATE: 12/03/93

SWLO #: 16195.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB15
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.50
DEPTH TO : 11.00
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	11	U	BENZENE	5.3	U
METHYLENE CHLORIDE	22	J1	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	23	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	5.3	U
1,2-DICHLOROETHANE	5.3	U	TOLUENE	5.3	U
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	11	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE(TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	91%
1,2-DICHLOROETHANE-D4	(70-121)	95%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.05

DATE: 12/03/93

SWLO #: 16195.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB15
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 5.58

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	56	U	TRICHLOROETHENE	28	U
BROMOMETHANE	56	U	DIBROMOCHLOROMETHANE	28	U
VINYL CHLORIDE	56	U	1,1,2-TRICHLOROETHANE	28	U
CHLOROETHANE	56	U	BENZENE	28	U
METHYLENE CHLORIDE	28	U	CIS-1,3-DICHLOROPROPENE	28	U
ACETONE	1100	JI	2-CHLOROETHYL VINYL ETHER	56	U
CARBON DISULFIDE	28	U	BROMOFORM	28	U
1,1-DICHLOROETHENE	28	U	2-HEXANONE	56	U
1,1-DICHLOROETHANE	28	U	4-METHYL-2-PENTANONE	56	U
CHLOROFORM	28	U	TETRACHLOROETHENE	28	U
1,2-DICHLOROETHANE	28	U	TOLUENE	28	U
1,1,1-TRICHLOROETHANE	28	U	CHLOROBENZENE	28	U
CARBON TETRACHLORIDE	28	U	ETHYLBENZENE	28	U
VINYL ACETATE	56	U	STYRENE	28	U
BROMODICHLOROMETHANE	28	U	1,2-DICHLOROETHENE(TOTAL)	28	U
1,1,2,2-TETRACHLOROETHANE	28	U	XYLENE (TOTAL)	28	U
1,2-DICHLOROPROPANE	28	U	2-BUTANONE	56	U
TRANS-1,3-DICHLOROPROPENE	28	U			

DYB
12-20-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 105%	BROMOFLUOROBENZENE	(74-121) 115%
1,2-DICHLOROETHANE-D4	(70-121) 108%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-25

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.06

DATE: 12/03/93

SWLO #: 16195.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB15
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.50
DEPTH TO : 17.00
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	4	J1 ~~JB~~	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	61	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

MB
12.20.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	92%	BROMOFLUOROBENZENE	(74-121)	92%
1,2-DICHLOROETHANE-D4	(70-121)	81%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.07

DATE: 12/03/93

SWLO #: 16195.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.10SB5
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.11

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	3.8	J1 ~~JB~~	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	56	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

DJB 12-20-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121)	82%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.08

DATE: 12/03/93

SWLO #: 16195.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.10SB5
LOCATION:
DATE ANALYZED : 11/04/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	4.3	JI ~~JB~~	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	43	JI	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

DMB 12-21-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	97%	BROMOFLUOROBENZENE	(74-121)	99%
1,2-DICHLOROETHANE-D4	(70-121)	85%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.09

DATE: 12/03/93

SWLO #: 16195.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.4SB1
LOCATION:
DATE ANALYZED : 11/03/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.00
DEPTH TO : 7.50
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	31	J1	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	30	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

DMB
12-21-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	84%	BROMOFLUOROBENZENE	(74-121)	84%
1,2-DICHLOROETHANE-D4	(70-121)	91%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.10

DATE: 12/03/93

SWLO #: 16195.10 TB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1.5	JS	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

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12-21-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	99%	BROMOFLUOROBENZENE	(86-115) 102%
1,2-DICHLOROETHANE-D4	(76-114)	102%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.01

DATE: 12/03/93

SWLO #: 16205.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.8SB3
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.06

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	11	U	BENZENE	5.3	U
METHYLENE CHLORIDE	5.3	U	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	22 J1		2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	5.3	U
1,2-DICHLOROETHANE	5.3	U	TOLUENE	5.3	U
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	11	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE(TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	106%	BROMOFLUOROBENZENE	(74-121) 99%
1,2-DICHLOROETHANE-D4	(70-121)	95%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.02

DATE: 12/03/93

SWLO #: 16205.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.8SB3
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	5.9	U	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	34	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	107%	BROMOFLUOROBENZENE	(74-121)	105%
1,2-DICHLOROETHANE-D4	(70-121)	89%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.03

DATE: 12/03/93

SWLO #: 16205.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.10SB4
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.00
DEPTH TO : 10.00
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	5.5	U
METHYLENE CHLORIDE	5.5	U	CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	11	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.5	U	TETRACHLOROETHENE	5.5	U
1,2-DICHLOROETHANE	5.5	U	TOLUENE	5.5	U
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE(TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

MB
12-21-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 102%	BROMOFLUOROBENZENE	(74-121) 110%
1,2-DICHLOROETHANE-D4	(70-121) 111%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.04

DATE: 12/03/93

SWLO #: 16205.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.10SB4
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.50
DEPTH TO : 14.00
DATE PREPARED : / /
DILUTION FACTOR: 1.11

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	11	U	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

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12-21-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98%	BROMOFLUOROBENZENE	(74-121)	97%
1,2-DICHLOROETHANE-D4	(70-121)	88%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.05

DATE: 12/03/93

SWLO #: 16205.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB14
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.50
DEPTH TO : 11.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	43	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

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12.21.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 103%	BROMOFLUOROBENZENE	(74-121) 100%
1,2-DICHLOROETHANE-D4	(70-121) 86%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.06

DATE: 12/03/93

SWLO #: 16205.06 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB14
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.50
DEPTH TO : 11.50
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	31	J1 B	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	98	J1 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	97%	BROMOFLUOROBENZENE	(74-121)	89%
1,2-DICHLOROETHANE-D4	(70-121)	99%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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Attn: KEVIN TYNES

REPORT: 16205.07

DATE: 12/03/93

SWLO #: 16205.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB14
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.24

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6.2	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6.2	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6.2	U
CHLOROETHANE	12	U	BENZENE	6.2	U
METHYLENE CHLORIDE	36	JB	CIS-1,3-DICHLOROPROPENE	6.2	U
ACETONE	160	JB	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6.2	U	BROMOFORM	6.2	U
1,1-DICHLOROETHENE	6.2	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6.2	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6.2	U	TETRACHLOROETHENE	6.2	U
1,2-DICHLOROETHANE	6.2	U	TOLUENE	6.2	U
1,1,1-TRICHLOROETHANE	6.2	U	CHLOROBENZENE	6.2	U
CARBON TETRACHLORIDE	6.2	U	ETHYLBENZENE	6.2	U
VINYL ACETATE	12	U	STYRENE	6.2	U
BROMODICHLOROMETHANE	6.2	U	1,2-DICHLOROETHENE(TOTAL)	6.2	U
1,1,2,2-TETRACHLOROETHANE	6.2	U	XYLENE (TOTAL)	6.2	U
1,2-DICHLOROPROPANE	6.2	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6.2	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	94%
,2-DICHLOROETHANE-D4	(70-121)	94%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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Attn: KEVIN TYNES

REPORT: 16205.08

DATE: 12/03/93

SWLO #: 16205.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.50
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	5.5	U
METHYLENE CHLORIDE	30	J1 B	CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	100	J1 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.5	U	TETRACHLOROETHENE	5.5	U
1,2-DICHLOROETHANE	5.5	U	TOLUENE	5.5	U
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE(TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

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12-21-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98%	BROMOFLUOROBENZENE	(74-121)	85%
1,2-DICHLOROETHANE-D4	(70-121)	96%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.09

DATE: 12/03/93

SWLO #: 16205.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
ETHYLENE CHLORIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	80	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	95%	BROMOFLUOROBENZENE	(74-121)	93%
1,2-DICHLOROETHANE-D4	(70-121)	81%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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Attn: KEVIN TYNES

REPORT: 16205.10

DATE: 12/03/93

SWLO #: 16205.10 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	55	
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	51	
METHYLENE CHLORIDE	5.7	U	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	75	JL	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	53		2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	54	
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	55	
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

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12-21-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	97%	BROMOFLUOROBENZENE	(74-121)	97%
1,2-DICHLOROETHANE-D4	(70-121)	83%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
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Attn: KEVIN TYNES

REPORT: 16205.11

DATE: 12/03/93

SWLO #: 16205.11 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	53	
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	50	
ETHYLENE CHLORIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	76	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	48		2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	53	
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	53	
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

DYB
12-21-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	93%
,2-DICHLOROETHANE-D4	(70-121)	83%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.12

DATE: 12/03/93

SWLO #: 16205.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB12
LOCATION:
DATE ANALYZED : 11/05/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 10.00
DEPTH TO : 11.50
DATE PREPARED : / /
DILUTION FACTOR: 1.11

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	44	JL	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

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12-21-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	94%	BROMOFLUOROBENZENE	(74-121)	93%
1,2-DICHLOROETHANE-D4	(70-121)	87%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.13

DATE: 12/03/93

SWLO #: 16205.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB12
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	28	J1 B	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	100	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

DYB 12-22-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	102%	BROMOFLUOROBENZENE	(74-121)	96%
1,2-DICHLOROETHANE-D4	(70-121)	89%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.14

DATE: 12/03/93

SWLO #: 16205.14 TB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	99%	BROMOFLUOROBENZENE	(86-115) 102%
1,2-DICHLOROETHANE-D4	(76-114)	101%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.04

DATE: 12/03/93

SWLO #: 16176.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB3
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : 11/02/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	110	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12-22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.01

DATE: 12/03/93

SWLO #: 16195.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB17
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : 11/03/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	88 (J1)	
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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12.22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.02

DATE: 12/03/93

SWLO #: 16195.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB17
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00
DATE PREPARED : 11/03/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	47	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
ATTN: KEVIN TIMES

REPORT: 16195.06

DATE: 12/03/93

SWLO #: 16195.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB15
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.50
DEPTH TO : 17.00
DATE PREPARED : 11/03/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	395	J	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	41.7	J
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.07

DATE: 12/03/93

SWLO #: 16195.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.10SB5
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : 11/03/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	41.2	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.06

DATE: 12/03/93

SWLO #: 16205.06 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB14
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.50
DEPTH TO : 11.50
DATE PREPARED : 11/04/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	62 J1	
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.08

DATE: 12/07/93

SWLO #: 16205.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.50
DATE PREPARED : 11/04/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	43	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.10

DATE: 12/07/93

SWLO #: 16205.10 MS9
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : 11/15/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4980	J1 ~~B~~	ACENAPHTHENE	3320	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	5130	J1 ~~B~~	4-NITROPHENOL	6030	
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2630		2,4-DINITROTOLUENE	2520	
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	3310		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	5150	J1 ~~B~~
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	2810		PYRENE	2580	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	6160	JC ~~B~~	BIS(2-ETHYLHEXYL)PHTHALATE	360	U
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.11

DATE: 12/03/93

SWLO #: 16205.11 SD9
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : 11/15/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4750	J1 B	ACENAPHTHENE	3390	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	5660	J1 B	4-NITROPHENOL	5550	
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2750		2,4-DINITROTOLUENE	2610	
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	3650		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	5360	B J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	2940		PYRENE	2600	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	6030	J1 B	BIS(2-ETHYLHEXYL)PHTHALATE	43	J1 B
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.12

DATE: 12/03/93

SWLO #: 16205.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB12
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 10.00
DEPTH TO : 11.50
DATE PREPARED : 11/04/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	52	J1 ~~JB~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.01

DATE: 12/03/93

SWLO #: 16176.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB2
LOCATION:

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 0.00
DEPTH TO : 2.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.11	U	mg/kg	11/05/93	11/05/93	SW846-7471
SILVER	0.11	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	2.2		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	199		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.33	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	23.1	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	4.4		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	11.1		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.55		mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	14.4		mg/kg	11/05/93	11/06/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.02

DATE: 12/03/93

SWLO #: 16176.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB2
LOCATION:

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.00
DEPTH TO : 12.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.115	U	mg/kg	11/05/93	11/05/93	SW846-7471
SILVER	0.115	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	2.65		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	66		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.346	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	7.61	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.73		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	5.19		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.576	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	6.34		mg/kg	11/05/93	11/06/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.03

DATE: 12/03/93

SWLO #: 16176.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB2
LOCATION:

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.00
DEPTH TO : 15.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.119	U	mg/kg	11/05/93	11/05/93	SW846-7471
SILVER	0.119	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.19		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	17.4		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.357	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	11 JH		mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	0.953		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	2.74		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.595	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	3.45		mg/kg	11/05/93	11/06/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.04

DATE: 12/03/93

SWLO #: 16176.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB3
LOCATION:

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.112	U	mg/kg	11/05/93	11/05/93	SW846-7471
SILVER	0.112	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.23		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	152		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.402	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	8.83 J4		mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	3.24		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	7.49		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.559	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	50		mg/kg	11/05/93	11/06/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16176.05

DATE: 12/03/93

SWLO #: 16176.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB3
LOCATION:

DATE SAMPLED: 10/29/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.12	U	mg/kg	11/05/93	11/05/93	SW846-7471
SILVER	0.12	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.56		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	30.1		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.36	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	22.4	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.32		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	4.2		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.6		mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	6.12		mg/kg	11/05/93	11/06/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.01

DATE: 12/03/93

SWLO #: 16195.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB17
LOCATION:

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.118	U	mg/kg	11/05/93	11/05/93	SW846-7471
SILVER	0.118	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.66		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	30.5		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.355	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	5.09	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.54		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	3.08		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.592	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	4.02		mg/kg	11/05/93	11/06/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.02

DATE: 12/03/93

SWLO #: 16195.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB17
LOCATION:

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 16.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.112	U	mg/kg	11/05/93	11/05/93	SW846-7471
SILVER	0.112	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.12	U	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	23.1		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.337	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	4.82	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	0.561		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	3.7		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.561	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	3.37		mg/kg	11/05/93	11/06/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.03

DATE: 12/03/93

SWLO #: 16195.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB17
LOCATION:

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.00
DEPTH TO : 11.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.107	U	mg/kg	11/05/93	11/05/93	SW846-7471
SILVER	0.107	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	2.88		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	91.4		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.321	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	6.3	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.6		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	8.87		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.534	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	9.51		mg/kg	11/05/93	11/06/93	SW846-6010

DYB
12.22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.04

DATE: 12/03/93

SWLO #: 16195.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB15
LOCATION:

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.50
DEPTH TO : 11.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.107	U	mg/kg	11/05/93	11/05/93	SW846-7471
SILVER	0.107	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.5		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	77.3		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.491		mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	107	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	6.52		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	285		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.534	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	8.22		mg/kg	11/05/93	11/06/93	SW846-6010

DYB
12.22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.05

DATE: 12/03/93

SWLO #: 16195.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB15
LOCATION:

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.112	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.112	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	2.79		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	42.1		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.335	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	99.8 J4		mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	2.79		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	13.5		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.558	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	6.58		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.06

DATE: 12/03/93

SWLO #: 16195.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB15
LOCATION:

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.50
DEPTH TO : 17.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.115	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.115	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	2.19		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	17.6		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.345	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	61.4	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	2.53		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	15.1		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.576	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	3.68		mg/kg	11/05/93	11/06/93	SW846-6010

DAB
12.22.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.07

DATE: 12/03/93

SWLO #: 16195.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.10SB5
LOCATION:

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.111	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.111	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	4		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	111		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.334	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	11.2	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	4.78		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	11.4		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.556	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	14.9		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12.22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.08

DATE: 12/03/93

SWLO #: 16195.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.10SB5
LOCATION:

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.114	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.114	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	2.06		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	32.5		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.343	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	4.23	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.83		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	3.09		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.572	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	3.77		mg/kg	11/05/93	11/06/93	SW846-6010

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12.22.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16195.09

DATE: 12/03/93

SWLO #: 16195.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.4SB1
LOCATION:

DATE SAMPLED: 11/01/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.00
DEPTH TO : 7.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.116	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.116	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	4.87		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	371		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.348	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	15.5	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	4.52		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	14.6		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.58	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	18.3		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.01

DATE: 12/03/93

SWLO #: 16205.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.8SB3
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.106	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.106	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.06	U	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	71.8		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.383		mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	2.77	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.17		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	3.3		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.532	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	3.51		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.02

DATE: 12/03/93

SWLO #: 16205.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.8SB3
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.118	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.118	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	2.36		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	41		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.354	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	9.08	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	3.66		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	2.71		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.59	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	3.89		mg/kg	11/05/93	11/06/93	SW846-6010

DYB
12-22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.03

DATE: 12/03/93

SWLO #: 16205.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.10SB4
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.00
DEPTH TO : 10.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.11	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.11	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.65		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	99.4		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.33	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	5.84	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	2.42		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	6.28		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.551	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	7.16		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12.22.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.04

DATE: 12/03/93

SWLO #: 16205.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.10SB4
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.50
DEPTH TO : 14.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.111	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.111	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.11	U	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	28.2		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.4	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	9.23	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	0.89		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	3.67		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.556	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	2.56		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12.22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.05

DATE: 12/03/93

SWLO #: 16205.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB14
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.50
DEPTH TO : 11.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.112	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.112	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.12	U	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	142		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.336	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	28.2	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.57		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	5.94		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.56	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	4.48		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.06

DATE: 12/03/93

SWLO #: 16205.06 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB14
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.50
DEPTH TO : 11.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.114	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.114	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.14	U	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	127		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.344	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	26.9	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	2.29		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	6.76		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.573	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	5.61		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.07

DATE: 12/03/93

SWLO #: 16205.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB14
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.124	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.124	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.49		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	28.1		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.373	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	16.5 J4		mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	0.871		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	6.59		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.622	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	2.86		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12.22.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.08

DATE: 12/03/93

SWLO #: 16205.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.11	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.11	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	2.2		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	52.2		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.33	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	6.71	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	2.86		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	4.29		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.55	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	6.16		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12.22.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.09

DATE: 12/03/93

SWLO #: 16205.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.116	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.116	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	3.14		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	34.8		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.348	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	12 J4		mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	2.67		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	4.42		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.581	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	5.93		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.10

DATE: 12/03/93

SWLO #: 16205.10 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.585	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	4.7	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	204	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	251	mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	4.93	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	26.7 J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	49.7	mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	54	mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	200	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	54.2	mg/kg	11/05/93	11/06/93	SW846-6010

DMB 12-22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.11

DATE: 12/03/93

SWLO #: 16205.11 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB13
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.599	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	4.84	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	199	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	236	mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	4.95	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	25 J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	48.5	mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	52.1	mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	195	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	51.6	mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12.22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.12

DATE: 12/03/93

SWLO #: 16205.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB12
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 10.00
DEPTH TO : 11.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.111	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.111	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	2.22		mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	176		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	1.56		mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	11.1	J4	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	2.67		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	14.6		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.556	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	10.1		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12-22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16205.13

DATE: 12/03/93

SWLO #: 16205.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB12
LOCATION:

DATE SAMPLED: 11/02/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.118	U	mg/kg	11/08/93	11/08/93	SW846-7471
SILVER	0.118	U	mg/kg	11/05/93	11/12/93	SW846-7761
ARSENIC	1.18	U	mg/kg	11/05/93	11/08/93	SW846-6010
BARIUM	45.7		mg/kg	11/05/93	11/06/93	SW846-6010
CADMIUM	0.354	U	mg/kg	11/05/93	11/06/93	SW846-6010
CHROMIUM	5.67	JH	mg/kg	11/05/93	11/06/93	SW846-6010
LEAD	1.42		mg/kg	11/05/93	11/08/93	SW846-6010
NICKEL	6.02		mg/kg	11/05/93	11/06/93	SW846-6010
SELENIUM	0.59	U	mg/kg	11/05/93	11/08/93	SW846-6010
ZINC	4.13		mg/kg	11/05/93	11/06/93	SW846-6010

DMB
12.22-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

TABLE ___
DATA VALIDATION WORKSHEET

PROJECT: TINKER AFB SDG: 16220

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4)
VOCs	V1	Laboratory Blanic Contamination	See Note 1	J1
	V2	Trip blanic contamination	See Note 2	J1
SVOCs	SV1	Laboratory blanic contamination	See Note 3	J1
	SV2	Laboratory cross contamination	See Note 4	J4
Metals	M1	Field replicate outlier for lead	See Note 5	J4

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

DAVID Y. BADIO DEBADIO

DATA VALIDATOR(Name/Signature)

12-17-93
Date

Table ____
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
PROJECT: TINKER AFB

SDG: 16220

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Methylene chloride (3.6 ppb), acetone (26 ppb) and 2-hexanone (8.5 ppb) were detected in soil lab blanks. All reported detections of these analytes in the samples have been qualified as estimated (J1).
	V2	2. The trip blank associated with w/o 16220 contained toluene (2 ppb) and xylenes (4.8 ppb). Only sample S32.85B10 was affected by the contamination. The result reported for toluene in the sample has been qualified as estimated (J1).
SVOCs	SV1	3. BEHP (74 ppb) was detected in a soil lab blank associated with this SDG. All reported detections of BEHP in the samples have been qualified as estimated (J1).
	SV2	4. The lab's case narrative indicates the spiking compounds detected in sample I24.125B6 are due to cross contamination in the lab from LCS samples. Reported detections of 2-Chlorophenol, 4-Chloro-3-methyl phenol, acenaphthene, pentachlorophenol and pyrene have been qualified as estimated.

1. Item number should correspond with the item number on the worksheet.

David Badio [signature] 12-17-93
Data Validator (Name/Signature/Date)

Table ____
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
PROJECT: TINKER AFB

SDG: 16220

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
Metals	M1	5. A precision (RPD) outlier was calculated for lead in the field replicate samples (5:32.85B10). The calculated RPD (59.3%) exceeded the QA objective of 50%. Reported detections of lead in the samples have been qualified as estimated (J4).

1. Item number should correspond with the item number on the worksheet.

David Y. Badio [signature] 12-17-93
Data Validator (Name/Signature/Date)

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : U931107A
INST. BATCH: 2636
REPORTED : 11/30/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : U931107A
LOCATION:

ANALYZED : 11/07/93 11:44
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	ND	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	ND	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	8.5 J NOTE 1
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	101%	BROMOFLUOROBENZENE	(74-121)	99%
1,2-DICHLOROETHANE-D4	(70-121)	95%			

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : K931108A
INST. BATCH: 13795
REPORTED : 11/30/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : K931108A
LOCATION:

ANALYZED : 11/08/93 10:08
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	3.6 J	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	26	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	100%	BROMOFLUOROBENZENE	(74-121)	86%
1,2-DICHLOROETHANE-D4	(70-121)	96%			

= NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.01

DATE: 12/03/93

SWLO #: 16220.01 TB1
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	2	J 5
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	4.8	J 5
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

Note 2

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 109%	BROMOFLUOROBENZENE	(86-115) 101%
1,2-DICHLOROETHANE-D4	(76-114) 105%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220

DATE: 12/01/93

SWLO QAQC#: BL110516S
PROJECT : TINKER AFB-RFI
SAMPLE #: SBLK LB1
LOCATION: LABQC
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	74	J
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY
OF OKLAHOMA, INC.

December 3, 1993

Mr. Kevin Tynes
ENGINEERING-SCIENCE, INC.
7800 Shoal Creek Boulevard, Suite 222W
Austin, TX 78757

Subject: Tinker AFB RFI
SDG#: 16220
SWLO #: 16220.01 - 16220.14, 16241.01 - 16241.15

Dear Mr. Tynes:

Enclosed we are submitting the hardcopy report and diskette deliverable for your samples received in our laboratory on November 4th and 5th of 1993 for the above-captioned project.

Semivolatile analysis: For Sample ID I24.12SB6 (16220.02), expect that low level spiking compound contamination is cross-contamination from laboratory control spikes. NOTE 4

In addition, please note that QC Tool gave the following error because there was no valid parlabel for the following compound:

Xylene

If in your review you have any questions or require additional information, please call.

Sincerely,

Daryl Alstatt
Project Officer

DA/rww

Enclosures

1700 WEST ALBANY • BROKEN ARROW, OK 74012-1421 • (918) 251-2858 • FAX (918) 251-2599

TABLE ___
DATA VALIDATION FIELD REPLICATE WORKSHEET
PROJECT: Tinker AFB

SAMPLE ID: S32.8S810 SAMPLE MATRIX: Soil SDG: 16220

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	3.5	4.6	27.2
	Acetone	26	28	7.4
	Tetrachloroethene	U	1.5	—
SVOCs	Bis(2ethylhexyl)phthalate	52	66	23.7
Metals	Arsenic	2.57	3.86	40.1
	Barium	89.2	76.5	15.3
	Chromium	5.85	7.14	19.9
	Lead (0.3)	1.4	2.58	59.3*
	Nickel	3.39	4.1	19.0
	Zinc	5.03	5.62	11.1
Cyanide	Total Cyanide	U	U	—

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

* Reported results for lead in all soil samples have been qualified as estimated.

16220

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: [x] Federal Express [ ] UPS Other: ~~GO~~

PROJECT NUMBER: A0401.08

AIRBILL OR CARRIER ID #: 8010145485

SAMPLER(S): M. HARPER R. NELSON

(Signature): M.W. Harper R. Nelson

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (8240)	SemiVOA (8270)	CN (CYANIDE)	Metals (6010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/3/93	--	FIELDQC		TBI	WQ	NA	0	0	2	X				0	0	1	A	
	1305	E24.12SB6		NI	SO	H	8	8.5	3	X	X	X	X	0	0	1	A	
	1400	!		NI	SO	H	15	16	3	X	X	X	X	0	0	1	A	
	0840	E24.11SB2		NI	SO	H	6	7	3	X	X	X	X	0	0	1	A	
	1015	!		NI	SO	H	13	14	3	X	X	X	X	0	0	1	A	
	0940	S32 8SB11		NI	SO	H	15	16.5	3	X	X	X	X	0	0	1	A	
	1100	!		NI	SO	H	16.5	17.5	3	X	X	X	X	0	0	1	A	
	1310	S32.8SB10		NI	SO	H	14.5	16	3	X	X	X	X	0	0	1	A	
	1310	↓		FRI	SO	H	14.5	16	3	X	X	X	X	0	0	1	A	
	1215	↓		NI	SO	H	11	12	3	X	X	X	X	0	0	1	A	
	1600	S32.8SB9		NI	SO	H	14.5	15.5	3	X	X	X	X	0	0	1	A	
↓	1615	!		NI	SO	H	16.5	18	3	X	X	X	X	0	0	1	A	
																		CS

PRESERVATIVE | ANALYSIS REQUIRED | FIELD LOT CONTROL NUMBER

Relinquished by: M.W. Harper (Signature) Date 11/3/93 Time 1750

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: [illegible] (Signature) Date 11/4/93 Time 0845

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

chainq.dwg

PAGE 2 OF 2

16220

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

ES

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: [X] Federal Express [ ] UPS

Other

PROJECT NUMBER: A0401.08

AIRBILL OR CARRIER ID #: 8010145485

SAMPLER(S): M. HARDER R. NELSON

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (8240)	SemiVOA (8270)	CN (9010)	Metals (6010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/3/93	1610	I24.10SB3		N1	SO	H	6	7	3	X	X	X	X	0	0	1	A	
↓	1700	↓		N1	SO	H	15	16	3	X	X	X	X	0	0	1	A	

PRESERVATIVE

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

Relinquished by:	Date	Time	Relinquished by:	Date	Time	Relinquished by:	Date	Time
(Signature)	11/3/93	1750	(Signature)			(Signature)		
Received by:	Date	Time	Received by:	Date	Time	Received by:	Date	Time
(Signature)			(Signature)			(Signature) K. Willison	11/4/93	0845

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34

16220

CHAIN OF CUSTODY RECORD

ENGINEERING—SCIENCE
AUSTIN, TEXAS

ES

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: [X] Federal Express [ ] UPS

Other

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 8010145474

SAMPLER(S): M. HARDER R. NELSON

(Signature) [signature] [signature]

PRESERVATIVE

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA(8240)	Semi VOA(8270)	Metals(6010)	CN(9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/4/93	—	FIELDQC		TB1	WQ	NA	0	0	2	X				0	0	1	A	
	0825	I24.9SB1		N1	SO	H	10.5	11.5	3	X	X	X	X	0	0	1	A	
	0925	I24.9SB1		N1	SO	H	16.5	17.5	3	X	X	X	X	0	0	1	A	
	1125	I24.9SB2		N1	SO	H	10	11	3	X	X	X	X	0	0	1	A	
	1145	I24.9SB2		N1	SO	H	17	17.5	3	X	X	X	X	0	0	1	A	
	0830	S32.8SB18		N1	SO	H	9.5	11.5	3	X	X	X	X	0	0	1	A	
	1000	S32.8SB18		N1	SO	H	16	18	3	X	X	X	X	0	0	1	A	
	1130	S32.8SB4		N1	SO	H	8	9	3	X	X	X	X	0	0	1	A	
	1225	S32.8SB4		N1	SO	H	12	13.5	3	X	X	X	X	0	0	1	A	
	1425	S32.8SB5		N1	SO	H	6	7	3	X	X	X	X	0	0	1	A	
	1500	S32.8SB5		N1	SO	H	11.5	13.5	3	X	X	X	X	0	0	1	A	
	1500	S32.8SB5		MS1	SO	H	11.5	13.5	3	X	X	X	X	0	0	1	A	
	1500	S32.8SB5		SD1	SO	H	11.5	13.5	3	X	X	X	X	0	0	1	A	

Relinquished by: [signature] (Signature) Date 11/4/93 Time 1730

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: (Signature) [signature] Date 11/5/93 Time 0845

38F

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chaino.dwg

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

ES

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: [X] Federal Express [ ] UPS

Other

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 8010145474

SAMPLER(S): M. HARDER R NELSON.

(Signature) [signature] [signature]

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (8240)	SemiVOA (8270)	Metals (6010)	CN (9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11-4-93	1445	I24.2SB3		N1	SO	H	6	7	3	X	X	X	X	0	0	1	A	
	1610	I24.2SB3		N1	SO	H	16.5	17.5	3	X	X	X	X	0	0	1	A	

PRESERVATIVE

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

Relinquished by:	Date	Time	Relinquished by:	Date	Time	Relinquished by:	Date	Time
(Signature) [signature]	11/4/93	1730	(Signature)			(Signature)		
Received by:	Date	Time	Received by:	Date	Time	Received by:	Date	Time
(Signature)			(Signature)			(Signature) [signature]	11/5/93	0845

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

hoino.dwg

3,85

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.01

DATE: 12/03/93

SWLO #: 16220.01 TB1
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	2	J 5
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	4.8	J 5
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

DMB 12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 109%	BROMOFLUOROBENZENE	(86-115) 101%
1,2-DICHLOROETHANE-D4	(76-114) 105%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.02

DATE: 12/03/93

SWLO #: 16220.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB6
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	2.5	J1	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	11	U	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

DyB 12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 102%	BROMOFLUOROBENZENE	(74-121) 102%
1,2-DICHLOROETHANE-D4	(70-121) 101%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.03

DATE: 12/03/93

SWLO #: 16220.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB6
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	3.8	J1	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	12	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	1.3	J5
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

DYB 12.17-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	97%
1,2-DICHLOROETHANE-D4	(70-121)	97%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.04

DATE: 12/02/93

SWLO #: 16220.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.11SB2
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	4.5	J1	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	32	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

DMB
12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121) 100%
1,2-DICHLOROETHANE-D4	(70-121)	99%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.05

DATE: 12/02/93

SWLO #: 16220.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.11SB2
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00
DATE PREPARED : / /
DILUTION FACTOR: 1.28

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	13	U	TRICHLOROETHENE	6.4	U
BROMOMETHANE	13	U	DIBROMOCHLOROMETHANE	6.4	U
VINYL CHLORIDE	13	U	1,1,2-TRICHLOROETHANE	6.4	U
CHLOROETHANE	13	U	BENZENE	6.4	U
METHYLENE CHLORIDE	4.4	J1	CIS-1,3-DICHLOROPROPENE	6.4	U
ACETONE	41	J1	2-CHLOROETHYL VINYL ETHER	13	U
CARBON DISULFIDE	6.4	U	BROMOFORM	6.4	U
1,1-DICHLOROETHENE	6.4	U	2-HEXANONE	13	U
1,1-DICHLOROETHANE	6.4	U	4-METHYL-2-PENTANONE	13	U
CHLOROFORM	6.4	U	TETRACHLOROETHENE	1.6	J5
1,2-DICHLOROETHANE	6.4	U	TOLUENE	6.4	U
1,1,1-TRICHLOROETHANE	6.4	U	CHLOROBENZENE	6.4	U
CARBON TETRACHLORIDE	6.4	U	ETHYLBENZENE	6.4	U
VINYL ACETATE	13	U	STYRENE	6.4	U
BROMODICHLOROMETHANE	6.4	U	1,2-DICHLOROETHENE(TOTAL)	6.4	U
1,1,2,2-TETRACHLOROETHANE	6.4	U	XYLENE (TOTAL)	6.4	U
1,2-DICHLOROPROPANE	6.4	U	2-BUTANONE	13	U
TRANS-1,3-DICHLOROPROPENE	6.4	U			

DMB 12.15.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 100%	BROMOFLUOROBENZENE	(74-121) 100%
1,2-DICHLOROETHANE-D4	(70-121) 98%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.06

DATE: 12/02/93

SWLO #: 16220.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB11
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.50
DATE PREPARED : / /
DILUTION FACTOR: 1.13

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	3.3	J1	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	21	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

DyB 12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 102%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121) 100%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
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Attn: KEVIN TYNES

REPORT: 16220.07

DATE: 12/02/93

SWLO #: 16220.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB11
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 17.50
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	3.6	J1	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	30	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

DMB 12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 100%	BROMOFLUOROBENZENE	(74-121) 103%
1,2-DICHLOROETHANE-D4	(70-121) 98%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
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Attn: KEVIN TYNES

REPORT: 16220.08

DATE: 12/02/93

SWLO #: 16220.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB10
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	3.5	J1	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	26	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

DYB
12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	96%	BROMOFLUOROBENZENE	(74-121)	99%
1,2-DICHLOROETHANE-D4	(70-121)	95%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.09

DATE: 12/02/93

SWLO #: 16220.09 FR1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB10
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	4.6	J1	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	28	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	1.5	J 5
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

DMB
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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 101%	BROMOFLUOROBENZENE	(74-121) 99%
1,2-DICHLOROETHANE-D4	(70-121) 100%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.10

DATE: 12/02/93

SWLO #: 16220.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB10
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.00
DEPTH TO : 12.00
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	5.5	U
METHYLENE CHLORIDE	3	J1	CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	21	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.5	U	TETRACHLOROETHENE	1.7	J5
1,2-DICHLOROETHANE	5.5	U	TOLUENE	4.2	J1
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE(TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

DYB 12.17-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 103%	BROMOFLUOROBENZENE	(74-121) 105%
1,2-DICHLOROETHANE-D4	(70-121) 104%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.11

DATE: 12/02/93

SWLO #: 16220.11 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB9
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50
DATE PREPARED : / /
DILUTION FACTOR: 1.23

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6.2	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6.2	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6.2	U
CHLOROETHANE	12	U	BENZENE	6.2	U
METHYLENE CHLORIDE	4.1	J1	CIS-1,3-DICHLOROPROPENE	6.2	U
ACETONE	41	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6.2	U	BROMOFORM	6.2	U
1,1-DICHLOROETHENE	6.2	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6.2	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6.2	U	TETRACHLOROETHENE	1.3	J5
1,2-DICHLOROETHANE	6.2	U	TOLUENE	6.2	U
1,1,1-TRICHLOROETHANE	6.2	U	CHLOROBENZENE	6.2	U
CARBON TETRACHLORIDE	6.2	U	ETHYLBENZENE	6.2	U
VINYL ACETATE	12	U	STYRENE	6.2	U
BROMODICHLOROMETHANE	6.2	U	1,2-DICHLOROETHENE(TOTAL)	6.2	U
1,1,2,2-TETRACHLOROETHANE	6.2	U	XYLENE (TOTAL)	6.2	U
1,2-DICHLOROPROPANE	6.2	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6.2	U			

DMB
12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121) 101%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.12

DATE: 12/02/93

SWLO #: 16220.12 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB9
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	3	J1	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	52	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

DMB
12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 109%	BROMOFLUOROBENZENE	(74-121) 107%
1,2-DICHLOROETHANE-D4	(70-121) 106%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.13

DATE: 12/02/93

SWLO #: 16220.13 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB3
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.11

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	3.3	J1	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	20	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	4.9	J5
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

DMB
12.17-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	94%
1,2-DICHLOROETHANE-D4	(70-121)	98%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.14

DATE: 12/02/93

SWLO #: 16220.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB3
LOCATION:
DATE ANALYZED : 11/07/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.20

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	5.2	J1	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	26	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	4.1	J5
1,2-DICHLOROETHANE	6	U	TOLUENE	6	U
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	6	U
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6	U			

DYB
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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 107%	BROMOFLUOROBENZENE	(74-121) 96%
1,2-DICHLOROETHANE-D4	(70-121) 102%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.02

DATE: 12/02/93

SWLO #: 16241.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.9SB1
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 10.50
DEPTH TO : 11.50
DATE PREPARED : / /
DILUTION FACTOR: 5.29

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	53	U	TRICHLOROETHENE	26	U
BROMOMETHANE	53	U	DIBROMOCHLOROMETHANE	26	U
VINYL CHLORIDE	53	U	1,1,2-TRICHLOROETHANE	26	U
CHLOROETHANE	53	U	BENZENE	26	U
METHYLENE CHLORIDE	26	U	CIS-1,3-DICHLOROPROPENE	26	U
ACETONE	63 (J1)		2-CHLOROETHYL VINYL ETHER	53	U
CARBON DISULFIDE	26	U	BROMOFORM	26	U
1,1-DICHLOROETHENE	26	U	2-HEXANONE	53	U
1,1-DICHLOROETHANE	26	U	4-METHYL-2-PENTANONE	53	U
CHLOROFORM	26	U	TETRACHLOROETHENE	26	U
1,2-DICHLOROETHANE	26	U	TOLUENE	26	U
1,1,1-TRICHLOROETHANE	26	U	CHLOROBENZENE	26	U
CARBON TETRACHLORIDE	26	U	ETHYLBENZENE	26	U
VINYL ACETATE	53	U	STYRENE	26	U
BROMODICHLOROMETHANE	26	U	1,2-DICHLOROETHENE(TOTAL)	26	U
1,1,2,2-TETRACHLOROETHANE	26	U	XYLENE (TOTAL)	26	U
1,2-DICHLOROPROPANE	26	U	2-BUTANONE	53	U
TRANS-1,3-DICHLOROPROPENE	26	U			

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12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	96%	BROMOFLUOROBENZENE	(74-121)	91%
1,2-DICHLOROETHANE-D4	(70-121)	84%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.03

DATE: 12/02/93

SWLO #: 16241.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.9SB1
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 17.50
DATE PREPARED : / /
DILUTION FACTOR: 1.21

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	13	J1 B	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	51	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	6	U
1,2-DICHLOROETHANE	6	U	TOLUENE	6	U
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	6	U
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	100%	BROMOFLUOROBENZENE	(74-121)	91%
1,2-DICHLOROETHANE-D4	(70-121)	96%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.04

DATE: 12/02/93

SWLO #: 16241.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB2
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 10.00
DEPTH TO : 11.00
DATE PREPARED : / /
DILUTION FACTOR: 1.19

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	13	J1 B	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	32	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	6	U
1,2-DICHLOROETHANE	6	U	TOLUENE	6	U
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	6	U
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	109%	BROMOFLUOROBENZENE	(74-121)	93%
1,2-DICHLOROETHANE-D4	(70-121)	95%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.05

DATE: 12/02/93

SWLO #: 16241.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB2
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 17.50
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	12	J1 B	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	36	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	103%	BROMOFLUOROBENZENE	(74-121)	90%
1,2-DICHLOROETHANE-D4	(70-121)	90%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.06

DATE: 12/02/93

SWLO #: 16241.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB18
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 9.58
DEPTH TO : 11.50
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.4	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	5.4	U
METHYLENE CHLORIDE	11	J1 B	CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	18	J1 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	5.4	U
1,2-DICHLOROETHANE	5.4	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE(TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	92%
1,2-DICHLOROETHANE-D4	(70-121)	94%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.07

DATE: 12/02/93

SWLO #: 16241.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB18
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	11	J1 B	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	44	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	100%	BROMOFLUOROBENZENE	(74-121)	88%
1,2-DICHLOROETHANE-D4	(70-121)	90%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.08

DATE: 12/02/93

SWLO #: 16241.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB4
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 9.00
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	9.3	J1 B	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	69	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

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12-17-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	107%	BROMOFLUOROBENZENE	(74-121) 92%
1,2-DICHLOROETHANE-D4	(70-121)	88%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.09

DATE: 12/02/93

SWLO #: 16241.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB4
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 12.00
DEPTH TO : 13.50
DATE PREPARED : / /
DILUTION FACTOR: 1.19

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	11	J1 B	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	50	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	6	U
1,2-DICHLOROETHANE	6	U	TOLUENE	6	U
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	6	U
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6	U			

DYB
12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 109%	BROMOFLUOROBENZENE	(74-121) 94%
1,2-DICHLOROETHANE-D4	(70-121) 91%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.10

DATE: 12/02/93

SWLO #: 16241.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	10	J1 B	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	60	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	95%	BROMOFLUOROBENZENE	(74-121)	84%
1,2-DICHLOROETHANE-D4	(70-121)	93%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.11

DATE: 12/02/93

SWLO #: 16241.11 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.50
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	11	J1 B	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	62	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

DYB
12.17.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	95%	BROMOFLUOROBENZENE	(74-121)	88%
1,2-DICHLOROETHANE-D4	(70-121)	97%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.12

DATE: 12/02/93

SWLO #: 16241.12 MS1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.50
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	56	
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	56	
METHYLENE CHLORIDE	10	J1	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	44	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	56		2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	58	
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	59	
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

DMB
12-17-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98%	BROMOFLUOROBENZENE	(74-121)	86%
1,2-DICHLOROETHANE-D4	(70-121)	90%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.13

DATE: 12/02/93

SWLO #: 16241.13 SD1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.50
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	59	
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	56	
METHYLENE CHLORIDE	11	J1 B	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	65	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	52		2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	57	
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	62	
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

DYB
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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	92%	BROMOFLUOROBENZENE	(74-121)	78%
1,2-DICHLOROETHANE-D4	(70-121)	86%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.14

DATE: 12/02/93

SWLO #: 16241.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.2SB3
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	7.4	J1	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	140	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	18	
TRANS-1,3-DICHLOROPROPENE	5.7	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	100%	BROMOFLUOROBENZENE	(74-121)	96%
1,2-DICHLOROETHANE-D4	(70-121)	88%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.15

DATE: 12/03/93

SWLO #: 16241.15 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.2SB3
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 17.50
DATE PREPARED : / /
DILUTION FACTOR: 1.11

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	5.6	J1	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	24	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

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12-17-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98%	BROMOFLUOROBENZENE	(74-121)	90%
1,2-DICHLOROETHANE-D4	(70-121)	84%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.02

DATE: 12/03/93

SWLO #: 16220.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB6
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	40	J
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	43	J	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	39	J
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	52	J
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	42	J
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	59	J	BIS(2-ETHYLHEXYL)PHTHALATE	100 J1	~~J~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12.17.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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Attn: KEVIN TYNES

REPORT: 16220.03

DATE: 12/02/93

SWLO #: 16220.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB6
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	62	J1 ~~JB~~
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DYB
12-17-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.05

DATE: 12/02/93

SWLO #: 16220.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.11SB2
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	430	U	ACENAPHTHENE	430	U
BIS(2-CHLOROETHYL)ETHER	430	U	2,4-DINITROPHENOL	2100	U
2-CHLOROPHENOL	430	U	4-NITROPHENOL	2100	U
1,3-DICHLOROBENZENE	430	U	DIBENZOFURAN	430	U
1,4-DICHLOROBENZENE	430	U	2,4-DINITROTOLUENE	430	U
BENZYL ALCOHOL	430	U	2,6-DINITROTOLUENE	430	U
1,2-DICHLOROBENZENE	430	U	DIETHYLPHTHALATE	430	U
2-METHYLPHENOL(O-CRESOL)	430	U	4-CHLOROPHENYL-PHENYLETHER	430	U
BIS(2-CHLOROISOPROPYL)ETHER	430	U	FLUORENE	430	U
4-METHYLPHENOL(P-CRESOL)	430	U	4-NITROANILINE	2100	U
N-NITROSO-DI-N-PROPYLAMINE	430	U	4,6-DINITRO-2-METHYLPHENOL	2100	U
HEXACHLOROETHANE	430	U	N-NITROSODIPHENYLAMINE(1)	430	U
NITROBENZENE	430	U	4-BROMOPHENYL-PHENYLETHER	430	U
ISOPHORONE	430	U	HEXACHLOROBENZENE	430	U
2-NITROPHENOL	430	U	PENTACHLOROPHENOL	2100	U
2,4-DIMETHYLPHENOL	430	U	PHENANTHRENE	430	U
BENZOIC ACID	2100	U	ANTHRACENE	430	U
BIS(2-CHLOROETHOXY)METHANE	430	U	DI-N-BUTYL PHTHALATE	430	U
2,4-DICHLOROPHENOL	430	U	FLUORANTHENE	430	U
1,2,4-TRICHLOROBENZENE	430	U	PYRENE	430	U
NAPHTHALENE	430	U	BUTYL BENZYL PHTHALATE	430	U
4-CHLOROANILINE	430	U	3,3'-DICHLOROBENZIDINE	860	U
HEXACHLOROBUTADIENE	430	U	BENZO(A)ANTHRACENE	430	U
4-CHLORO-3-METHYLPHENOL	430	U	BIS(2-ETHYLHEXYL)PHTHALATE	83	J1 ~~JB~~
2-METHYLNAPHTHALENE	430	U	CHRYSENE	430	U
HEXACHLOROCYCLOPENTADIENE	430	U	DI-N-OCTYL PHTHALATE	430	U
2,4,6-TRICHLOROPHENOL	430	U	BENZO(B)FLUORANTHENE	430	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.06

DATE: 12/02/93

SWLO #: 16220.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB11
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.50
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	55	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12.17-93

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.07

DATE: 12/02/93

SWLO #: 16220.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB11
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 17.50
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	46	J1 ~~J5~~
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.08

DATE: 12/02/93

SWLO #: 16220.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB10
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.00
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	52	J1 ~~J5~~
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.09

DATE: 12/02/93

SWLO #: 16220.09 FR1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB10
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.00
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	66	J1 ~~JB~~
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.10

DATE: 12/02/93

SWLO #: 16220.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB10
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.00
DEPTH TO : 12.00
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	60	J1 ~~JB~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.11

DATE: 12/02/93

SWLO #: 16220.11 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB9
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	56 J1 ~~JB~~	
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DyB 12-17-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

TABLE ___
DATA VALIDATION WORKSHEET

PROJECT: TINKER AFB SDG: 16250

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4)
VOCs	V1	1. Lab blank Contamination	See Note 1	J1
	V2	Equipment blank Contamination	See Note 2	J1
	V3	Field replicate precision outliers	See Note 3	J4, J6
	V4	Calibration range exceeded for methylene chloride, tetrachloroethene and 2-butanone (IWTSL2MS/MSD)	See Note 4	J4, J6
SVOCs	SV1	Surrogate recovery outlier for 2-Fluorophenol for IWTBG32R1 (16250.06)	See Note 5	J4, R
	SV2	Surrogates diluted out for IWTSL4 (16250.08) diluted 300:1	See Note 6	None
	SV3	Surrogates diluted out for IWTSL6MS (16250.13) diluted 20,000:1	See Note 7	None
	SV4	Surrogates diluted out for IWTSL6D (16250.14) diluted 100:1	See Note 8	None
	SV5	%R and RPD outliers for MS/MSD	See Note 9	J4, J6

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

David Y Badlo DEBADLO T
DATA VALIDATOR(Name/Signature)

12.30.93
Date

TABLE ___
DATA VALIDATION WORKSHEET

PROJECT: TINKER AFB SDG: 16250

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4)
Metals	M1	% R outlier for Chromium for Sample IWTSL2-MS (31%)	See Note 10	J6
	M2	RPD outlier for Chromium for MS/MSD (IWTSL2-16250.04/05)	See Note 10	J6
	~~M3~~			
TPH	TP1	Precision and accuracy outliers for MS/MSD (Extractable Hydr)	See Note 11	J4
	TP2	Result for Kerosene for sample ITWSS10 exceeded calibration range	See Note 12	J6

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

David Bado
DATA VALIDATOR(Name/Signature)

12-30-93
Date

Table ____
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
PROJECT: TINKER AFB

SDG: 16250

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Methylene chloride was detected in the laboratory blanks (6.5 ug/L). All detections of methylene chloride in the samples have been qualified as estimated (J1).
	V2	2. Chloroform (29 ppb), toluene (2.5 ppb) and xylenes (1.6 ppb) were detected in the equipment blank (16250.01-EB1). All detections of these analytes in the samples (SDG 16250) have been qualified as estimated.
	V3	3. Precision (RPD) outliers were calculated for chloroform (98%), 1,1,1-Trichloroethane (76%) and 2-butanone (69%) for the field replicate samples (IKITLS2/FR1). Reported detections of 1,1,1-TCA and 2-butanone in the samples have been qualified as estimated (J4). Reported results for chloroform already qualified due to the EB1 have been further qualified (J6).
	V4	4. Calibration range was exceeded for methylene chloride, tetrachloroethane and 2-butanone for the MS/MSD samples. These results in the MS/SD samples have been qualified as estimated (J6) since both analytes were already qualified due to other QA issues.

1. Item number should correspond with the item number on the worksheet.

Data Validator (Name/Signature/Date)

Table ___
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
PROJECT: TINKER AFB

SDG: 16250

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
SVOC	SV1	5. Surrogate outliers reported for 2-fluorobiphenyl (39%) and 2-fluorophenol (5%) for sample IWTBG3221 (16250.06). Reported detections of phenolic compounds have been qualified as estimated (J4). Non detections of phenolic compounds have been qualified as unusable (R). Only sample IWTBG3221 was affected.
	SV2	6. All surrogates were diluted out for sample IWTSL10 (16250.08). The sample was diluted 300:1. No action was necessary.
	SV3	7. All surrogates were diluted out for sample IWTSL6NEW (16250.13). The sample was diluted 20,000:1. No action was taken.
	SV4	8. All surrogates were diluted out for IWTSL6OLD (16250.14). The sample was diluted 100:1. No data have been qualified.
	SV5	9. Accuracy (%R) and [illegible] (RPD) [illegible] MS/MSD samples (IWTSL2). %R outliers were reported for 5 of the 11 spiked compounds. RPD outliers were reported for 8 of the 11 compounds. Reported detections of the affected compounds have been qualified as estimated.

1. Item number should correspond with the item number on the worksheet.

Data Validator (Name/Signature/Date)

Table ___
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
PROJECT: TINKER AFB

SDG: 16250

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
Metals	M1	10. Accuracy (%-R) outlier reported for Chromium (31%) in the MS sample (IWTSL2). Precision outlier (RPD) also reported for Chromium in the spike duplicate samples (RPD = 49%). All reported detections of Chromium in the samples have been qualified as estimated (J6)
TPH	TP1	11. Precision (RPD = 76%) and accuracy (%-R = 43/243%) outliers were reported for the MS/MSD samples (IWTLS2) for extractable Hydrocarbon. All detections of extractable hydrocarbons in the samples have been qualified as estimated (J4)
	TP2	12. The result reported for kerosene (ext. Hyd) for sample IWTLS10 exceeded the calibration range. The result (already qualified due to the MS/MSD outliers) have been qualified estimated (J6).

1. Item number should correspond with the item number on the worksheet.

DAVID BARDIN [signature] 12-30-93
Data Validator (Name/Signature/Date)

TABLE ___

DATA VALIDATION FIELD REPLICATE WORKSHEET

PROJECT: TINKER AFB

SAMPLE ID: IWTLS2 SAMPLE MATRIX: Water SDG: 16250

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	980	760	25.3
	Chloroform	82	240	98 *
	1,1,1-Trichloroethane	14	31	75.6*
	Trichloroethene	37	43	15
	Tetrachloroethene	1700	1100	42.8
	Toluene	12	15	22
	1,2-Dichloroethene	65	72	10.2
	2-Butanone	930	1900	69*
SVOCs	Phenol	3800	4800	23.2
	1,2-Dichlorobenzene	50	35	35.3
	2-methylphenol	280	230	19.6
	4-methylphenol	300	240	22.2
	2,4-Dimethylphenol	56	38	38.3
	2-Methylnaphthalene	ND	12	NC
	4-Nitrophenol	ND	10	NC
	BEHP	ND	6	NC
	2-nitrophenol	ND	10	NC

NOTE: 3

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.08

DATE: 12/10/93

SWLO #: 16250.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS10
LOCATION:

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	10	U	ug/l	11/08/93	11/09/93	SW846-6010
LEAD	3	U	ug/l	11/08/93	11/09/93	SW846-6010
SELENIUM	5	U	ug/l	11/08/93	11/09/93	SW846-6010
BARIUM	541		ug/l	11/08/93	11/11/93	SW846-6010
CADMIUM	3.3		ug/l	11/08/93	11/11/93	SW846-6010
CHROMIUM	7.3	J6	ug/l	11/08/93	11/11/93	SW846-6010
MERCURY	0.2	U	ug/l	11/08/93	11/08/93	SW846-7470
NICKEL	10	U	ug/l	11/08/93	11/11/93	SW846-6010
SILVER	1	U	ug/l	11/08/93	11/27/93	SW846-7761
ZINC	68.9		ug/l	11/08/93	11/11/93	SW846-6010

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12-29-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.09

DATE: 12/10/93

SWLO #: 16250.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG3001
LOCATION:

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	10	U	ug/l	11/08/93	11/09/93	SW846-6010
LEAD	3	U	ug/l	11/08/93	11/09/93	SW846-6010
SELENIUM	5	U	ug/l	11/08/93	11/09/93	SW846-6010
BARIUM	583		ug/l	11/08/93	11/11/93	SW846-6010
CADMIUM	3	U	ug/l	11/08/93	11/11/93	SW846-6010
CHROMIUM	16 J6		ug/l	11/08/93	11/11/93	SW846-6010
MERCURY	0.2	U	ug/l	11/08/93	11/08/93	SW846-7470
NICKEL	10	U	ug/l	11/08/93	11/11/93	SW846-6010
SILVER	1	U	ug/l	11/08/93	11/27/93	SW846-7761
ZINC	36.4		ug/l	11/08/93	11/11/93	SW846-6010

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.10

DATE: 12/10/93

SWLO #: 16250.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2280
LOCATION:

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	10	U	ug/l	12/03/93	12/08/93	SW846-6010
LEAD	35.1		ug/l	12/03/93	12/08/93	SW846-6010
SELENIUM	5	U	ug/l	12/03/93	12/08/93	SW846-6010
BARIUM	1040		ug/l	12/03/93	12/06/93	SW846-6010
CADMIUM	78.3		ug/l	12/03/93	12/06/93	SW846-6010
CHROMIUM	3770	J6	ug/l	12/03/93	12/06/93	SW846-6010
MERCURY	0.2	U	ug/l	11/08/93	11/08/93	SW846-7470
NICKEL	10	U	ug/l	12/03/93	12/06/93	SW846-6010
SILVER	1	U	ug/l	12/03/93	12/07/93	SW846-7761
ZINC	1300		ug/l	12/03/93	12/06/93	SW846-6010

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.11

DATE: 12/10/93

SWLO #: 16250.11 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2211
LOCATION:

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	10	U	ug/l	12/03/93	12/08/93	SW846-6010
LEAD	4.1		ug/l	12/03/93	12/08/93	SW846-6010
SELENIUM	5	U	ug/l	12/03/93	12/08/93	SW846-6010
BARIUM	553		ug/l	12/03/93	12/06/93	SW846-6010
CADMIUM	11.7		ug/l	12/03/93	12/06/93	SW846-6010
CHROMIUM	10.4	JG	ug/l	12/03/93	12/06/93	SW846-6010
MERCURY	0.2	U	ug/l	11/08/93	11/08/93	SW846-7470
NICKEL	10	U	ug/l	12/03/93	12/06/93	SW846-6010
SILVER	1	U	ug/l	12/03/93	12/07/93	SW846-7761
ZINC	57.5		ug/l	12/03/93	12/06/93	SW846-6010

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.12

DATE: 12/10/93

SWLO #: 16250.12 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2127
LOCATION:

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	10	U	ug/l	11/08/93	11/09/93	SW846-6010
LEAD	436		ug/l	11/08/93	11/09/93	SW846-6010
SELENIUM	5	U	ug/l	11/08/93	11/09/93	SW846-6010
BARIUM	904		ug/l	11/08/93	11/11/93	SW846-6010
CADMIUM	53.9		ug/l	11/08/93	11/11/93	SW846-6010
CHROMIUM	1800	J6	ug/l	11/08/93	11/11/93	SW846-6010
MERCURY	0.93		ug/l	11/08/93	11/08/93	SW846-7470
NICKEL	31.9		ug/l	11/08/93	11/11/93	SW846-6010
SILVER	1	U	ug/l	11/08/93	11/27/93	SW846-7761
ZINC	1470		ug/l	11/08/93	11/11/93	SW846-6010

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.13

DATE: 12/10/93

SWLO #: 16250.13 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS6NEW
LOCATION:

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	10	U	ug/l	11/08/93	11/10/93	SW846-6010
LEAD	56		ug/l	11/08/93	11/10/93	SW846-6010
SELENIUM	5	U	ug/l	11/08/93	11/10/93	SW846-6010
BARIUM	561		ug/l	11/08/93	11/11/93	SW846-6010
CADMIUM	166		ug/l	11/08/93	11/11/93	SW846-6010
CHROMIUM	85800	JG	ug/l	11/08/93	11/11/93	SW846-6010
MERCURY	0.2	U	ug/l	11/08/93	11/08/93	SW846-7470
NICKEL	30	U	ug/l	11/08/93	11/11/93	SW846-6010
SILVER	3.9		ug/l	11/08/93	11/27/93	SW846-7761
ZINC	531		ug/l	11/08/93	11/11/93	SW846-6010

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.14

DATE: 12/10/93

SWLO #: 16250.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS60LD
LOCATION:

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	10	U	ug/l	11/08/93	11/09/93	SW846-6010
LEAD	553		ug/l	11/08/93	11/09/93	SW846-6010
SELENIUM	5	U	ug/l	11/08/93	11/09/93	SW846-6010
BARIUM	763		ug/l	11/08/93	11/11/93	SW846-6010
CADMIUM	43.8		ug/l	11/08/93	11/11/93	SW846-6010
CHROMIUM	1830	J6	ug/l	11/08/93	11/11/93	SW846-6010
MERCURY	0.2	U	ug/l	11/08/93	11/08/93	SW846-7470
NICKEL	10	U	ug/l	11/08/93	11/11/93	SW846-6010
SILVER	1	U	ug/l	11/08/93	11/27/93	SW846-7761
ZINC	433		ug/l	11/08/93	11/11/93	SW846-6010

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.01

DATE: 12/10/93

SWLO #: 16250.01 EB1
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/03/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	5	U	NAPHTHA C6-C12	5	U
KEROSENE C9-C18	5	U	#6 FUEL OIL C12-C24	5	U
JP-4 C6-C14	5	U	MISCELLANEOUS C10-C16	28.7	J4

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12-30-93

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121)	92%

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.02

DATE: 12/10/93

SWLO #: 16250.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/03/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 5.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	25	U	NAPHTHA C6-C12	25	U
KEROSENE C9-C18	25	U	#6 FUEL OIL C12-C24	25	U
JP-4 C6-C14	25	U	MISCELLANEOUS C7-C24	5950	J4

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12-30-93

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121)	88%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.03

DATE: 12/10/93

SWLO #: 16250.03 FR1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/03/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	5	U	NAPHTHA C6-C12	5	U
KEROSENE C9-C18	5	U	#6 FUEL OIL C12-C24	5	U
JP-4 C6-C14	5	U	MISCELLANEOUS C7-C24	7030	J4

DJB
12-30-93

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121)	92%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.04

DATE: 12/10/93

SWLO #: 16250.04 MS1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/03/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 5.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	8120	J4	NAPHTHA C6-C12	25	U
KEROSENE C9-C18	25	U	#6 FUEL OIL C12-C24	25	U
JP-4 C6-C14	25	U			

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12.30.93

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121) 110%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.05

DATE: 12/17/93

SWLO #: 16250.05 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/03/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 20.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	18100	J4	NAPHTHA C6-C12	100	U
KEROSENE C9-C18	100	U	#6 FUEL OIL C12-C24	100	U
JP-4 C6-C14	100	U			

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12-30-93

QA/QC SURROGATE RECOVERIES
NAPHTHALENE (46-121) 125% *

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.06

DATE: 12/10/93

SWLO #: 16250.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG3221
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/03/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	5	U	NAPHTHA C6-C12	5	U
KEROSENE C9-C18	5	U	#6 FUEL OIL C12-C24	5	U
JP-4 C6-C14	5	U	MISCELLANEOUS C8-C24	170	J4

DMB
12-30-93

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121)	95%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.07

DATE: 12/10/93

SWLO #: 16250.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS3
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	6590	J4	NAPHTHA C6-C12	5	U
KEROSENE C9-C18	5	U	#6 FUEL OIL C12-C24	5	U
JP-4 C6-C14	5	U			

QMB
12.30.93

QA/QC SURROGATE RECOVERIES
NAPHTHALENE (46-121) 103%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.08

DATE: 12/10/93

SWLO #: 16250.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS10
LOCATION:
DATE ANALYZED : 11/10/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 400.00

Note 12

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	2000	U	NAPHTHA C6-C12	2000	U
KEROSENE C9-C18	4590000	EJ6	#6 FUEL OIL C12-C24	2000	U
JP-4 C6-C14	2000	U			

DJB
12.30.93

QA/QC SURROGATE RECOVERIES
NAPHTHALENE (46-121) I

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.09

DATE: 12/10/93

SWLO #: 16250.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG3001
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	5	U	NAPHTHA C6-C12	5	U
KEROSENE C9-C18	5	U	#6 FUEL OIL C12-C24	5	U
JP-4 C6-C14	5	U	MISCELLANEOUS C7-C24	7160	J4

DYB
12.30.93

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121)	92%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.10

DATE: 12/10/93

SWLO #: 16250.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2280
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 20.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	100	U	NAPHTHA C6-C12	100	U
KEROSENE C9-C18	100	U	#6 FUEL OIL C12-C24	100	U
JP-4 C6-C14	100	U	MISCELLANEOUS C7-C24	17900	J4

DYB
12-30-93

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121)	81%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.11

DATE: 12/10/93

SWLO #: 16250.11 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2211
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	5	U	#6 FUEL OIL C12-C24	5	U
KEROSENE C9-C18	5	U	MISCELLANEOUS C7	106	J4
JP-4 C6-C14	5	U	MISCELLANEOUS C12-C24	876	J4
NAPHTHA C6-C12	5	U			

DMB
12.30.93

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121)	90%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.12

DATE: 12/10/93

SWLO #: 16250.12 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2127
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	5	U	NAPHTHA C6-C12	5	U
KEROSENE C9-C18	5	U	#6 FUEL OIL C12-C24	5	U
JP-4 C6-C14	5	U	MISCELLANEOUS C7-C24	9410	J4

DYB
12-30-93

QA/QC SURROGATE RECOVERIES
NAPHTHALENE (46-121) I

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.13

DATE: 12/10/93

SWLO #: 16250.13 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS6NEW
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1000.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	5000	U	NAPHTHA C6-C12	5000	U
KEROSENE C9-C18	5000	U	#6 FUEL OIL C12-C24	5000	U
JP-4 C6-C14	5000	U	MISCELLANEOUS C7-C24	897000	J4

DYB
12.30.93

QA/QC SURROGATE RECOVERIES
NAPHTHALENE (46-121) I

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16250.14

DATE: 12/10/93

SWLO #: 16250.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS6OLD
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/04/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 20.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	100	U	NAPHTHA C6-C12	100	U
KEROSENE C9-C18	100	U	#6 FUEL OIL C12-C24	100	U
JP-4 C6-C14	100	U	MISCELLANEOUS C7-C24	28400	J4

DYB
12-30-93

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121) 115%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.12

DATE: 12/02/93

SWLO #: 16220.12 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB9
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 18.00
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	48	J1 ~~JB~~
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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12.17.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.13

DATE: 12/02/93

SWLO #: 16220.13 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB3
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	270	J5
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	120	J 5
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	400	
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	4000	
BENZOIC ACID	1800	U	ANTHRACENE	1200	
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	3600	
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	2400	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	1300	
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	45	J1 ~~JB~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	1100	

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12-17-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.14

DATE: 12/02/93

SWLO #: 16220.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB3
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	110	J5
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	160	J5
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	94	J5
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	55	J1 ~~J5~~
2-METHYLNAPHTHALENE	400	U	CHRYSENE	50	J5
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	42	J5

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12.17.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.14

DATE: 12/02/93

SWLO #: 16220.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB3
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00
DATE PREPARED : 11/05/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	1900	U	BENZO(K)FLUORANTHENE	35	J5
2-CHLORONAPHTHALENE	400	U	BENZO(A)PYRENE	400	U
2-NITROANILINE	1900	U	INDENO(1,2,3-CD)PYRENE	400	U
DIMETHYL PHTHALATE	400	U	DIBENZ(A,H)ANTHRACENE	400	U
ACENAPHTHYLENE	400	U	BENZO(G,H,I)PERYLENE	400	U
3-NITROANILINE	1900	U			

DYB 12-17-93

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	58%	2-FLUOROBIPHENYL	(30-115)	64%
TERPHENYL-D14	(18-137)	60%	PHENOL-D5	(24-113)	54%
2-FLUOROPHENOL	(25-121)	55%	2,4,6-TRIBROMOPHENOL	(19-122)	74%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.04

DATE: 12/02/93

SWLO #: 16241.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB2
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 10.00
DEPTH TO : 11.00
DATE PREPARED : 11/07/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	64	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DMB 12-17-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.05

DATE: 12/03/93

SWLO #: 16241.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB2
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 17.50
DATE PREPARED : 11/07/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	44	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DYB 12-17-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.07

DATE: 12/03/93

SWLO #: 16241.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB18
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00
DATE PREPARED : 11/07/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	51 J1	
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DMB 12-17-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.10

DATE: 12/02/93

SWLO #: 16241.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : 11/07/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	160	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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12-17-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.11

DATE: 12/02/93

SWLO #: 16241.11 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.50
DATE PREPARED : 11/07/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	120	J1 ~~U~~
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DyB
12.17.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.12

DATE: 12/02/93

SWLO #: 16241.12 MS1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.50
DATE PREPARED : 11/07/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4300		ACENAPHTHENE	2500	
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	5000		4-NITROPHENOL	4200	
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	2000		2,4-DINITROTOLUENE	2200	
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	3200		4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	5900	
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	2400		PYRENE	2300	
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	4600		BIS(2-ETHYLHEXYL)PHTHALATE	130	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DYB
12-17-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.13

DATE: 12/02/93

SWLO #: 16241.13 SD1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.50
DATE PREPARED : 11/07/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4400		ACENAPHTHENE	2500	
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	5000		4-NITROPHENOL	5000	
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	2100		2,4-DINITROTOLUENE	2300	
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	3300		4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	4700	
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	48	J 5
1,2,4-TRICHLOROBENZENE	2400		PYRENE	2200	
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	4600		BIS(2-ETHYLHEXYL)PHTHALATE	110	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DMB 12-17-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.14

DATE: 12/02/93

SWLO #: 16241.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.2SB3
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : 11/07/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	1400		ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	94	J5	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	440		4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	540		4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	210	J5	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	79	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12.17.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.15

DATE: 12/02/93

SWLO #: 16241.15 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.2SB3
LOCATION:
DATE ANALYZED : 11/12/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 17.50
DATE PREPARED : 11/07/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	61	J1 ~~J~~
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.02

DATE: 12/03/93

SWLO #: 16220.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB6
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.112	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.112	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	4.61		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	308		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.439		mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	15.9		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	4.84	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	9.34		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.563	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	14.3		mg/kg	11/06/93	11/08/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.11

DATE: 12/09/93

SWLO #: 16252.11 FR1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB1
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	5.92		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	58.6	J4	mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.335	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	24.9	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	9.49		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.112	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	26.2		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.781		mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.112	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	32.2		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.11

DATE: 12/09/93

SWLO #: 16252.11 FR1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB1
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.6	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.6	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.6	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
METHYLENE CHLORIDE	4	JS	1,1,2-TRICHLOROETHANE	5.6	U
ACETONE	68		BENZENE	5.6	U
CARBON DISULFIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.6	U	BROMOFORM	5.6	U
1,2-DICHLOROETHENE(TOTAL)	5.6	U	2-HEXANONE	11	U
CHLOROFORM	5.6	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.6	U	TETRACHLOROETHENE	5.6	U
2-BUTANONE	11	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104% ✓	BROMOFLUOROBENZENE	(74-121) 102% ✓
1,2-DICHLOROETHANE-D4	(70-121) 87% ✓		

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.10

DATE: 12/09/93

SWLO #: 16252.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB1
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	10.6		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	95.3	J4	mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.334	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	41.5	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	11.9		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.111	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	32.6		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.889		mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.111	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	48.6		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

NGINEERING SCIENCE, INC.
800 SHOAL CREEK BLVD.
UITE 222W
USTIN, TX 78757
ttn: KEVIN TYNES

REPORT: 16252.10

DATE: 12/09/93

WLO #: 16252.10 N1
ROJECT : TINKER AFB-RFI
AMPLE #: S32.3SB1
OCATION:
ATE ANALYZED : 11/19/93
ETHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.10

EMIVOLATILE ORGANIC COMPOUNDS
ESULTS REPORT IN ug/kg

ARAMETER	RESULTS**		PARAMETER	RESULTS**	
HENOL	360	U	ACENAPHTHENE	360	U
IS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
ENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
IS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
EXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
ITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
SOPHORONE	360	U	HEXACHLOROBENZENE	360	U
-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
ENZOIC ACID	1800	U	ANTHRACENE	360	U
IS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
APHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
EXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	59	J1
-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
EXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

*RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.10

DATE: 12/09/93

SWLO #: 16252.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB1
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.11

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.6	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.6	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.6	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
METHYLENE CHLORIDE	13		1,1,2-TRICHLOROETHANE	5.6	U
ACETONE	35	J1 B	BENZENE	5.6	U
CARBON DISULFIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.6	U	BROMOFORM	5.6	U
1,2-DICHLOROETHENE(TOTAL)	5.6	U	2-HEXANONE	11	U
CHLOROFORM	5.6	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.6	U	TETRACHLOROETHENE	5.6	U
2-BUTANONE	11	U	TOLUENE	1.2	J5
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121) 106%		

*RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.09

DATE: 12/09/93

SWLO #: 16252.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.50
DEPTH TO : 17.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	3.34		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	59.2	J4	mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.346	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	6.57	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	3.69		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.115	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	4.5		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.577		mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.115	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	4.27		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.09

DATE: 12/09/93

SWLO #: 16252.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.50
DEPTH TO : 17.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	50	J L
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.09

DATE: 12/09/93

SWLO #: 16252.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.50
DEPTH TO : 17.00
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	13		1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	34	J 1 ~~B~~	BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
1,2-DICHLOROETHENE(TOTAL)	5.8	U	2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	5.8	U
2-BUTANONE	12	U	TOLUENE	1.2	JS
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 104% ✓	BROMOFLUOROBENZENE	(74-121) 100% ✓
1,2-DICHLOROETHANE-D4	(70-121) 105% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.08

DATE: 12/09/93

SWLO #: 16252.08 SD1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.50

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	216	mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	262 J4	mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	5.4	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	35 J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	53.9	mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.528	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	63	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	216	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	5.28	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	57.8	mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.08

DATE: 12/09/93

SWLO #: 16252.08 SD1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.50
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4400		ACENAPHTHENE	3500	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	5300		4-NITROPHENOL	4200	
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2600		2,4-DINITROTOLUENE	2600	
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	3700		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	5500	
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	3100		PYRENE	3800	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	5500		BIS(2-ETHYLHEXYL)PHTHALATE	110	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	38	J5
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.08

DATE: 12/09/93

SWLO #: 16252.08 SD1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.6	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.6	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	56	
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
METHYLENE CHLORIDE	14		1,1,2-TRICHLOROETHANE	5.6	U
ACETONE	30	J1 ~~B~~	BENZENE	59	
CARBON DISULFIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
1,1-DICHLOROETHENE	56		2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.6	U	BROMOFORM	5.6	U
1,2-DICHLOROETHENE(TOTAL)	5.6	U	2-HEXANONE	11	U
CHLOROFORM	5.6	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.6	U	TETRACHLOROETHENE	5.6	U
2-BUTANONE	11	U	TOLUENE	60	
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	58	
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 102% ✓	BROMOFLUOROBENZENE	(74-121) 99% ✓
1,2-DICHLOROETHANE-D4	(70-121) 105% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.07

DATE: 12/09/93

SWLO #: 16252.07 MS1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.50

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	219	mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	263 J4	mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	5.4	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	32.7 J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	53.5	mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.54	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	62.4	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	216	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	5.28	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	58	mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.07

DATE: 12/09/93

SWLO #: 16252.07 MS1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.50
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	3700		ACENAPHTHENE	3000	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	4800		4-NITROPHENOL	5800	
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2600		2,4-DINITROTOLUENE	2800	
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	3400		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	5800	
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	3300		PYRENE	3400	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	4900		BIS(2-ETHYLHEXYL)PHTHALATE	39	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.07

DATE: 12/09/93

SWLO #: 16252.07 MS1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.6	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.6	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	54	
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
METHYLENE CHLORIDE	14		1,1,2-TRICHLOROETHANE	5.6	U
ACETONE	27	J1 ~~B~~	BENZENE	58	
CARBON DISULFIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
1,1-DICHLOROETHENE	56		2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.6	U	BROMOFORM	5.6	U
1,2-DICHLOROETHENE(TOTAL)	5.6	U	2-HEXANONE	11	U
CHLOROFORM	5.6	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.6	U	TETRACHLOROETHENE	5.6	U
2-BUTANONE	11	U	TOLUENE	59	
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	57	
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 106% ~	BROMOFLUOROBENZENE	(74-121) 101% ~
1,2-DICHLOROETHANE-D4	(70-121) 108% ~		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.06

DATE: 12/09/93

SWLO #: 16252.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	5.62		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	60.8	J4	mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.337	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	24.6	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	4.95		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.112	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	12.9		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.562	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.112	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	10.9		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.06

DATE: 12/09/93

SWLO #: 16252.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 12.50
DEPTH TO : 14.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.6	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.6	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.6	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
METHYLENE CHLORIDE	14		1,1,2-TRICHLOROETHANE	5.6	U
ACETONE	26	J1 B	BENZENE	5.6	U
CARBON DISULFIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.6	U	BROMOFORM	5.6	U
1,2-DICHLOROETHENE(TOTAL)	5.6	U	2-HEXANONE	11	U
CHLOROFORM	5.6	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.6	U	TETRACHLOROETHENE	5.6	U
2-BUTANONE	11	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98% ✓	BROMOFLUOROBENZENE	(74-121) 94% ✓
1,2-DICHLOROETHANE-D4	(70-121)	101% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.05

DATE: 12/09/93

SWLO #: 16252.05 FR1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.50
DEPTH TO : 6.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	4.3		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	152	J4	mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.322	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	19	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	5.91		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.108	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	13.6		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.538	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.108	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	18.3		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.05

DATE: 12/09/93

SWLO #: 16252.05 FR1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.50
DEPTH TO : 6.50
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	12		1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	12	31 B	BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
1,2-DICHLOROETHENE(TOTAL)	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
2-BUTANONE	11	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 101% ✓	BROMOFLUOROBENZENE	(74-121) 101% ✓
1,2-DICHLOROETHANE-D4	(70-121) 104% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.04

DATE: 12/09/93

SWLO #: 16252.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.50
DEPTH TO : 6.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	4.01		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	267 J4		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.325	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	18	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	5.32		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.108	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	11.3		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.542	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.108	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	14.9		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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Attn: KEVIN TYNES

REPORT: 16252.04

DATE: 12/09/93

SWLO #: 16252.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB16
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.50
DEPTH TO : 6.50
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	1,2-DICHLOROPROPANE	5.4	U
BROMOMETHANE	11	U	TRANS-1,3-DICHLOROPROPENE	5.4	U
VINYL CHLORIDE	11	U	TRICHLOROETHENE	5.4	U
CHLOROETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
METHYLENE CHLORIDE	10		1,1,2-TRICHLOROETHANE	5.4	U
ACETONE	17	J1 B	BENZENE	5.4	U
CARBON DISULFIDE	5.4	U	CIS-1,3-DICHLOROPROPENE	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-CHLOROETHYL VINYL ETHER	11	U
1,1-DICHLOROETHANE	5.4	U	BROMOFORM	5.4	U
1,2-DICHLOROETHENE(TOTAL)	5.4	U	2-HEXANONE	11	U
CHLOROFORM	5.4	U	4-METHYL-2-PENTANONE	11	U
1,2-DICHLOROETHANE	5.4	U	TETRACHLOROETHENE	5.4	U
2-BUTANONE	11	U	TOLUENE	1.1	J5
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 102%	BROMOFLUOROBENZENE	(74-121) 103%
1,2-DICHLOROETHANE-D4	(70-121) 105%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.03

DATE: 12/09/93

SWLO #: 16252.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.2SB4
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.50
DEPTH TO : 9.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	3.63		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	461	J4	mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.352	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	22.6	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	6.33		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.117	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	24.3		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.586		mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.117		mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	23.3		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.03

DATE: 12/09/93

SWLO #: 16252.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.2SB4
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.50
DEPTH TO : 9.50
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	1900	U	BENZO(K)FLUORANTHENE	400	U
2-CHLORONAPHTHALENE	400	U	BENZO(A)PYRENE	40	J5
2-NITROANILINE	1900	U	INDENO(1,2,3-CD)PYRENE	400	U
DIMETHYL PHTHALATE	400	U	DIBENZ(A,H)ANTHRACENE	400	U
ACENAPHTHYLENE	400	U	BENZO(G,H,I)PERYLENE	400	U
3-NITROANILINE	1900	U			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	60% ✓	2-FLUOROBIPHENYL	(30-115)	84% ✓
TERPHENYL-D14	(18-137)	98% ✓	PHENOL-D5	(24-113)	61% ✓
2-FLUOROPHENOL	(25-121)	59% ✓	2,4,6-TRIBROMOPHENOL	(19-122)	151% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

Since only one surrogate out - No action taken.

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.03

DATE: 12/09/93

SWLO #: 16252.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.2SB4
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.50
DEPTH TO : 9.50
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	39	J5
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	100	J5
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	69	J5
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	52	J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	40	J5
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.03

DATE: 12/09/93

SWLO #: 16252.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.2SB4
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.50
DEPTH TO : 9.50
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.9	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.9	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.9	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
METHYLENE CHLORIDE	15		1,1,2-TRICHLOROETHANE	5.9	U
ACETONE	38	J1 B	BENZENE	5.9	U
CARBON DISULFIDE	5.9	U	CIS-1,3-DICHLOROPROPENE	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.9	U	BROMOFORM	5.9	U
1,2-DICHLOROETHENE(TOTAL)	5.9	U	2-HEXANONE	12	U
CHLOROFORM	5.9	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.9	U	TETRACHLOROETHENE	2.7	J5
2-BUTANONE	12	U	TOLUENE	1.4	J5
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 105% ✓	BROMOFLUOROBENZENE	(74-121) 100% ✓
1,2-DICHLOROETHANE-D4	(70-121) 108% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.02

DATE: 12/09/93

SWLO #: 16252.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB6
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	7.59		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	40.5 J4		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.386	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	10.2	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	5.79		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.129	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	5.02		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.643	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.129	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	7.07		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.02

DATE: 12/09/93

SWLO #: 16252.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB6
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.29

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	13	U	1,2-DICHLOROPROPANE	6.4	U
BROMOMETHANE	13	U	TRANS-1,3-DICHLOROPROPENE	6.4	U
VINYL CHLORIDE	13	U	TRICHLOROETHENE	6.4	U
CHLOROETHANE	13	U	DIBROMOCHLOROMETHANE	6.4	U
METHYLENE CHLORIDE	16		1,1,2-TRICHLOROETHANE	6.4	U
ACETONE	30	J1 ~~B~~	BENZENE	6.4	U
CARBON DISULFIDE	6.4	U	CIS-1,3-DICHLOROPROPENE	6.4	U
1,1-DICHLOROETHENE	6.4	U	2-CHLOROETHYL VINYL ETHER	13	U
1,1-DICHLOROETHANE	6.4	U	BROMOFORM	6.4	U
1,2-DICHLOROETHENE(TOTAL)	6.4	U	2-HEXANONE	13	U
CHLOROFORM	6.4	U	4-METHYL-2-PENTANONE	13	U
1,2-DICHLOROETHANE	6.4	U	TETRACHLOROETHENE	2.8	J5
2-BUTANONE	13	U	TOLUENE	1.5	J5
1,1,1-TRICHLOROETHANE	6.4	U	CHLOROBENZENE	6.4	U
CARBON TETRACHLORIDE	6.4	U	ETHYLBENZENE	6.4	U
VINYL ACETATE	13	U	STYRENE	6.4	U
BROMODICHLOROMETHANE	6.4	U	XYLENE (TOTAL)	6.4	U
1,1,2,2-TETRACHLOROETHANE	6.4	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 105%	BROMOFLUOROBENZENE	(74-121) 102%
1,2-DICHLOROETHANE-D4	(70-121) 107%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.01

DATE: 12/09/93

SWLO #: 16252.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB6
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	6.11		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	66.3 J4		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.346	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	9.46	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	6.69		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.115	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	4.04		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.692		mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.115	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	6.23		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2595

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.01

DATE: 12/09/93

Flagged Form I's

SWLO #: 16252.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB6
LOCATION:
DATE ANALYZED : 11/08/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.00
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	15		1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	33	J1 B	BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
1,2-DICHLOROETHENE(TOTAL)	5.8	U	2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	5.8	U
2-BUTANONE	12	U	TOLUENE	1.4	J5
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 103%	BROMOFLUOROBENZENE	(74-121) 99%
1,2-DICHLOROETHANE-D4	(70-121) 104%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/20/93

16252

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS **ES**

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: ☒ Federal Express ☐ UPS — Other _____

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #:

SAMPLER(S): M. HARDER, R NELSON

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	PRESERVATIVE	ANALYSIS REQUIRED: VOA (8240)	SemiVOA (8270)	Metals (6010)	CN (9010)	FIELD LOT CONTROL NUMBER: Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/6/93	–	FIELDQC		TB1	WQ	NA	0	0	2		X				0	0	1	A	
	0900	I24.19SB3		N1	SO	H	5.5	6.5	3		X	X	X	X	0	0	1	A	
	0945	↓		N1	SO	H	17.5	18	3		X	X	X	X	0	0	1	A	
	1140	I24.19SB4		N1	SO	H	8.5	9	3		X	X	X	X	0	0	1	A	
	1205	↓		N1	SO	H	16	17	3		X	X	X	X	0	0	1	A	
	1445	I24.19SB6		N1	SO	H	6.5	7.0	3		X	X	X	X	0	0	1	A	
	1515	↓		N1	SO	H	15.5	16.0	3		X	X	X	X	0	0	1	A	
	0907	S32.8SB7		N1	SO	H	8	9	3		X	X	X	X	0	0	1	A	
	1003	↓		N1	SO	H	13	14	3		X	X	X	X	0	0	1	A	
	↓	↓		FR1	SO	H	13	14	3		X	X	X	X	0	0	1	A	
	1121	S32.8SB8		N1	SO	H	2.5	3.5	3		X	X	X	X	0	0	1	A	
	1205	↓		N1	SO	H	14	15	3		X	X	X	X	0	0	1	A	

Relinquished by: (Signature)	Date	Time
	11/8/93	1750
Received by: (Signature)		

Relinquished by: (Signature)	Date	Time
Received by: (Signature)		

Relinquished by: (Signature)	Date	Time
Received by: (Signature)	11/9/93	0830

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

chains.dwg

40

16252

CHAIN OF CUSTODY RECORD

ENGINEERING—SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: ☒ Federal Express ☐ UPS
Other

PROJECT NUMBER: AUL101.08

AIRBILL OR CARRIER ID #: 850306275O

SAMPLER(S): M. HARDER R. NELSON

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	Number of Containers	VOA(8240)	SemiVOA(8270)	Metals(6010)	CN(9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/5/93	-	FIELDQC		TB2	WQ	NA	0	0	2	X				0	1	2	B	
	0850	S32.8SB6		N1	SO	H	11.5	13	3	X	X	X	X	0	1	2	B	
	0923	↓		N1	SO	H	17	18	3	X	X	X	X	0	1	2	B	
	1140	I24.2SB4		N1	SO	H	8.5	9.5	3	X	X	X	X	0	1	2	B	
	1420	S32.8SB16		N1	SO	H	4.5	6.5	3	X	X	X	X	0	1	2	B	
	↓	!		FR1	SO	H	4.5	6.5	3	X	X	X	X	0	1	2	B	
	1530	S32.8SB16		N1	SO	H	12.5	14.5	3	X	X	X	X	0	1	2	B	
	!	!		MS1	SO	H	12.5	14.5	3	X	X	X	X	0	1	2	B	
				SD1	SO	H	12.5	14.5	3	X	X	X	X	0	1	2	B	
	1610	S32.8SB16		N1	SO	H	15.5	17	3	X	X	X	X	0	1	2	B	

Relinquished by: (Signature) Date 11/5/93 Time 1815
Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time
Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time
Received by: (Signature) K. Hollis Date 11/6/93 Time 0830

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chainо.dwg

16252

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: ☒ Federal Express ☐ UPS — Other

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 850306275O

SAMPLER(S): M. HARDER / R. NELSON (Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (8240)	SemiVOA (8270)	Metals (6010)	CN (9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/5/93	-	FIELDQC		TB1	WQ	NA	0	0	2	X								
	1630	FIELDQC		EB1	WQ	NA	0	0	6	X	X	X	X					
	1055	SB2.3SB1		N1	SO	SS	4	6	3	X	X	X	X					
	↓	↓		FR1	SO	SS	4	6	3	X	X	X	X					
	1330	↓		N1	SO	SS	9.5	10	3	X	X	X	X					
	1600	SB2.4SB6		N1	SO	SS	4	5.5	3	X	X	X	X					
	1640			N1	SO	SS	8	8.5	3	X	X	X	X					
														0	1	2	A	
														0	1	2	A	
														0	1	2	A	
														0	1	2	A	
														0	1	2	A	
														0	1	2	A	
														0	1	2	A	

PRESERVATIVE

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

Relinquished by: (Signature) — Date 11/5/93 Time 1815

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) K Gallis — Date 11/6/93 Time 0830

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chain.dwg

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252

DATE: 12/10/93

SWLO QAQC#: 931110-001
PROJECT : TINKER AFB-RFI
SAMPLE #: SVBLK LB1
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U Note 3
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	47	J
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SPLC 12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : K931111A
INST. BATCH: 13987
REPORTED : 12/03/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : K931111A
LOCATION:

ANALYZED : 11/11/93 09:35
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	ND	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	13	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

Note -

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	103%	BROMOFLUOROBENZENE	(74-121)	92%
1,2-DICHLOROETHANE-D4	(70-121)	86%			

12/3/93

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
A = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : U931108A
INST. BATCH: 2655
REPORTED : 12/02/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : U931108A
LOCATION:

ANALYZED : 11/08/93 12:27
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	ND	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	12	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 102%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121) 99%		

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING SCIENCES, INC.

SDG: 16252cd
REPORT DATE: 12-07-93

MATRIX: **SOIL**
SAMPLE ID: **S32.8SB16MS1125-145**
REPORTED ON DRY WT BASIS

MATRIX SPIKE

PARAMETER	DATE ANALYZED	SAMPLE CONC. (mg/Kg)	SPIKE CONC. (mg/Kg)	MS CONC. (mg/Kg)	MS % RECOVERY	CONTROL LIMITS
ARSENIC	11/10/93	5.62	225	219	95	75-125
LEAD	11/10/93	4.95	56.2	53.5	86	75-125
SELENIUM	11/10/93	< 0.562	225	216	96	75-125
BARIUM	11/15/93	60.8	225	263	90	75-125
CADMIUM	11/15/93	< 0.337	5.62	5.40	96	75-125
CHROMIUM	11/15/93	24.6	22.5	32.7	35*	75-125
NICKEL	11/15/93	12.9	56.2	62.4	88	75-125
ZINC	11/15/93	10.9	56.2	58.0	84	75-125
MERCURY	11/10/93	< 0.112	0.562	0.540	96	75-125
SILVER	11/27/93	< 0.112	5.62	5.28	94	75-125
TOTAL CN	11/12/93	< 0.562	5.62	5.27	94	75-125

* OUTSIDE CONTROL LIMITS

QC/dn

TABLE ___ PAGE 2 OF 2

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 16279.08/16279.09 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	U	15	NC
	Acetone	210	23	160.5 *
SVOCs	Bis(2-ethylhexyl)phthalate	120	72	50
Metals	Barium	48.6	39.1	21.7
	Chromium	3.5	2.06	51.8 *
	Lead	0.723	0.605	17.8
	Nickel	5.79	3.27	55.6 *
	Selenium	U	0.605	NC
	Zinc	4.46	U	NC

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

U = undetected

NC = not calculated

Sandra M. Czarnecki / Sandra M. Czarnecki 12/21/93

DATA VALIDATOR(Name/Signature) Date

TABLE ___ PAGE 1 OF 2

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 16252.04/16252.05 SAMPLE MATRIX: Soil UNITS:

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	10	12	18.2
	Acetone	17	12	34.5
	Toluene	1.1	U	NC
Metals	Arsenic	4.01	4.3	7.0
	Barium	267	152	54.9 *
	Chromium	18	19	5.4
	Lead	5.32	5.91	10.5
	Nickel	11.3	13.6	18.5
	Zinc	14.9	18.3	20.5
VOCs	Acetone	210	23	160.5 *
	Methylene Chloride	U	15	NC
SVOCs	Bis (2-ethylhexyl) phthalate	120	72	50
Metals	Barium	48.6	39.1	21.7
	Chromium	3.5	2.06	51.8 *
	Lead	0.723	0.605	17.8
	Nickel	5.79	3.27	55.6 *
	Zinc	4.46	U	NC
	Selenium	U	0.605	NC

16279.08/19.09

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

U = not detected

NC = not calculated

Sandra M. Czarnecki / Sandra M. Czarnecki
DATA VALIDATOR(Name/Signature)

12/20/93
Date

tafbdup.wq1

Table ____

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

PROJECT: TINKER AFB

SDG: 16252

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
SVOCs	SV2	5. Laboratory results reported as estimated have been flagged "J5" to indicate that the value falls between the MDL and the MQL for the analyte of interest.
Metals	M1	6. The matrix spike (MS) % recovery for chromium (35%) was below the QA objective of 75-125%. Reported results for chromium in the associated samples have been qualified as estimated and biased low.
	M2.	7. The RPD calculated for barium (55%) for the field replicate samples (S32.85B16) exceeded the QA objective of 50%. Reported results of this analyte in the associated samples have been qualified as estimated.
	M3	8. The RPDs calculated for chromium (52%) and Nickel (56%) for the field replicates samples (S32.85B7 (13-14)) exceeded the QA objective of 50%. Reported results for these analytes in the associated samples have been qualified as estimated.

1. Item number should correspond with the item number on the worksheet.

for Sandra M. Czarnecki 12-21-93

Data Validator (Name/Signature/Date)

Table ____

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

PROJECT: TINKER AFB

SDG: 16252

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Acetone (12-13 ug/kg) was detected in two soil lab blanks associated with the samples in this SDG. Reported detections of acetone in the samples have been qualified as estimated and should be considered biased high.
	V2.	2. Laboratory results qualified as estimated have been requalified. The "Js" flag indicates the value falls between the MDL and the MQL for the corresponding analyte.
	V3	3. The RPD calculated for acetone (160.5%) for the field replicates of sample 532.8587 (13-14) exceeded the QA objective of 50%. Reported detections of acetone (already qualified as estimated due to blank contamination) have been further qualified as estimated.
SVOCs	SV1	4. Bis(2-ethylhexyl)phthalate (47 ug/kg) was detected in a soil laboratory blank. Reported detections of this analyte in the samples have been qualified as estimated and should be considered biased high.

1. Item number should correspond with the item number on the worksheet.

Sandra M. Czarnecki 12.20.93

Data Validator (Name/Signature/Date)

TABLE ___
TINKER AIR FORCE BASE RFI
DATA VALIDATION WORKSHEET

SDG: 16252

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4)
VOCs	V1	1. Soil Lab blank contamination	See Note 1	J1
	V2	2. Estimated values between MDL and MQLs	See Note 2	J5
	V3	3. FR RPD outliers for acetone	See Note 3	J6
SVOCs	SV1	4. Soil lab blank contamination	See Note 4	J1
	SV2	5. Estimated values between MDL and MQLs	See Note 5	J5
Metals	M1	6. MS %R outlier for chromium	See Note 6	J4
	M2	7. FR RPD outliers	See Note 7	J4
	M3	8. FR RPD outliers	See Note 8	J4

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

for Sandra M. Czarnecki
DATA VALIDATOR(Name/Signature)

12.20.95
Date

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.15

DATE: 12/02/93

SWLO #: 16241.15 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.2SB3
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 17.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.111	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.111	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	5.57		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	81.2		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.334	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	21.9		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	8.8	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	20.4		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.557	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	27.7		mg/kg	11/06/93	11/08/93	SW846-6010

DMB
12.13.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.14

DATE: 12/02/93

SWLO #: 16241.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.2SB3
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.114	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.114	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	1.14	U	mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	228		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	1.71		mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	106		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	1.59	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	11.7		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.569	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	13.1		mg/kg	11/06/93	11/08/93	SW846-6010

DYB
12.13.93

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.13

DATE: 12/02/93

SWLO #: 16241.13 SD1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.50

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.551	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	4.97	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	222	mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	254	mg/kg	11/06/93	11/18/93	SW846-6010
CADMIUM	5.32	mg/kg	11/06/93	11/18/93	SW846-6010
CHROMIUM	23.1	mg/kg	11/06/93	11/18/93	SW846-6010
LEAD	52.8 J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	58.3	mg/kg	11/06/93	11/18/93	SW846-6010
SELENIUM	220	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	55.5	mg/kg	11/06/93	11/18/93	SW846-6010

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12.13.93

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.12

DATE: 12/02/93

SWLO #: 16241.12 MS1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.50

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.549	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	4.61	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	228	mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	259	mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	5.56	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	25.2	mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	54.4 J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	61.3	mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	230	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	58.6	mg/kg	11/06/93	11/08/93	SW846-6010

DYB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENG EERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.11

DATE: 12/03/93

SWLO #: 16241.11 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.50
DEPTH TO : 13.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.118	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.118	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	1.18	U	mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	25.8		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.355	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	2.37		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	0.355	JH	mg/kg	11/06/93	11/09/93	SW846-6010
ICKEL	3.9		mg/kg	11/06/93	11/08/93	SW846-6010
ELENIUM	0.592	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	3.19		mg/kg	11/06/93	11/08/93	SW846-6010

DJB
12-13-93

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.10

DATE: 12/02/93

SWLO #: 16241.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB5
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.118	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.118	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	1.77		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	179		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.354	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	18.4		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	3.78	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	31.3		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.826		mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	23.2		mg/kg	11/06/93	11/08/93	SW846-6010

BYB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.09

DATE: 12/02/93

SWLO #: 16241.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB4
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 12.00
DEPTH TO : 13.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.119	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.119	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	3.81		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	27.3		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.357	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	3.45		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	1.19	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	3.45		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.595	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	3.93		mg/kg	11/06/93	11/08/93	SW846-6010

DyB
12.13.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.08

DATE: 12/02/93

SWLO #: 16241.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB4
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 9.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.115	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.115	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	1.15	U	mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	2240		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	50.5		mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	3000		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	7.39	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	168		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.808		mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	52.3		mg/kg	11/06/93	11/08/93	SW846-6010

DyB
12.13.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.07

DATE: 12/02/93

SWLO #: 16241.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB18
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.116	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.116	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	1.16	U	mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	33.2		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.349	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	2.21		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	0.465	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	2.91		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.582	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	3.14		mg/kg	11/06/93	11/08/93	SW846-6010

DyB
12.13.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.06

DATE: 12/02/93

SWLO #: 16241.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB18
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 9.58
DEPTH TO : 11.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.107	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.107	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	2.25		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	58.2		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.321	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	6.75		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	2.68	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	4.82		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.536	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	5.46		mg/kg	11/06/93	11/08/93	SW846-6010

DyB
12.13.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.05

DATE: 12/02/93

SWLO #: 16241.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB2
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 17.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.116	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.116	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	2.9		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	240		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.348	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	7.3		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	3.01	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	9.15		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.579	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	9.73		mg/kg	11/06/93	11/08/93	SW846-6010

DYB
12.13.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.04

DATE: 12/02/93

SWLO #: 16241.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.8SB2
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 10.00
DEPTH TO : 11.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.119	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.119	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	2.99		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	678		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.358	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	14.3		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	6.57	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	10.5		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.597	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	15.6		mg/kg	11/06/93	11/08/93	SW846-6010

DYB
12.13.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.03

DATE: 12/02/93

SWLO #: 16241.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.9SB1
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 17.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.121	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.121	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	1.21	U	mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	132		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.362	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	7.36		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	1.09	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	5.43		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.604	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	6.16		mg/kg	11/06/93	11/08/93	SW846-6010

DMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16241.02

DATE: 12/02/93

SWLO #: 16241.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.9SB1
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 10.50
DEPTH TO : 11.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.106	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.106	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	3.92		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	101		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.318	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	9.74		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	5.82	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	3.49		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.529	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	5.61		mg/kg	11/06/93	11/08/93	SW846-6010

DMB
12.13.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.14

DATE: 12/02/93

SWLO #: 16220.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB3
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.12	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.24		mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	3.36		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	393		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	1.92		mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	29.4		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	9.11	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	13.3		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.599	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	20.5		mg/kg	11/06/93	11/08/93	SW846-6010

DMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.13

DATE: 12/02/93

SWLO #: 16220.13 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.10SB3
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.111	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.223		mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	2.56		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	244		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.546		mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	30		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	4.79	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	12.4		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.557	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	16.6		mg/kg	11/06/93	11/08/93	SW846-6010

DMB
12-13-93

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.12

DATE: 12/03/93

SWLO #: 16220.12 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB9
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.117	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.117		mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	3.51		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	132		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.351	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	12.5		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	2.22	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	9.48		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.586	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	10.6		mg/kg	11/06/93	11/08/93	SW846-6010

DMB
12.13.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.11

DATE: 12/02/93

SWLO #: 16220.11 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB9
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 15.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.123	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.123	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	7.28		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	108		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.37	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	14.7		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	8.52	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	4.81		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.617	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	6.29		mg/kg	11/06/93	11/08/93	SW846-6010

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12.13.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.10

DATE: 12/03/93

SWLO #: 16220.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB10
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 11.00
DEPTH TO : 12.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.11	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.11	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	4.09		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	136		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.332	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	6.41		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	1.99	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	5.2		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.553		mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	7.41		mg/kg	11/06/93	11/08/93	SW846-6010

DMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.09

DATE: 12/02/93

SWLO #: 16220.09 FR1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB10
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.117	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.117	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	3.86		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	76.5		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.351	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	7.14		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	2.58	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	4.1		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.586	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	5.62		mg/kg	11/06/93	11/08/93	SW846-6010

DYB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.08

DATE: 12/02/93

SWLO #: 16220.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB10
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 14.50
DEPTH TO : 16.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.117	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.117	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	2.57		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	89.2		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.351	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	5.85		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	1.4	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	3.39		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.585	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	5.03		mg/kg	11/06/93	11/08/93	SW846-6010

DAB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.07

DATE: 12/02/93

SWLO #: 16220.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB11
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 16.50
DEPTH TO : 17.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.117	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.117	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	1.17	U	mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	45.8		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.35	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	5.48		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	1.52	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	7.46		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.583	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	4.2		mg/kg	11/06/93	11/08/93	SW846-6010

DYB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.06

DATE: 12/02/93

SWLO #: 16220.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.8SB11
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.113	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.113	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	3.62		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	51.3		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.34	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	14.5		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	7.24	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	5.21		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.566	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	3.51		mg/kg	11/06/93	11/08/93	SW846-6010

AMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.05

DATE: 12/02/93

SWLO #: 16220.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.11SB2
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.128	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.128	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	4.34		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	31.8		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.383	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	3.96		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	2.81	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	2.68		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.639	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	3.45		mg/kg	11/06/93	11/08/93	SW846-6010

DYB
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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.04

DATE: 12/02/93

SWLO #: 16220.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.11SB2
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.114	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.114	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	6.96		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	132		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.342	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	14		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	5.82	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	15.1		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.571	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	17.6		mg/kg	11/06/93	11/08/93	SW846-6010

DMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16220.03

DATE: 12/02/93

SWLO #: 16220.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.12SB6
LOCATION:

DATE SAMPLED: / /
SAMPLE MATRIX : SO
DEPTH FROM : 15.00
DEPTH TO : 16.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.118	U	mg/kg	11/09/93	11/09/93	SW846-7471
SILVER	0.118	U	mg/kg	11/06/93	11/12/93	SW846-7761
ARSENIC	1.42		mg/kg	11/06/93	11/09/93	SW846-6010
BARIUM	49.6		mg/kg	11/06/93	11/08/93	SW846-6010
CADMIUM	0.355	U	mg/kg	11/06/93	11/08/93	SW846-6010
CHROMIUM	5.09		mg/kg	11/06/93	11/08/93	SW846-6010
LEAD	0.829	J4	mg/kg	11/06/93	11/09/93	SW846-6010
NICKEL	5.09		mg/kg	11/06/93	11/08/93	SW846-6010
SELENIUM	0.592	U	mg/kg	11/06/93	11/09/93	SW846-6010
ZINC	5.8		mg/kg	11/06/93	11/08/93	SW846-6010

DMB
12-13-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.13

DATE: 12/09/93

SWLO #: 16252.13 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB6
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 5.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	2.74		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	236	J4	mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.342	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	18.6	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	3.77		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.114	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	10.3		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.571	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.114	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	13.9		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.12

DATE: 12/09/93

SWLO #: 16252.12 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB1
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.50
DEPTH TO : 10.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	2.98		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	87.2 J4		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.331	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	29.9	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	6.96		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.11	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	17.8		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.552	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.11	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	24		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/21/93

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.12

DATE: 12/09/93

SWLO #: 16252.12 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.3SB1
LOCATION:
DATE ANALYZED : 11/23/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 9.50
DEPTH TO : 10.00
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
',2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	46	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.14

DATE: 12/09/93

SWLO #: 16252.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB6
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50
DATE PREPARED : 11/08/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	79	J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

*RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.14

DATE: 12/09/93

SWLO #: 16252.14 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: S32.4SB6
LOCATION:

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	3.22		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	313	J4	mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.333	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	25.6	J4	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	11.8		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.111	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	15.4		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.555	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.111	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	22.3		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.15

DATE: 12/09/93

SWLO #: 16252.15 EB1
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	1,2-DICHLOROPROPANE	5	U
BROMOMETHANE	10	U	TRANS-1,3-DICHLOROPROPENE	5	U
VINYL CHLORIDE	10	U	TRICHLOROETHENE	5	U
CHLOROETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
METHYLENE CHLORIDE	5	U	1,1,2-TRICHLOROETHANE	5	U
ACETONE	48	J1	BENZENE	5	U
CARBON DISULFIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
1,1-DICHLOROETHENE	5	U	2-CHLOROETHYL VINYL ETHER	10	U
1,1-DICHLOROETHANE	5	U	BROMOFORM	5	U
1,2-DICHLOROETHENE(TOTAL)	5	U	2-HEXANONE	10	U
CHLOROFORM	23		4-METHYL-2-PENTANONE	10	U
1,2-DICHLOROETHANE	5	U	TETRACHLOROETHENE	3	J5
2-BUTANONE	10	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	XYLENE (TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	88% ✓	BROMOFLUOROBENZENE	(86-115)	89% ✓
1,2-DICHLOROETHANE-D4	(76-114)	86% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16252.16

DATE: 12/09/93

SWLO #: 16252.16 TB1
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/09/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/05/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	1,2-DICHLOROPROPANE	5	U
BROMOMETHANE	10	U	TRANS-1,3-DICHLOROPROPENE	5	U
VINYL CHLORIDE	10	U	TRICHLOROETHENE	5	U
CHLOROETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
METHYLENE CHLORIDE	5	U	1,1,2-TRICHLOROETHANE	5	U
ACETONE	10	U	BENZENE	5	U
CARBON DISULFIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
1,1-DICHLOROETHENE	5	U	2-CHLOROETHYL VINYL ETHER	10	U
1,1-DICHLOROETHANE	5	U	BROMOFORM	5	U
1,2-DICHLOROETHENE(TOTAL)	5	U	2-HEXANONE	10	U
CHLOROFORM	5	U	4-METHYL-2-PENTANONE	10	U
1,2-DICHLOROETHANE	5	U	TETRACHLOROETHENE	5	U
2-BUTANONE	10	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	XYLENE (TOTAL)	2.9	J5
1,1,2,2-TETRACHLOROETHANE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 108% ✓	BROMOFLUOROBENZENE	(86-115) 99% ✓
1,2-DICHLOROETHANE-D4	(76-114) 109% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.01

DATE: 12/09/93

SWLO #: 16279.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB3
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.50
DEPTH TO : 6.50
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	6		1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	160	J6	BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
1,2-DICHLOROETHENE(TOTAL)	19		2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	5.8	U
2-BUTANONE	21		TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.3	J5
1,1,2,2-TETRACHLOROETHANE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	97% ✓	BROMOFLUOROBENZENE	(74-121)	95% ✓
1,2-DICHLOROETHANE-D4	(70-121)	94% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/20/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.01

DATE: 12/09/93

SWLO #: 16279.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB3
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.50
DEPTH TO : 6.50
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	180	~~JB~~ J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

*RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.01

DATE: 12/09/93

SWLO #: 16279.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB3
LOCATION:

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.50
DEPTH TO : 6.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	3		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	419		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.346	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	14.9	J6	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	7.97		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.115	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	22.7	J4	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.577	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.115	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	23		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.02

DATE: 12/09/93

SWLO #: 16279.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB3
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.50
DEPTH TO : 18.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	200	~~JB~~ J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/21/93

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.02

DATE: 12/09/93

SWLO #: 16279.02 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB3
LOCATION:

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.50
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.58		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	46.2		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.364	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	17.2	J6	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	1.21		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.121	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	5.7 J4		mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.848		mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.121	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	5.94		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.03

DATE: 12/09/93

SWLO #: 16279.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB4
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.50
DEPTH TO : 9.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	150	~~JB~~ J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.03

DATE: 12/09/93

SWLO #: 16279.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB4
LOCATION:

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.50
DEPTH TO : 9.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	2.29		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	365		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.344	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	12	J6	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	6.99		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.114	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	10.1	J4	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.573	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.114	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	21.4		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.04

DATE: 12/10/93

SWLO #: 16279.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB4
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 17.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	110	~~JB~~ J 1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.04

DATE: 12/09/93

SWLO #: 16279.04 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB4
LOCATION:

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 17.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	2.14		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	301		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.356	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	10.3	J6	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	6.06		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.119	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	10.1	J4	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.713		mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.119	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	17.5		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/21/93

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.05

DATE: 12/09/93

SWLO #: 16279.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB6
LOCATION:
DATE ANALYZED : 11/20/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 7.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	62	~~JB~~ J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

*RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.05

DATE: 12/09/93

SWLO #: 16279.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB6
LOCATION:

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	2.61		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	394		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.34	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	11.4	J6	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	6.81		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.114	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	10.4	J4	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.681		mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.114	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	15.6		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.06

DATE: 12/09/93

SWLO #: 16279.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB6
LOCATION:
DATE ANALYZED : 11/20/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.50
DEPTH TO : 16.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	110	~~JB~~ J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

*RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/21/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.06

DATE: 12/09/93

SWLO #: 16279.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: I24.19SB6
LOCATION:

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.50
DEPTH TO : 16.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.98		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	458		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.349	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	8.04	J6	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	4.89		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.116	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	8.5	J4	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.582	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.116	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	11.8		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.07

DATE: 12/21/93

SWLO #: 16279.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB7
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 9.00
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	11		1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	47	J1 B	BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
1,2-DICHLOROETHENE(TOTAL)	5.8	U	2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	5.8	U
2-BUTANONE	12	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	103% ✓	BROMOFLUOROBENZENE	(74-121) 94% ✓
1,2-DICHLOROETHANE-D4	(70-121)	90% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/22/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.07

DATE: 12/21/93

SWLO #: 16279.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB7
LOCATION:
DATE ANALYZED : 11/20/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 9.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	140	~~JB~~ J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

SCIENCE INC.
CREEK BLVD.

78757
TYNES

REPORT: 16279.07

DATE: 12/21/93

79.07 N1
INKER AFB RFI
32.8SB7

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 9.00

ETER

	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
	1.4		mg/kg	11/10/93	11/10/93	SW846-6010
	396		mg/kg	11/10/93	11/15/93	SW846-6010
	0.349	U	mg/kg	11/10/93	11/15/93	SW846-6010
-	9.66	J6	mg/kg	11/10/93	11/15/93	SW846-6010
	3.49		mg/kg	11/10/93	11/10/93	SW846-6010
	0.116	U	mg/kg	11/10/93	11/10/93	SW846-7471
	19.8	J4	mg/kg	11/10/93	11/15/93	SW846-6010
	0.582		mg/kg	11/10/93	11/10/93	SW846-6010
	0.349		mg/kg	11/10/93	11/27/93	SW846-7761
	18.6		mg/kg	11/10/93	11/15/93	SW846-6010

PORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/22/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.08

DATE: 12/21/93

SWLO #: 16279.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB7
LOCATION:
DATE ANALYZED : 11/20/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	120	~~JB~~ J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/22/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.08

DATE: 12/21/93

SWLO #: 16279.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB7
LOCATION:

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.2	U	mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	48.6		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.362	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	3.5	J6	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	0.723		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.12	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	5.79	J4	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.603	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.12	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	4.46		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/22/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.09

DATE: 12/21/93

SWLO #: 16279.09 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB7
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00
DATE PREPARED : / /
DILUTION FACTOR: 1.21

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	6	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	6	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	6	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
METHYLENE CHLORIDE	15		1,1,2-TRICHLOROETHANE	6	U
ACETONE	23	J1	BENZENE	6	U
CARBON DISULFIDE	6	U	CIS-1,3-DICHLOROPROPENE	6	U
1,1-DICHLOROETHENE	6	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	6	U	BROMOFORM	6	U
1,2-DICHLOROETHENE(TOTAL)	6	U	2-HEXANONE	12	U
CHLOROFORM	6	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	6	U	TETRACHLOROETHENE	6	U
2-BUTANONE	12	U	TOLUENE	6	U
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	XYLENE (TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	109% ✓	BROMOFLUOROBENZENE	(74-121)	99% ✓
1,2-DICHLOROETHANE-D4	(70-121)	87% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/22/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.09

DATE: 12/21/93

SWLO #: 16279.09 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB7
LOCATION:
DATE ANALYZED : 11/20/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	72	~~JB~~ J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/22/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.09

DATE: 12/21/93

SWLO #: 16279.09 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB7
LOCATION:

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.21	U	mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	39.1		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.363	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	2.06	J6	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	0.605		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.121	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	3.27	J4	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.605		mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.121	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	1.81	U	mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/22/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.10

DATE: 12/21/93

SWLO #: 16279.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB8
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 2.50
DEPTH TO : 3.50
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	1,2-DICHLOROPROPANE	5.8	U
BROMOMETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	5.8	U
VINYL CHLORIDE	12	U	TRICHLOROETHENE	5.8	U
CHLOROETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
METHYLENE CHLORIDE	11		1,1,2-TRICHLOROETHANE	5.8	U
ACETONE	67	J1 B ✓	BENZENE	5.8	U
CARBON DISULFIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-CHLOROETHYL VINYL ETHER	12	U
1,1-DICHLOROETHANE	5.8	U	BROMOFORM	5.8	U
1,2-DICHLOROETHENE(TOTAL)	5.8	U	2-HEXANONE	12	U
CHLOROFORM	5.8	U	4-METHYL-2-PENTANONE	12	U
1,2-DICHLOROETHANE	5.8	U	TETRACHLOROETHENE	5.8	U
2-BUTANONE	22		TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	12	
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 106% ✓	BROMOFLUOROBENZENE	(74-121) 99% ✓
2-DICHLOROETHANE-D4	(70-121) 82% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/22/93

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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NGINEERING SCIENCE INC.
800 SHOAL CREEK BLVD.
UITE 222W
USTIN, TX 78757
ttn: KEVIN TYNES

REPORT: 16279.10

DATE: 12/21/93

WLO #: 16279.10 N1
ROJECT : TINKER AFB RFI
AMPLE #: S32.8SB8
OCATION:
ATE ANALYZED : 11/20/93
ETHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 2.50
DEPTH TO : 3.50
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

EMIVOLATILE ORGANIC COMPOUNDS
ESULTS REPORT IN ug/kg

ARAMETER	RESULTS**		PARAMETER	RESULTS**	
HENOL	400	U	ACENAPHTHENE	400	U
IS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
ENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
IS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
EXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
ITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
SOPHORONE	400	U	HEXACHLOROBENZENE	400	U
-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
ENZOIC ACID	1900	U	ANTHRACENE	400	U
IS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
APHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
EXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	130	~~JB~~ J1
-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
EXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.10

DATE: 12/21/93

SWLO #: 16279.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB8
LOCATION:

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 2.50
DEPTH TO : 3.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	2.53		mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	780		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.345	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	17.2	J6	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	5.41		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.115	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	13.1	J4	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.576		mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.46		mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	17.3		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/22/93

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ERING SCIENCE INC.
HOAL CREEK BLVD.
222W
, TX 78757
KEVIN TYNES

REPORT: 16279.11

DATE: 12/21/93

: 16279.11 N1
T : TINKER AFB RFI
#: S32.8SB8
ON:
NALYZED : 11/11/93
REFERENCE: SW846-8240

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 15.00
DATE PREPARED : / /
DILUTION FACTOR: 1.19

LE ORGANIC COMPOUNDS
S REPORT IN ug/kg

TER	RESULTS**		PARAMETER	RESULTS**	
METHANE	12	U	1,2-DICHLOROPROPANE	6	U
ETHANE	12	U	TRANS-1,3-DICHLOROPROPENE	6	U
CHLORIDE	12	U	TRICHLOROETHENE	6	U
ETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
ENE CHLORIDE	12		1,1,2-TRICHLOROETHANE	6	U
E	41	J1 B ✓	BENZENE	6	U
DISULFIDE	6	U	CIS-1,3-DICHLOROPROPENE	6	U
CHLOROETHENE	6	U	2-CHLOROETHYL VINYL ETHER	12	U
CHLOROETHANE	6	U	BROMOFORM	6	U
CHLOROETHENE(TOTAL)	6	U	2-HEXANONE	12	U
FORM	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROETHANE	6	U	TETRACHLOROETHENE	6	U
NONE	12	U	TOLUENE	6	U
TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
ACETATE	12	U	STYRENE	6	U
CHLOROMETHANE	6	U	XYLENE (TOTAL)	6	U
-TETRACHLOROETHANE	6	U			

QA/QC SURROGATE RECOVERIES

-D8	(81-117) 103% ✓	BROMOFLUOROBENZENE	(74-121) 104% ✓
HLOROETHANE-D4	(70-121) 89% ✓		

TS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/22/93

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IGINEERING SCIENCE INC.
:00 SHOAL CREEK BLVD.
'ITE 222W
'STIN, TX 78757
tn: KEVIN TYNES

REPORT: 16279.11

DATE: 12/21/93

LO #: 16279.11 N1
OJECT : TINKER AFB RFI
MPLE #: S32.8SB8
CATION:
TE ANALYZED : 11/20/93
THOD REFERENCE: SW846-8270

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 15.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

MIVOLATILE ORGANIC COMPOUNDS
SULTS REPORT IN ug/kg

RAMETER	RESULTS**		PARAMETER	RESULTS**	
ENOL	400	U	ACENAPHTHENE	400	U
S(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
CHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
L ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
ETHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
S(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
ETHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
ITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
ACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
ROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
PHORONE	400	U	HEXACHLOROBENZENE	400	U
ITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
ZOIC ACID	1900	U	ANTHRACENE	400	U
(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
HTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
HLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
ACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
HLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	150	~~JB~~ J1
THYLNAPHTHALENE	400	U	CHRYSENE	400	U
ACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

SULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
12/22/93

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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16279.11

DATE: 12/21/93

SWLO #: 16279.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SB8
LOCATION:

DATE SAMPLED: 11/06/93
SAMPLE MATRIX : SO
DEPTH FROM : 14.00
DEPTH TO : 15.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.19	U	mg/kg	11/10/93	11/10/93	SW846-6010
BARIUM	43.8		mg/kg	11/10/93	11/15/93	SW846-6010
CADMIUM	0.357	U	mg/kg	11/10/93	11/15/93	SW846-6010
CHROMIUM	5.12	J6	mg/kg	11/10/93	11/15/93	SW846-6010
LEAD	2.38		mg/kg	11/10/93	11/10/93	SW846-6010
MERCURY	0.119	U	mg/kg	11/10/93	11/10/93	SW846-7471
NICKEL	6.19	J4	mg/kg	11/10/93	11/15/93	SW846-6010
SELENIUM	0.595	U	mg/kg	11/10/93	11/10/93	SW846-6010
SILVER	0.119	U	mg/kg	11/10/93	11/27/93	SW846-7761
ZINC	4.88		mg/kg	11/10/93	11/15/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 12/22/93

TABLE ___
TINKER AIR FORCE BASE RFI
DATA VALIDATION WORKSHEET

SDG: 16280

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4
VOCs	V1	1. Acetone contamination in a soil lab blank (13 ppb)	See Note 1	J1
	V2	2. Trip blank contamination (xylene 10ppb - 16280.21)	See Note 2	None
	V3	3. Trip blank contamination (Chloroform 39 ppb, Toluene-1.2 ppb)	See Note 3	None
	V4	4. EB1 blank Contamination (Chloroform: 25ppb; toluene 1.4 ppb)	See Note 4	None
Metals	M1	Barium (14.9 mg/L) detected in the Equipment blank	See Note 5	None

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

DAVID Y. BADIO DBADIO

DATA VALIDATOR(Name/Signature)

12-27-93

Date

Table ____

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

TINKER AIR FORCE BASE RFI

SDG: 16280

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Acetone (13ppb) was detected in a soil lab blank. All reported detections of acetone in soil samples have been qualified as estimated (J1).
	V2	2. Total xylenes (10ppb) was detected in a trip blank sample (16280.21). Xylene was not detected in any of the associate samples, therefore no action is necessary.
	V3	3. Chloroform (39 ppb) and toluene (1.2 ppb) were detected in a trip blank sample (16280.22). These analytes were not detected in any of the samples therefore no action is necessary. The reported results for chloroform and toluene in the trip blank have been qualified as estimated "J".
	V4	4. Chloroform (25ppb) and toluene (1.4 ppb) were detected in the equipment blank sample (16280.16). These analytes were not detected in any of the samples, therefore no action is necessary. These results have been qualified (J1) as probable field and/or lab contaminants.
Metals	M1	5. Barium detected in EB1 (15ppb). No action taken because the sample results for Ba was >> the action level (15mg/kg).

1. Item number should correspond with the item number on the worksheet.

Data Validator (Name/Signature/Date)

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.21

DATE: 12/10/93

SWLO #: 16280.21 TB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/17/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	10	
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 102%	BROMOFLUOROBENZENE	(86-115) 106%
1,2-DICHLOROETHANE-D4	(76-114) 103%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : K931111A
INST. BATCH: 13987
REPORTED : 12/06/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : K931111A
LOCATION:

ANALYZED : 11/11/93 09:35
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	ND	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	13	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	103%	BROMOFLUOROBENZENE	(74-121)	92%
1,2-DICHLOROETHANE-D4	(70-121)	86%			

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.10

DATE: 12/10/93

SWLO #: 16280.10 N9
PROJECT : TINKER AFB RFI
SAMPLE #: I24.7SB1
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : 11/23/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	65.6	J5
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DMB 12.27.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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REPORT: 16280.10

DATE: 12/10/93

SWLO #: 16280.10 N9
PROJECT : TINKER AFB RFI
SAMPLE #: I24.7SB1
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : 11/23/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	1900	U	BENZO(K)FLUORANTHENE	400	U
2-CHLORONAPHTHALENE	400	U	BENZO(A)PYRENE	400	U
2-NITROANILINE	1900	U	INDENO(1,2,3-CD)PYRENE	400	U
DIMETHYL PHTHALATE	400	U	DIBENZ(A,H)ANTHRACENE	400	U
ACENAPHTHYLENE	400	U	BENZO(G,H,I)PERYLENE	400	U
3-NITROANILINE	1900	U			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	71%	2-FLUOROBIPHENYL	(30-115)	76%
TERPHENYL-D14	(18-137)	73%	PHENOL-D5	(24-113)	69%
2-FLUOROPHENOL	(25-121)	66%	2,4,6-TRIBROMOPHENOL	(19-122)	69%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

16080

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: [X] Federal Express [ ] UPS
Other _____

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 8503062746

SAMPLER(S): M. HARDER R. NELSON

(Signature) [signature] [signature]

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (SW8240)	Semi VOA (8270)	Metals (6010)	CN (9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
7NOV93	–	FIELDQC		TB1	WQ	NA	0	0	2	X				0	1	1	B	
	1500	FIELDQC		EB1	WQ	NA	0	0	6	X	X	X	X	0	1	1	B	
	0820	I24.19SB5		N1	SO	H	7.5	8	3	X	X	X	X	0	1	1	B	
	0845	↓		N1	SO	H	15.5	16	3	X	X	X	X	0	1	1	B	
	1010	I24.19SB2		N1	SO	H	7.5	8.0	3	X	X	X	X	0	1	1	B	
	1050	↓		N1	SO	H	17	17.5	3	X	X	X	X	0	1	1	B	
	1210	I24.19SB7		N1	SO	H	6.5	7.5	3	X	X	X	X	0	1	1	B	
	1245	↓		N1	SO	H	17	18	3	X	X	X	X	0	1	1	B	
	1425	I24.19SB8		N1	SO	H	6	7	3	X	X	X	X	0	1	1	B	
	1450	↓		N1	SO	H	17	17.5	3	X	X	X	X	0	1	1	B	

Relinquished by:	Date	Time	Relinquished by:	Date	Time	Relinquished by:	Date	Time
(Signature) [signature]	11/8/93	1750	(Signature)			(Signature)		
Received by:	Date	Time	Received by:	Date	Time	Received by:	Date	Time
(Signature)			(Signature)			(Signature) [signature]	11/9/93	0830

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

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36

1628C

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER ☐ Federal Express ☐ UPS

Other _____

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 850306274 6

SAMPLER(S): M. HARDER R NELSON

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (8240)	SEMIVOA (8270)	Metals (6010)	CN (9010)	TPH (8015) MOD	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/8/93	–	FIELDQC		TB1	WQ	NA	0	0	2	X					1	0	1	C	
	1200	FIELDQC		AB1	WQ	NA	0	0	2	X					1	0	1	C	
	0921	I24.7SB2		N1	SO	SS	11	13	3	X	X	X	X		1	0	1	C	
	1300	I24.7SB1		N1	SO	SS	4	6	3	X	X	X	X		1	0	1	C	
	1330	↓		N1	SO	SS	8	10	3	X	X	X	X		1	0	1	C	
	1536	I24.11SB3		N1	SO	SS	4	6	3	X	X	X	X		1	0	1	C	
	1625	↓		N1	SO	SS	8	9	3	X	X	X	X		1	0	1	C	
	0920	I24.3SB1		N1	SO	H	5.5	6.5	4	X	X	X	X	X	1	0	1	C	
	1005	↓		N1	SO	H	13	14	4	X	X	X	X	X	1	0	1	C	
	1155	I24.3SB4		N1	SO	H	6	7	4	X	X	X	X	X	1	0	1	C	
	1345	↓		N1	SO	H	11	11.5	4	X	X	X	X	X	1	0	1	C	
	1520	I24.1SB1		N1	SO	H	5.5	6.0	3	X	X	X	X		1	0	1	C	
	1620	↓		N1	SO	H	16	16.5	3	X	X	X	X		1	0	1	C	

PRESERVATIVE

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
M. W. Harder	11/8/93	1750			
			R. Nelson	11/9/93	0830

White : laboratory returns with data; yellow : laboratory copy; pink : sampler copy.

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.01

DATE: 12/10/93

SWLO #: 16280.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB5
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.50
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	5.7	U	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	53	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

DYB 12.28.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	90%	BROMOFLUOROBENZENE	(74-121)	79%
1,2-DICHLOROETHANE-D4	(70-121)	76%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.02

DATE: 12/10/93

SWLO #: 16280.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB5
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.50
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	8.3		CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	220	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	21	
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	19	
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	97%
1,2-DICHLOROETHANE-D4	(70-121)	89%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.03

DATE: 12/10/93

SWLO #: 16280.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB2
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.50
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	10		CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	14	J1 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	160	
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

DMB 12.27.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	103%	BROMOFLUOROBENZENE	(74-121)	88%
1,2-DICHLOROETHANE-D4	(70-121)	92%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.04

DATE: 12/10/93

SWLO #: 16280.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB2
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 17.50
DATE PREPARED : / /
DILUTION FACTOR: 1.27

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	13	U	TRICHLOROETHENE	6.4	U
BROMOMETHANE	13	U	DIBROMOCHLOROMETHANE	6.4	U
VINYL CHLORIDE	13	U	1,1,2-TRICHLOROETHANE	6.4	U
CHLOROETHANE	13	U	BENZENE	6.4	U
METHYLENE CHLORIDE	6.4	U	CIS-1,3-DICHLOROPROPENE	6.4	U
ACETONE	20	J1	2-CHLOROETHYL VINYL ETHER	13	U
CARBON DISULFIDE	6.4	U	BROMOFORM	6.4	U
1,1-DICHLOROETHENE	6.4	U	2-HEXANONE	13	U
1,1-DICHLOROETHANE	6.4	U	4-METHYL-2-PENTANONE	13	U
CHLOROFORM	6.4	U	TETRACHLOROETHENE	6.4	U
1,2-DICHLOROETHANE	6.4	U	TOLUENE	6.4	U
1,1,1-TRICHLOROETHANE	6.4	U	CHLOROBENZENE	6.4	U
CARBON TETRACHLORIDE	6.4	U	ETHYLBENZENE	6.4	U
VINYL ACETATE	13	U	STYRENE	6.4	U
BROMODICHLOROMETHANE	6.4	U	1,2-DICHLOROETHENE(TOTAL)	6.4	U
1,1,2,2-TETRACHLOROETHANE	6.4	U	XYLENE (TOTAL)	6.4	U
1,2-DICHLOROPROPANE	6.4	U	2-BUTANONE	13	U
TRANS-1,3-DICHLOROPROPENE	6.4	U			

BMB 12.27-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	83%	BROMOFLUOROBENZENE	(74-121)	89%
1,2-DICHLOROETHANE-D4	(70-121)	72%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.05

DATE: 12/10/93

SWLO #: 16280.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB7
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 7.50
DATE PREPARED : / /
DILUTION FACTOR: 1.13

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	12		CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	50	J1 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	68	
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	47	
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

DMB 12.28.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	109%	BROMOFLUOROBENZENE	(74-121)	96%
1,2-DICHLOROETHANE-D4	(70-121)	81%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-25

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.06

DATE: 12/10/93

SWLO #: 16280.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB7
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.04

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.2	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5.2	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5.2	U
CHLOROETHANE	10	U	BENZENE	5.2	U
METHYLENE CHLORIDE	5.2	U	CIS-1,3-DICHLOROPROPENE	5.2	U
ACETONE	17	J1	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5.2	U	BROMOFORM	5.2	U
1,1-DICHLOROETHENE	5.2	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5.2	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5.2	U	TETRACHLOROETHENE	5.2	U
1,2-DICHLOROETHANE	5.2	U	TOLUENE	5.2	U
1,1,1-TRICHLOROETHANE	5.2	U	CHLOROBENZENE	5.2	U
CARBON TETRACHLORIDE	5.2	U	ETHYLBENZENE	5.2	U
VINYL ACETATE	10	U	STYRENE	5.2	U
BROMODICHLOROMETHANE	5.2	U	1,2-DICHLOROETHENE(TOTAL)	5.2	U
1,1,2,2-TETRACHLOROETHANE	5.2	U	XYLENE (TOTAL)	5.2	U
1,2-DICHLOROPROPANE	5.2	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5.2	U			

DMB 12-28-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	86%	BROMOFLUOROBENZENE	(74-121)	89%
1,2-DICHLOROETHANE-D4	(70-121)	82%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.08

DATE: 12/10/93

SWLO #: 16280.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB8
LOCATION:
DATE ANALYZED : 11/15/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 17.50
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	16	J1	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	6.2	
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	12	
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

DMB 12.28.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	88%	BROMOFLUOROBENZENE	(74-121)	85%
1,2-DICHLOROETHANE-D4	(70-121)	72%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, IN

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.22

DATE: 12/10/93

SWLO #: 16280.22 TB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	39	J1	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	1.2	J1 ~~J5~~
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

DMB 12-28-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 100%	BROMOFLUOROBENZENE	(86-115) 106%
1,2-DICHLOROETHANE-D4	(76-114) 104%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.09

DATE: 12/10/93

SWLO #: 16280.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.7SB2
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 11.00
DEPTH TO : 13.00
DATE PREPARED : / /
DILUTION FACTOR: 2.25

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	22	U	TRICHLOROETHENE	11	U
BROMOMETHANE	22	U	DIBROMOCHLOROMETHANE	11	U
VINYL CHLORIDE	22	U	1,1,2-TRICHLOROETHANE	11	U
CHLOROETHANE	22	U	BENZENE	11	U
METHYLENE CHLORIDE	11	U	CIS-1,3-DICHLOROPROPENE	11	U
ACETONE	270	J1	2-CHLOROETHYL VINYL ETHER	22	U
CARBON DISULFIDE	11	U	BROMOFORM	11	U
1,1-DICHLOROETHENE	11	U	2-HEXANONE	22	U
1,1-DICHLOROETHANE	11	U	4-METHYL-2-PENTANONE	22	U
CHLOROFORM	11	U	TETRACHLOROETHENE	11	U
1,2-DICHLOROETHANE	11	U	TOLUENE	11	U
1,1,1-TRICHLOROETHANE	11	U	CHLOROBENZENE	11	U
CARBON TETRACHLORIDE	11	U	ETHYLBENZENE	11	U
VINYL ACETATE	22	U	STYRENE	11	U
BROMODICHLOROMETHANE	11	U	1,2-DICHLOROETHENE(TOTAL)	11	U
1,1,2,2-TETRACHLOROETHANE	11	U	XYLENE (TOTAL)	11	U
1,2-DICHLOROPROPANE	11	U	2-BUTANONE	22	U
TRANS-1,3-DICHLOROPROPENE	11	U			

DJB 12-27-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 114%	BROMOFLUOROBENZENE	(74-121) 97%
1,2-DICHLOROETHANE-D4	(70-121) 89%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
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Attn: KEVIN TYNES

REPORT: 16280.11

DATE: 12/10/93

SWLO #: 16280.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.7SB1
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 10.00
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	22		CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	62	J1 B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

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12-27-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	112%	BROMOFLUOROBENZENE	(74-121)	93%
1,2-DICHLOROETHANE-D4	(70-121)	82%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.12

DATE: 12/10/93

SWLO #: 16280.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB3
LOCATION:
DATE ANALYZED : 11/11/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.4	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	5.4	U
METHYLENE CHLORIDE	21		CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	62	J1 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	5.4	U
1,2-DICHLOROETHANE	5.4	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE(TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

DMB 12.27.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	102%	BROMOFLUOROBENZENE	(74-121)	97%
1,2-DICHLOROETHANE-D4	(70-121)	82%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.13

DATE: 12/10/93

SWLO #: 16280.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB3
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 9.00
DATE PREPARED : / /
DILUTION FACTOR: 1.06

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	11	U	BENZENE	5.3	U
METHYLENE CHLORIDE	5.3	U	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	36	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	5.3	U
1,2-DICHLOROETHANE	5.3	U	TOLUENE	5.3	U
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	11	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE(TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

DMB 12.27.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	106%	BROMOFLUOROBENZENE	(74-121)	96%
1,2-DICHLOROETHANE-D4	(70-121)	94%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.16

DATE: 12/10/93

SWLO #: 16280.16 EB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	25	J1	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	1.4	J1 ~~J5~~
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 101%	BROMOFLUOROBENZENE	(86-115) 105%
1,2-DICHLOROETHANE-D4	(76-114) 106%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.20

DATE: 12/10/93

SWLO #: 16280.20 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SB4
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 11.00
DEPTH TO : 11.50
DATE PREPARED : / /
DILUTION FACTOR: 1.13

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	5.7	U	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	35	J1	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

DMB 12.27.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	110%	BROMOFLUOROBENZENE	(74-121)	96%
1,2-DICHLOROETHANE-D4	(70-121)	88%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.01

DATE: 12/10/93

SWLO #: 16280.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB5
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.50
DEPTH TO : 8.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	248	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

DMB 12.28.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-259

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.02

DATE: 12/10/93

SWLO #: 16280.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB5
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 15.50
DEPTH TO : 16.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	110	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.03

DATE: 12/10/93

SWLO #: 16280.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB2
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.50
DEPTH TO : 8.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	430	U	ACENAPHTHENE	430	U
BIS(2-CHLOROETHYL)ETHER	430	U	2,4-DINITROPHENOL	2100	U
2-CHLOROPHENOL	430	U	4-NITROPHENOL	2100	U
1,3-DICHLOROBENZENE	430	U	DIBENZOFURAN	430	U
1,4-DICHLOROBENZENE	430	U	2,4-DINITROTOLUENE	430	U
BENZYL ALCOHOL	430	U	2,6-DINITROTOLUENE	430	U
1,2-DICHLOROBENZENE	430	U	DIETHYLPHTHALATE	430	U
2-METHYLPHENOL(O-CRESOL)	430	U	4-CHLOROPHENYL-PHENYLETHER	430	U
BIS(2-CHLOROISOPROPYL)ETHER	430	U	FLUORENE	430	U
4-METHYLPHENOL(P-CRESOL)	430	U	4-NITROANILINE	2100	U
N-NITROSO-DI-N-PROPYLAMINE	430	U	4,6-DINITRO-2-METHYLPHENOL	2100	U
HEXACHLOROETHANE	430	U	N-NITROSODIPHENYLAMINE(1)	430	U
NITROBENZENE	430	U	4-BROMOPHENYL-PHENYLETHER	430	U
ISOPHORONE	430	U	HEXACHLOROBENZENE	430	U
2-NITROPHENOL	430	U	PENTACHLOROPHENOL	2100	U
2,4-DIMETHYLPHENOL	430	U	PHENANTHRENE	430	U
BENZOIC ACID	2100	U	ANTHRACENE	430	U
BIS(2-CHLOROETHOXY)METHANE	430	U	DI-N-BUTYL PHTHALATE	430	U
2,4-DICHLOROPHENOL	430	U	FLUORANTHENE	430	U
1,2,4-TRICHLOROBENZENE	430	U	PYRENE	430	U
NAPHTHALENE	430	U	BUTYL BENZYL PHTHALATE	430	U
4-CHLOROANILINE	430	U	3,3'-DICHLOROBENZIDINE	860	U
HEXACHLOROBUTADIENE	430	U	BENZO(A)ANTHRACENE	430	U
4-CHLORO-3-METHYLPHENOL	430	U	BIS(2-ETHYLHEXYL)PHTHALATE	160	JS
2-METHYLNAPHTHALENE	430	U	CHRYSENE	430	U
HEXACHLOROCYCLOPENTADIENE	430	U	DI-N-OCTYL PHTHALATE	430	U
2,4,6-TRICHLOROPHENOL	430	U	BENZO(B)FLUORANTHENE	430	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.04

DATE: 12/10/93

SWLO #: 16280.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB2
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 17.50
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	116	JS
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DJB 12.28.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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Attn: KEVIN TYNES

REPORT: 16280.05

DATE: 12/10/93

SWLO #: 16280.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB7
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.50
DEPTH TO : 7.50
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	1600	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	82.8	J5
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	1600	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	71	J5	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	72.3	J5
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

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12.28.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
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Attn: KEVIN TYNES

REPORT: 16280.06

DATE: 12/10/93

SWLO #: 16280.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB7
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	84.7	J5
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	52	J5	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	102	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.07

DATE: 12/10/93

SWLO #: 16280.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB8
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	86.7	JS
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	144	JS
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DyB
12.28.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.08

DATE: 12/10/93

SWLO #: 16280.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB8
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/07/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 17.50
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	51.2	J5	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	97.1	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

DMB 12.28.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.09

DATE: 12/10/93

SWLO #: 16280.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.7SB2
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 11.00
DEPTH TO : 13.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	115	JS
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

MB 12-28-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.11

DATE: 12/10/93

SWLO #: 16280.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.7SB1
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 10.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	166	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.12

DATE: 12/10/93

SWLO #: 16280.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB3
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	72.2	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.13

DATE: 12/10/93

SWLO #: 16280.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB3
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 9.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	230	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12.27.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.14

DATE: 12/10/93

SWLO #: 16280.14 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.1SB1
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.50
DEPTH TO : 6.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	111	J 5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12.27.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.15

DATE: 12/10/93

SWLO #: 16280.15 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.1SB1
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 16.50
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	400	U	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	400	U	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	400	U	BIS(2-ETHYLHEXYL)PHTHALATE	90.1	J 5
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
[illegible]ACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
[illegible],6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

DMB
12-27-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.17

DATE: 12/10/93

SWLO #: 16280.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SB1
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.50
DEPTH TO : 6.50
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	86.7	JS
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

DMB 12.27.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.18

DATE: 12/10/93

SWLO #: 16280.18 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SB1
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 13.00
DEPTH TO : 14.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.30

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	430	U	ACENAPHTHENE	430	U
BIS(2-CHLOROETHYL)ETHER	430	U	2,4-DINITROPHENOL	2100	U
2-CHLOROPHENOL	430	U	4-NITROPHENOL	2100	U
1,3-DICHLOROBENZENE	430	U	DIBENZOFURAN	430	U
1,4-DICHLOROBENZENE	430	U	2,4-DINITROTOLUENE	430	U
BENZYL ALCOHOL	430	U	2,6-DINITROTOLUENE	430	U
1,2-DICHLOROBENZENE	430	U	DIETHYLPHTHALATE	430	U
2-METHYLPHENOL(O-CRESOL)	430	U	4-CHLOROPHENYL-PHENYLETHER	430	U
BIS(2-CHLOROISOPROPYL)ETHER	430	U	FLUORENE	430	U
4-METHYLPHENOL(P-CRESOL)	430	U	4-NITROANILINE	2100	U
N-NITROSO-DI-N-PROPYLAMINE	430	U	4,6-DINITRO-2-METHYLPHENOL	2100	U
HEXACHLOROETHANE	430	U	N-NITROSODIPHENYLAMINE(1)	430	U
NITROBENZENE	430	U	4-BROMOPHENYL-PHENYLETHER	430	U
ISOPHORONE	430	U	HEXACHLOROBENZENE	430	U
2-NITROPHENOL	430	U	PENTACHLOROPHENOL	2100	U
2,4-DIMETHYLPHENOL	430	U	PHENANTHRENE	430	U
BENZOIC ACID	107	J5	ANTHRACENE	430	U
BIS(2-CHLOROETHOXY)METHANE	430	U	DI-N-BUTYL PHTHALATE	430	U
2,4-DICHLOROPHENOL	430	U	FLUORANTHENE	430	U
1,2,4-TRICHLOROBENZENE	430	U	PYRENE	430	U
NAPHTHALENE	430	U	BUTYL BENZYL PHTHALATE	430	U
4-CHLOROANILINE	430	U	3,3'-DICHLOROBENZIDINE	860	U
HEXACHLOROBUTADIENE	430	U	BENZO(A)ANTHRACENE	430	U
4-CHLORO-3-METHYLPHENOL	430	U	BIS(2-ETHYLHEXYL)PHTHALATE	167	J5
2-METHYLNAPHTHALENE	430	U	CHRYSENE	430	U
HEXACHLOROCYCLOPENTADIENE	430	U	DI-N-OCTYL PHTHALATE	430	U
2,4,6-TRICHLOROPHENOL	430	U	BENZO(B)FLUORANTHENE	430	U

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12-27-4

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.19

DATE: 12/10/93

SWLO #: 16280.19 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SB4
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 7.00
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	95.1	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12/27/93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16280.20

DATE: 12/10/93

SWLO #: 16280.20 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SB4
LOCATION:
DATE ANALYZED : 11/29/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/08/93
SAMPLE MATRIX : SO
DEPTH FROM : 11.00
DEPTH TO : 11.50
DATE PREPARED : 11/10/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	360	U	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	1800	U
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	87.4	J5	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	360	U	BIS(2-ETHYLHEXYL)PHTHALATE	74.9	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12.27.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

TABLE 1
TINKER AIR FORCE BASE RFI
DATA VALIDATION WORKSHEET

SDG: 16298

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4
VOCs	V1	Lab soil blank contamination - 2-chloroethyl vinyl ether and toluene.	See Note 1	J1
	V2	Lab J flags requalified as J5	See Note 2	J5
	V3	~~Concentration of~~ Field Replicate (FR) Relative % Difference (RPD) out high	See Note 3	J4/J6
	V4	Matrix ~~spike~~ (MS) Percent Recovery (% Rec) out high. for Toluene.	See Note 4	J4/J6
	V5	Surrogate Toluene-d8 out high but only slightly - NO ACTION TAKEN.	See Note 11	—
SVOCs	SV1	Lab soil blank contamination of several analytes, as well as lab water blank contamination of the same analytes. (See copy of lab cover letter attached also).	See Note 5	J1
	SV2	Concentration of 4-nitrophenol above the calibration range	See Note 6	J2
	SV3	Lab J flags requalified as J5	See Note 7	J5
	SV4	MS Percent Recovery (% Rec) out high	See Note 8	J4/J6
Metals	M1	Field Replicate (FR) Relative Percent Difference (RPD) values out high for barium & nickel.	See Note 9	J4/J6
	M2	MS % Rec out high for barium chromium, zinc and mercury and RPD out high for Chromium and mercury.	See Note 10	J4/J6

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

SANDRA M. CZARNECKI / Sandra M. Czarnecki
DATA VALIDATOR(Name/Signature)

1/4/94
Date

tafbwkst.wq1

Table 2
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG:

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Laboratory soil blank contamination - 2-chloroethyl vinyl ether (10 ug/kg) and Toluene (2.2J ug/kg) was detected. Reported detections of these analytes in the samples have been qualified as estimated and should be considered biased high. Affected samples: 16298.02 - 16298.05, 16298.07, 16298.08, 16326.01, 16326.02, 16326.04 - 16326.15, and 16326.17.
	V2	2. LAB flags were requalified as J5, Per QAPP. Affected samples: 16298.02, 16298.03, 16298.05, 16326.01 - 16326.04, 16326.08, 16326.11, 16326.13, 16326.14, 16326.17, 16326.18, and 16326.21.
	V3	3. The FR RPD values for Acetone (79%), Methylene Chloride (108%), Tetrachloroethene (129%) and Toluene (62%) were above the QA objective of 50%. All detections of these analytes should be considered biased high and are flagged J4 (for analytes with multiple problems they were further qualified J6). Affected samples: 16298.02 - 16298.08, and 16326.01 - 16326.19.
	V4	4. The MS %Rec values for Toluene (148%) was above the QA objective of {59-139}. All detections of this analyte should be considered biased high, and have been qualified J4. For multiple problems,

1. Item number should correspond with the item number on the worksheet.

Sandra M. Czarnecki / Sandra M. Czarnecki 1/5/94
Data Validator (Name/Signature/Date)

Table 2
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG:

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
	V4 (Cont'd)	This analyte has been further qualified as J6. Affected samples: 16298.02 - 16298.05, 16248.07, 16298.08, 16326.01, 16326.02, 16326.04 - 16326.15, 16326.17.
SVOA	SV1	5. Laboratory water and soil blank contamination was detected; phenol (15.8 ug/L and 273 ug/kg), 2-Chlorophenol (15.8 ug/L and 264 ug/kg), 4-Chloro-3-methylphenol (17.7 ug/L and 265 ug/kg), 4-Nitrophenol (11 J ug/L and 181 J ug/kg) and Pentachlorophenol (8.4 J ug/L and 192 J ug/kg). Reported detections of these analytes should be considered biased high and have been qualified J1. Affected samples: 16298.02 - 16298.08 and 16326.01 - 16326.19.
	SV2	6. Some Concentrations of 4-nitrophenol were above the calibration range and were qualified "E" by the lab. The reviewer has further qualified this analyte as J2 (or J6 if multiple flags have been applied). Affected samples: 16326.04, 16326.05, 16326.13, 16326.14.
	SV3	7. Lab flags were requalified as J5, per the QAPP. Affected samples: 16298.02, 16326.04, 16326.13, 16326.15, 16326.17 and 16326.18.
	SV4	8. The MS % Recoveries for 4-nitrophenol (125 %) and 2,4-Dinitrotoluene (116 %) were outside the QA ranges of .11-114 % and 28-89 % respectively. All detections of these analytes should be considered high and have

1. Item number should correspond with the item number on the worksheet.

Sandra M. Czarnecki / Sandra M. Czarnecki 1/5/94
Data Validator (Name/Signature/Date)

Table 2

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

TINKER AIR FORCE BASE RFI

SDG:

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
	SV4 (cont'd)	been qualified J4 (or J6 if multiple flags have been applied). Affected samples: 16298.02 - 16298.08, 16326.01 - 16326.06, 16326.08 - 16326.14, 16326.16, 16326.18 and 16326.19.
Metals	M1	9. The FR RPD values for barium (97%) and Nickel (64%) were above the QA objective of 50%. All detections of these analytes should be considered biased high and have been flagged J4 (or J6 if multiple flags have been applied). Affected samples: 16298.02 - 16298.08, and 16326.01 - 16326.18.
	M2	10. The MS % Recoveries for Barium (23%), Chromium (37%) and Zinc (58%) were out low and all detections of these analytes should be considered biased low (QA objective 75-125%). MS % Rec for mercury (136%) was above the QA objective all reported detections should be considered biased high. In addition the RPDs for chromium (21%) and mercury (43%) were above the QA objective of 20%. All these analytes have been qualified J4 (or J6 for multiple flags) Affected samples: 16298.02 - 16298.08, 16326.01 - 16326.18.

1. Item number should correspond with the item number on the worksheet.

VOA V5 11. Surrogate Toluene-d8 out high 120%. Since only slightly above QA objectives (81-117) No Action Taken.

Sandra M. Czarnecki / Sandra M. Czarnecki 1/5/94

Data Validator (Name/Signature/Date)

OK? need to be [illegible] instead

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TABLE 3

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 16326.01/16326.02 SAMPLE MATRIX: Soil UNITS: ug/kg

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	3.3	4.5	31
	Acetone	70	75	7
	Toluene	1.8	2.7	40
SVOCs	Phenol	369	372	>1
	2-Chlorophenol	319	337	5
	4-Chloro-3-methylphenol	281	305	8
	4-Nitrophenol	251	239	5
	Pentachlorophenol	185	169	9
	Bis(2-ethylhexyl) phthalate	42	U	NC
Metals	Arsenic	1.6	1.41	13
	Lead	3.78	3.75	>1
	Barium	299	125	82 *
	Chromium	10.8	14.5	29
	Nickel	9.28	11.7	23
	Zinc	11	14.4	27

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

U = not detected
NC = not calculated

SANDRA H. CZARNECKI / Sandra H Czarnecki 1/4/94
DATA VALIDATOR(Name/Signature) Date

TABLE 3 PAGE 2 OF 3

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 16326.06/16326.07 SAMPLE MATRIX: Soil UNITS: ug/kg

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	1.2	4	108 *
	Acetone	90	70	25
	Tetrachloroethene	1.3	1.4	7
	Toluene	2.9	5.5	62 *
SVOCs	Phenol	292	207	34
	2-Chlorophenol	255	188	30
	4-Chloro-3-methyl phenol	254	153	49.6
	4-Nitrophenol	188	U	NC
	Pentachlorophenol	174	U	NC
	Di-n-butyl phthalate	61	U	NC
	Bis(2-ethylhexyl) phthalate	U	47	NC
Metals	Arsenic	5.17	6.39	21
	Lead	6.62	7.84	17
	Selenium	U	0.844	NC
	Barium	310	893	97 *
	Chromium	23.5	29.3	22
	Nickel	12.2	23.6	64 *
	Zinc	17	21.7	24

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

U = not detected
NC = not calculated

Sandra M. Czarnecki / Sandra M. Czarnecki 1/4/94
DATA VALIDATOR(Name/Signature) Date

TABLE 3

PAGE 3 OF 3

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 16326.09/16326.10 SAMPLE MATRIX: Soil UNITS: ug/kg

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Methylene Chloride	6.2	6.3	> 1
	Acetone	130	56	79 *
	Tetrachloroethene	6.1	1.3	129 *
	Toluene	4.4	3.4	26
SVOCs	Phenol	326	340	4
	2-Chlorophenol	293	309	5
	4-chloro-3-methyl phenol	273	232	16
	4-Nitrophenol	239	226	6
	Pentachlorophenol	171	151	12
	Bis(2-ethylhexyl)phthalate	46	41	11
Metals	Arsenic	4.03	4.98	21
	Lead	5.98	5.56	7
	Barium	240	285	17
	Chromium	15.6	17.4	11
	Mercury	U	0.123	NC
	Nickel	14.7	14.2	3
	Zinc	17.4	17.1	2

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

U = not detected

NC = not calculated

Sandra M. Czarnecki / Sandra M. Czarnecki — DATA VALIDATOR(Name/Signature)

1/4/94 — Date

tafbdup.wq1

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : U931115C
INST. BATCH: 3274
REPORTED : 12/09/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : U931115C
LOCATION:

ANALYZED : 11/15/93 23:35
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	ND	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	ND	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND Note
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	104%	BROMOFLUOROBENZENE	(74-121) 94%
1,2-DICHLOROETHANE-D4	(70-121)	92%		

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SMC 1/4/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING-SCIENCE, INC.
7800 SHOAL CREEK BOULEVARD, SUITE 222W
AUSTIN, TX 78757
ATTN: KEVIN TYNES

REPORT: 16298Vf
QA SEQ: N931118B
DATE: 12-15-93

SAMPLE MATRIX: SOIL
SWLO # METHOD BLANK
DATE ANALYZED : 11-18-93
METHOD REFERENCE: SW846-8240, EPA METHODOLOGY
DILUTION FACTOR: 1
PROJECT: TINKER AFB RFI
SAMPLE ID: VBLK5

RESULTS REPORTED IN ug/Kg or Parts Per Billion (PPB)

VOLATILES	QUANT. LIMIT	RESULTS	VOLATILES	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
BROMOMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
VINYL CHLORIDE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
CHLOROETHANE	10	ND	TRICHLOROETHENE	5	ND
METHYLENE CHLORIDE	5	ND	DIBROMOCHLOROMETHANE	5	ND
ACETONE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	BENZENE	5	ND
1,1-DICHLOROETHENE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHANE	5	ND	2-CHLOROETHYLVINYLETHER	10	ND
TOTAL-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
CHLOROFORM	5	ND	2-HEXANONE	10	ND
1,2-DICHLOROETHANE	5	ND	4-METHYL-2-PENTANONE	10	ND
2-BUTANONE	10	ND	TETRACHLOROETHENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TOLUENE	5	2.2 J
CARBON TETRACHLORIDE	5	ND	CHLOROBENZENE	5	ND
VINYL ACETATE	10	ND	ETHYLBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	STYRENE	5	ND
			TOTAL XYLENES	5	ND

Note 1

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 96% BROMOFLUOROBENZENE(74-121) 110% 1,2-DICHLOROETHANE-d4(70-121) 79%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
= ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

REPORTED : 12/15/93

PROJECT : TINKER AFB RFI
SDG: 16298

MATRIX : SOIL

SAMPLE	: 16326.12	QAQC: U931115C	ANALYZED : 11/16/93 10:41
SPIKE SAMPLE	: 16326.13	QAQC: I931117C	ANALYZED : 11/18/93 01:24
SPIKE DUP SAMPLE	: 16326.14	QAQC: I931117C	ANALYZED : 11/18/93 01:53

VOLATILE ORGANICS PRIORITY POLLUTANTS
SPIKE/SPIKE DUPLICATE RECOVERY

Parameter ug/Kg	SPIKE AMOUNT	SAMP CONC.	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD	MAX RPD	LIMITS %Rec.
1,1-DICHLOROETHENE	53		54	102	52	97	4.68	22	59-172
TRICHLOROETHENE	53		51	95	53	99	3.79	24	62-137
BENZENE	53		57	106	58	108	1.58	21	66-142
TOLUENE	53	5.8	85	148*	78	136	8.04	21	59-139
CHLOROBENZENE	53		54	100	56	104	3.79	21	60-133

QA/QC SURROGATE RECOVERIES

Parameter	SAMPLE %Rec	SPIKE %Rec	DUP %Rec	Lim
TOLUENE-D8	105	120	110	81-
BROMOFLUOROBENZENE	94	104	99	74-121
1,2-DICHLOROETHANE-D4	99	107	99	70-121

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* Outside of QC Limits

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298

DATE: 12/14/93

SWLO QAQC#: 931112-001
PROJECT : TINKER AFB RFI
SAMPLE #: 931112 BNABLK1 LB1
LOCATION:
DATE ANALYZED : 11/20/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	15.8		ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	15.8		4-NITROPHENOL	11	J
1,3-DICHLOROBENZENE	10	U	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	10	U	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	10	U	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	10	U	DIETHYLPHTHALATE	10	U
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	10	U	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	8.4	J
2,4-DIMETHYLPHENOL	10	U	PHENANTHRENE	10	U
BENZOIC ACID	50	U	ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	10	U
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	17.7		BIS(2-ETHYLHEXYL)PHTHALATE	10	U
2-METHYLNAPHTHALENE	10	U	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	10	U
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298

DATE: 12/14/93

SWLO QAQC#: 931111-001
PROJECT : TINKER AFB RFI
SAMPLE #: 931111 BNABLK2 LB1
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/11/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	273	J	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	264	J	4-NITROPHENOL	181	J
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	192	J
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	265	J	BIS(2-ETHYLHEXYL)PHTHALATE	330	U
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298

DATE: 12/14/93

SWLO QAQC#: 931112-002
PROJECT : TINKER AFB RFI
SAMPLE #: 931112 BNABLK3 LB2
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	329	J	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	304	J	4-NITROPHENOL	268	J
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	39	J
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	169	J
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	39	J
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	50	J
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	278	J	BIS(2-ETHYLHEXYL)PHTHALATE	36	J
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING-SCIENCE, INC.
7800 SHOAL CREEK BOULEVARD, SUITE 222W
AUSTIN, TX 78757
ATTN: KEVIN TYNES

REPORT: 16298Be
QA SEQ: 931121-001
DATE: 12-20-93

SAMPLE MATRIX: SOIL
SWLO # 16326.03 (MS/MSD)
METHOD REFERENCE: SW846-8270
SAMPLE ID: MATRIX SPIKE/MATRIX SPIKE DUPLICATE

DATE EXTRACTED: 11-21-93
DATE ANALYZED : 11-21-93

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS PERCENT RECOVERY	QC LIMITS RECOVERY
PHENOL	7300	0	5500	70	26 - 90
2-CHLOROPHENOL	7300	0	4600	59	25 - 102
1,4-DICHLOROBENZENE	3700	0	2000	58	28 - 104
N-NITROSO-di-n-PROPYLAMINE	3700	0	3100	84	41 - 126
1,2,4-TRICHLOROBENZENE	3700	0	2300	63	38 - 107
4-CHLORO-3-METHYLPHENOL	7300	0	4500	58	26 - 103
ACENAPHTHENE	3700	0	3100	85	31 - 137
4-NITROPHENOL	7300	0	9400	125*	11 - 114
2,4-DINITROTOLUENE	3700	0	4300	116*	28 - 89
PENTACHLOROPHENOL	7300	0	4000	53	17 - 109
PYRENE	3700	0	2600	72	35 - 142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD PERCENT RECOVERY	RPD	QC LIMITS RPD	QC LIMITS RECOVERY
PHENOL	7300	4800	61	13	35	26 - 90
2-CHLOROPHENOL	7300	4900	63	6	50	25 - 102
1,4-DICHLOROBENZENE	3700	2250	61	8	27	28 - 104
N-NITROSO-di-n-PROPYLAMINE	3700	3000	81	4	38	41 - 126
1,2,4-TRICHLOROBENZENE	3700	2400	66	5	23	38 - 107
4-CHLORO-3-METHYLPHENOL	7300	5300	68	16	33	26 - 103
ACENAPHTHENE	3700	2700	81	5	19	31 - 137
4-NITROPHENOL	7300	6500	85	37	50	11 - 114
2,4-DINITROTOLUENE	3700	2900	79	39	47	28 - 89
PENTACHLOROPHENOL	7300	4700	61	15	47	17 - 109
PYRENE	3700	2800	78	8	36	35 - 142

QA/QC SURROGATE RECOVERIES

MS

NITROBENZENE-d5	(23-120) 67%	2-FLUOROBIPHENYL	(30-115) 78%	TERPHENYL-d14	(18-137) 79		
PHENOL-d5	(24-113) 56%	2-FLUOROPHENOL	(25-121) 60%	2,4,6-TRIBROMOPHENOL	(19-122) 11		

MSD

NITROBENZENE-d5	(23-120) 66%	2-FLUOROBIPHENYL	(30-115) 76%	TERPHENYL-d14	(18-137) 80%		
PHENOL-d5	(24-113) 55%	2-FLUOROPHENOL	(25-121) 64%	2,4,6-TRIBROMOPHENOL	(19-122) 65%		

*VALUES OUTSIDE OF QC LIMITS

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING SCIENCES, INC.

SDG: 16298cd
REPORT DATE: 12-10-93

MATRIX: **SOIL**
SAMPLE ID: **I24.2SB7MS113.5-14.5**
REPORTED ON DRY WT BASIS

MATRIX SPIKE

PARAMETER	DATE ANALYZED	SAMPLE CONC. (mg/Kg)	SPIKE CONC. (mg/Kg)	MS CONC. (mg/Kg)	MS % RECOVERY	CONTROL LIMITS
ARSENIC	11/18/93	9.98	223	202	86	75-125
LEAD	11/18/93	9.87	55.8	55.9	83	75-125
SELENIUM	11/18/93	< 0.561	223	177	79	75-125
BARIUM	11/16/93	676	223	728	23*	75-125
CADMIUM	11/16/93	< 0.336	5.58	4.35	78	75-125
CHROMIUM	11/16/93	19.8	22.3	28.0	37*	75-125
NICKEL	11/16/93	26.2	55.8	67.8	75	75-125
ZINC	11/16/93	39.5	55.8	71.8	58*	75-125
MERCURY	11/15/93	< 0.112	0.558	0.759	136*	75-125
SILVER	11/27/93	< 0.112	5.58	5.13	92	75-125
TOTAL CN	11/15/93	< 0.561	5.58	5.58	100	75-125

SAMPLE ID: **I24.9SB2 MS1 2-4**

ARSENIC	11/18/93	3.00	214	206	95	75-125
LEAD	11/18/93	7.71	53.5	56.6	91	75-125
SELENIUM	11/18/93	0.535	214	201	94	75-125
BARIUM	11/16/96	397	214	617	103	75-125
CADMIUM	11/16/93	< 0.321	5.35	5.14	96	75-125
CHROMIUM	11/16/93	26.6	21.4	43.1	77	75-125
NICKEL	11/16/93	13.9	53.5	61.5	89	75-125
ZINC	11/16/93	17.9	53.5	63.7	86	75-125
MERCURY	11/15/93	< 0.107	0.535	0.489	91	75-125
SILVER	11/27/93	< 0.214	5.35	5.24	94	75-125
TOTAL CN	11/15/93	< 0.535	5.35	5.03	94	75-125

* OUTSIDE CONTROL LIMITS

SMC
1/5/94

QC/lb/dn

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING SCIENCES, INC.

SDG: 16298dd
REPORT DATE: 12-10-93

MATRIX: **SOIL**
SAMPLE ID: **I24.2SB7SD113.5-14.5**
REPORTED ON DRY WEIGHT BASIS

MATRIX SPIKE DUPLICATE PRECISION DATA

PARAMETER	MS CONC. (mg/Kg)	MSD CONC. (mg/Kg)	RELATIVE PERCENT DIFFERENCE	CONTROL LIMIT MAX RPD
ARSENIC	202	217	7.2	20
LEAD	55.9	59.4	6.1	20
SELENIUM	177	201	13	20
BARIUM	728	876	18.0	20
CADMIUM	4.35	4.57	5.0	20
CHROMIUM	28.0	34.7	21*	20
NICKEL	67.8	72.8	7.1	20
ZINC	71.8	83.4	15.0	20
MERCURY	0.759	0.491	43*	20
SILVER	5.13	5.02	2.2	20
TOTAL CN	5.58	5.58	0	20
MATRIX SPIKE:	**I24.9SB2 SD1 2-4**			
ARSENIC	206	204	1.0	20
LEAD	56.6	55.8	1.4	20
SELENIUM	201	199	1.0	20
BARIUM	617	542	13	20
CADMIUM	5.14	4.78	7.3	20
CHROMIUM	43.1	41.1	4.8	20
NICKEL	61.5	59.3	3.6	20
ZINC	63.7	61.4	3.7	20
MERCURY	0.489	0.496	1.4	20
SILVER	5.24	5.20	0.8	20
TOTAL CN	5.03	5.10	1.4	20

* OUTSIDE CONTROL LIMITS

SMC 1/5/94

QC/lb/dn

16298

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS **ES**

PROJECT NAME/LOCATION: TINKER AFB, OK

PROJECT NUMBER: AU401.08

CARRIER: ☒ Federal Express ☐ UPS Other

AIRBILL OR CARRIER ID #: 850306 2713

SAMPLER(S): M. HARDER R. NELSON

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (8240)	SemiVOA (8270)	Metals (6010)	CN (9010)	TPH (8015)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/10/93	–	FIELDQC		TB1	WQ	NA	0	0	2	X					1	1	1	A	
	1315	FIELDQC		AB1	WQ	NA	0	0	2	X					1	1	1	A	
	1327	FIELDQC		EB1	WQ	NA	0	0	8	X	X	X	X	X	1	1	1	A	
	0900	I24.2SB7		N1	SO	H	5.5	7	3	X	X	X	X		1	1	1	A	
	~~1010~~ & 1010	↓		FR1	SO	H	5.5	7	3	X	X	X	X		1	1	1	A	
	1010			N1	SO	H	13.5	14.5	3	X	X	X	X		1	1	1	A	
	↓	↓		MS1	SO	H	13.5	14.5	3	X	X	X	X		1	1	1	A	
				SD1	SO	H	13.5	14.5	3	X	X	X	X		1	1	1	A	
	1230	I24.2SB8		N1	SO	H	5	6	3	X	X	X	X		1	1	1	A	
	↓	↓		FR1	SO	H	5	6	3	X	X	X	X		1	1	1	A	
	1335	↓		N1	SO	H	15.5	16	3	X	X	X	X		1	1	1	A	

PRESERVATIVE

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

REMARKS

Relinquished by: (Signature) — Date 11/10/93 Time 1830

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) K. Hollis — Date 11/11/93 Time 0900

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

chain.dwg

(illegible) 2 of 2

16298

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: ☒ Federal Express ☐ UPS Other

PROJECT NUMBER: AL4401.08

AIRBILL OR CARRIER ID #: 8503062713

SAMPLER(S): M. HARDER R. NELSON

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	No. of Containers	VOA (8240)	SemiVOA (8270)	CN (9010)	Metal (6010)	TPH (8015mod)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/10/93	–	FIELDQC		TB2	WQ	NA	0	0	2	X					1	1	1	B	
	0814	S32.5SB3		N1	SO	SS	2	4	3	X	X	X	X		1	1	1	B	
	0814	↓		FR1	SO	SS	2	4	3	X	X	X	X		1	1	1	B	
	0847	↓		N1	SO	SS	6	7.5	3	X	X	X	X		1	1	1	B	
	0957	I24.9SB2		N1	SO	SS	2	4	3	X	X	X	X		1	1	1	B	
	↓	↓		MS1	SO	SS	2	4	3	X	X	X	X		1	1	1	B	
	↓	↓		SD1	SO	SS	2	4	3	X	X	X	X		1	1	1	B	
	1206	RCP1SB2		N1	SO	SS	4	6	4	X	X	X	X	X	1	1	1	B	
	1236	↓		N1	SO	SS	6	8	4	X	X	X	X	X	1	1	1	B	
	1503	RCP1SB3		N1	SO	SS	0	1.5	4	X	X	X	X	X	1	1	1	B	
↓	1536	↓		N11	SO	SS	4	6	4	X	X	X	X	X	1	1	1	B	

Samples from 4 NOV 93 were incorrectly labeled as I24.9SB2 - they should be I24.8SB2 - the IRPIMS should be changed accordingly.

Relinquished by: (Signature) Date 11/10/93 Time 1830

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: (Signature) Date 11/11/93 Time 0900

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

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16298

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: [X] Federal Express [ ] UPS
Other

PROJECT NUMBER: AU 401.08

AIRBILL OR CARRIER ID #: 850306 2724

SAMPLER(S): M. HARDER R. NELSON

(Signature)

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	ANALYSIS REQUIRED: VOA 8240	SVOA 8270	Metals 6010	CN 9010	PRESERVATIVE	FIELD LOT CONTROL NUMBER: Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11-9-93	—	Field QC		TB1	WQ	NA	0	0	2	X									
	1105	IZ4.2SB5		N1	SO	H	5.0	6.0	3	X	X	X	X				0	0	1 A
	1205	IZ4.2SB5		N1	SO	H	13.0	13.5	3	X	X	X	X				0	0	1 A
	1510	IZ4.2SB6		N1	SO	H	5.5	6.5	3	X	X	X	X				0	0	1 A
	1605	IZ4.2SB6		N1	SO	H	17.0	18.0	3	X	X	X	X				0	0	1 A
	1045	IZ4.8SB4		N1	SO	SS	4.0	5.5	3	X	X	X	X				0	0	1 A
	1710	IZ4.8SB4		N1	SO	SS	8.0	9.5	3	X	X	X	X				0	0	1 A
	~~1053~~	~~IZ4.8~~ RN																	
	1053	IZ4.12SB5		N1	SO	SS	6.0	7.5	3	X	X	X	X				0	0	1 A

Relinquished by: (Signature) — Date 11-9-93 Time 1750
Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time
Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time
Received by: (Signature) — Date 11/10/93 Time 0845

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.05

DATE: 12/20/93

SWLO #: 16326.05 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 13.50
DEPTH TO : 14.50
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4830	J1 ~~B~~	ACENAPHTHENE	2970	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	4930	J1 ~~B~~	4-NITROPHENOL	6500	~~B~~ ~~J1~~ ~~J~~ J
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2240		2,4-DINITROTOLUENE	2910	J4
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	2970		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	4690	~~B~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	2420		PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	41	~~JB~~ J1
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	5290	J1 ~~B~~	BIS(2-ETHYLHEXYL)PHTHALATE	60	~~JB~~ J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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1/5/94

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1710 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

INEERING SCIENCE, INC.
00 SHOAL CREEK BLVD.
ITE 222W
STIN, TX 78757
tn: KEVIN TYNES

REPORT: 16326.05

DATE: 12/14/93

LO #: 16326.05 SD1
OJECT : TINKER AFB RFI
MPLE #: I24.2SB7
CATION:
TE ANALYZED : 11/16/93
THOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 13.50
DEPTH TO : 14.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

ATILE ORGANIC COMPOUNDS
SULTS REPORT IN ug/kg

AMETER	RESULTS**		PARAMETER	RESULTS**	
OROMETHANE	11	U	TRICHLOROETHENE	52	
MOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
YL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
OROETHANE	11	U	BENZENE	56	
HYLENE CHLORIDE	5.6	U	CIS-1,3-DICHLOROPROPENE	5.6	U
E	12	J4	2-CHLOROETHYL VINYL ETHER	11	U
DISULFIDE	5.6	U	BROMOFORM	5.6	U
-DICHLOROETHENE	51		2-HEXANONE	11	U
-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
ORORM	5.6	U	TETRACHLOROETHENE	5.6	U
-DICHLOROETHANE	5.6	U	TOLUENE	55	~~J1~~ J6
,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	55	
BON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
TL ACETATE	11	U	STYRENE	5.6	U
IODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
.2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
IS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

ENE-D8	(81-117)	96% ✓	BROMOFLUOROBENZENE	(74-121)	91% ✓
DICHLOROETHANE-D4	(70-121)	96% ✓			

SULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.05

DATE: 12/14/93

SWLO #: 16326.05 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 13.50
DEPTH TO : 14.50

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	217	mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	59.4	mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	201	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	876 ~~J4~~ J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	4.57	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	34.7 J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.491 J4	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	72.8 J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	5.02	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	83.4 J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.06

DATE: 12/14/93

SWLO #: 16326.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB8
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.20

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	1.2	(J4)	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	90	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	1.3	(J4)
1,2-DICHLOROETHANE	6	U	TOLUENE	2.9	~~J4~~ J6
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	6	U
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 105% ✓	BROMOFLUOROBENZENE	(74-121) 95% ✓
1,2-DICHLOROETHANE-D4	(70-121) 101% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-25

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.06

DATE: 12/14/93

SWLO #: 16326.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB8
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	292	J1 ~~JB~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	255	J1 ~~JB~~	4-NITROPHENOL	188	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	174	~~JB~~ J1
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	61	~~JB~~ J1
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	254	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	400	U
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.06

DATE: 12/14/93

SWLO #: 16326.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB8
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.00
DEPTH TO : 6.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	5.17		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	6.62		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.602	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	310	J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.361	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	23.5	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.12	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	12.2	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.12	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	17	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1710 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.07

DATE: 12/14/93

SWLO #: 16326.07 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB8
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.20

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	4	(J4)	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	70	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	1.4	(J4)
1,2-DICHLOROETHANE	6	U	TOLUENE	5.5	~~J1~~ J6
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	6	U
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	6	U
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	103% ✓	BROMOFLUOROBENZENE	(74-121)	91% ✓
1,2-DICHLOROETHANE-D4	(70-121)	99% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1710 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-3599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.07

DATE: 12/14/93

SWLO #: 16326.07 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB8
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	207	J1 ~~JB~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	188	J1 ~~JB~~	4-NITROPHENOL	1900	U
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	1900	U
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	153	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	47	~~JB~~ J1
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

1590 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.07

DATE: 12/14/93

SWLO #: 16326.07 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB8
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.00
DEPTH TO : 6.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	6.39		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	7.84		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.844		mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	893	~~J4~~ J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.362	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	29.3	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.12	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	23.6	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.12	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	21.7	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.08

DATE: 12/14/93

SWLO #: 16326.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB8
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 15.50
DEPTH TO : 16.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	3.2	(J4)	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	150	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	1.6	~~J1~~ J6
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	3.3	(J5)
TRANS-1,3-DICHLOROPROPENE	5.7	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98% ✓	BROMOFLUOROBENZENE	(74-121)	93% ✓
1,2-DICHLOROETHANE-D4	(70-121)	97% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.08

DATE: 12/14/93

SWLO #: 16326.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB8
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 15.50
DEPTH TO : 16.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	334	J1 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	299	J1 ~~JB~~	4-NITROPHENOL	205	~~JB~~ ~~J1~~ J-
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	159	~~JB~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	207	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	36	~~JB~~ J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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7800 SHOAL CREEK BLVD.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.08

DATE: 12/14/93

SWLO #: 16326.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB8
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 15.50
DEPTH TO : 16.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	4.22		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	11.6		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.57	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	127	J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.342	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	14.9	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.114	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	18.6	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.114	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	25.9	J4	mg/kg	11/15/93	11/16/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.09

DATE: 12/14/93

SWLO #: 16326.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB3
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00
DATE PREPARED : / /
DILUTION FACTOR: 1.15

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	6.2	J4	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	130	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	6.1	
1,2-DICHLOROETHANE	5.8	U	TOLUENE	4.4	~~J~~ J6
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	101%	BROMOFLUOROBENZENE	(74-121)	88%
1,2-DICHLOROETHANE-D4	(70-121)	96%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/5/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.09

DATE: 12/14/93

SWLO #: 16326.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB3
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	326	~~J1 JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	293	~~J1 JB~~	4-NITROPHENOL	239	~~JB J1~~ J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	171	~~JB~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	273	~~J1 JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	46	~~JB~~ J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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1/5/94

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.09

DATE: 12/14/93

SWLO #: 16326.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB3
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	4.03		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	5.98		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.575	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	240	J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.345	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	15.6	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.115	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	14.7	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.115	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	17.4	J4	mg/kg	11/15/93	11/16/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.10

DATE: 12/14/93

SWLO #: 16326.10 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB3
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	6.3	J4	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	56	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	1.3	(J4)
1,2-DICHLOROETHANE	5.8	U	TOLUENE	3.4	~~J~~ J1 J6
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 101%	BROMOFLUOROBENZENE	(74-121) 94%
1,2-DICHLOROETHANE-D4	(70-121) 99%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.10

DATE: 12/14/93

SWLO #: 16326.10 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB3
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	340	J1 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	309	J1 ~~JB~~	4-NITROPHENOL	226	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	151	~~JB~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	232	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	41	~~JB~~ J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.10

DATE: 12/14/93

SWLO #: 16326.10 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB3
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	4.98		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	5.56		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.579	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	285	J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.347	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	17.4	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.123	J4	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	14.2	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.116	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	17.1	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.11

DATE: 12/14/93

SWLO #: 16326.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB3
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 6.00
DEPTH TO : 7.50
DATE PREPARED : / /
DILUTION FACTOR: 1.24

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6.2	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6.2	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6.2	U
CHLOROETHANE	12	U	BENZENE	6.2	U
METHYLENE CHLORIDE	5	(J4)	CIS-1,3-DICHLOROPROPENE	6.2	U
ACETONE	120	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6.2	U	BROMOFORM	6.2	U
1,1-DICHLOROETHENE	6.2	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6.2	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6.2	U	TETRACHLOROETHENE	1.4	(J4)
1,2-DICHLOROETHANE	6.2	U	TOLUENE	2.1	~~J1~~ J6
1,1,1-TRICHLOROETHANE	6.2	U	CHLOROBENZENE	6.2	U
CARBON TETRACHLORIDE	6.2	U	ETHYLBENZENE	6.2	U
VINYL ACETATE	12	U	STYRENE	6.2	U
BROMODICHLOROMETHANE	6.2	U	1,2-DICHLOROETHENE(TOTAL)	6.2	U
1,1,2,2-TETRACHLOROETHANE	6.2	U	XYLENE (TOTAL)	6.2	U
1,2-DICHLOROPROPANE	6.2	U	2-BUTANONE	2	(J5)
TRANS-1,3-DICHLOROPROPENE	6.2	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	97%	BROMOFLUOROBENZENE	(74-121)	95%
1,2-DICHLOROETHANE-D4	(70-121)	95%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.11

DATE: 12/14/93

SWLO #: 16326.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB3
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 6.00
DEPTH TO : 7.50
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	168	J1 ~~JB~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	339	J1 ~~JB~~	4-NITROPHENOL	188	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	102	~~JB~~ J1
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	191	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	400	U
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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REPORT: 16326.11

DATE: 12/14/93

SWLO #: 16326.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB3
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 6.00
DEPTH TO : 7.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.61		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	2.35		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.868		mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	38.2	~~J4~~ J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.372	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	6.44	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.124	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	4.96	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.124	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	6.44	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.12

DATE: 12/14/93

SWLO #: 16326.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.9SB2
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.4	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	5.4	U
METHYLENE CHLORIDE	1.2	(J4)	CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	16	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	10	J4
1,2-DICHLOROETHANE	5.4	U	TOLUENE	5.8	~~J4~~ J6
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE(TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 105% ✓	BROMOFLUOROBENZENE	(74-121) 94% ✓
1,2-DICHLOROETHANE-D4	(70-121) 99% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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INEERING SCIENCE, INC.
0 SHOAL CREEK BLVD.
TE 222W
TIN, TX 78757
n: KEVIN TYNES

REPORT: 16326.12

DATE: 12/14/93

O #: 16326.12 N1
JECT : TINKER AFB RFI
PLE #: I24.9SB2
ATION:
E ANALYZED : 11/21/93
HOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.10

IVOLATILE ORGANIC COMPOUNDS
ULTS REPORT IN ug/kg

AMETER	RESULTS**		PARAMETER	RESULTS**	
NOL	302	J1 ~~JB~~	ACENAPHTHENE	360	U
(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
HLOROPHENOL	285	J1 ~~JB~~	4-NITROPHENOL	206	~~JB~~ ~~J1~~ J6
-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
ZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
ETHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
ETHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
ITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
ACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
ROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
PHORONE	360	U	HEXACHLOROBENZENE	360	U
ITROPHENOL	360	U	PENTACHLOROPHENOL	1800	U
-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
ZOIC ACID	1800	U	ANTHRACENE	360	U
(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
HTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
HLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
ACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
HLORO-3-METHYLPHENOL	245	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	46	~~JB~~ J1
ETHYLNAPHTHALENE	360	U	CHRYSENE	360	U
ACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.12

DATE: 12/20/93

SWLO #: 16326.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.9SB2
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	3		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	7.71		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.535		mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	397	J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.321	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	26.6	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.107	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	13.9	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.214		mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	17.9	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.13

DATE: 12/14/93

SWLO #: 16326.13 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.9SB2
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00
DATE PREPARED : / /
DILUTION FACTOR: 1.07

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	51	
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	11	U	BENZENE	57	
METHYLENE CHLORIDE	5.3	U	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	78	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	54		2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	12	J4
1,2-DICHLOROETHANE	5.3	U	TOLUENE	85	~~J1~~ J6
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	54	
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	2.2	(J5)
VINYL ACETATE	11	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE(TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	13	
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 120% *	BROMOFLUOROBENZENE	(74-121) 104% ✓
1,2-DICHLOROETHANE-D4	(70-121) 107% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.13

DATE: 12/14/93

SWLO #: 16326.13 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.9SB2
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	5160	J1 ~~B~~	ACENAPHTHENE	2880	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	5310	J1 ~~B~~	4-NITROPHENOL	5670	~~B~~ ~~J1~~ J1 J1
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2200		2,4-DINITROTOLUENE	2970	J4
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	3130		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	4240	~~B~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	58	(J5)
1,2,4-TRICHLOROBENZENE	2460		PYRENE	2640	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	55	~~JB~~ J1
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	4780	J1 ~~B~~	BIS(2-ETHYLHEXYL)PHTHALATE	45	~~JB~~ J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.13

DATE: 12/14/93

SWLO #: 16326.13 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.9SB2
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	206	mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	56.6	mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	201	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	617 J4 J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	5.14	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	43.1 J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.489 J4	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	61.5 J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	5.24	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	63.7 J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.14

DATE: 12/14/93

SWLO #: 16326.14 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.9SB2
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00
DATE PREPARED : / /
DILUTION FACTOR: 1.06

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	53	
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	11	U	BENZENE	58	
METHYLENE CHLORIDE	5.3	U	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	60	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	52		2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	22	J4
1,2-DICHLOROETHANE	5.3	U	TOLUENE	78	J1 J6
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	56	
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	2	(J5)
VINYL ACETATE	11	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE(TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	12	
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 110% ✓	BROMOFLUOROBENZENE	(74-121) 99% ✓
1,2-DICHLOROETHANE-D4	(70-121) 99% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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12/14/94

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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.14

DATE: 12/20/93

SWLO #: 16326.14 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.9SB2
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4580	J1 ~~B~~	ACENAPHTHENE	2780	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	4670	J1 ~~B~~	4-NITROPHENOL	5940	~~EB~~ ~~J~~ J2 J4
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2130		2,4-DINITROTOLUENE	3070	J4
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	2770		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	3590	~~B~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	2400		PYRENE	2690	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	52	~~JB~~ J1
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	4760	J1 ~~B~~	BIS(2-ETHYLHEXYL)PHTHALATE	43	~~JB~~ J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.14

DATE: 12/14/93

SWLO #: 16326.14 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.9SB2
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 2.00
DEPTH TO : 4.00

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	204	mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	55.8	mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	199	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	542 ~~J4~~ J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	4.78	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	41.1 J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.496 J4	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	59.3 J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	5.2	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	61.4 J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.15

DATE: 12/14/93

SWLO #: 16326.15 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB2
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 6.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	61	U	TRICHLOROETHENE	31	U
BROMOMETHANE	61	U	DIBROMOCHLOROMETHANE	31	U
VINYL CHLORIDE	61	U	1,1,2-TRICHLOROETHANE	31	U
CHLOROETHANE	61	U	BENZENE	32	
METHYLENE CHLORIDE	31	U	CIS-1,3-DICHLOROPROPENE	31	U
ACETONE	530	J4	2-CHLOROETHYL VINYL ETHER	61	U
CARBON DISULFIDE	31	U	BROMOFORM	31	U
1,1-DICHLOROETHENE	31	U	2-HEXANONE	61	U
1,1-DICHLOROETHANE	31	U	4-METHYL-2-PENTANONE	61	U
CHLOROFORM	31	U	TETRACHLOROETHENE	31	U
1,2-DICHLOROETHANE	31	U	TOLUENE	55	~~J~~ J6
1,1,1-TRICHLOROETHANE	31	U	CHLOROBENZENE	420	
CARBON TETRACHLORIDE	31	U	ETHYLBENZENE	130	
VINYL ACETATE	61	U	STYRENE	31	U
BROMODICHLOROMETHANE	31	U	1,2-DICHLOROETHENE(TOTAL)	31	U
1,1,2,2-TETRACHLOROETHANE	31	U	XYLENE (TOTAL)	400	
1,2-DICHLOROPROPANE	31	U	2-BUTANONE	61	U
TRANS-1,3-DICHLOROPROPENE	31	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 115%	-	BROMOFLUOROBENZENE	(74-121) 106% -
1,2-DICHLOROETHANE-D4	(70-121) 108%	-		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16326.15

DATE: 12/14/93

SWLO #: 16326.15 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB2
LOCATION:
DATE ANALYZED : 11/23/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 6.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	397	J1 ~~JB~~	ACENAPHTHENE	2000	U
BIS(2-CHLOROETHYL)ETHER	2000	U	2,4-DINITROPHENOL	9600	U
2-CHLOROPHENOL	305	J1 ~~JB~~	4-NITROPHENOL	9600	U
1,3-DICHLOROBENZENE	2000	U	DIBENZOFURAN	2000	U
1,4-DICHLOROBENZENE	2000	U	2,4-DINITROTOLUENE	2000	U
BENZYL ALCOHOL	2000	U	2,6-DINITROTOLUENE	2000	U
1,2-DICHLOROBENZENE	2000	U	DIETHYLPHTHALATE	2000	U
2-METHYLPHENOL(O-CRESOL)	2000	U	4-CHLOROPHENYL-PHENYLETHER	2000	U
BIS(2-CHLOROISOPROPYL)ETHER	2000	U	FLUORENE	2000	U
4-METHYLPHENOL(P-CRESOL)	2000	U	4-NITROANILINE	9600	U
N-NITROSO-DI-N-PROPYLAMINE	2000	U	4,6-DINITRO-2-METHYLPHENOL	9600	U
HEXACHLOROETHANE	2000	U	N-NITROSODIPHENYLAMINE(1)	2000	U
NITROBENZENE	2000	U	4-BROMOPHENYL-PHENYLETHER	2000	U
ISOPHORONE	2000	U	HEXACHLOROBENZENE	2000	U
2-NITROPHENOL	2000	U	PENTACHLOROPHENOL	9600	U
2,4-DIMETHYLPHENOL	2000	U	PHENANTHRENE	2000	U
BENZOIC ACID	9600	U	ANTHRACENE	2000	U
BIS(2-CHLOROETHOXY)METHANE	2000	U	DI-N-BUTYL PHTHALATE	2000	U
2,4-DICHLOROPHENOL	2000	U	FLUORANTHENE	2000	U
1,2,4-TRICHLOROBENZENE	2000	U	PYRENE	2000	U
NAPHTHALENE	2000	U	BUTYL BENZYL PHTHALATE	2000	U
4-CHLOROANILINE	2000	U	3,3'-DICHLOROBENZIDINE	4000	U
HEXACHLOROBUTADIENE	2000	U	BENZO(A)ANTHRACENE	2000	U
4-CHLORO-3-METHYLPHENOL	359	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	581	~~JB~~ J1
2-METHYLNAPHTHALENE	612	JS	CHRYSENE	2000	U
HEXACHLOROCYCLOPENTADIENE	2000	U	DI-N-OCTYL PHTHALATE	2000	U
2,4,6-TRICHLOROPHENOL	2000	U	BENZO(B)FLUORANTHENE	2000	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.15

DATE: 12/14/93

SWLO #: 16326.15 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB2
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 4.00
DEPTH TO : 6.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	3.31		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	8.71		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.736		mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	632	J4 J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.368	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	21.8	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.123	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	13.1	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.123	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	18	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.16

DATE: 12/14/93

SWLO #: 16326.16 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB2
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	150	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	14	
TRANS-1,3-DICHLOROPROPENE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 107% ✓	BROMOFLUOROBENZENE	(74-121) 106% ✓
,2-DICHLOROETHANE-D4	(70-121) 106% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.16

DATE: 12/14/93

SWLO #: 16326.16 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB2
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	320	J1 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	350	J1 ~~JB~~	4-NITROPHENOL	354	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	95	~~JB~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	244	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	67	~~JB~~ J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.16

DATE: 12/14/93

SWLO #: 16326.16 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB2
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 6.00
DEPTH TO : 8.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	3.01		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	10.2		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.579	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	349	~~J4~~ J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.347	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	53.6	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.116	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	21	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.116	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	23.4	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.17

DATE: 12/14/93

SWLO #: 16326.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB3
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 1.50
DATE PREPARED : / /
DILUTION FACTOR: 144.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	1400	U	TRICHLOROETHENE	720	U
BROMOMETHANE	1400	U	DIBROMOCHLOROMETHANE	720	U
VINYL CHLORIDE	1400	U	1,1,2-TRICHLOROETHANE	720	U
CHLOROETHANE	1400	U	BENZENE	720	U
METHYLENE CHLORIDE	190	(J4)	CIS-1,3-DICHLOROPROPENE	720	U
ACETONE	6600	J4	2-CHLOROETHYL VINYL ETHER	1400	U
CARBON DISULFIDE	720	U	BROMOFORM	720	U
1,1-DICHLOROETHENE	720	U	2-HEXANONE	1400	U
1,1-DICHLOROETHANE	720	U	4-METHYL-2-PENTANONE	2400	
CHLOROFORM	720	U	TETRACHLOROETHENE	720	U
1,2-DICHLOROETHANE	720	U	TOLUENE	24000	~~B~~ ~~J1~~ J6
1,1,1-TRICHLOROETHANE	720	U	CHLOROBENZENE	280	(J5)
CARBON TETRACHLORIDE	720	U	ETHYLBENZENE	2100	
VINYL ACETATE	1400	U	STYRENE	720	U
BROMODICHLOROMETHANE	720	U	1,2-DICHLOROETHENE(TOTAL)	720	U
1,1,2,2-TETRACHLOROETHANE	720	U	XYLENE (TOTAL)	13000	
1,2-DICHLOROPROPANE	720	U	2-BUTANONE	4500	
TRANS-1,3-DICHLOROPROPENE	720	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	103% ✓	BROMOFLUOROBENZENE	(74-121) 114% —
1,2-DICHLOROETHANE-D4	(70-121)	105% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.17

DATE: 12/14/93

SWLO #: 16326.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB3
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 1.50
DATE PREPARED : 11/12/93
DILUTION FACTOR: 5.70

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	1900	U	ACENAPHTHENE	1900	U
BIS(2-CHLOROETHYL)ETHER	1900	U	2,4-DINITROPHENOL	9100	U
2-CHLOROPHENOL	1900	U	4-NITROPHENOL	9100	U
1,3-DICHLOROBENZENE	1900	U	DIBENZOFURAN	1900	U
1,4-DICHLOROBENZENE	1900	U	2,4-DINITROTOLUENE	1900	U
BENZYL ALCOHOL	1900	U	2,6-DINITROTOLUENE	1900	U
1,2-DICHLOROBENZENE	625	(JS)	DIETHYLPHTHALATE	1900	U
2-METHYLPHENOL(O-CRESOL)	1170	(JS)	4-CHLOROPHENYL-PHENYLETHER	1900	U
BIS(2-CHLOROISOPROPYL)ETHER	1900	U	FLUORENE	1900	U
4-METHYLPHENOL(P-CRESOL)	1900	U	4-NITROANILINE	9100	U
N-NITROSO-DI-N-PROPYLAMINE	1900	U	4,6-DINITRO-2-METHYLPHENOL	9100	U
HEXACHLOROETHANE	1900	U	N-NITROSODIPHENYLAMINE(1)	1900	U
NITROBENZENE	1900	U	4-BROMOPHENYL-PHENYLETHER	1900	U
ISOPHORONE	1900	U	HEXACHLOROBENZENE	1900	U
2-NITROPHENOL	1900	U	PENTACHLOROPHENOL	9100	U
2,4-DIMETHYLPHENOL	1900	U	PHENANTHRENE	1900	U
BENZOIC ACID	9100	U	ANTHRACENE	1900	U
BIS(2-CHLOROETHOXY)METHANE	1900	U	DI-N-BUTYL PHTHALATE	1900	U
2,4-DICHLOROPHENOL	1900	U	FLUORANTHENE	1900	U
1,2,4-TRICHLOROBENZENE	1900	U	PYRENE	1900	U
NAPHTHALENE	1450	(JS)	BUTYL BENZYL PHTHALATE	1900	U
4-CHLOROANILINE	1900	U	3,3'-DICHLOROBENZIDINE	3800	U
HEXACHLOROBUTADIENE	1900	U	BENZO(A)ANTHRACENE	1900	U
4-CHLORO-3-METHYLPHENOL	1900	U	BIS(2-ETHYLHEXYL)PHTHALATE	2470	~~B~~ J
2-METHYLNAPHTHALENE	3910		CHRYSENE	1900	U
HEXACHLOROCYCLOPENTADIENE	1900	U	DI-N-OCTYL PHTHALATE	1900	U
2,4,6-TRICHLOROPHENOL	1900	U	BENZO(B)FLUORANTHENE	1900	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.17

DATE: 12/14/93

SWLO #: 16326.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB3
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 1.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	2.31		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	40.6		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.576	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	334	~~J4~~ J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	11.1		mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	74.9	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.159	J4	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	39.9	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	1.5		mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	22.1	J4	mg/kg	11/15/93	11/16/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.18

DATE: 12/14/93

SWLO #: 16326.18 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB3
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.20

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	6	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	6	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	6	U
CHLOROETHANE	12	U	BENZENE	6	U
METHYLENE CHLORIDE	6	U	CIS-1,3-DICHLOROPROPENE	6	U
ACETONE	220	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6	U	BROMOFORM	6	U
1,1-DICHLOROETHENE	6	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6	U	TETRACHLOROETHENE	6	U
1,2-DICHLOROETHANE	6	U	TOLUENE	6	U
1,1,1-TRICHLOROETHANE	6	U	CHLOROBENZENE	6	U
CARBON TETRACHLORIDE	6	U	ETHYLBENZENE	1.5	J5
VINYL ACETATE	12	U	STYRENE	6	U
BROMODICHLOROMETHANE	6	U	1,2-DICHLOROETHENE(TOTAL)	6	U
1,1,2,2-TETRACHLOROETHANE	6	U	XYLENE (TOTAL)	23	
1,2-DICHLOROPROPANE	6	U	2-BUTANONE	14	
TRANS-1,3-DICHLOROPROPENE	6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 108%	BROMOFLUOROBENZENE	(74-121) 106%
1,2-DICHLOROETHANE-D4	(70-121) 103%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16326.18

DATE: 12/14/93

SWLO #: 16326.18 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB3
LOCATION:
DATE ANALYZED : 11/23/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 4.00
DEPTH TO : 6.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	165	J1 ~~JB~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	130	J1 ~~JB~~	4-NITROPHENOL	77	~~JB~~ ~~J1~~ J1
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	120	~~JB~~ J1
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	44	(J5)
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	59	(J5)	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	127	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	185	~~JB~~ J1
2-METHYLNAPHTHALENE	225	(J5)	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.18

DATE: 12/14/93

SWLO #: 16326.18 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB3
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 4.00
DEPTH TO : 6.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.68		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	8.62		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.598	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	594	J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	2.15		mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	76.9	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.12	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	23.6	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.838		mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	16.4	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.19

DATE: 12/14/93

SWLO #: 16326.19 EB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	1.9	J4	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	42		TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	106% ✓	BROMOFLUOROBENZENE	(86-115)	101% ✓
1,2-DICHLOROETHANE-D4	(76-114)	97% ✓			

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.19

DATE: 12/14/93

SWLO #: 16326.19 EB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	17	J1 ~~B~~	ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	17	J1 ~~B~~	4-NITROPHENOL	13	~~JB~~ ~~J~~ J6
1,3-DICHLOROBENZENE	10	U	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	10	U	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	10	U	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	10	U	DIETHYLPHTHALATE	10	U
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	10	U	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	8.8	~~JB~~ J1
2,4-DIMETHYLPHENOL	10	U	PHENANTHRENE	10	U
BENZOIC ACID	50	U	ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	10	U
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	18	J1 ~~B~~	BIS(2-ETHYLHEXYL)PHTHALATE	10	U
2-METHYLNAPHTHALENE	10	U	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	10	U
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.21

DATE: 12/14/93

SWLO #: 16326.21 AB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	2	J5	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	44		TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	1	J5	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 101% ✓	BROMOFLUOROBENZENE	(86-115) 100% ✓
1,2-DICHLOROETHANE-D4	(76-114) 99% ✓		

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.02

DATE: 12/14/93

SWLO #: 16298.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB5
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**		
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U	
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U	
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U	
CHLOROETHANE	12	U	BENZENE	5.8	U	
METHYLENE CHLORIDE	7.7	J4	CIS-1,3-DICHLOROPROPENE	5.8	U	
ACETONE	160	J4	2-CHLOROETHYL VINYL ETHER	12	U	
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U	
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U	
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U	
CHLOROFORM	5.8	U	TETRACHLOROETHENE	2.9	J5	J6
1,2-DICHLOROETHANE	5.8	U	TOLUENE	4.1	J1	J6
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U	
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U	
VINYL ACETATE	12	U	STYRENE	5.8	U	
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U	
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U	
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12		
TRANS-1,3-DICHLOROPROPENE	5.8	U				

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	104% ✓	BROMOFLUOROBENZENE	(74-121) 92% ✓
1,2-DICHLOROETHANE-D4	(70-121)	97% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.02

DATE: 12/14/93

SWLO #: 16298.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB5
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : 11/11/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	460	J1 ~~B~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	406	J1 ~~B~~	4-NITROPHENOL	415	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	472	~~JB~~ J1
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	115	(J5)
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	102	~~J~~ J5
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	488	J1 ~~B~~	BIS(2-ETHYLHEXYL)PHTHALATE	400	U
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.02

DATE: 12/14/93

SWLO #: 16298.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB5
LOCATION:

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.00
DEPTH TO : 6.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.17	U	mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	1.87		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.584	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	107	~~J4~~ J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	2.69		mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	31	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.117	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	6.43	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.117	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	4.32	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.03

DATE: 12/14/93

SWLO #: 16298.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB5
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 13.00
DEPTH TO : 13.50
DATE PREPARED : / /
DILUTION FACTOR: 1.09

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	5.5	U
METHYLENE CHLORIDE	4.2 J6	~~B5~~	CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	7.7 J6	~~J3~~	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.5	U	TETRACHLOROETHENE	5.5	U
1,2-DICHLOROETHANE	5.5	U	TOLUENE	1.9	~~J1~~ J6
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE(TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	100% ✓	BROMOFLUOROBENZENE	(74-121)	94% ✓
1,2-DICHLOROETHANE-D4	(70-121)	95% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.03

DATE: 12/14/93

SWLO #: 16298.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB5
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 13.00
DEPTH TO : 13.50
DATE PREPARED : 11/11/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	340	J1 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	304	J1 ~~JB~~	4-NITROPHENOL	208	~~JB~~ ~~J1~~ J
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	144	~~JB~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	290	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	360	U
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/5/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.03

DATE: 12/14/93

SWLO #: 16298.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB5
LOCATION:

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 13.00
DEPTH TO : 13.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	4.26		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	12.9		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.765		mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	165	~~J4~~ J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.328	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	12.6	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.109	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	23.7	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.109	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	26.1	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.04

DATE: 12/14/93

SWLO #: 16298.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB6
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.50
DEPTH TO : 6.50
DATE PREPARED : / /
DILUTION FACTOR: 141.79

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	1400	U	TRICHLOROETHENE	710	U
BROMOMETHANE	1400	U	DIBROMOCHLOROMETHANE	710	U
VINYL CHLORIDE	1400	U	1,1,2-TRICHLOROETHANE	710	U
CHLOROETHANE	1400	U	BENZENE	710	U
THYLENE CHLORIDE	710	U	CIS-1,3-DICHLOROPROPENE	710	U
ETONE	2900	J4	2-CHLOROETHYL VINYL ETHER	1400	U
CARBON DISULFIDE	710	U	BROMOFORM	710	U
1,1-DICHLOROETHENE	710	U	2-HEXANONE	1400	U
1,1-DICHLOROETHANE	710	U	4-METHYL-2-PENTANONE	1400	U
CHLOROFORM	710	U	TETRACHLOROETHENE	710	U
1,2-DICHLOROETHANE	710	U	TOLUENE	810	~~B~~ ~~J1~~ J6
1,1,1-TRICHLOROETHANE	710	U	CHLOROBENZENE	710	U
CARBON TETRACHLORIDE	710	U	ETHYLBENZENE	710	U
VINYL ACETATE	1400	U	STYRENE	710	U
BROMODICHLOROMETHANE	710	U	1,2-DICHLOROETHENE(TOTAL)	710	U
1,1,2,2-TETRACHLOROETHANE	710	U	XYLENE (TOTAL)	710	U
1,2-DICHLOROPROPANE	710	U	2-BUTANONE	3400	
TRANS-1,3-DICHLOROPROPENE	710	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 106% ✓	BROMOFLUOROBENZENE	(74-121) 113% ✓
2-DICHLOROETHANE-D4	(70-121) 113% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
1/4/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.04

DATE: 12/14/93

SWLO #: 16298.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB6
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.50
DEPTH TO : 6.50
DATE PREPARED : 11/11/93
DILUTION FACTOR: 1.15

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	384	J1 ~~B~~	ACENAPHTHENE	380	U
BIS(2-CHLOROETHYL)ETHER	380	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	310	J1 ~~JB~~	4-NITROPHENOL	245	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	380	U	DIBENZOFURAN	380	U
1,4-DICHLOROBENZENE	380	U	2,4-DINITROTOLUENE	380	U
BENZYL ALCOHOL	380	U	2,6-DINITROTOLUENE	380	U
1,2-DICHLOROBENZENE	380	U	DIETHYLPHTHALATE	380	U
2-METHYLPHENOL(O-CRESOL)	380	U	4-CHLOROPHENYL-PHENYLETHER	380	U
BIS(2-CHLOROISOPROPYL)ETHER	380	U	FLUORENE	380	U
4-METHYLPHENOL(P-CRESOL)	375	(J5)	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	380	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	380	U	N-NITROSODIPHENYLAMINE(1)	380	U
NITROBENZENE	380	U	4-BROMOPHENYL-PHENYLETHER	380	U
ISOPHORONE	380	U	HEXACHLOROBENZENE	380	U
2-NITROPHENOL	380	U	PENTACHLOROPHENOL	268	~~JB~~ J1
2,4-DIMETHYLPHENOL	380	U	PHENANTHRENE	380	U
BENZOIC ACID	1800	U	ANTHRACENE	380	U
BIS(2-CHLOROETHOXY)METHANE	380	U	DI-N-BUTYL PHTHALATE	380	U
2,4-DICHLOROPHENOL	380	U	FLUORANTHENE	380	U
1,2,4-TRICHLOROBENZENE	380	U	PYRENE	380	U
NAPHTHALENE	380	U	BUTYL BENZYL PHTHALATE	380	U
4-CHLOROANILINE	380	U	3,3'-DICHLOROBENZIDINE	760	U
HEXACHLOROBUTADIENE	380	U	BENZO(A)ANTHRACENE	380	U
4-CHLORO-3-METHYLPHENOL	352	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	380	U
2-METHYLNAPHTHALENE	380	U	CHRYSENE	380	U
HEXACHLOROCYCLOPENTADIENE	380	U	DI-N-OCTYL PHTHALATE	380	U
2,4,6-TRICHLOROPHENOL	380	U	BENZO(B)FLUORANTHENE	380	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.04

DATE: 12/14/93

SWLO #: 16298.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB6
LOCATION:

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.50
DEPTH TO : 6.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.7		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	0.907		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.567	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	65.8	~~J4~~ J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.34	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	35.4	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.113	U	mg/kg	11/15/93	11/15/93	SW846-7471
ICKEL	3.74	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.113	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	3.29	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.05

DATE: 12/14/93

SWLO #: 16298.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB6
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	5.5	U
METHYLENE CHLORIDE	2.9	J6 (J5)	CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	26	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.5	U	TETRACHLOROETHENE	5.5	U
1,2-DICHLOROETHANE	5.5	U	TOLUENE	1.2	(J1) J6
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE(TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	100% ✓	BROMOFLUOROBENZENE	(74-121)	98% ✓
1,2-DICHLOROETHANE-D4	(70-121)	100% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.05

DATE: 12/14/93

SWLO #: 16298.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB6
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : 11/11/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	375	J1 ~~B~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	301	J1 ~~JB~~	4-NITROPHENOL	226	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	151	~~JB~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	302	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	360	U
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.05

DATE: 12/14/93

SWLO #: 16298.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB6
LOCATION:

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 17.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	4.17		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	9.56		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.659		mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	92.8	~~J4~~ J6	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.33	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	12.5	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.11	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	21.4	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.11	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	25.2	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.06

DATE: 12/14/93

SWLO #: 16298.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.8SB4
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 4.00
DEPTH TO : 5.50
DATE PREPARED : / /
DILUTION FACTOR: 1.06

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.3	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.3	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.3	U
CHLOROETHANE	11	U	BENZENE	5.3	U
METHYLENE CHLORIDE	5.3	U	CIS-1,3-DICHLOROPROPENE	5.3	U
ACETONE	23	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.3	U	BROMOFORM	5.3	U
1,1-DICHLOROETHENE	5.3	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.3	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.3	U	TETRACHLOROETHENE	5.3	U
1,2-DICHLOROETHANE	5.3	U	TOLUENE	5.3	U
1,1,1-TRICHLOROETHANE	5.3	U	CHLOROBENZENE	5.3	U
CARBON TETRACHLORIDE	5.3	U	ETHYLBENZENE	5.3	U
VINYL ACETATE	11	U	STYRENE	5.3	U
BROMODICHLOROMETHANE	5.3	U	1,2-DICHLOROETHENE(TOTAL)	5.3	U
1,1,2,2-TETRACHLOROETHANE	5.3	U	XYLENE (TOTAL)	5.3	U
1,2-DICHLOROPROPANE	5.3	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.3	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 101% ✓	BROMOFLUOROBENZENE	(74-121) 90% ✓
1,2-DICHLOROETHANE-D4	(70-121) 97% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/4/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.06

DATE: 12/14/93

SWLO #: 16298.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.8SB4
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 4.00
DEPTH TO : 5.50
DATE PREPARED : 11/11/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	342	J1 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	290	J1 ~~JB~~	4-NITROPHENOL	199	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	129	~~JB~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	291	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	360	U
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.06

DATE: 12/14/93

SWLO #: 16298.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.8SB4
LOCATION:

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 4.00
DEPTH TO : 5.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	2.86		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	4.77		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.53	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	215	J6 J4	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.318	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	13.5	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.106	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	8.8	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.106	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	13.2	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.07

DATE: 12/14/93

SWLO #: 16298.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.8SB4
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 8.00
DEPTH TO : 9.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	7	J4	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	21	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	2.3	~~J1~~ J6
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	96% ✓	BROMOFLUOROBENZENE	(74-121)	90% ✓
1,2-DICHLOROETHANE-D4	(70-121)	91% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.07

DATE: 12/14/93

SWLO #: 16298.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.8SB4
LOCATION:
DATE ANALYZED : 11/23/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 8.00
DEPTH TO : 9.50
DATE PREPARED : 11/11/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	356	J1 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	313	J1 ~~JB~~	4-NITROPHENOL	196	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	216	~~JB~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	286	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	360	U
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.07

DATE: 12/14/93

SWLO #: 16298.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.8SB4
LOCATION:

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 8.00
DEPTH TO : 9.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	5.28		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	2.81		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.561	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	323	J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.337	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	10.7	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.112	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	9.66	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.112	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	12	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.08

DATE: 12/14/93

SWLO #: 16298.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.12SB5
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 6.00
DEPTH TO : 7.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	6.1	J4	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	35	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	1.6	~~J1~~ J6
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 105% ✓	BROMOFLUOROBENZENE	(74-121) 96% ✓
1,2-DICHLOROETHANE-D4	(70-121) 100% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.08

DATE: 12/14/93

SWLO #: 16298.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.12SB5
LOCATION:
DATE ANALYZED : 11/23/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 6.00
DEPTH TO : 7.50
DATE PREPARED : 11/11/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	348	J1 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	320	J1 ~~JB~~	4-NITROPHENOL	233	~~JB~~ J1 J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	216	~~JB~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	297	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	360	U
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16298.08

DATE: 12/14/93

SWLO #: 16298.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.12SB5
LOCATION:

DATE SAMPLED: 11/09/93
SAMPLE MATRIX : SQ
DEPTH FROM : 6.00
DEPTH TO : 7.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	2.35		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	3.14		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.561	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	534	J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.336	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	78.8	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.112	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	79.8	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.112	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	10.8	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.01

DATE: 12/14/93

SWLO #: 16326.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.50
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	3.3	J6 (J5)	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	70	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	1.8	(J1) J6
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	93% ✓	BROMOFLUOROBENZENE	(74-121)	87% ✓
1,2-DICHLOROETHANE-D4	(70-121)	93% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.01

DATE: 12/14/93

SWLO #: 16326.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.50
DEPTH TO : 7.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.15

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	369	J1 ~~JB~~	ACENAPHTHENE	380	U
BIS(2-CHLOROETHYL)ETHER	380	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	319	J1 ~~JB~~	4-NITROPHENOL	251	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	380	U	DIBENZOFURAN	380	U
1,4-DICHLOROBENZENE	380	U	2,4-DINITROTOLUENE	380	U
BENZYL ALCOHOL	380	U	2,6-DINITROTOLUENE	380	U
1,2-DICHLOROBENZENE	380	U	DIETHYLPHTHALATE	380	U
2-METHYLPHENOL(O-CRESOL)	380	U	4-CHLOROPHENYL-PHENYLETHER	380	U
BIS(2-CHLOROISOPROPYL)ETHER	380	U	FLUORENE	380	U
4-METHYLPHENOL(P-CRESOL)	380	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	380	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	380	U	N-NITROSODIPHENYLAMINE(1)	380	U
NITROBENZENE	380	U	4-BROMOPHENYL-PHENYLETHER	380	U
ISOPHORONE	380	U	HEXACHLOROBENZENE	380	U
2-NITROPHENOL	380	U	PENTACHLOROPHENOL	185	~~JB~~ J1
2,4-DIMETHYLPHENOL	380	U	PHENANTHRENE	380	U
BENZOIC ACID	1800	U	ANTHRACENE	380	U
BIS(2-CHLOROETHOXY)METHANE	380	U	DI-N-BUTYL PHTHALATE	380	U
2,4-DICHLOROPHENOL	380	U	FLUORANTHENE	380	U
1,2,4-TRICHLOROBENZENE	380	U	PYRENE	380	U
NAPHTHALENE	380	U	BUTYL BENZYL PHTHALATE	380	U
4-CHLOROANILINE	380	U	3,3'-DICHLOROBENZIDINE	760	U
HEXACHLOROBUTADIENE	380	U	BENZO(A)ANTHRACENE	380	U
4-CHLORO-3-METHYLPHENOL	281	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	42	~~JB~~ J1
2-METHYLNAPHTHALENE	380	U	CHRYSENE	380	U
HEXACHLOROCYCLOPENTADIENE	380	U	DI-N-OCTYL PHTHALATE	380	U
2,4,6-TRICHLOROPHENOL	380	U	BENZO(B)FLUORANTHENE	380	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.01

DATE: 12/14/93

SWLO #: 16326.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.50
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.6		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	3.78		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.573	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	299	J4 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.344	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	10.8	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.114	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	9.28	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.114	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	11	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.02

DATE: 12/14/93

SWLO #: 16326.02 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.50
DEPTH TO : 7.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	4.5	J6 ~~J5~~	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	75	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	2.7	~~J1~~ J6
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	98% ✓	BROMOFLUOROBENZENE	(74-121)	91% ✓
1,2-DICHLOROETHANE-D4	(70-121)	95% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.02

DATE: 12/20/93

SWLO #: 16326.02 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.50
DEPTH TO : 7.00
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	372	J1 ~~JB~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	337	J1 ~~JB~~	4-NITROPHENOL	239	~~JB~~ J1 J6
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	169	~~JB~~ J1
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	305	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	400	U
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1710 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2500

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.02

DATE: 12/14/93

SWLO #: 16326.02 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : 5.50
DEPTH TO : 7.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	1.41		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	3.75		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.586	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	125	J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.352	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	14.5	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.117	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	11.7	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.117	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	14.4	J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC
1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.03

DATE: 12/14/93

SWLO #: 16326.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : ~~5.00~~ 13.5
DEPTH TO : 14.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	1.5	J6 ~~J5~~	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	14	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	94% ✓	BROMOFLUOROBENZENE	(74-121)	91% ✓
1,2-DICHLOROETHANE-D4	(70-121)	95% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1730 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.03

DATE: 12/20/93

SWLO #: 16326.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : ~~5.00~~ 13.5
DEPTH TO : 14.50
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	347	~~J1 JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	302	~~J1 JB~~	4-NITROPHENOL	256	~~JB J1~~ J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	178	~~JB~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	288	~~J1 JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	45	~~JB~~ J1
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.04

DATE: 12/14/93

SWLO #: 16326.04 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : ~~5.00~~ 13.5
DEPTH TO : 14.50
DATE PREPARED : 11/12/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	5490	J1 ~~B~~	ACENAPHTHENE	3110	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	4600	J1 ~~B~~	4-NITROPHENOL	9400	~~J1~~ ~~EB~~ J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	2040		2,4-DINITROTOLUENE	4270	J4
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	3070		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	4040	~~B~~ J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	2290		PYRENE	2650	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	4500	J1	BIS(2-ETHYLHEXYL)PHTHALATE	360	U
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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1/5/94

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1710 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

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Attn: KEVIN TYNES

REPORT: 16326.04

DATE: 12/14/93

SWLO #: 16326.04 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : ~~5.00~~ 13.5
DEPTH TO : 14.50
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	50	
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	54	
METHYLENE CHLORIDE	1.7	J6 (J5)	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	22	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	49		2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	54	~~J1~~ J6
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	53	
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	96% ✓	BROMOFLUOROBENZENE	(74-121)	90% ✓
1,2-DICHLOROETHANE-D4	(70-121)	96% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
1/5/94

SOUTHWEST LABORATORY OF OKLAHOMA, IN

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.03

DATE: 12/14/93

SWLO #: 16326.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : ~~5.00~~ 13.5
DEPTH TO : 14.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	9.98		mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	9.87		mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	0.561	U	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	676	J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	0.336	U	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	19.8	J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.112	U	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	26.2	J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	0.112	U	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	39.5	~~J~~ J4	mg/kg	11/15/93	11/16/93	SW846-6010

(SC)

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 1/5/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16326.04

DATE: 12/14/93

SWLO #: 16326.04 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB7
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : SQ
DEPTH FROM : ~~5.00~~ 13.5
DEPTH TO : 14.50

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
ARSENIC	202	mg/kg	11/15/93	11/18/93	SW846-6010
LEAD	55.9	mg/kg	11/15/93	11/18/93	SW846-6010
SELENIUM	177	mg/kg	11/15/93	11/18/93	SW846-6010
BARIUM	728 J6 ~~J4~~	mg/kg	11/15/93	11/16/93	SW846-6010
CADMIUM	4.35	mg/kg	11/15/93	11/16/93	SW846-6010
CHROMIUM	28 J4	mg/kg	11/15/93	11/16/93	SW846-6010
MERCURY	0.759 J4	mg/kg	11/15/93	11/15/93	SW846-7471
NICKEL	67.8 J4	mg/kg	11/15/93	11/16/93	SW846-6010
SILVER	5.13	mg/kg	11/15/93	11/27/93	SW846-7761
ZINC	71.8 J4	mg/kg	11/15/93	11/16/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
1/5/94

TABLE 1

TINKER AIR FORCE BASE RFI

DATA VALIDATION WORKSHEET

SDG: 16354

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4
VOAs	V1	Lab (soil) blank contamination - Toluene	See Note 1	J1
	V2	Laboratory results fall between MDL and MQL.	See Note 2	J5
	V3	Matrix spike (MS) and/or spike duplicate (SD) percent recovery (%Rec) values are outside allowable limits as well as relative percent difference (RPD) outliers for Toluene + Chlorobenzene.	See Note 3	J6
	V4	RPD outliers for 1,1-Dichloroethene, Trichloroethene and Benzene	See Note 4	J4
	V5	Surrogates outside allowable limits in MS/MSD sample (1,2-Dichloroethane-d4).	See Note 5	J4
	V6	Two samples had an analyte that exceeded the calibration range	See Note 6	J4
SVOAs	SV1	Laboratory soil/water blank Contamination	See Note 7	J1
	SV2	Some analytes exceeded the calibration range.	See Note 8	J2
	SV3	One sample had a surrogate recovery that was extremely high.	See Note 9	J4
	SV4	Laboratory results fall between MDL and MQL	See Note 10	J5

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

Sandra H. Czarnecki / Sandra M Czarnecki
DATA VALIDATOR(Name/Signature)

1/12/94
Date

TABLE 1
TINKER AIR FORCE BASE RFI
DATA VALIDATION WORKSHEET

SDG: 16354

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4
SVOAs	SV5	MS %Rec out high for phenol and n-nitroso-di-n-propylamine	see Note 11	J4
Metals	M1	MS % Rec out high for cadmium	see Note 12	J4
	M2	MS % Rec was 0% for Chromium	see Note 13	R
TPH	TPH1	One sample had matrix interference that prevented the surrogate recovery	see Note 14	J4
VOA	V7	Field Replicate RPD out high - Toluene	see Note 15	J4
SVOA	SV6	Field Replicate RPDs out high (11 analytes)	see Note 16	J4
	SV7	MS/MSD RPD out high for N-nitroso-di-n-propylamine	see Note 11	J4

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

Sandra M Czarnecki / Sandra M Czarnecki
DATA VALIDATOR(Name/Signature)

1/12/94
Date

Table 2
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG: 16354

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOAs	V1	1. Laboratory soil blanks contamination - Toluene (2.2 J ug/kg). Reported detections of this analyte in the samples have been qualified as estimated and should be considered biased high. Affected samples: 16354.06, 16354.10, 16354.11, 16354.13 - 16354.16 and 16374.01.
	V2	2. Laboratory results that fall between the MDL and MQL have been flagged J5. Affected samples: 16354.10, 16354.11, 16354.14, 16354.18 and 16374.01.
	V3	3. MS and/or SD % Rec values were outside allowable limits as well as the RPD values being outside allowable limits → RPD limit is 21 for Toluene + Chlorobenzene. Actual: Tol. RPD = 67.9% Chlor. RPD = 42.1%. Samples with reported detections should be considered suspect and have been flagged J6 for multiple problems. Affected samples: 16354.06, .08, .09, .10, .11, .13, .14, .15, .16 and 16374.01.
	V4	4. RPD outliers for 1,1-Dichloroethene, Trichloroethene and Benzene. Reported detections should be considered estimates and have been flagged J4 (or J6 if detections were previously flagged). Affected samples: 16354.14 and 16354.15.
	V5	5. Surrogate 1,2-dichloroethane-d4 outside allowable limits (70-121%) in sample (175%) and SD (124%). All detects in samples have been flagged J4 (or J6 for

	Limits %Rec	MS%	SD%
Toluene	59-139	55	180
Chlorobenzene	60-133	OR	166

1. Item number should correspond with the item number on the worksheet.

Sandra M. Czarnecki / Sandra M. Czarnecki 1/12/94
Data Validator (Name/Signature/Date)

Table 2
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG: 16354

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
	VS (cont'd)	multiple problems) and should be considered biased high. Affected samples: 16354.01 - 16354.18 and 16374.01 - 16374.03. Other surrogates also out - same samples.
	V6	6. Sample 16354.04 had 1,2-dichloroethene (total) exceed the calibration range and sample 16374.02 had acetone with the same problem. Lab flags "E" have been flagged J2 by the reviewer, or J6 for multiple problems.
SVOAs	SV1	7. Laboratory soil/water blank contamination of phenol, 2-chlorophenol, 4-chloro-3-methylphenol, 4-nitrophenol and pentachlorophenol. All detected analytes in the samples have been flagged J1 and should be considered biased high. Affected samples: 16354.01 - 16354.17 and 16374.01 - 16374.03.
	SV2	8. Two samples had analytes that exceeded their calibration ranges. These detected analytes have been flagged J2 and should be considered estimates. Sample 16354.14 had phenol and bis(2-ethylhexyl)phthalate and sample 16354.15 had phenol, 2-chlorophenol, n-nitroso-di-n-propylamine, 4-nitrophenol and bis(2-ethylhexyl)phthalate flagged "E" by the lab.
	SV3	9. Sample 16374.01 had [redacted]a surrogate nitrobenzene-d5 recovery of 446% (QA target was 23-120%). The B/N fraction of this sample has had its detected analytes flagged J4 (or J6 for multiple problems).

1. Item number should correspond with the item number on the worksheet.

Sandra M. Czarnecki / Sandra M Czarnecki 1/12/94
Data Validator (Name/Signature/Date)

Table 2
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG: 16354

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
SVOCs	SV4	10. Laboratory results that fall between the MDL and MQL have been flagged J5. Affected samples: 16354.02-.04, 16354.08-.17 and 16374.01-16374.03.
	SV5	11. The MS % Rec were out high for phenol (109% vs. target limits of 26-90%) and n-nitroso-di-n-propylamine (196% vs. target limits of 41-126%). All detected analytes in the samples have been flagged J4 (or J6 for multiple problems) and should be considered biased high. Affected samples: 16354.01-16354.17 and 16374.01-16374.03.
Metals	M1	12. The MS % Rec was out high for cadmium (144% vs target limits of 75-125%). All detects of this analyte have been flagged J4 (or J6 for multiple problems) and should be considered biased high. Affected samples: 16354.08-16354.17 and 16374.01.
	M2	13. The MS % Rec was 0% for Chromium (target limits of 75-125%) All detects of this analyte have been flagged "R" and are unusable. Affected samples: 16354.01-16354.17 and 16374.01-16374.03.
TPH	TPH1	14. Sample 16374.01 had matrix interference that prevented recovery of the surrogate naphthalene (target limits 21-166%). Detected analytes in this sample have been flagged J4, as an estimated value.

1. Item number should correspond with the item number on the worksheet.

Sandra M. Czarnecki / Sandra M. Czarnecki 1/12/94
Data Validator (Name/Signature/Date)

Table 2
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG: 16354

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOA	V7	15. Field replicate (FR) RPD out high for toluene (63%). Detected analytes should be considered estimates. All samples were previously flagged J6 for various problems - no further flagging was necessary. Affected samples: 16354.06, 16354.10, .11, .13, .14, .15, .16 and 16374.01.
SVOA	SV6	16. FR RPD out high for 11 analytes: 4-methylphenol (p-cresol) 60%, phenanthrene - 52%, benzo(a) anthracene - 80%, bis(2-ethylhexyl)phthalate - 57%, Chrysene - 86%, benzo(b) fluoranthene - 115%, benzo(k) fluoranthene - 125%, benzo(a)pyrene - 91%, indeno(1,2,3-c,d)pyrene - 67%, dibenz(a,h)anthracene - 75%, benzo(g,h,i)perylene - 51%. Detected analytes should be considered estimates and have been flagged J6 for multiple problems. Affected samples: 16354.02, .03, .04, .08, .09, .10, .11, .12, .13, .14, .15, .16, .17 and 16374.01 - .03.
		→ [16354.08, .10, .11 have a "D" by one of the analytes - unsure how to flag]

1. Item number should correspond with the item number on the worksheet.

Sandra M Czarnecki / Sandra M Czarnecki 1/14/94
Data Validator (Name/Signature/Date)

TABLE 3

PAGE 1 OF 3

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 16354.01/16354.02 SAMPLE MATRIX: Soil UNITS: ug/kg

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOAs	Methylene Chloride	12	12	0
	Acetone	89	140	45
SVOCs	Phenol	295	304	3
	2-Chlorophenol	270	268	OK
	4-Chloro-3-methylphenol	311	319	OK
	4-Nitrophenol	370	385	OK
	Pentachlorophenol	283	277	OK
	Bis(2-ethylhexyl)phthalate	* U	56.3	NC
Metals	Silver	0.117	0.118	OK
	Arsenic	2.69	2.83	OK
	Barium	609	616	OK
	Lead	7.95	7.07	OK
	Nickel	13.3	13.9	OK
	Selenium	0.584	0.589	OK
	Zinc	19.3	19.4	OK

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.
   U = not detected
   N = not calculated

Sandra H. Czarnecki / Sandra M. Czarnecki
DATA VALIDATOR(Name/Signature)

1/12/94
Date

tafbdup.wq1

TABLE 3 PAGE 2 OF 3

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 16354.13/16354.16 SAMPLE MATRIX: Soil UNITS: ug/kg

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOAS	Methylene Chloride	U	22	NC
	Acetone	93	64	37
	Tetrachloroethene	62	42	38
	Toluene	48	25	63 *
	Styrene	31	U	NC
SVOC	Phenol	742	875	16
	2-Chlorophenol	428	407	5
	4-Methylphenol (p-cresol)	217	409	60 *
	Benzoic acid	2400	U	NC
	4-chloro-3-methyl phenol	385	293	27
	4-nitrophenol	329	407	21
	pentachlorophenol	394	363	8
	phenanthrene	349	206	52 *
	Fluoranthene	1110	1060	5
	Pyrene	544	671	21
	Benzo(a)anthracene	204	477	80 *
	Bis(2-ethylhexyl)phthalate	3500	6300	57 *
	Chrysene	328	818	86 *
	Di-n-octyl phthalate	841	1010	18
	Benzo(B)fluoranthene	276	1030	115 *

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

U = not detected
NC = not calculated

Sandra M. Czarnecki / Sandra M. Czarnecki 1/12/94
DATA VALIDATOR(Name/Signature) Date

TABLE 3

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 16354.13/.16 SAMPLE MATRIX: Soil UNITS: ug/kg

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
SVOC	Benzo(k) fluoranthene	269	1170	125 *
	Benzo(a) pyrene	238	639	91 *
	indeno(1,2,3-CD)pyrene	155	312	67 *
	Dibenz(a,h)anthracene	77.6	171	75 *
	Benzo(g,h,i)perylene	174	292	51 *
Metals	Mercury	0.227	0.169	29
	Silver	3.93	3.63	OK
	Barium	390	368	OK
	Cadmium	26.9	22.7	OK
	Lead	36.9	34.6	OK
	Nickel	51.1	46.4	OK
	Zinc	66.2	104	44
	Cyanide	1.5	1.66	OK

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

Sandra M. Gurnecki / Sandra M Gurnecki 1/7/94

DATA VALIDATOR(Name/Signature) Date

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING-SCIENCE, INC.
7800 SHOAL CREEK BOULEVARD, SUITE 222W
AUSTIN, TX 78757
ATTN: KEVIN TYNES

REPORT: 16354Va
QA SEQ: N931118B
DATE: 12-28-93

SAMPLE MATRIX: SOIL
SWLO # METHOD BLANK
DATE ANALYZED : 11-18-93
METHOD REFERENCE: SW846-8240, EPA METHODOLOGY
DILUTION FACTOR: 1
SAMPLE ID: VBLK2

RESULTS REPORTED IN ug/Kg or Parts Per Billion (PPB)

VOLATILES	QUANT. LIMIT	RESULTS	VOLATILES	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
BROMOMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
VINYL CHLORIDE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
CHLOROETHANE	10	ND	TRICHLOROETHENE	5	ND
METHYLENE CHLORIDE	5	ND	DIBROMOCHLOROMETHANE	5	ND
ACETONE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	BENZENE	5	ND
1,1-DICHLOROETHENE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHANE	5	ND	2-CHLOROETHYLVINYLETHER	10	ND
TOTAL-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
CHLOROFORM	5	ND	2-HEXANONE	10	ND
1,2-DICHLOROETHANE	5	ND	4-METHYL-2-PENTANONE	10	ND
2-BUTANONE	10	ND	TETRACHLOROETHENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TOLUENE	5	2.2 J
CARBON TETRACHLORIDE	5	ND	CHLOROBENZENE	5	ND
VINYL ACETATE	10	ND	ETHYLBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	STYRENE	5	ND
			TOTAL XYLENES	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 95% BROMOFLUOROBENZENE(74-121) 110% 1,2-DICHLOROETHANE-d4(70-121) 79%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SAC 1/6/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

REPORTED : 12/30/93

PROJECT : TINKER AFB RFI
SDG: 16354
MATRIX : SOIL

SAMPLE	: 16354.13	QAQC: I931119A	ANALYZED : 11/19/93 15:12
SPIKE SAMPLE	: 16354.14	QAQC: I931118A	ANALYZED : 11/18/93 14:34
SPIKE DUP SAMPLE	: 16354.15	QAQC: I931118A	ANALYZED : 11/18/93 15:03

VOLATILE ORGANICS PRIORITY POLLUTANTS
SPIKE/SPIKE DUPLICATE RECOVERY

Parameter ug/Kg	SPIKE AMOUNT	SAMP CONC.	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD	MAX RPD	LIMITS %Rec.
1,1-DICHLOROETHENE	73		69	94	92	125	28.2*	22	59-172
TRICHLOROETHENE	73		62	84	85	116	31.6*	24	62-137
BENZENE	73		65	88	88	120	30.1*	21	66-142
TOLUENE	73	48	89	55*	180	180*	67.9*	21	59-139
CHLOROBENZENE	73		80	108	120	166*	42.1*	21	60-133

QA/QC SURROGATE RECOVERIES

Parameter	SAMPLE %Rec	SPIKE %Rec	DUP %Rec	Limits
TOLUENE-D8	95	108	116	81-117
BROMOFLUOROBENZENE	116	109	100	74-121
1,2-DICHLOROETHANE-D4	176*	113	124	70-121

* Outside of QC Limits

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354

DATE: 12/16/93

SWLO QAQC#: 931115-001
PROJECT : TINKER AFB RFI
SAMPLE #: BNA BLANK LB1
LOCATION:
DATE ANALYZED : 11/24/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/15/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	13.5		ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	17.6		4-NITROPHENOL	9.16	J
1,3-DICHLOROBENZENE	10	U	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	10	U	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	10	U	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	10	U	DIETHYLPHTHALATE	10	U
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	10	U	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	11.9	J
2,4-DIMETHYLPHENOL	10	U	PHENANTHRENE	10	U
BENZOIC ACID	50	U	ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	10	U
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	14.3		BIS(2-ETHYLHEXYL)PHTHALATE	10	U
2-METHYLNAPHTHALENE	10	U	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	10	U
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

SMC
1/6/94

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354

DATE: 12/30/93

QAQC#: 931124-001
PROJECT : TINKER AFB RFI
SAMPLE #: BNA BLANK LB1
LOCATION:
DATE ANALYZED : 11/30/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : / /
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/24/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	10	U	ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	10	U	4-NITROPHENOL	50	U
1,3-DICHLOROBENZENE	10	U	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	10	U	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	10	U	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	10	U	DIETHYLPHTHALATE	10	U
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	10	U	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	50	U
2,4-DIMETHYLPHENOL	10	U	PHENANTHRENE	10	U
BENZOIC ACID	50	U	ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	10	U
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	10	U	BIS(2-ETHYLHEXYL)PHTHALATE	3.05	J
2-METHYLNAPHTHALENE	10	U	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	10	U
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354

DATE: 12/16/93

SWLO QAQC#: 931116-001
PROJECT : TINKER AFB RFI
SAMPLE #: BNA BLANK LB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	290	J	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	267	J	4-NITROPHENOL	278	J
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	229	J
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	291	J	BIS(2-ETHYLHEXYL)PHTHALATE	330	U
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

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1/6/94

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING-SCIENCE, INC.
7800 SHOAL CREEK BOULEVARD, SUITE 222W
AUSTIN, TX 78757
ATTN: KEVIN TYNES

REPORT: 16354Ba

DATE: 12-16-93

SAMPLE MATRIX: SOIL
SWLO # 16354.15/16354.14
METHOD REFERENCE: SW846-8270
SAMPLE ID: ESC1SE5 (MS/MSD)

DATE EXTRACTED: 11-16-93
DATE ANALYZED : 12-01-93

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE ADDED (ug/Kg)	ORIGINAL SAMPLE	AMOUNT RECOVERED (ug/Kg)	PERCENT RECOVERED (ug/Kg)	QC LIMITS RECOVERY
PHENOL	11904.7	742	13804.5	109	26 - 90
2-CHLOROPHENOL	11904.7	428	10788.7	86	25 - 102
1,4-DICHLOROBENZENE	5952.38		4554.73	76.52	28 - 104
N-NITROSO-di-n-PROPYLAMINE	5952.38		11657.4	195.84*	41 - 126
1,2,4-TRICHLOROBENZENE	5952.38		3759.71	63.16	38 - 107
4-CHLORO-3-METHYLPHENOL	11904.7	385	8650.33	69	26 - 103
ACENAPHTHENE	5952.38		4962.76	83.37	31 - 137
4-NITROPHENOL	11904.7	329	10640.8	86	11 - 114
2,4-DINITROTOLUENE	5952.38		4037.55	67.83	28 - 89
PENTACHLOROPHENOL	11904.7	394	8499.75	67	17 - 109
PYRENE	5952.38	544	5837.34	87	35 - 142

COMPOUND	SPIKE ADDED (ug/Kg)	ORIGINAL SAMPLE	AMOUNT RECOVERED (ug/Kg)	RPD	PERCENT RECOVERY	LIMITS RECOVERY
PHENOL	11904.7	742	11352.5	20	88	26 - 90
2-CHLOROPHENOL	11904.7	428	9356.90	14	74	25 - 102
1,4-DICHLOROBENZENE	5952.38		4173.83	8	70.12	28 - 104
N-NITROSO-di-n-PROPYLAMINE	5952.38		5682.25	68	95.46	41 - 126
1,2,4-TRICHLOROBENZENE	5952.38		3472.44	8	58.34	38 - 107
4-CHLORO-3-METHYLPHENOL	11904.7	385	7565.18	13	60	26 - 103
ACENAPHTHENE	5952.38		4680.76	5	78.64	31 - 137
4-NITROPHENOL	11904.7	329	9430.74	12	76	11 - 114
2,4-DINITROTOLUENE	5952.38		3741.66	8	62.86	28 - 89
PENTACHLOROPHENOL	11904.7	394	7140.77	17	56	17 - 109
PYRENE	5952.38	544	5668.62	3	84	35 - 142

QA/QC SURROGATE RECOVERIES

MS

NITROBENZENE-d5	(23-120) 114%	2-FLUOROBIPHENYL	(30-115)	86%	TERPHENYL-d14	(18-137)	106%
PHENOL-d5	(24-113) 93%	2-FLUOROPHENOL	(25-121)	91%	2,4,6-TRIBROMOPHENOL	(19-122)	68%

MSD

NITROBENZENE-d5	(23-120) 101%	2-FLUOROBIPHENYL	(30-115)	80%	TERPHENYL-d14	(18-137)	98%
PHENOL-d5	(24-113) 79%	2-FLUOROPHENOL	(25-121)	81%	2,4,6-TRIBROMOPHENOL	(19-122)	60%

* = VALUES OUTSIDE OF QC LIMITS
SW = EPA METHODLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING SCIENCES, INC.

SDG: 16354cc
REPORT DATE: 12-29-93

MATRIX: **SOIL**
SAMPLE ID: **ESC1SE5**
REPORTED ON DRY WT BASIS

MATRIX SPIKE

PARAMETER	DATE ANALYZED	SAMPLE CONC. (mg/Kg)	SPIKE CONC. (mg/Kg)	MS CONC. (mg/Kg)	MS % RECOVERY	CONTROL LIMITS
ARSENIC	12/28/93	< 1.51	302	348	115	75-125
LEAD	12/28/93	36.9	75.6	122	113	75-125
SELENIUM	12/28/93	< 0.756	302	339	112	75-125
BARIUM	12/28/93	390	302	766	124	75-125
CADMIUM	12/28/93	26.9	7.56	37.8	144*	75-125
CHROMIUM	12/28/93	289	30.2	266	0*	75-125
NICKEL	12/28/93	51.1	75.6	137	114	75-125
ZINC	12/28/93	66.2	75.6	153	115	75-125
SILVER	12/28/93	3.93	7.56	10.3	84	75-125

SMC 1/19/94

QC/dn

16354

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: [X] Federal Express [ ] UPS
Other

PROJECT NUMBER: AU 401.08

AIRBILL OR CARRIER ID #: 8503062680

SAMPLER(S): M. HARDER, R. NELSON
(Signature) [signature] [signature]

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA 8240	SVOA SW8270	Metals 6010	CN 9010	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11-11-93	–	Field QC		TB2	WQ	NA	0	0	2	X				0	1	2	B	
	1430	Field QC		EB1	WQ	NA	0	0	6	X	X	X	X	0	1	2	B	
	800	I24.19SB1		N1	SO	H	5	6	3	X	X	X	X	0	1	2	B	
	800	I24.19SB1	~~FR1~~	FR1	SO	H	5	6	3	X	X	X	X	0	1	2	B	
	910	I24.19SB1		N1	SO	H	16	17	3	X	X	X	X	0	1	2	B	
	1315	I24.19SB9		N1	SO	H	7.5	8	3	X	X	X	X	0	1	2	B	
	1340	I24.19SB9		N1	SO	H	17	18	3	X	X	X	X	0	1	2	B	
	1020	I24.19SB10		N1	SO	H	5	6	3	X	X	X	X	0	1	2	B	
	1100	I24.19SB10		N1	SO	H	17	18	3	X	X	X	X	0	1	2	B	

PRESERVATIVE

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

Relinquished by:	Date	Time	Relinquished by:	Date	Time	Relinquished by:	Date	Time
(Signature) [signature]	11/11/93	1800	(Signature)			(Signature)		
Received by:	Date	Time	Received by:	Date	Time	Received by:	Date	Time
(Signature)			(Signature)			(Signature) [signature]	11/12/93	0830

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

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1354

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS **ES**

PROJECT NAME/LOCATION: TINKER AFB, OK

PROJECT NUMBER: AU401.~~08~~ ~~07~~ 05 (CS)

CARRIER: ☒ Federal Express ☐ UPS — Other _____

AIRBILL OR CARRIER ID #: 8503062680

SAMPLER(S): M. HARDER R. NELSON

(Signature): M.W. Harder R. Nelson

PRESERVATIVE: ICE | ICE | ICE | ICE

ANALYSIS REQUIRED: NUMBER OF CONTAINERS | VOA (SW8240) | SV (SW8270) | Metals (SW6010) | CN (SW9010)

FIELD LOT CONTROL NUMBER | Ambient Condition Blank | Equipment Blank | Trip Blank | Cooler Letter

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	# Containers	VOA	SV	Metals	CN	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/11/93	–	FIELDQC		TB1	WQ	NA	0	0	2	X				0	1	2	A	
	1530	ESC1SE1		N1	SE	DS	0	0	2	X	X	X	X	0	1	2	A	
	1500	ESC1SE2		N1	SE	DS	0	0	2	X	X	X	X	0	1	2	A	
	1200	ESC1SE3		N1	SE	DS	0	0	2	X	X	X	X	0	1	2	A	
	1130	ESC1SE4E		N1	SE	DS	0	0	2	X	X	X	X	0	1	2	A	
	1140	ESC1SE4W		N1	SE	DS	0	0	2	X	X	X	X	0	1	2	A	
	1015	ESC1SE5		N1	SE	DS	0	0	2	X	X	X	X	0	1	2	A	
	↓	↓		SD1	SE	DS	0	0	2	X	X	X	X	0	1	2	A	
				MS1	SE	DS	0	0	2	X	X	X	X	0	1	2	A	
	–	–		FR1	SE	DS	0	0	2	X	X	X	X	0	1	2	A	
	0904	ESC1SE6		N1	SE	DS	0	0	2	X	X	X	X	0	1	2	A	
	FIELD LOT CONTROL NUMBERS FOR 10 NOV 93																	
	SHOULD BE ~~01~~ CS 112A & 112B instead of 111A & 111B																	

Relinquished by: M.W. Harder — Date 11/12/93 — Time 1800

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) K. Hollis — Date 11/12/93 — Time 0830

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16354

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: TINKER AFB, OK

CARRIER: [X] Federal Express [ ] UPS
Other: 8503061836

PROJECT NUMBER: AU401.08

AIRBILL OR CARRIER ID #: 8503061836

SAMPLER(S): M. HARDER R. NELSON

(Signature) [signature] [signature]

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	SW8240 (VOA)	SW8270 (SVOA)	SW6010 (Metals)	SW9010 (CN)	SW8015mod (TPH)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/12/93	—	FIELDQC		TB1	WQ	NA	0	0	2	X					0	0	1	A	
	0855	RCD1SB1		N1	SO	SS	6	8	4	X	X	X	X	X	0	0	1	A	
	0900	I24.2SB2		N1	SO	H	8	8.5	3	X	X	X	X		0	0	1	A	
	1000	I24.2SB2		N1	SO	H	17	18	3	X	X	X	X						

PRESERVATIVE

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

Relinquished by:	Date	Time	Relinquished by:	Date	Time	Relinquished by:	Date	Time
(Signature) [signature]	11-12-93	1200	(Signature)			(Signature)		
Received by:	Date	Time	Received by:	Date	Time	Received by:	Date	Time
(Signature)			(Signature)			(Signature) [signature]	11/13/93	1400

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.01

DATE: 12/30/93

SWLO # : 16354.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB1
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	12	J4	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	89	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	100% ✓	BROMOFLUOROBENZENE	(74-121)	100% ✓
1,2-DICHLOROETHANE-D4	(70-121)	98% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/11/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.01

DATE: 12/30/93

SWLO # : 16354.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	295 J6 ~~J~~ ~~JB~~		ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	270 J6 ~~J~~ ~~JB~~		4-NITROPHENOL	370	~~JB~~ ~~J~~ J6
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	283	~~JB~~ ~~J~~ J6
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	311 J6 ~~J~~ ~~JB~~		BIS(2-ETHYLHEXYL)PHTHALATE	400	U
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/11/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.01

DATE: 12/30/93

SWLO # : 16354.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB1
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 6.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.117	U	mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.117		mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	2.69		mg/kg	11/22/93	11/22/93	SW846-6010
BARIUM	609		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	0.351	U	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	553	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	7.95		mg/kg	11/22/93	11/22/93	SW846-6010
NICKEL	13.3		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.584		mg/kg	11/22/93	11/22/93	SW846-6010
ZINC	19.3		mg/kg	11/22/93	11/26/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.02

DATE: 12/30/93

SWLO # : 16354.02 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB1
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.18

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	12	J4	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	140	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 105% ✓	BROMOFLUOROBENZENE	(74-121) 107% ✓
1,2-DICHLOROETHANE-D4	(70-121) 106% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.02

DATE: 12/30/93

SWLO # : 16354.02 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	304	~~J~~ ~~J~~ ~~JB~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	268	~~J~~ ~~J~~ ~~JB~~	4-NITROPHENOL	385	~~JB~~ ~~J~~ J
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	277	~~JB~~ ~~J~~ J
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	319	~~J~~ ~~J~~ ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	56.3	(JS) J
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.02

DATE: 12/30/93

SWLO # : 16354.02 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB1
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 6.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.118	U	mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.118		mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	2.83		mg/kg	11/22/93	11/22/93	SW846-6010
BARIUM	616		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	0.354	U	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	60.5	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	7.07		mg/kg	11/22/93	11/22/93	SW846-6010
NICKEL	13.9		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.589		mg/kg	11/22/93	11/22/93	SW846-6010
ZINC	19.4		mg/kg	11/22/93	11/26/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.03

DATE: 12/30/93

SWLO # : 16354.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB1
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 17.00
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	12	J4	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	120	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	5.8	U
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	101% ✓	BROMOFLUOROBENZENE	(74-121) 106% ✓
1,2-DICHLOROETHANE-D4	(70-121)	107% ✓		

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.03

DATE: 12/30/93

SWLO # : 16354.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 17.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	355	J6 ~~JT~~ ~~JB~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	306	J6 ~~JT~~ ~~JB~~	4-NITROPHENOL	348	~~JB~~ ~~JT~~ J6
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	226	~~JB~~ ~~JT~~ J6
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	321	J6 ~~JT~~ ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	44.9	(J5) J6
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16354.03

DATE: 12/30/93

SWLO # : 16354.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB1
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 16.00
DEPTH TO : 17.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.116	U	mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.116	U	mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	1.85		mg/kg	11/22/93	11/22/93	SW846-6010
BARIUM	67.1		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	0.348	U	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	10.4	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	5.1		mg/kg	11/22/93	11/22/93	SW846-6010
NICKEL	5.68		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.58		mg/kg	11/22/93	11/22/93	SW846-6010
ZINC	4.64		mg/kg	11/22/93	11/26/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.04

DATE: 12/30/93

SWLO # : 16354.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB9
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.50
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 5.74

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	57	U	TRICHLOROETHENE	29	U
BROMOMETHANE	57	U	DIBROMOCHLOROMETHANE	29	U
VINYL CHLORIDE	57	U	1,1,2-TRICHLOROETHANE	29	U
CHLOROETHANE	57	U	BENZENE	29	U
METHYLENE CHLORIDE	29	U	CIS-1,3-DICHLOROPROPENE	29	U
ACETONE	77	J4	2-CHLOROETHYL VINYL ETHER	57	U
CARBON DISULFIDE	29	U	BROMOFORM	29	U
1,1-DICHLOROETHENE	29	U	2-HEXANONE	57	U
1,1-DICHLOROETHANE	51	J4	4-METHYL-2-PENTANONE	57	U
CHLOROFORM	29	U	TETRACHLOROETHENE	29	U
1,2-DICHLOROETHANE	29	U	TOLUENE	29	U
1,1,1-TRICHLOROETHANE	29	U	CHLOROBENZENE	29	U
CARBON TETRACHLORIDE	29	U	ETHYLBENZENE	29	U
VINYL ACETATE	57	U	STYRENE	29	U
BROMODICHLOROMETHANE	29	U	1,2-DICHLOROETHENE(TOTAL)	1200	~~E~~ J2 J6
1,1,2,2-TETRACHLOROETHANE	29	U	XYLENE (TOTAL)	29	U
1,2-DICHLOROPROPANE	32	J4	2-BUTANONE	57	U
TRANS-1,3-DICHLOROPROPENE	29	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 95%	BROMOFLUOROBENZENE	(74-121) 100%
1,2-DICHLOROETHANE-D4	(70-121) 110%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.04

DATE: 12/30/93

SWLO # : 16354.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB9
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.50
DEPTH TO : 8.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	375	J6 JT ~~B~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	307	J6 JT ~~JB~~	4-NITROPHENOL	334	~~JB~~ JT J1
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	222	~~JB~~ JT J6
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	320	J6 JT ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	39.1	~~B~~ J6
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.04

DATE: 12/30/93

SWLO # : 16354.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB9
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 7.50
DEPTH TO : 8.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.115	U	mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.115	U	mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	3.1		mg/kg	11/22/93	11/22/93	SW846-6010
BARIUM	234		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	0.344	U	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	10.2	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	9.87		mg/kg	11/22/93	11/22/93	SW846-6010
NICKEL	7.8		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.574	U	mg/kg	11/22/93	11/22/93	SW846-6010
ZINC	14.1		mg/kg	11/22/93	11/26/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.05

DATE: 12/30/93

SWLO # : 16354.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB9
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	5.9	U	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	100	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	5.9	U
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	7.7	J4
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 95%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121) 101%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.05

DATE: 12/30/93

SWLO # : 16354.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB9
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	345	J6 ~~JB~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	300	J6 ~~JB~~	4-NITROPHENOL	317	~~JB~~ J6
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	233	~~JB~~ J6
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	332	J6 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	400	U
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.05

DATE: 12/30/93

SWLO # : 16354.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB9
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.117	U	mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.117	U	mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	3.4		mg/kg	11/22/93	11/22/93	SW846-6010
BARIUM	558		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	0.352	U	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	15.6	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	7.75		mg/kg	11/22/93	11/22/93	SW846-6010
NICKEL	12.8		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.587	U	mg/kg	11/22/93	11/22/93	SW846-6010
ZINC	17.5		mg/kg	11/22/93	11/26/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.06

DATE: 12/30/93

SWLO # : 16354.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB10
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : / /
DILUTION FACTOR: 1.17

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.9	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.9	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.9	U
CHLOROETHANE	12	U	BENZENE	5.9	U
METHYLENE CHLORIDE	12	J4	CIS-1,3-DICHLOROPROPENE	5.9	U
ACETONE	69	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.9	U	BROMOFORM	5.9	U
1,1-DICHLOROETHENE	5.9	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.9	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.9	U	TETRACHLOROETHENE	5.9	U
1,2-DICHLOROETHANE	5.9	U	TOLUENE	7.4	J J6
1,1,1-TRICHLOROETHANE	5.9	U	CHLOROBENZENE	5.9	U
CARBON TETRACHLORIDE	5.9	U	ETHYLBENZENE	5.9	U
VINYL ACETATE	12	U	STYRENE	5.9	U
BROMODICHLOROMETHANE	5.9	U	1,2-DICHLOROETHENE(TOTAL)	5.9	U
1,1,2,2-TETRACHLOROETHANE	5.9	U	XYLENE (TOTAL)	5.9	U
1,2-DICHLOROPROPANE	5.9	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.9	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 103%	BROMOFLUOROBENZENE	(74-121) 106%
1,2-DICHLOROETHANE-D4	(70-121) 108%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16354.06

DATE: 12/30/93

SWLO # : 16354.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB10
LOCATION:
DATE ANALYZED : 11/30/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	359	JL ~~JB~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	310	JL ~~JB~~	4-NITROPHENOL	309	~~JB~~ JL
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	204	~~JB~~ JL
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	317	JL ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	400	U
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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Attn: KEVIN TYNES

REPORT: 16354.06

DATE: 12/30/93

SWLO # : 16354.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB10
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 5.00
DEPTH TO : 6.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.117	U	mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.117	U	mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	2.93		mg/kg	11/22/93	11/22/93	SW846-6010
BARIUM	275		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	0.352	U	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	14.9	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	7.62		mg/kg	11/22/93	11/22/93	SW846-6010
NICKEL	10.2		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.586		mg/kg	11/22/93	11/22/93	SW846-6010
ZINC	17.2		mg/kg	11/22/93	11/26/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.07

DATE: 12/30/93

SWLO # : 16354.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB10
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.13

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	9.2	J4	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	98	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 101% ✓	BROMOFLUOROBENZENE	(74-121) 107% ✓
1,2-DICHLOROETHANE-D4	(70-121) 107% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.07

DATE: 12/30/93

SWLO # : 16354.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB10
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	344	J6 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	298	J6 ~~JB~~	4-NITROPHENOL	280	~~JB~~ J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	176	~~JB~~ J6
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	317	J6 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	360	U
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.07

DATE: 12/30/93

SWLO # : 16354.07 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SB10
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.113	U	mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.113	U	mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	1.13	U	mg/kg	11/22/93	11/22/93	SW846-6010
BARIUM	93.5		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	0.339	U	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	3.39	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	0.904		mg/kg	11/22/93	11/22/93	SW846-6010
NICKEL	3.84		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.565	U	mg/kg	11/22/93	11/22/93	SW846-6010
ZINC	2.83		mg/kg	11/22/93	11/26/93	SW846-6010

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.08

DATE: 12/30/93

SWLO # : 16354.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE1
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.48

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	15	U	TRICHLOROETHENE	7.4	U
BROMOMETHANE	15	U	DIBROMOCHLOROMETHANE	7.4	U
VINYL CHLORIDE	15	U	1,1,2-TRICHLOROETHANE	7.4	U
CHLOROETHANE	15	U	BENZENE	7.4	U
METHYLENE CHLORIDE	13	J4	CIS-1,3-DICHLOROPROPENE	7.4	U
ACETONE	210	J4	2-CHLOROETHYL VINYL ETHER	15	U
CARBON DISULFIDE	7.4	U	BROMOFORM	7.4	U
1,1-DICHLOROETHENE	7.4	U	2-HEXANONE	15	U
1,1-DICHLOROETHANE	7.4	U	4-METHYL-2-PENTANONE	15	U
CHLOROFORM	7.4	U	TETRACHLOROETHENE	7.4	U
1,2-DICHLOROETHANE	7.4	U	TOLUENE	7.4	U
1,1,1-TRICHLOROETHANE	7.4	U	CHLOROBENZENE	30	J6
CARBON TETRACHLORIDE	7.4	U	ETHYLBENZENE	7.4	U
VINYL ACETATE	15	U	STYRENE	7.4	U
BROMODICHLOROMETHANE	7.4	U	1,2-DICHLOROETHENE(TOTAL)	7.4	U
1,1,2,2-TETRACHLOROETHANE	7.4	U	XYLENE (TOTAL)	7.4	U
1,2-DICHLOROPROPANE	7.4	U	2-BUTANONE	25	J4
TRANS-1,3-DICHLOROPROPENE	7.4	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 112%	BROMOFLUOROBENZENE	(74-121) 84%
1,2-DICHLOROETHANE-D4	(70-121) 113%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.08

DATE: 12/30/93

SWLO # : 16354.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE1
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.50

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	470	~~J6 J4 JB~~	ACENAPHTHENE	891	J4
BIS(2-CHLOROETHYL)ETHER	500	U	2,4-DINITROPHENOL	2400	U
2-CHLOROPHENOL	378	~~J6 J4 JB~~	4-NITROPHENOL	390	~~JB J4~~ J6
1,3-DICHLOROBENZENE	500	U	DIBENZOFURAN	412	(J5) J6
1,4-DICHLOROBENZENE	500	U	2,4-DINITROTOLUENE	500	U
BENZYL ALCOHOL	500	U	2,6-DINITROTOLUENE	500	U
1,2-DICHLOROBENZENE	500	U	DIETHYLPHTHALATE	500	U
2-METHYLPHENOL(O-CRESOL)	500	U	4-CHLOROPHENYL-PHENYLETHER	500	U
BIS(2-CHLOROISOPROPYL)ETHER	500	U	FLUORENE	901	J4
4-METHYLPHENOL(P-CRESOL)	500	U	4-NITROANILINE	2400	U
N-NITROSO-DI-N-PROPYLAMINE	500	U	4,6-DINITRO-2-METHYLPHENOL	2400	U
HEXACHLOROETHANE	500	U	N-NITROSODIPHENYLAMINE(1)	500	U
NITROBENZENE	500	U	4-BROMOPHENYL-PHENYLETHER	500	U
ISOPHORONE	500	U	HEXACHLOROBENZENE	500	U
2-NITROPHENOL	500	U	PENTACHLOROPHENOL	333	~~JB J4~~ J6
2,4-DIMETHYLPHENOL	500	U	PHENANTHRENE	12000	D
BENZOIC ACID	2400	U	ANTHRACENE	2180	J4
BIS(2-CHLOROETHOXY)METHANE	500	U	DI-N-BUTYL PHTHALATE	55.4	(J5) J6
2,4-DICHLOROPHENOL	500	U	FLUORANTHENE	18100	D
1,2,4-TRICHLOROBENZENE	500	U	PYRENE	14500	D
NAPHTHALENE	521	J4	BUTYL BENZYL PHTHALATE	500	U
4-CHLOROANILINE	500	U	3,3'-DICHLOROBENZIDINE	990	U
HEXACHLOROBUTADIENE	500	U	BENZO(A)ANTHRACENE	5480	~~J4~~ J6
4-CHLORO-3-METHYLPHENOL	364	~~J6 J4 JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	500	U
2-METHYLNAPHTHALENE	85.6	J6 (J5)	CHRYSENE	6970	~~J4~~ J6
HEXACHLOROCYCLOPENTADIENE	500	U	DI-N-OCTYL PHTHALATE	273	(J5) J6
2,4,6-TRICHLOROPHENOL	500	U	BENZO(B)FLUORANTHENE	6900	~~J4~~ J6

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Attn: KEVIN TYNES

REPORT: 16354.08

DATE: 12/30/93

SWLO # : 16354.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE1
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.50

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	2400	U	BENZO(K)FLUORANTHENE	5150	~~J4~~ J6
2-CHLORONAPHTHALENE	500	U	BENZO(A)PYRENE	5390	~~J4~~ J6
2-NITROANILINE	2400	U	INDENO(1,2,3-CD)PYRENE	3250	~~J4~~ J6
DIMETHYL PHTHALATE	500	U	DIBENZ(A,H)ANTHRACENE	1530	~~J4~~ J6
ACENAPHTHYLENE	500	U	BENZO(G,H,I)PERYLENE	3620	~~J4~~ J6
3-NITROANILINE	2400	U			

No action taken since only one surrogate out.

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120) 83%	2-FLUOROBIPHENYL	(30-115) 74%
TERPHENYL-D14	(18-137) 156% *	PHENOL-D5	(24-113) 66%
2-FLUOROPHENOL	(25-121) 74%	2,4,6-TRIBROMOPHENOL	(19-122) 75%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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DATE: 12/30/93

SWLO # : 16354.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE1
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.269		mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	5.17		mg/kg	11/22/93	11/29/93	SW846-7761
ARSENIC	3.7		mg/kg	11/22/93	11/22/93	SW846-6010
BARIUM	440		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	8.13	J4	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	161	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	81.3		mg/kg	11/22/93	11/22/93	SW846-6010
NICKEL	58.7		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	2.07		mg/kg	11/22/93	11/22/93	SW846-6010
ZINC	197		mg/kg	11/22/93	11/26/93	SW846-6010

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.09

DATE: 12/30/93

SWLO # : 16354.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE2
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 2.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	21	U	TRICHLOROETHENE	10	U
BROMOMETHANE	21	U	DIBROMOCHLOROMETHANE	10	U
VINYL CHLORIDE	21	U	1,1,2-TRICHLOROETHANE	10	U
CHLOROETHANE	21	U	BENZENE	10	U
METHYLENE CHLORIDE	18	J4	CIS-1,3-DICHLOROPROPENE	10	U
ACETONE	160	J4	2-CHLOROETHYL VINYL ETHER	21	U
CARBON DISULFIDE	10	U	BROMOFORM	10	U
1,1-DICHLOROETHENE	10	U	2-HEXANONE	21	U
1,1-DICHLOROETHANE	10	U	4-METHYL-2-PENTANONE	21	U
CHLOROFORM	10	U	TETRACHLOROETHENE	10	U
1,2-DICHLOROETHANE	10	U	TOLUENE	10	U
1,1,1-TRICHLOROETHANE	10	U	CHLOROBENZENE	110	J6
CARBON TETRACHLORIDE	10	U	ETHYLBENZENE	10	U
VINYL ACETATE	21	U	STYRENE	10	U
BROMODICHLOROMETHANE	10	U	1,2-DICHLOROETHENE(TOTAL)	10	U
1,1,2,2-TETRACHLOROETHANE	10	U	XYLENE (TOTAL)	10	U
1,2-DICHLOROPROPANE	10	U	2-BUTANONE	27	J4
TRANS-1,3-DICHLOROPROPENE	10	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 115%	BROMOFLUOROBENZENE	(74-121) 93%
1,2-DICHLOROETHANE-D4	(70-121) 118%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16354.09

DATE: 12/30/93

SWLO # : 16354.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE2
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	642	~~J6 J1 JB~~	ACENAPHTHENE	359	~~J5~~ J6
BIS(2-CHLOROETHYL)ETHER	690	U	2,4-DINITROPHENOL	3400	U
2-CHLOROPHENOL	528	~~J6 J1 JB~~	4-NITROPHENOL	625	~~JB J1~~ J6
1,3-DICHLOROBENZENE	690	U	DIBENZOFURAN	188	~~J5~~ J1
1,4-DICHLOROBENZENE	690	U	2,4-DINITROTOLUENE	690	U
BENZYL ALCOHOL	690	U	2,6-DINITROTOLUENE	690	U
1,2-DICHLOROBENZENE	690	U	DIETHYLPHTHALATE	690	U
2-METHYLPHENOL(O-CRESOL)	690	U	4-CHLOROPHENYL-PHENYLETHER	690	U
BIS(2-CHLOROISOPROPYL)ETHER	690	U	FLUORENE	387	~~J5~~ J6
4-METHYLPHENOL(P-CRESOL)	690	U	4-NITROANILINE	3400	U
N-NITROSO-DI-N-PROPYLAMINE	690	U	4,6-DINITRO-2-METHYLPHENOL	3400	U
HEXACHLOROETHANE	690	U	N-NITROSODIPHENYLAMINE(1)	690	U
NITROBENZENE	690	U	4-BROMOPHENYL-PHENYLETHER	690	U
ISOPHORONE	690	U	HEXACHLOROBENZENE	690	U
2-NITROPHENOL	690	U	PENTACHLOROPHENOL	484	~~JB J1~~ J6
2,4-DIMETHYLPHENOL	690	U	PHENANTHRENE	4930	~~J4~~ J6
BENZOIC ACID	3400	U	ANTHRACENE	881	J4
BIS(2-CHLOROETHOXY)METHANE	690	U	DI-N-BUTYL PHTHALATE	89.9	~~J5~~ J6
2,4-DICHLOROPHENOL	690	U	FLUORANTHENE	4160	J4
1,2,4-TRICHLOROBENZENE	690	U	PYRENE	7620	D
NAPHTHALENE	216	J6 ~~J5~~	BUTYL BENZYL PHTHALATE	690	U
4-CHLOROANILINE	690	U	3,3'-DICHLOROBENZIDINE	1400	U
HEXACHLOROBUTADIENE	690	U	BENZO(A)ANTHRACENE	3020	~~J4~~ J6
4-CHLORO-3-METHYLPHENOL	552	~~J6 J1 JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	6020	~~J4~~ J6
2-METHYLNAPHTHALENE	690	U	CHRYSENE	4540	~~J4~~ J6
HEXACHLOROCYCLOPENTADIENE	690	U	DI-N-OCTYL PHTHALATE	690	U
2,4,6-TRICHLOROPHENOL	690	U	BENZO(B)FLUORANTHENE	4990	~~J4~~ J6

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Attn: KEVIN TYNES

REPORT: 16354.09

DATE: 12/30/93

SWLO # : 16354.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE2
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 2.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	3400	U	BENZO(K)FLUORANTHENE	4240	~~J4~~ J6
2-CHLORONAPHTHALENE	690	U	BENZO(A)PYRENE	3250	~~J4~~ J6
2-NITROANILINE	3400	U	INDENO(1,2,3-CD)PYRENE	2120	~~J4~~ J6
DIMETHYL PHTHALATE	690	U	DIBENZ(A,H)ANTHRACENE	1220	~~J4~~ J6
ACENAPHTHYLENE	690	U	BENZO(G,H,I)PERYLENE	1940	~~J4~~ J6
3-NITROANILINE	3400	U			

no action taken since only one surrogate out.

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	83%	2-FLUOROBIPHENYL	(30-115)	73%
TERPHENYL-D14	(18-137)	167% *	PHENOL-D5	(24-113)	67%
2-FLUOROPHENOL	(25-121)	75%	2,4,6-TRIBROMOPHENOL	(19-122)	73%

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Attn: KEVIN TYNES

REPORT: 16354.09

DATE: 12/30/93

SWLO # : 16354.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE2
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.42		mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	5		mg/kg	11/22/93	11/29/93	SW846-7761
ARSENIC	5.41		mg/kg	11/22/93	11/22/93	SW846-6010
BARIUM	610		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	33.7	J4	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	214	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	106		mg/kg	11/22/93	11/22/93	SW846-6010
NICKEL	78.9		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	1.04	U	mg/kg	11/22/93	11/22/93	SW846-6010
ZINC	298		mg/kg	11/22/93	11/26/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16354.10

DATE: 12/30/93

SWLO # : 16354.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 180.69

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	1800	U	TRICHLOROETHENE	900	U
BROMOMETHANE	1800	U	DIBROMOCHLOROMETHANE	900	U
VINYL CHLORIDE	1800	U	1,1,2-TRICHLOROETHANE	900	U
CHLOROETHANE	1800	U	BENZENE	900	U
METHYLENE CHLORIDE	900	U	CIS-1,3-DICHLOROPROPENE	900	U
ACETONE	3000	J4	2-CHLOROETHYL VINYL ETHER	1800	U
CARBON DISULFIDE	900	U	BROMOFORM	900	U
1,1-DICHLOROETHENE	900	U	2-HEXANONE	1800	U
1,1-DICHLOROETHANE	900	U	4-METHYL-2-PENTANONE	1800	U
CHLOROFORM	190	J6 (J5)	TETRACHLOROETHENE	900	U
1,2-DICHLOROETHANE	900	U	TOLUENE	11000	~~J4~~ J6
1,1,1-TRICHLOROETHANE	900	U	CHLOROBENZENE	1600	J6
CARBON TETRACHLORIDE	900	U	ETHYLBENZENE	1300	J4
VINYL ACETATE	1800	U	STYRENE	900	U
BROMODICHLOROMETHANE	900	U	1,2-DICHLOROETHENE(TOTAL)	900	U
1,1,2,2-TETRACHLOROETHANE	900	U	XYLENE (TOTAL)	5400	J4
1,2-DICHLOROPROPANE	900	U	2-BUTANONE	1800	U
TRANS-1,3-DICHLOROPROPENE	900	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	92%	BROMOFLUOROBENZENE	(74-121)	88%
1,2-DICHLOROETHANE-D4	(70-121)	94%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 1/11/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.10

DATE: 12/30/93

SWLO # : 16354.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.40

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	551	J6 J ~~B~~	ACENAPHTHENE	460	U
BIS(2-CHLOROETHYL)ETHER	460	U	2,4-DINITROPHENOL	2200	U
2-CHLOROPHENOL	425	J6 J ~~JB~~	4-NITROPHENOL	626	~~JB~~ J J6
1,3-DICHLOROBENZENE	460	U	DIBENZOFURAN	460	U
1,4-DICHLOROBENZENE	61.4	J6 (~~J5~~)	2,4-DINITROTOLUENE	460	U
BENZYL ALCOHOL	460	U	2,6-DINITROTOLUENE	460	U
1,2-DICHLOROBENZENE	460	U	DIETHYLPHTHALATE	460	U
2-METHYLPHENOL(O-CRESOL)	460	U	4-CHLOROPHENYL-PHENYLETHER	460	U
BIS(2-CHLOROISOPROPYL)ETHER	460	U	FLUORENE	460	U
4-METHYLPHENOL(P-CRESOL)	460	U	4-NITROANILINE	2200	U
N-NITROSO-DI-N-PROPYLAMINE	460	U	4,6-DINITRO-2-METHYLPHENOL	2200	U
HEXACHLOROETHANE	460	U	N-NITROSODIPHENYLAMINE(1)	460	U
NITROBENZENE	460	U	4-BROMOPHENYL-PHENYLETHER	460	U
ISOPHORONE	460	U	HEXACHLOROBENZENE	460	U
2-NITROPHENOL	460	U	PENTACHLOROPHENOL	327	~~JB~~ J J6
2,4-DIMETHYLPHENOL	460	U	PHENANTHRENE	134	(~~J5~~) J6
BENZOIC ACID	2200	U	ANTHRACENE	460	U
BIS(2-CHLOROETHOXY)METHANE	460	U	DI-N-BUTYL PHTHALATE	460	U
2,4-DICHLOROPHENOL	460	U	FLUORANTHENE	529	J4
1,2,4-TRICHLOROBENZENE	460	U	PYRENE	619	J4
NAPHTHALENE	460	U	BUTYL BENZYL PHTHALATE	460	U
4-CHLOROANILINE	460	U	3,3'-DICHLOROBENZIDINE	920	U
HEXACHLOROBUTADIENE	460	U	BENZO(A)ANTHRACENE	176	(~~J5~~) J6
4-CHLORO-3-METHYLPHENOL	385	J6 J ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	7530	D
2-METHYLNAPHTHALENE	460	U	CHRYSENE	298	(~~J5~~) J6
HEXACHLOROCYCLOPENTADIENE	460	U	DI-N-OCTYL PHTHALATE	607	J4
2,4,6-TRICHLOROPHENOL	460	U	BENZO(B)FLUORANTHENE	240	(~~J5~~) J6

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.10

DATE: 12/30/93

SWLO # : 16354.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.40

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	2200	U	BENZO(K)FLUORANTHENE	181	~~J~~ J
2-CHLORONAPHTHALENE	460	U	BENZO(A)PYRENE	156	~~J~~ J
2-NITROANILINE	2200	U	INDENO(1,2,3-CD)PYRENE	118	~~J~~ J
DIMETHYL PHTHALATE	460	U	DIBENZ(A,H)ANTHRACENE	460	U
ACENAPHTHYLENE	460	U	BENZO(G,H,I)PERYLENE	127	~~J~~ J
3-NITROANILINE	2200	U			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	101%	2-FLUOROBIPHENYL	(30-115) 85%
TERPHENYL-D14	(18-137)	121%	PHENOL-D5	(24-113) 82%
2-FLUOROPHENOL	(25-121)	90%	2,4,6-TRIBROMOPHENOL	(19-122) 82%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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REPORT: 16354.10

DATE: 12/30/93

SWLO # : 16354.10 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.214		mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	4.48		mg/kg	11/22/93	11/29/93	SW846-7761
ARSENIC	1.44		mg/kg	11/22/93	11/23/93	SW846-6010
BARIUM	293		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	18.2	J4	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	464	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	53.2		mg/kg	11/22/93	11/23/93	SW846-6010
NICKEL	90		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	1.59		mg/kg	11/22/93	11/23/93	SW846-6010
ZINC	106		mg/kg	11/22/93	11/26/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.11

DATE: 12/30/93

SWLO # : 16354.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4E
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 171.73

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	1700	U	TRICHLOROETHENE	860	U
BROMOMETHANE	1700	U	DIBROMOCHLOROMETHANE	860	U
VINYL CHLORIDE	1700	U	1,1,2-TRICHLOROETHANE	860	U
CHLOROETHANE	1700	U	BENZENE	860	U
METHYLENE CHLORIDE	860	U	CIS-1,3-DICHLOROPROPENE	860	U
ACETONE	1100	J6 (J5)	2-CHLOROETHYL VINYL ETHER	1700	U
CARBON DISULFIDE	860	U	BROMOFORM	860	U
1,1-DICHLOROETHENE	860	U	2-HEXANONE	1700	U
1,1-DICHLOROETHANE	860	U	4-METHYL-2-PENTANONE	1700	U
CHLOROFORM	860	U	TETRACHLOROETHENE	860	U
1,2-DICHLOROETHANE	860	U	TOLUENE	410	~~J6~~ J+ J6
1,1,1-TRICHLOROETHANE	860	U	CHLOROBENZENE	6700	J6
CARBON TETRACHLORIDE	860	U	ETHYLBENZENE	860	U
VINYL ACETATE	1700	U	STYRENE	860	U
BROMODICHLOROMETHANE	860	U	1,2-DICHLOROETHENE(TOTAL)	860	U
1,1,2,2-TETRACHLOROETHANE	860	U	XYLENE (TOTAL)	860	U
1,2-DICHLOROPROPANE	860	U	2-BUTANONE	2100	J4
TRANS-1,3-DICHLOROPROPENE	860	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 108%	BROMOFLUOROBENZENE	(74-121) 105%
1,2-DICHLOROETHANE-D4	(70-121) 107%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.11

DATE: 12/30/93

SWLO # : 16354.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4E
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.40

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	454	~~J6 J1 B0~~	ACENAPHTHENE	460	U
BIS(2-CHLOROETHYL)ETHER	460	U	2,4-DINITROPHENOL	2200	U
2-CHLOROPHENOL	357	~~J6 J1 JB~~	4-NITROPHENOL	2200	U
1,3-DICHLOROBENZENE	460	U	DIBENZOFURAN	460	U
1,4-DICHLOROBENZENE	2390	J4	2,4-DINITROTOLUENE	460	U
BENZYL ALCOHOL	460	U	2,6-DINITROTOLUENE	460	U
1,2-DICHLOROBENZENE	287	J6 ~~J5~~	DIETHYLPHTHALATE	460	U
2-METHYLPHENOL(O-CRESOL)	460	U	4-CHLOROPHENYL-PHENYLETHER	460	U
BIS(2-CHLOROISOPROPYL)ETHER	460	U	FLUORENE	460	U
4-METHYLPHENOL(P-CRESOL)	460	U	4-NITROANILINE	2200	U
N-NITROSO-DI-N-PROPYLAMINE	460	U	4,6-DINITRO-2-METHYLPHENOL	2200	U
HEXACHLOROETHANE	460	U	N-NITROSODIPHENYLAMINE(1)	460	U
NITROBENZENE	460	U	4-BROMOPHENYL-PHENYLETHER	460	U
ISOPHORONE	460	U	HEXACHLOROBENZENE	460	U
2-NITROPHENOL	460	U	PENTACHLOROPHENOL	2200	U
2,4-DIMETHYLPHENOL	460	U	PHENANTHRENE	489	~~J4~~ J6
BENZOIC ACID	2200	U	ANTHRACENE	460	U
BIS(2-CHLOROETHOXY)METHANE	460	U	DI-N-BUTYL PHTHALATE	460	U
2,4-DICHLOROPHENOL	460	U	FLUORANTHENE	1900	J4
1,2,4-TRICHLOROBENZENE	460	U	PYRENE	269	~~J5~~ J6
NAPHTHALENE	94.1	J6 ~~J5~~	BUTYL BENZYL PHTHALATE	310	~~J5~~ J6
4-CHLOROANILINE	460	U	3,3'-DICHLOROBENZIDINE	920	U
HEXACHLOROBUTADIENE	460	U	BENZO(A)ANTHRACENE	79.1	~~J5~~ J6
4-CHLORO-3-METHYLPHENOL	460	U	BIS(2-ETHYLHEXYL)PHTHALATE	103000	D
2-METHYLNAPHTHALENE	460	U	CHRYSENE	145	~~J5~~ J6
HEXACHLOROCYCLOPENTADIENE	460	U	DI-N-OCTYL PHTHALATE	12100	D
2,4,6-TRICHLOROPHENOL	460	U	BENZO(B)FLUORANTHENE	72	~~J5~~ J6

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.11

DATE: 12/30/93

SWLO # : 16354.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4E
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.40

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	2200	U	BENZO(K)FLUORANTHENE	77.9	~~J4~~ J6
2-CHLORONAPHTHALENE	460	U	BENZO(A)PYRENE	48.1	~~J4~~ J6
2-NITROANILINE	2200	U	INDENO(1,2,3-CD)PYRENE	460	U
DIMETHYL PHTHALATE	460	U	DIBENZ(A,H)ANTHRACENE	460	U
ACENAPHTHYLENE	460	U	BENZO(G,H,I)PERYLENE	51.8	~~J4~~ J6
3-NITROANILINE	2200	U			

No action taken - since only one surrogate out of limits.

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	128% *	2-FLUOROBIPHENYL	(30-115)	72%
TERPHENYL-D14	(18-137)	95%	PHENOL-D5	(24-113)	61%
2-FLUOROPHENOL	(25-121)	61%	2,4,6-TRIBROMOPHENOL	(19-122)	79%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/11/94

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.11

DATE: 12/30/93

SWLO # : 16354.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4E
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.602		mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	3.57		mg/kg	11/22/93	11/29/93	SW846-7761
ARSENIC	1.37	U	mg/kg	11/22/93	11/23/93	SW846-6010
BARIUM	611		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	8.38	J4	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	371	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	25.3		mg/kg	11/22/93	11/23/93	SW846-6010
NICKEL	69		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.687	U	mg/kg	11/22/93	11/23/93	SW846-6010
ZINC	35.6		mg/kg	11/22/93	11/26/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.12

DATE: 12/30/93

SWLO # : 16354.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4W
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.41

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	14	U	1,2-DICHLOROPROPANE	7	U
BROMOMETHANE	14	U	TRANS-1,3-DICHLOROPROPENE	7	U
VINYL CHLORIDE	14	U	TRICHLOROETHENE	7	U
CHLOROETHANE	14	U	DIBROMOCHLOROMETHANE	7	U
METHYLENE CHLORIDE	7	U	1,1,2-TRICHLOROETHANE	7	U
ACETONE	59	34	BENZENE	7	U
CARBON DISULFIDE	7	U	CIS-1,3-DICHLOROPROPENE	7	U
1,1-DICHLOROETHENE	7	U	2-CHLOROETHYL VINYL ETHER	14	U
1,1-DICHLOROETHANE	7	U	BROMOFORM	7	U
TOTAL 1,2-DICHLOROETHENE	7	U	2-HEXANONE	14	U
CHLOROFORM	7	U	4-METHYL-2-PENTANONE	14	U
1,2-DICHLOROETHANE	7	U	TETRACHLOROETHENE	7	U
METHYL ETHYL KETONE(2-BUTANONE	14	U	TOLUENE	7	U
1,1,1-TRICHLOROETHANE	7	U	CHLOROBENZENE	7	U
CARBON TETRACHLORIDE	7	U	ETHYLBENZENE	7	U
VINYL ACETATE	14	U	STYRENE	7	U
BROMODICHLOROMETHANE	7	U	XYLENE (TOTAL)	7	U
1,1,2,2-TETRACHLOROETHANE	7	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	96%	BROMOFLUOROBENZENE	(74-121) 104%
1,2-DICHLOROETHANE-D4	(70-121)	106%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
1/1/94

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REPORT: 16354.12

DATE: 12/30/93

SWLO # : 16354.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4W
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.40

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	419	J6 ~~J1~~ ~~JB~~	ACENAPHTHENE	460	U
BIS(2-CHLOROETHYL)ETHER	460	U	2,4-DINITROPHENOL	2200	U
2-CHLOROPHENOL	509	J6 ~~J1~~ ~~JB~~	4-NITROPHENOL	266	~~JB~~ ~~J1~~ J6
1,3-DICHLOROBENZENE	460	U	DIBENZOFURAN	460	U
1,4-DICHLOROBENZENE	460	U	2,4-DINITROTOLUENE	460	U
BENZYL ALCOHOL	460	U	2,6-DINITROTOLUENE	460	U
1,2-DICHLOROBENZENE	460	U	DIETHYLPHTHALATE	460	U
2-METHYLPHENOL(O-CRESOL)	460	U	4-CHLOROPHENYL-PHENYLETHER	460	U
BIS(2-CHLOROISOPROPYL)ETHER	460	U	FLUORENE	460	U
4-METHYLPHENOL(P-CRESOL)	460	U	4-NITROANILINE	2200	U
N-NITROSO-DI-N-PROPYLAMINE	460	U	4,6-DINITRO-2-METHYLPHENOL	2200	U
HEXACHLOROETHANE	460	U	N-NITROSODIPHENYLAMINE(1)	460	U
NITROBENZENE	460	U	4-BROMOPHENYL-PHENYLETHER	460	U
ISOPHORONE	460	U	HEXACHLOROBENZENE	460	U
2-NITROPHENOL	460	U	PENTACHLOROPHENOL	319	~~JB~~ ~~J1~~ J6
2,4-DIMETHYLPHENOL	460	U	PHENANTHRENE	460	U
BENZOIC ACID	2200	U	ANTHRACENE	460	U
BIS(2-CHLOROETHOXY)METHANE	460	U	DI-N-BUTYL PHTHALATE	460	U
2,4-DICHLOROPHENOL	460	U	FLUORANTHENE	178	~~J5~~ J6
1,2,4-TRICHLOROBENZENE	460	U	PYRENE	142	~~J5~~ J6
NAPHTHALENE	460	U	BUTYL BENZYL PHTHALATE	460	U
4-CHLOROANILINE	460	U	3,3'-DICHLOROBENZIDINE	920	U
HEXACHLOROBUTADIENE	460	U	BENZO(A)ANTHRACENE	72.2	~~J5~~ J6
4-CHLORO-3-METHYLPHENOL	290	J6 ~~J1~~ ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	100	~~J5~~ J6
2-METHYLNAPHTHALENE	460	U	CHRYSENE	88.5	~~J5~~ J6
HEXACHLOROCYCLOPENTADIENE	460	U	DI-N-OCTYL PHTHALATE	460	U
2,4,6-TRICHLOROPHENOL	460	U	BENZO(B)FLUORANTHENE	70	~~J5~~ J6

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.12

DATE: 12/30/93

SWLO # : 16354.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4W
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.40

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	2200	U	BENZO(K)FLUORANTHENE	73.3	~~J4~~ J6
2-CHLORONAPHTHALENE	460	U	BENZO(A)PYRENE	71.6	~~J4~~ J6
2-NITROANILINE	2200	U	INDENO(1,2,3-CD)PYRENE	460	U
DIMETHYL PHTHALATE	460	U	DIBENZ(A,H)ANTHRACENE	460	U
ACENAPHTHYLENE	460	U	BENZO(G,H,I)PERYLENE	460	U
3-NITROANILINE	2200	U			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	68% ~	2-FLUOROBIPHENYL	(30-115)	67% ~
TERPHENYL-D14	(18-137)	81% ~	PHENOL-D5	(24-113)	65% ~
2-FLUOROPHENOL	(25-121)	59% ~	2,4,6-TRIBROMOPHENOL	(19-122)	48% ~

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16354.12

DATE: 12/30/93

SWLO # : 16354.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4W
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.453		mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.424		mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	3.54		mg/kg	11/22/93	11/23/93	SW846-6010
BARIUM	560		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	2.83	J4	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	42.9	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	11.9		mg/kg	11/22/93	11/23/93	SW846-6010
NICKEL	15.1		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.707	U	mg/kg	11/22/93	11/23/93	SW846-6010
ZINC	37.8		mg/kg	11/22/93	11/26/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16354.13

DATE: 12/30/93

SWLO # : 16354.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.51

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	15	U	1,2-DICHLOROPROPANE	7.6	U
BROMOMETHANE	15	U	TRANS-1,3-DICHLOROPROPENE	7.6	U
VINYL CHLORIDE	15	U	TRICHLOROETHENE	7.6	U
CHLOROETHANE	15	U	DIBROMOCHLOROMETHANE	7.6	U
METHYLENE CHLORIDE	7.6	U	1,1,2-TRICHLOROETHANE	7.6	U
ACETONE	93	J4	BENZENE	7.6	U
CARBON DISULFIDE	7.6	U	CIS-1,3-DICHLOROPROPENE	7.6	U
1,1-DICHLOROETHENE	7.6	U	2-CHLOROETHYL VINYL ETHER	15	U
1,1-DICHLOROETHANE	7.6	U	BROMOFORM	7.6	U
TOTAL 1,2-DICHLOROETHENE	7.6	U	2-HEXANONE	15	U
CHLOROFORM	7.6	U	4-METHYL-2-PENTANONE	15	U
1,2-DICHLOROETHANE	7.6	U	TETRACHLOROETHENE	62	J4
METHYL ETHYL KETONE(2-BUTANONE	15	U	TOLUENE	48	~~J~~ J6
1,1,1-TRICHLOROETHANE	7.6	U	CHLOROBENZENE	7.6	U
CARBON TETRACHLORIDE	7.6	U	ETHYLBENZENE	7.6	U
VINYL ACETATE	15	U	STYRENE	31	J4
BROMODICHLOROMETHANE	7.6	U	XYLENE (TOTAL)	7.6	U
1,1,2,2-TETRACHLOROETHANE	7.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 95%	BROMOFLUOROBENZENE	(74-121) 116%
1,2-DICHLOROETHANE-D4	(70-121) 175% *		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.13

DATE: 12/30/93

SWLO # : 16354.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.51

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	742	J6 ~~B~~	ACENAPHTHENE	500	U
BIS(2-CHLOROETHYL)ETHER	500	U	2,4-DINITROPHENOL	2400	U
2-CHLOROPHENOL	428	J6 ~~JB~~	4-NITROPHENOL	329	~~JB~~ J6
1,3-DICHLOROBENZENE	500	U	DIBENZOFURAN	500	U
1,4-DICHLOROBENZENE	500	U	2,4-DINITROTOLUENE	500	U
BENZYL ALCOHOL	500	U	2,6-DINITROTOLUENE	500	U
1,2-DICHLOROBENZENE	500	U	DIETHYLPHTHALATE	500	U
2-METHYLPHENOL(O-CRESOL)	500	U	4-CHLOROPHENYL-PHENYLETHER	500	U
BIS(2-CHLOROISOPROPYL)ETHER	500	U	FLUORENE	500	U
4-METHYLPHENOL(P-CRESOL)	217	J6 ~~J5~~	4-NITROANILINE	2400	U
N-NITROSO-DI-N-PROPYLAMINE	500	U	4,6-DINITRO-2-METHYLPHENOL	2400	U
HEXACHLOROETHANE	500	U	N-NITROSODIPHENYLAMINE(1)	500	U
NITROBENZENE	500	U	4-BROMOPHENYL-PHENYLETHER	500	U
ISOPHORONE	500	U	HEXACHLOROBENZENE	500	U
2-NITROPHENOL	500	U	PENTACHLOROPHENOL	394	~~JB~~
2,4-DIMETHYLPHENOL	500	U	PHENANTHRENE	349	~~J5~~ J6
BENZOIC ACID	2400	J4	ANTHRACENE	500	U
BIS(2-CHLOROETHOXY)METHANE	500	U	DI-N-BUTYL PHTHALATE	500	U
2,4-DICHLOROPHENOL	500	U	FLUORANTHENE	1110	J4
1,2,4-TRICHLOROBENZENE	500	U	PYRENE	544	J4
NAPHTHALENE	500	U	BUTYL BENZYL PHTHALATE	500	U
4-CHLOROANILINE	500	U	3,3'-DICHLOROBENZIDINE	1000	U
HEXACHLOROBUTADIENE	500	U	BENZO(A)ANTHRACENE	204	~~J5~~ J6
4-CHLORO-3-METHYLPHENOL	385	J6 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	3500	~~J4~~ J6
2-METHYLNAPHTHALENE	500	U	CHRYSENE	328	~~J5~~ J6
HEXACHLOROCYCLOPENTADIENE	500	U	DI-N-OCTYL PHTHALATE	841	J4
2,4,6-TRICHLOROPHENOL	500	U	BENZO(B)FLUORANTHENE	276	~~J5~~ J6

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Attn: KEVIN TYNES

REPORT: 16354.13

DATE: 12/30/93

SWLO # : 16354.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.51

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**		
2,4,5-TRICHLOROPHENOL	2400	U	BENZO(K)FLUORANTHENE	269	J4	J6
2-CHLORONAPHTHALENE	500	U	BENZO(A)PYRENE	238	J4	J6
2-NITROANILINE	2400	U	INDENO(1,2,3-CD)PYRENE	155	J4	J6
DIMETHYL PHTHALATE	500	U	DIBENZ(A,H)ANTHRACENE	77.6	J4	J6
ACENAPHTHYLENE	500	U	BENZO(G,H,I)PERYLENE	174	J4	J6
3-NITROANILINE	2400	U				

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	102%	2-FLUOROBIPHENYL	(30-115)	86%
TERPHENYL-D14	(18-137)	89%	PHENOL-D5	(24-113)	86%
2-FLUOROPHENOL	(25-121)	80%	2,4,6-TRIBROMOPHENOL	(19-122)	63%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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REPORT: 16354.13

DATE: 12/30/93

SWLO # : 16354.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.227		mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	3.93		mg/kg	12/23/93	12/28/93	SW846-7761
ARSENIC	1.51	U	mg/kg	12/23/93	12/28/93	SW846-6010
BARIUM	390		mg/kg	12/23/93	12/28/93	SW846-6010
CADMIUM	26.9	J4	mg/kg	12/23/93	12/28/93	SW846-6010
CHROMIUM	289	R	mg/kg	12/23/93	12/28/93	SW846-6010
LEAD	36.9		mg/kg	12/23/93	12/28/93	SW846-6010
NICKEL	51.1		mg/kg	12/23/93	12/28/93	SW846-6010
SELENIUM	0.756	U	mg/kg	12/23/93	12/28/93	SW846-6010
ZINC	66.2		mg/kg	12/23/93	12/28/93	SW846-6010

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.14

DATE: 12/30/93

SWLO # : 16354.14 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.47

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	15	U	TRICHLOROETHENE	62	~~J4~~ J6
BROMOMETHANE	15	U	DIBROMOCHLOROMETHANE	7.3	U
VINYL CHLORIDE	15	U	1,1,2-TRICHLOROETHANE	7.3	U
CHLOROETHANE	15	U	BENZENE	65	~~J4~~ J6
METHYLENE CHLORIDE	24	J4	CIS-1,3-DICHLOROPROPENE	7.3	U
ACETONE	31	J4	2-CHLOROETHYL VINYL ETHER	15	U
CARBON DISULFIDE	7.3	U	BROMOFORM	7.3	U
1,1-DICHLOROETHENE	69	J6 ~~J4~~	2-HEXANONE	15	U
1,1-DICHLOROETHANE	7.3	U	4-METHYL-2-PENTANONE	15	U
CHLOROFORM	7.3	U	TETRACHLOROETHENE	52	J4
1,2-DICHLOROETHANE	7.3	U	TOLUENE	89	~~J4~~ J6
1,1,1-TRICHLOROETHANE	7.3	U	CHLOROBENZENE	80	J6
CARBON TETRACHLORIDE	7.3	U	ETHYLBENZENE	7.3	U
VINYL ACETATE	15	U	STYRENE	1.3	~~J5~~ J6
BROMODICHLOROMETHANE	7.3	U	1,2-DICHLOROETHENE(TOTAL)	7.3	U
1,1,2,2-TETRACHLOROETHANE	7.3	U	XYLENE (TOTAL)	7.3	U
1,2-DICHLOROPROPANE	7.3	U	2-BUTANONE	15	U
TRANS-1,3-DICHLOROPROPENE	7.3	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 109% -	BROMOFLUOROBENZENE	(74-121) 109% -
1,2-DICHLOROETHANE-D4	(70-121) 113% -		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16354.14

DATE: 12/30/93

SWLO # : 16354.14 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.80

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	11400	J6 ~~B~~	ACENAPHTHENE	4680	J4
BIS(2-CHLOROETHYL)ETHER	590	U	2,4-DINITROPHENOL	2900	U
2-CHLOROPHENOL	9360	J6 ~~B~~	4-NITROPHENOL	9430	~~B~~ J6
1,3-DICHLOROBENZENE	590	U	DIBENZOFURAN	590	U
1,4-DICHLOROBENZENE	4170	J4	2,4-DINITROTOLUENE	3740	J4
BENZYL ALCOHOL	590	U	2,6-DINITROTOLUENE	590	U
1,2-DICHLOROBENZENE	590	U	DIETHYLPHTHALATE	590	U
2-METHYLPHENOL(O-CRESOL)	590	U	4-CHLOROPHENYL-PHENYLETHER	590	U
BIS(2-CHLOROISOPROPYL)ETHER	590	U	FLUORENE	590	U
4-METHYLPHENOL(P-CRESOL)	228	J6 ~~J5~~	4-NITROANILINE	2900	U
N-NITROSO-DI-N-PROPYLAMINE	5680	J4	4,6-DINITRO-2-METHYLPHENOL	2900	U
HEXACHLOROETHANE	590	U	N-NITROSODIPHENYLAMINE(1)	590	U
NITROBENZENE	590	U	4-BROMOPHENYL-PHENYLETHER	590	U
ISOPHORONE	590	U	HEXACHLOROBENZENE	590	U
2-NITROPHENOL	590	U	PENTACHLOROPHENOL	7140	~~B~~ J6
2,4-DIMETHYLPHENOL	590	U	PHENANTHRENE	377	~~J5~~ J6
BENZOIC ACID	2900	U	ANTHRACENE	590	U
BIS(2-CHLOROETHOXY)METHANE	590	U	DI-N-BUTYL PHTHALATE	590	U
2,4-DICHLOROPHENOL	590	U	FLUORANTHENE	1220	J4
1,2,4-TRICHLOROBENZENE	3470	J4	PYRENE	5670	J4
NAPHTHALENE	590	U	BUTYL BENZYL PHTHALATE	590	U
4-CHLOROANILINE	590	U	3,3'-DICHLOROBENZIDINE	1200	U
HEXACHLOROBUTADIENE	590	U	BENZO(A)ANTHRACENE	213	~~J5~~ J6
4-CHLORO-3-METHYLPHENOL	7570	J6 ~~B~~	BIS(2-ETHYLHEXYL)PHTHALATE	58400	~~E J2~~ J6
2-METHYLNAPHTHALENE	590	U	CHRYSENE	394	~~J5~~ J6
HEXACHLOROCYCLOPENTADIENE	590	U	DI-N-OCTYL PHTHALATE	7360	J4
2,4,6-TRICHLOROPHENOL	590	U	BENZO(B)FLUORANTHENE	370	~~J5~~ J6

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SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.80

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	2900	U	BENZO(K)FLUORANTHENE	381	~~J4~~ J6
2-CHLORONAPHTHALENE	590	U	BENZO(A)PYRENE	261	~~J4~~ J6
2-NITROANILINE	2900	U	INDENO(1,2,3-CD)PYRENE	590	U
DIMETHYL PHTHALATE	590	U	DIBENZ(A,H)ANTHRACENE	590	U
ACENAPHTHYLENE	590	U	BENZO(G,H,I)PERYLENE	108	~~J4~~ J6
3-NITROANILINE	2900	U			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	102%	2-FLUOROBIPHENYL	(30-115)	80%
TERPHENYL-D14	(18-137)	97%	PHENOL-D5	(24-113)	78%
2-FLUOROPHENOL	(25-121)	81%	2,4,6-TRIBROMOPHENOL	(19-122)	60%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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DATE: 12/30/93

SWLO # : 16354.14 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
SILVER	10.2	mg/kg	12/23/93	12/28/93	SW846-7761
ARSENIC	326	mg/kg	12/23/93	12/28/93	SW846-6010
BARIUM	669	mg/kg	12/23/93	12/28/93	SW846-6010
CADMIUM	37.8 J4	mg/kg	12/23/93	12/28/93	SW846-6010
CHROMIUM	264 R	mg/kg	12/23/93	12/28/93	SW846-6010
LEAD	112	mg/kg	12/23/93	12/28/93	SW846-6010
NICKEL	123	mg/kg	12/23/93	12/28/93	SW846-6010
SELENIUM	317	mg/kg	12/23/93	12/28/93	SW846-6010
ZINC	141	mg/kg	12/23/93	12/28/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/11/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.15

DATE: 12/30/93

SWLO # : 16354.15 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.50

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	15	U	TRICHLOROETHENE	85	~~J4~~ J6
BROMOMETHANE	15	U	DIBROMOCHLOROMETHANE	7.5	U
VINYL CHLORIDE	15	U	1,1,2-TRICHLOROETHANE	7.5	U
CHLOROETHANE	15	U	BENZENE	88	~~J4~~ J6
METHYLENE CHLORIDE	29	J4	CIS-1,3-DICHLOROPROPENE	7.5	U
ACETONE	67	J4	2-CHLOROETHYL VINYL ETHER	15	U
CARBON DISULFIDE	7.5	U	BROMOFORM	7.5	U
1,1-DICHLOROETHENE	92	J6 ~~J4~~	2-HEXANONE	15	U
1,1-DICHLOROETHANE	7.5	U	4-METHYL-2-PENTANONE	15	U
CHLOROFORM	7.5	U	TETRACHLOROETHENE	71	J4
1,2-DICHLOROETHANE	7.5	U	TOLUENE	180	~~J4~~ J6
1,1,1-TRICHLOROETHANE	7.5	U	CHLOROBENZENE	120	J6
CARBON TETRACHLORIDE	7.5	U	ETHYLBENZENE	7.5	U
VINYL ACETATE	15	U	STYRENE	39	J4
BROMODICHLOROMETHANE	7.5	U	1,2-DICHLOROETHENE(TOTAL)	7.5	U
1,1,2,2-TETRACHLOROETHANE	7.5	U	XYLENE (TOTAL)	7.5	U
1,2-DICHLOROPROPANE	7.5	U	2-BUTANONE	15	U
TRANS-1,3-DICHLOROPROPENE	7.5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 116% ✓	BROMOFLUOROBENZENE	(74-121) 100% —
1,2-DICHLOROETHANE-D4	(70-121) 124% *		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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REPORT: 16354.15

DATE: 12/30/93

SWLO # : 16354.15 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.80

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	13800	J6 ~~EB~~	ACENAPHTHENE	4960	J4
BIS(2-CHLOROETHYL)ETHER	590	U	2,4-DINITROPHENOL	2900	U
2-CHLOROPHENOL	10800	J6 ~~EB~~	4-NITROPHENOL	10600	~~EB~~ J6
1,3-DICHLOROBENZENE	590	U	DIBENZOFURAN	590	U
1,4-DICHLOROBENZENE	4550	J4	2,4-DINITROTOLUENE	4040	J4
BENZYL ALCOHOL	590	U	2,6-DINITROTOLUENE	590	U
1,2-DICHLOROBENZENE	590	U	DIETHYLPHTHALATE	590	U
2-METHYLPHENOL(O-CRESOL)	590	U	4-CHLOROPHENYL-PHENYLETHER	590	U
BIS(2-CHLOROISOPROPYL)ETHER	590	U	FLUORENE	590	U
4-METHYLPHENOL(P-CRESOL)	390	J6 ~~J5~~	4-NITROANILINE	2900	U
N-NITROSO-DI-N-PROPYLAMINE	11700	J6 ~~EJ~~	4,6-DINITRO-2-METHYLPHENOL	2900	U
HEXACHLOROETHANE	590	U	N-NITROSODIPHENYLAMINE(1)	590	U
NITROBENZENE	590	U	4-BROMOPHENYL-PHENYLETHER	590	U
ISOPHORONE	590	U	HEXACHLOROBENZENE	590	U
2-NITROPHENOL	590	U	PENTACHLOROPHENOL	8500	~~B~~ J6
2,4-DIMETHYLPHENOL	590	U	PHENANTHRENE	309	~~J5~~ J6
BENZOIC ACID	2900	U	ANTHRACENE	590	U
BIS(2-CHLOROETHOXY)METHANE	590	U	DI-N-BUTYL PHTHALATE	590	U
2,4-DICHLOROPHENOL	590	U	FLUORANTHENE	1190	J4
1,2,4-TRICHLOROBENZENE	3760	J4	PYRENE	5840	J4
NAPHTHALENE	590	U	BUTYL BENZYL PHTHALATE	590	U
4-CHLOROANILINE	590	U	3,3'-DICHLOROBENZIDINE	1200	U
HEXACHLOROBUTADIENE	590	U	BENZO(A)ANTHRACENE	184	~~J5~~ J6
4-CHLORO-3-METHYLPHENOL	8650	J6 ~~B~~	BIS(2-ETHYLHEXYL)PHTHALATE	28200	~~EJ~~ J6
2-METHYLNAPHTHALENE	590	U	CHRYSENE	321	~~J5~~ J6
HEXACHLOROCYCLOPENTADIENE	590	U	DI-N-OCTYL PHTHALATE	3690	J4
2,4,6-TRICHLOROPHENOL	590	U	BENZO(B)FLUORANTHENE	497	~~J5~~ J6

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16354.15

DATE: 12/30/93

SWLO # : 16354.15 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.80

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	2900	U	BENZO(K)FLUORANTHENE	590	U
2-CHLORONAPHTHALENE	590	U	BENZO(A)PYRENE	277	J4 J6
2-NITROANILINE	2900	U	INDENO(1,2,3-CD)PYRENE	124	J4 J6
DIMETHYL PHTHALATE	590	U	DIBENZ(A,H)ANTHRACENE	71.8	J4 J6
ACENAPHTHYLENE	590	U	BENZO(G,H,I)PERYLENE	145	J4 J6
3-NITROANILINE	2900	U			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	114%	2-FLUOROBIPHENYL	(30-115)	86%
TERPHENYL-D14	(18-137)	106%	PHENOL-D5	(24-113)	93%
2-FLUOROPHENOL	(25-121)	91%	2,4,6-TRIBROMOPHENOL	(19-122)	68%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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DATE: 12/30/93

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PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
SILVER	10.3		mg/kg	12/23/93	12/28/93	SW846-7761
ARSENIC	348		mg/kg	12/23/93	12/28/93	SW846-6010
BARIUM	766		mg/kg	12/23/93	12/28/93	SW846-6010
CADMIUM	37.8	J4	mg/kg	12/23/93	12/28/93	SW846-6010
CHROMIUM	266	R	mg/kg	12/23/93	12/28/93	SW846-6010
LEAD	122		mg/kg	12/23/93	12/28/93	SW846-6010
NICKEL	137		mg/kg	12/23/93	12/28/93	SW846-6010
SELENIUM	339		mg/kg	12/23/93	12/28/93	SW846-6010
ZINC	153		mg/kg	12/23/93	12/28/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
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Attn: KEVIN TYNES

REPORT: 16354.16

DATE: 12/30/93

SWLO # : 16354.16 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.51

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	15	U	TRICHLOROETHENE	7.6	U
BROMOMETHANE	15	U	DIBROMOCHLOROMETHANE	7.6	U
VINYL CHLORIDE	15	U	1,1,2-TRICHLOROETHANE	7.6	U
CHLOROETHANE	15	U	BENZENE	7.6	U
METHYLENE CHLORIDE	22	J4	CIS-1,3-DICHLOROPROPENE	7.6	U
ACETONE	64	J4	2-CHLOROETHYL VINYL ETHER	15	U
CARBON DISULFIDE	7.6	U	BROMOFORM	7.6	U
1,1-DICHLOROETHENE	7.6	U	2-HEXANONE	15	U
1,1-DICHLOROETHANE	7.6	U	4-METHYL-2-PENTANONE	15	U
CHLOROFORM	7.6	U	TETRACHLOROETHENE	42	J4
1,2-DICHLOROETHANE	7.6	U	TOLUENE	25	~~J~~ J6
1,1,1-TRICHLOROETHANE	7.6	U	CHLOROBENZENE	7.6	U
CARBON TETRACHLORIDE	7.6	U	ETHYLBENZENE	7.6	U
VINYL ACETATE	15	U	STYRENE	7.6	U
BROMODICHLOROMETHANE	7.6	U	1,2-DICHLOROETHENE(TOTAL)	7.6	U
1,1,2,2-TETRACHLOROETHANE	7.6	U	XYLENE (TOTAL)	7.6	U
1,2-DICHLOROPROPANE	7.6	U	2-BUTANONE	15	U
TRANS-1,3-DICHLOROPROPENE	7.6	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 107%	BROMOFLUOROBENZENE	(74-121) 113%
1,2-DICHLOROETHANE-D4	(70-121) 117%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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DATE: 12/30/93

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PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
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METHOD REFERENCE: SW846-8270

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SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.50

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	875	~~J6 B~~	ACENAPHTHENE	500	U
BIS(2-CHLOROETHYL)ETHER	500	U	2,4-DINITROPHENOL	2400	U
2-CHLOROPHENOL	407	J6 ~~JB~~	4-NITROPHENOL	407	~~JB~~ J6
1,3-DICHLOROBENZENE	500	U	DIBENZOFURAN	500	U
1,4-DICHLOROBENZENE	500	U	2,4-DINITROTOLUENE	500	U
BENZYL ALCOHOL	500	U	2,6-DINITROTOLUENE	500	U
1,2-DICHLOROBENZENE	500	U	DIETHYLPHTHALATE	500	U
2-METHYLPHENOL(O-CRESOL)	500	U	4-CHLOROPHENYL-PHENYLETHER	500	U
BIS(2-CHLOROISOPROPYL)ETHER	500	U	FLUORENE	500	U
4-METHYLPHENOL(P-CRESOL)	409	J6 ~~J5~~	4-NITROANILINE	2400	U
N-NITROSO-DI-N-PROPYLAMINE	500	U	4,6-DINITRO-2-METHYLPHENOL	2400	U
HEXACHLOROETHANE	500	U	N-NITROSODIPHENYLAMINE(1)	500	U
NITROBENZENE	500	U	4-BROMOPHENYL-PHENYLETHER	500	U
ISOPHORONE	500	U	HEXACHLOROBENZENE	500	U
2-NITROPHENOL	500	U	PENTACHLOROPHENOL	363	~~JB~~ J6
2,4-DIMETHYLPHENOL	500	U	PHENANTHRENE	206	~~J5~~ J6
BENZOIC ACID	2400	U	ANTHRACENE	500	U
BIS(2-CHLOROETHOXY)METHANE	500	U	DI-N-BUTYL PHTHALATE	500	U
2,4-DICHLOROPHENOL	500	U	FLUORANTHENE	1060	J4
1,2,4-TRICHLOROBENZENE	500	U	PYRENE	671	J4
NAPHTHALENE	500	U	BUTYL BENZYL PHTHALATE	500	U
4-CHLOROANILINE	500	U	3,3'-DICHLOROBENZIDINE	990	U
HEXACHLOROBUTADIENE	500	U	BENZO(A)ANTHRACENE	477	~~J5~~ J6
4-CHLORO-3-METHYLPHENOL	293	J6 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	6300	~~J4~~ J6
2-METHYLNAPHTHALENE	500	U	CHRYSENE	818	~~J4~~ J6
HEXACHLOROCYCLOPENTADIENE	500	U	DI-N-OCTYL PHTHALATE	1010	J4
2,4,6-TRICHLOROPHENOL	500	U	BENZO(B)FLUORANTHENE	1030	~~J4~~ J6

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METHOD REFERENCE: SW846-8270

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SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.50

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	2400	U	BENZO(K)FLUORANTHENE	1170	~~J4~~ J6
2-CHLORONAPHTHALENE	500	U	BENZO(A)PYRENE	639	~~J4~~ J6
2-NITROANILINE	2400	U	INDENO(1,2,3-CD)PYRENE	312	(J4) J6
DIMETHYL PHTHALATE	500	U	DIBENZ(A,H)ANTHRACENE	171	(J4) J6
ACENAPHTHYLENE	500	U	BENZO(G,H,I)PERYLENE	292	(J4) J6
3-NITROANILINE	2400	U			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	97%	2-FLUOROBIPHENYL	(30-115)	73%
TERPHENYL-D14	(18-137)	95%	PHENOL-D5	(24-113)	86%
2-FLUOROPHENOL	(25-121)	80%	2,4,6-TRIBROMOPHENOL	(19-122)	59%

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SAMPLE #: ESC1SE5
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.169		mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	3.63		mg/kg	11/22/93	11/29/93	SW846-7761
ARSENIC	1.51	U	mg/kg	11/22/93	11/23/93	SW846-6010
BARIUM	368		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	22.7	J4	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	225	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	34.6		mg/kg	11/22/93	11/23/93	SW846-6010
NICKEL	46.4		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.756	U	mg/kg	11/22/93	11/23/93	SW846-6010
ZINC	104		mg/kg	11/22/93	11/26/93	SW846-6010

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REPORT: 16354.17

DATE: 12/30/93

SWLO # : 16354.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE6
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.16

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	12	U	TRICHLOROETHENE	5.8	U
BROMOMETHANE	12	U	DIBROMOCHLOROMETHANE	5.8	U
VINYL CHLORIDE	12	U	1,1,2-TRICHLOROETHANE	5.8	U
CHLOROETHANE	12	U	BENZENE	5.8	U
METHYLENE CHLORIDE	5.8	U	CIS-1,3-DICHLOROPROPENE	5.8	U
ACETONE	15	J4	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	5.8	U	BROMOFORM	5.8	U
1,1-DICHLOROETHENE	5.8	U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	5.8	U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	5.8	U	TETRACHLOROETHENE	6.8	J4
1,2-DICHLOROETHANE	5.8	U	TOLUENE	5.8	U
1,1,1-TRICHLOROETHANE	5.8	U	CHLOROBENZENE	5.8	U
CARBON TETRACHLORIDE	5.8	U	ETHYLBENZENE	5.8	U
VINYL ACETATE	12	U	STYRENE	5.8	U
BROMODICHLOROMETHANE	5.8	U	1,2-DICHLOROETHENE(TOTAL)	5.8	U
1,1,2,2-TETRACHLOROETHANE	5.8	U	XYLENE (TOTAL)	5.8	U
1,2-DICHLOROPROPANE	5.8	U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	5.8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	95%	BROMOFLUOROBENZENE	(74-121) 102%
1,2-DICHLOROETHANE-D4	(70-121)	98%		

SJC
1/11/94

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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Attn: KEVIN TYNES

REPORT: 16354.17

DATE: 12/30/93

SWLO # : 16354.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE6
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	531	J6 ~~B~~	ACENAPHTHENE	39.1	~~J5~~ J6
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	334	J6 ~~JB~~	4-NITROPHENOL	384	~~JB~~ J6
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	219	~~JB~~ J6
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	180	~~J5~~ J6
BENZOIC ACID	1900	U	ANTHRACENE	51.4	~~J5~~ J6
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	754	J4
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	848	J4
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	438	~~J4~~ J6
4-CHLORO-3-METHYLPHENOL	315	J6 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	1090	~~J4~~ J6
2-METHYLNAPHTHALENE	400	U	CHRYSENE	587	~~J4~~ J6
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	89.4	~~J5~~ J6
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	705	~~J4~~ J6

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.17

DATE: 12/30/93

SWLO # : 16354.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE6
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
2,4,5-TRICHLOROPHENOL	1900	U	BENZO(K)FLUORANTHENE	536	~~J~~ J6
2-CHLORONAPHTHALENE	400	U	BENZO(A)PYRENE	577	~~J~~ J6
2-NITROANILINE	1900	U	INDENO(1,2,3-CD)PYRENE	395	~~J~~ J6
DIMETHYL PHTHALATE	400	U	DIBENZ(A,H)ANTHRACENE	232	~~J~~ J6
ACENAPHTHYLENE	400	U	BENZO(G,H,I)PERYLENE	457	~~J~~ J6
3-NITROANILINE	1900	U			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120) 100% -	2-FLUOROBIPHENYL	(30-115) 97% -	
TERPHENYL-D14	(18-137) 120% -	PHENOL-D5	(24-113) 94% -	
2-FLUOROPHENOL	(25-121) 86% -	2,4,6-TRIBROMOPHENOL	(19-122) 85% -	

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.17

DATE: 12/30/93

SWLO # : 16354.17 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE6
LOCATION:

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : SE
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.116	U	mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.696		mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	1.51		mg/kg	11/22/93	11/23/93	SW846-6010
BARIUM	161		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	3.83	J4	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	40.5	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	32.2		mg/kg	11/22/93	11/23/93	SW846-6010
NICKEL	14.3		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.58	U	mg/kg	11/22/93	11/23/93	SW846-6010
ZINC	15.4		mg/kg	11/22/93	11/26/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16354.18

DATE: 12/30/93

SWLO # : 16354.18 EB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/11/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	1.8	J6 (J5)	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	35	J4	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 104% ✓	BROMOFLUOROBENZENE	(86-115) 101% ✓
1,2-DICHLOROETHANE-D4	(76-114) 95% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16374.01

DATE: 12/30/93

SWLO # : 16374.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB1
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : / /
DILUTION FACTOR: 145.28

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	1400	U	TRICHLOROETHENE	730	U
BROMOMETHANE	1400	U	DIBROMOCHLOROMETHANE	730	U
VINYL CHLORIDE	1400	U	1,1,2-TRICHLOROETHANE	730	U
CHLOROETHANE	1400	U	BENZENE	730	U
METHYLENE CHLORIDE	730	U	CIS-1,3-DICHLOROPROPENE	730	U
ACETONE	670	J6 (J5)	2-CHLOROETHYL VINYL ETHER	1400	U
CARBON DISULFIDE	730	U	BROMOFORM	730	U
1,1-DICHLOROETHENE	730	U	2-HEXANONE	1400	U
1,1-DICHLOROETHANE	730	U	4-METHYL-2-PENTANONE	1400	U
CHLOROFORM	160	J6 (J5)	TETRACHLOROETHENE	730	U
1,2-DICHLOROETHANE	730	U	TOLUENE	1200	~~J4~~ J6
1,1,1-TRICHLOROETHANE	260	J6 (J5)	CHLOROBENZENE	6700	J6
CARBON TETRACHLORIDE	730	U	ETHYLBENZENE	7400	J4
VINYL ACETATE	1400	U	STYRENE	730	U
BROMODICHLOROMETHANE	730	U	1,2-DICHLOROETHENE(TOTAL)	730	U
1,1,2,2-TETRACHLOROETHANE	730	U	XYLENE (TOTAL)	8200	J4
1,2-DICHLOROPROPANE	730	U	2-BUTANONE	1400	U
TRANS-1,3-DICHLOROPROPENE	730	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 146% *	BROMOFLUOROBENZENE	(74-121) 161% *
1,2-DICHLOROETHANE-D4	(70-121) 101%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16374.01

DATE: 12/30/93

SWLO # : 16374.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB1
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 23.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	912	J6 ~~JB~~	ACENAPHTHENE	7600	U
BIS(2-CHLOROETHYL)ETHER	7600	U	2,4-DINITROPHENOL	37000	U
2-CHLOROPHENOL	7600	U	4-NITROPHENOL	37000	U
1,3-DICHLOROBENZENE	7600	U	DIBENZOFURAN	1030	~~J~~ J6
1,4-DICHLOROBENZENE	7600	U	2,4-DINITROTOLUENE	7600	U
BENZYL ALCOHOL	7600	U	2,6-DINITROTOLUENE	7600	U
1,2-DICHLOROBENZENE	7600	U	DIETHYLPHTHALATE	7600	U
2-METHYLPHENOL(O-CRESOL)	7600	U	4-CHLOROPHENYL-PHENYLETHER	7600	U
BIS(2-CHLOROISOPROPYL)ETHER	7600	U	FLUORENE	7600	U
4-METHYLPHENOL(P-CRESOL)	7600	U	4-NITROANILINE	37000	U
N-NITROSO-DI-N-PROPYLAMINE	7600	U	4,6-DINITRO-2-METHYLPHENOL	37000	U
HEXACHLOROETHANE	7600	U	N-NITROSODIPHENYLAMINE(1)	7600	U
NITROBENZENE	7600	U	4-BROMOPHENYL-PHENYLETHER	7600	U
ISOPHORONE	7600	U	HEXACHLOROBENZENE	7600	U
2-NITROPHENOL	7600	U	PENTACHLOROPHENOL	37000	U
2,4-DIMETHYLPHENOL	7600	U	PHENANTHRENE	7600	U
BENZOIC ACID	37000	U	ANTHRACENE	7600	U
BIS(2-CHLOROETHOXY)METHANE	7600	U	DI-N-BUTYL PHTHALATE	7600	U
2,4-DICHLOROPHENOL	7600	U	FLUORANTHENE	7600	U
1,2,4-TRICHLOROBENZENE	7600	U	PYRENE	7600	U
NAPHTHALENE	19000	~~J~~ J6	BUTYL BENZYL PHTHALATE	7600	U
4-CHLOROANILINE	7600	U	3,3'-DICHLOROBENZIDINE	15000	U
HEXACHLOROBUTADIENE	7600	U	BENZO(A)ANTHRACENE	7600	U
4-CHLORO-3-METHYLPHENOL	7600	U	BIS(2-ETHYLHEXYL)PHTHALATE	2130	~~J~~ J6
2-METHYLNAPHTHALENE	24500	~~J~~ J6	CHRYSENE	7600	U
HEXACHLOROCYCLOPENTADIENE	7600	U	DI-N-OCTYL PHTHALATE	7600	U
2,4,6-TRICHLOROPHENOL	7600	U	BENZO(B)FLUORANTHENE	7600	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16374.01

DATE: 12/30/93

SWLO # : 16374.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB1
LOCATION:
DATE ANALYZED : 11/21/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED : 11/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 25.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN mg/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	25	U	NAPHTHA C6-C12	25	U
KEROSENE C9-C18	2880	J4	#6 FUEL OIL C12-C24	25	U
JP-4 C6-C14	25	U			

QA/QC SURROGATE RECOVERIES
NAPHTHALENE (21-166) I

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
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ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16374.01

DATE: 01/03/94

SWLO # : 16374.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: RCP1SB1
LOCATION:

DATE SAMPLED : 11/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 6.00
DEPTH TO : 8.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.191		mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	2.21		mg/kg	11/22/93	11/29/93	SW846-7761
ARSENIC	2.09		mg/kg	11/22/93	11/23/93	SW846-6010
BARIUM	334		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	13.8	J4	mg/kg	11/22/93	11/26/93	SW846-6010
CEROMIUM	343	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	19.8		mg/kg	11/22/93	11/23/93	SW846-6010
NICKEL	172		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.581	U	mg/kg	11/22/93	11/23/93	SW846-6010
ZINC	39.2		mg/kg	11/22/93	11/26/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16374.02

DATE: 12/30/93

SWLO # : 16374.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB2
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50
DATE PREPARED : / /
DILUTION FACTOR: 5.64

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	56	U	TRICHLOROETHENE	28	U
BROMOMETHANE	56	U	DIBROMOCHLOROMETHANE	28	U
VINYL CHLORIDE	56	U	1,1,2-TRICHLOROETHANE	28	U
CHLOROETHANE	56	U	BENZENE	28	U
METHYLENE CHLORIDE	80	J4	CIS-1,3-DICHLOROPROPENE	28	U
ACETONE	1100J~~32~~E		2-CHLOROETHYL VINYL ETHER	56	U
CARBON DISULFIDE	28	U	BROMOFORM	28	U
1,1-DICHLOROETHENE	28	U	2-HEXANONE	56	U
1,1-DICHLOROETHANE	28	U	4-METHYL-2-PENTANONE	56	U
CHLOROFORM	28	U	TETRACHLOROETHENE	28	U
1,2-DICHLOROETHANE	28	U	TOLUENE	28	U
1,1,1-TRICHLOROETHANE	28	U	CHLOROBENZENE	28	U
CARBON TETRACHLORIDE	28	U	ETHYLBENZENE	28	U
VINYL ACETATE	56	U	STYRENE	28	U
BROMODICHLOROMETHANE	28	U	1,2-DICHLOROETHENE(TOTAL)	28	U
1,1,2,2-TETRACHLOROETHANE	28	U	XYLENE (TOTAL)	28	U
1,2-DICHLOROPROPANE	28	U	2-BUTANONE	56	U
TRANS-1,3-DICHLOROPROPENE	28	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	100%	BROMOFLUOROBENZENE	(74-121)	109%
1,2-DICHLOROETHANE-D4	(70-121)	100%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16374.02

DATE: 12/30/93

SWLO # : 16374.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB2
LOCATION:
DATE ANALYZED : 12/07/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4210	J6 B	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	360	U	4-NITROPHENOL	185	JB J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	1350	J4	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	1670	J4	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	153	JB J6
2,4-DIMETHYLPHENOL	128	J	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	407	J6 B	BIS(2-ETHYLHEXYL)PHTHALATE	43.3	J5 J6
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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1/14/94

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16374.02

DATE: 12/30/93

SWLO # : 16374.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB2
LOCATION:

DATE SAMPLED : 11/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 8.00
DEPTH TO : 8.50

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.113	U	mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.113	U	mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	4.29		mg/kg	11/22/93	11/23/93	SW846-6010
BARIUM	421		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	0.338	U	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	24	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	3.5		mg/kg	11/22/93	11/23/93	SW846-6010
NICKEL	23.8		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.564	U	mg/kg	11/22/93	11/23/93	SW846-6010
ZINC	20.6		mg/kg	11/22/93	11/26/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16374.03

DATE: 12/30/93

SWLO # : 16374.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB2
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED : 11/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11	U	BENZENE	5.5	U
METHYLENE CHLORIDE	5.5	U	CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	60	J4	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5	U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.5	U	TETRACHLOROETHENE	5.5	U
1,2-DICHLOROETHANE	5.5	U	TOLUENE	5.5	U
1,1,1-TRICHLOROETHANE	5.5	U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5	U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11	U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5	U	1,2-DICHLOROETHENE(TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5	U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	92%	BROMOFLUOROBENZENE	(74-121)	97%
1,2-DICHLOROETHANE-D4	(70-121)	94%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
1/11/94

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16374.03

DATE: 12/30/93

SWLO # : 16374.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB2
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED : 11/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00
DATE PREPARED : 11/16/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	366	J6 ~~B~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	248	J6 ~~JB~~	4-NITROPHENOL	158	~~JB~~ J6
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	77.3	~~JB~~ J6
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	225	J6 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	40.6	~~J5~~ J6
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

SMC
1/14/94

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16374.03

DATE: 12/30/93

SWLO # : 16374.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SB2
LOCATION:

DATE SAMPLED : 11/12/93
SAMPLE MATRIX : SO
DEPTH FROM : 17.00
DEPTH TO : 18.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.114		mg/kg	11/19/93	11/19/93	SW846-7471
SILVER	0.11	U	mg/kg	11/22/93	11/28/93	SW846-7761
ARSENIC	4.64		mg/kg	11/22/93	11/23/93	SW846-6010
BARIUM	1270		mg/kg	11/22/93	11/26/93	SW846-6010
CADMIUM	0.332	U	mg/kg	11/22/93	11/26/93	SW846-6010
CHROMIUM	22	R	mg/kg	11/22/93	11/26/93	SW846-6010
LEAD	4.53		mg/kg	11/22/93	11/23/93	SW846-6010
NICKEL	21.2		mg/kg	11/22/93	11/26/93	SW846-6010
SELENIUM	0.553	U	mg/kg	11/22/93	11/23/93	SW846-6010
ZINC	24.5		mg/kg	11/22/93	11/26/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
1/4/94

TABLE 1
TINKER AIR FORCE BASE RFI
DATA VALIDATION WORKSHEET

SDG: 16375

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4)
VOCs	V1	Lab blank contamination - acetone	See Note 1	J 1
	V2	Estimated values are between the MDL and the MQL	See Note 2	J 5
	V3	Concentration of xylene or 2-butanone is above the calibration range ("E").	See Note 3	J 2
	V4	RPD outliers for acetone, tetrachloroethene based on FR + sample	See Note 7	J 4
SVOCs	SV1	Lab blank contamination - phenol, 2-chlorophenol, benzoic acid, 4-chloro-3-methyl phenol, 4-nitrophenol, pentachlorophenol, di-n-butyl phthalate.	See Note 4	J 1
	SV2	Estimated values are between the MDL and the MQL.	See Note 5	J5
TPH	~~SV3~~ TPH1 (3c)	Estimated value is between the MDL and the MQL.	See Note 6	J5
	TPH2	RPD outlier for Kerosene	See Note 8	J4
Metals	M1	RPD outliers for barium, cadmium, lead, nickel, zinc	See Note 9	J4
TPH	TPH3	Diesel surrogate out high in one sample	See Note 10	J4
SVOA	SV3	MS % Rec out high for 4-nitrophenol	See Note 11	J4
	SV4	Lab J → J5	See Note 12	J5
	SV5	HT exceeded on reanalyses	See Note 13	J3

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

SANDRA M. CZARNECKI / Sandra M. Czarnecki
DATA VALIDATOR(Name/Signature)

1/3/94
Date

Table 2

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

TINKER AIR FORCE BASE RFI

SDG: 16375

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Acetone (5.1 J ug/L) was detected in one lab blank associated with the samples. Reported detections of this analyte in the samples have been qualified as estimated and should be considered biased high. Affected samples: 16375.01 - 16375.09, 16375.12 and 16375.13.
	V2	2. Laboratory results that are noted as estimated have been further qualified as estimated by the reviewers to indicate that the observed results fall between the MDL and the MQL. Affected samples: 16375.01 - 16375.12.
	V3	3. The xylene result (16375.06) and the 2-butanone result in sample 16375.09 were qualified "E" by the lab and have been further qualified as estimated (J2) by the reviewers. The "E" flag indicates that the reported value was above the calibration range.
SVOCs	SV1	4. Lab blank contamination benzoic acid + di-n-butyl phthalate flag J1 16375.01, .02, .03, .08, .12.

1. Item number should correspond with the item number on the worksheet.

SANDRA M. CZARNECKI / Sandra M. Czarnecki 1/3/94

Data Validator (Name/Signature/Date)

tafbcom

Table 2
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG: 16375

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
SVOCs	SV2	5. Laboratory results that are noted as estimated have been further qualified as estimated by the reviewers to indicate that the observed results fall between the MDL and the MQL. Affected samples:
TPH	TPH1	6. Laboratory results that are noted as estimated have been further qualified as estimated by the reviewers to indicate that the observed result falls between the MDL and the MQL. Affected sample: 16375.01
VOCs	V4	7. RPD outliers for acetone (149%) and tetrachloroethene (56%). All detections of these analytes have been qualified as estimated (J4). If previously qualified due to blank contamination, the results are further qualified as J6. Affected samples: 16375.01 - 16375.10, 16375.12.
TPH	TPH2	8. RPD outlier for Kerosene (57%). All detections of this compound have been qualified as estimated (J4). Affected samples: 16375.01, 16375.02, 16375.05, 16375.06.
Metals	M1	9. RPD outliers for Barium (80%), Cadmium (100%), Lead (198%), Nickel (89%), and Zinc (177%). All detections of these analytes have been qualified as estimated (J4). Affected samples: 16375.01 - 16375.03, 16375.05 - 16375.12.

1. Item number should correspond with the item number on the worksheet.

SANDRA M. CZARNECKI / Sandra M. Czarnecki 1/4/94
Data Validator (Name/Signature/Date)

Table 2
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
TINKER AIR FORCE BASE RFI

SDG: 16375

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
TPH	TPH3	10. Diesel surrogate naphthalene out high 126% (QA limits 46-121%). All detects in this sample (16375.11) have been flagged J4 and should be considered biased high.
SVOA	SV3	11. MS % Rec out high for 4-nitrophenol 104% (vs. target of 10-80%) Acid fraction detected analytes have been flagged J4 (or J6 for multiple problems) and should be considered biased high Affected samples: 16375.01 N9 (reanalyses) -.04 N9 and 16375.06 N9 - .12 N9.
	SV4	12. Lab J → J5 16375.01 N9 - .06 N9 and .08 N9, .09 N9, .11 N9, .12 N9.
	SV5	13. HT exceeded on reanalyses. Hits go to J3 (or J6 for multiple problems). Samp 16375.01 N9 - .12 N9.

1. Item number should correspond with the item number on the worksheet.

SANDRA M. CZARNECKI / Sandra M Czarnecki 1/4/94
Data Validator (Name/Signature/Date)

TABLE 3
TINKER AIR FORCE BASE RFI
DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 16375.01/16375.02 SAMPLE MATRIX: water UNITS: ug/L

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
VOCs	Acetone	10	68	149 *
	Methylene Chloride	u	22	NC
	1,1-Dichloroethene	u	1.84	NC
	Chloroform	1.1	u	NC
	Trichloroethene	2.9	3.2	9.8
	Tetrachloroethene	72	128	56 *
	Toluene	12	7.6	44.9
	Ethylbenzene	u	0.3	NC
	Xylene	1.4	1.74	21.7
	1,2-Dichloroethene	~~u~~ 15	9.6	43.9
	2-Butanone	u	28	NC
TPH	Kerosene C9-C18	1996	1052.5	57 *
	Gasoline	7.12	u	NC
Metals	Mercury	2.82	u	NC
	Silver	3.3	3.1	6.25
	Barium	821	352	80 *
	Cadmium	76.4	25.4	150 *
	Chromium	2430	1470	49
	Lead	2690	12.2	198 *
	Nickel	1810	694	89 *

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

u = not detected
NC = not calculated

SANDRA M. CZARNECKI / Sandra M Czarnecki 1/4/94
DATA VALIDATOR(Name/Signature) Date

TABLE 3 PAGE 2 OF 2

TINKER AIR FORCE BASE RFI

DATA VALIDATION FIELD REPLICATE WORKSHEET

SAMPLE ID: 16375.01/16375.02 SAMPLE MATRIX: Water UNITS: ug/L

PARAMETER	ANALYTE(1)	SAMPLE RESULT	REPLICATE RESULT	RPD(%)(2)
Metals (cont'd)	Selenium	10.3	U	NC
	Zinc	866	51.9	177 *
SVOA				

1. Only analytes detected in either of the samples are included in the table.
2. * indictes RPD outliers, based on the QA objectives presented in the QAPjP.

U = Not detected
NC = Not calculated

SANDRA M. CZARNECKI / Sandra M. Czarnecki 1/4/94
DATA VALIDATOR(Name/Signature) Date

tafbdup.wq1

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : N931118B
INST. BATCH: 3727
REPORTED : 12/13/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : N931118A
LOCATION:

ANALYZED : 11/18/93 08:16
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : WATER
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/L

PARAMETER	QUANT. LIMIT	RESULTS		PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND		1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND		TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND		TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND		DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	ND		1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	5.1	J	BENZENE	5	ND
CARBON DISULFIDE	5	ND		CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND		2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND		BROMOFORM	5	ND
1,2-DICHLOROETHENE (TOTAL)	5	ND		2-HEXANONE	10	ND
CHLOROFORM	5	ND		4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND		TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND		TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND		CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND		ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND		STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND		XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND				

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	100%	BROMOFLUOROBENZENE	(86-115) 108%
1,2-DICHLOROETHANE-D4	(76-114)	94%		

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
= UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
= NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375

DATE: 12/23/93

SWLO QAQC#: BL120203W
PROJECT : TINKER AFB-RFI
SAMPLE #: SBLK LB1
LOCATION:
DATE ANALYZED : 12/08/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: / /
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	10	U	ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	10	U	4-NITROPHENOL	50	U
1,3-DICHLOROBENZENE	10	U	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	10	U	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	10	U	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	10	U	DIETHYLPHTHALATE	10	U
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	10	U	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	50	U
2,4-DIMETHYLPHENOL	10	U	PHENANTHRENE	10	U
BENZOIC ACID	2	J	ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	1.1	J
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	10	U	BIS(2-ETHYLHEXYL)PHTHALATE	10	U
2-METHYLNAPHTHALENE	10	U	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	10	U
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

Both Note 4

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

MC 1/3/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375

DATE: 12/23/93

SWLO QAQC#: BL111505W
PROJECT : TINKER AFB-RFI
SAMPLE #: SBLK LB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/15/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	13		ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	14		4-NITROPHENOL	11	J
1,3-DICHLOROBENZENE	10	U	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	10	U	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	10	U	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	10	U	DIETHYLPHTHALATE	10	U
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	10	U	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	14	J
2,4-DIMETHYLPHENOL	10	U	PHENANTHRENE	10	U
BENZOIC ACID	50	U	ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	10	U
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	16		BIS(2-ETHYLHEXYL)PHTHALATE	10	U
2-METHYLNAPHTHALENE	10	U	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	10	U
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD, STE 222 W
AUSTIN, TX 78757
ATTN: KEVIN TYNES

REPORT: 16375Bb

DATE: 12-23-93

SAMPLE MATRIX: WATER
SWLO #: LABORATORY CONTROL SPIKE
DATE EXTRACTED: 11-15-93
DATE ANALYZED : 12-01-93
METHOD REFERENCE: SW846-8270
SAMPLE ID: LCS 16375

SEMIVOLATILE LABORATORY CONTROL SPIKE

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS PERCENT RECOVERY	QC LIMITS RECOVERY
PHENOL	200	0	150	75	12 - 89
2-CHLOROPHENOL	200	0	160	78	27 - 123
1,4-DICHLOROBENZENE	100	0	67	67	36 - 97
N-NITROSO-di-n-PROPYLAMINE	100	0	68	68	41 - 116
1,2,4-TRICHLOROBENZENE	100	0	63	63	39 - 98
4-CHLORO-3-METHYLPHENOL	200	0	170	83	23 - 97
ACENAPHTHENE	100	0	85	85	46 - 118
4-NITROPHENOL	200	0	210	104*	10 - 80
2,4-DINITROTOLUENE	100	0	86	86	24 - 96
PENTACHLOROPHENOL	200	0	150	76	9 - 103
PYRENE	100	0	110	109	26 - 127

QA/QC SURROGATE RECOVERIES

NITROBENZENE-d5	(35-114) 77%	2-FLUOROBIPHENYL	(43-116) 88%	TERPHENYL-d14	(33-141) 100%
PHENOL-d5	(10- 94) 55%	2-FLUOROPHENOL	(21-100) 59%	2,4,6-TRIBROMOPHENOL	(10-123) 62%

* VALUES OUTSIDE OF QC LIMITS

SMC
1/3/94

16375

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

1 OF 1

PROJECT NAME/LOCATION: TINKER AFB RFI

PROJECT NUMBER: AV401.11

CARRIER: [X] Federal Express [ ] UPS — Other ____

AIRBILL OR CARRIER ID #: 850306 1640

SAMPLER(S): ERIC DAWSON / Andrew Guyton

(Signature): Eric J Dawson / Andrew Guyton

PRESERVATIVE: NONE | HCl | HNO3

ANALYSIS REQUIRED: NUMBER OF CONTAINERS | 8240 | 8270 | 9015 CALMGD | 6010

Date	Time	Loc. ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	8240	8270	9015 CALMGD	6010	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	FIELD LOT CONTROL NUMBER	REMARKS
11/10/93	1110	IWTLS2		N1	WW	B			8	X	X	X	X	0	2	2	A		DOA: IW A
	1110	IWTLS2		FR2	WW	B			8	X	X	X	X	0	2	2	A		
	1300	IWTLS3		N1	WW	B			8	X	X	X	X	0	2	2	B		
	1350	~~EWIFIELDQC~~		EB2	WQ	B			7	X	X	X	X	0	2	2	B		
	—	FIELDQC		TB2	WQ	—			2	X				0	—	—	A		
11/11/93	0825	IWTBG-3001		N1	WW	B			8	X	X	X	X	0	2	2	A		
	0935	IWTLS10		N	WW	B			8	X	X	X	X	0	2	2	B		
	1045	~~IWTBG2127~~ IWTB62127		N	WW	B			8	X	X	X	X	0	2	2	C		
	1130	IWTB62241		N	WW	B			8	X	X	X	X	0	2	2	C		
	1315	IWTLS6DUP		N	WW	B			8	X	X	X	X	0	2	2	D		
	1330	IWTLS6NEW		N	WW	B			8	X	X	X	X	0	2	2	D		
	1500	IWTB62280		N	WW	B			8	X	X	X	X	0	2	2	D		
	1545	IWTB62221		N	WW	B			8	X	X	X	X	0	2	2	C		

Relinquished by: (Signature) Eric J Dawson — Date 11/12/93 — Time 1000

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) — Date 11/13/93 — Time 0900

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

chainc.dwg

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.01

DATE: 12/20/93

SWLO #: 16375.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 11/19/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 100.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	1000	U	TRICHLOROETHENE	290	JS
BROMOMETHANE	1000	U	DIBROMOCHLOROMETHANE	500	U
VINYL CHLORIDE	1000	U	1,1,2-TRICHLOROETHANE	500	U
CHLOROETHANE	1000	U	BENZENE	500	U
METHYLENE CHLORIDE	500	U	CIS-1,3-DICHLOROPROPENE	500	U
ACETONE	1000	J6 ~~J1~~ 3C	2-CHLOROETHYL VINYL ETHER	1000	U
CARBON DISULFIDE	500	U	BROMOFORM	500	U
1,1-DICHLOROETHENE	500	U	2-HEXANONE	1000	U
1,1-DICHLOROETHANE	500	U	4-METHYL-2-PENTANONE	1000	U
CHLOROFORM	110	JS	TETRACHLOROETHENE	7200	J4
1,2-DICHLOROETHANE	500	U	TOLUENE	1200	
1,1,1-TRICHLOROETHANE	500	U	CHLOROBENZENE	500	U
CARBON TETRACHLORIDE	500	U	ETHYLBENZENE	500	U
VINYL ACETATE	1000	U	STYRENE	500	U
BROMODICHLOROMETHANE	500	U	XYLENE (TOTAL)	140	JS
1,1,2,2-TETRACHLOROETHANE	500	U	1,2-DICHLOROETHENE(TOTAL)	1500	
1,2-DICHLOROPROPANE	500	U	2-BUTANONE	1000	U
TRANS-1,3-DICHLOROPROPENE	500	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 106% ✓	BROMOFLUOROBENZENE	(86-115) 104% ✓
1,2-DICHLOROETHANE-D4	(76-114) 112% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.01

DATE: 12/20/93

SWLO #: 16375.01 N9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 12/05/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 5.00

Holding Times Exceeded

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	110	J6 ~~J3~~	ACENAPHTHENE	50	U
BIS(2-CHLOROETHYL)ETHER	50	U	2,4-DINITROPHENOL	250	U
2-CHLOROPHENOL	50	U	4-NITROPHENOL	250	U
1,3-DICHLOROBENZENE	33	J6 (J5)	DIBENZOFURAN	50	U
1,4-DICHLOROBENZENE	46	J6 (J5)	2,4-DINITROTOLUENE	50	U
BENZYL ALCOHOL	46	J6 (J5)	2,6-DINITROTOLUENE	50	U
1,2-DICHLOROBENZENE	98	J3	DIETHYLPHTHALATE	5	(J5) J6
2-METHYLPHENOL(O-CRESOL)	57	J3	4-CHLOROPHENYL-PHENYLETHER	50	U
BIS(2-CHLOROISOPROPYL)ETHER	50	U	FLUORENE	50	U
4-METHYLPHENOL(P-CRESOL)	42	J6 (J5)	4-NITROANILINE	250	U
N-NITROSO-DI-N-PROPYLAMINE	50	U	4,6-DINITRO-2-METHYLPHENOL	250	U
HEXACHLOROETHANE	50	U	N-NITROSODIPHENYLAMINE(1)	50	U
NITROBENZENE	50	U	4-BROMOPHENYL-PHENYLETHER	50	U
ISOPHORONE	50	U	HEXACHLOROBENZENE	50	U
2-NITROPHENOL	50	U	PENTACHLOROPHENOL	250	U
2,4-DIMETHYLPHENOL	33	J6 ~~J~~	PHENANTHRENE	9.1	(J5) J6
BENZOIC ACID	89	~~J6 J~~ JB	ANTHRACENE	50	U
BIS(2-CHLOROETHOXY)METHANE	50	U	DI-N-BUTYL PHTHALATE	50	U
2,4-DICHLOROPHENOL	50	U	FLUORANTHENE	13	(J5) J6
1,2,4-TRICHLOROBENZENE	50	U	PYRENE	6.8	(J5) J6
NAPHTHALENE	16	J6 (J5)	BUTYL BENZYL PHTHALATE	50	U
4-CHLOROANILINE	50	U	3,3'-DICHLOROBENZIDINE	100	U
HEXACHLOROBUTADIENE	50	U	BENZO(A)ANTHRACENE	50	U
4-CHLORO-3-METHYLPHENOL	50	U	BIS(2-ETHYLHEXYL)PHTHALATE	16	~~J5~~ J6
2-METHYLNAPHTHALENE	76	J3	CHRYSENE	50	U
HEXACHLOROCYCLOPENTADIENE	50	U	DI-N-OCTYL PHTHALATE	12	~~J5~~ J6
2,4,6-TRICHLOROPHENOL	50	U	BENZO(B)FLUORANTHENE	50	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.01

DATE: 12/23/93

SWLO #: 16375.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 5.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	25	U	NAPHTHA C6-C12	25	U
KEROSENE C9-C18	9480	J#4	#6 FUEL OIL C12-C24	25	U
JP-4 C6-C14	25	U			

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121)	82% ✓

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.01

DATE: 12/23/93

SWLO #: 16375.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 5.00

TOTAL PURGEABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**	PARAMETER	RESULTS**
GASOLINE	35.6 (J5)		

QA/QC SURROGATE RECOVERIES
4-BROMOFLUOROBENZENE (65-135) 97% ✓

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.01

DATE: 12/20/93

SWLO #: 16375.01 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	2.82		ug/l	11/19/93	11/19/93	SW846-7470
SILVER	3.3		ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/18/93	SW846-6010
BARIUM	821	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	76.4	J4	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	2430		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	2690	J4	ug/l	11/18/93	11/18/93	SW846-6010
NICKEL	1810	J4	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	10.3		ug/l	11/18/93	11/18/93	SW846-6010
ZINC	866	J4	ug/l	11/18/93	11/24/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.02

DATE: 12/20/93

SWLO #: 16375.02 FR2
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 5.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	50	U	TRICHLOROETHENE	16	J5
BROMOMETHANE	50	U	DIBROMOCHLOROMETHANE	25	U
VINYL CHLORIDE	50	U	1,1,2-TRICHLOROETHANE	25	U
CHLOROETHANE	50	U	BENZENE	25	U
METHYLENE CHLORIDE	110		CIS-1,3-DICHLOROPROPENE	25	U
ACETONE	340	J6 ~~J1 B~~	2-CHLOROETHYL VINYL ETHER	50	U
CARBON DISULFIDE	25	U	BROMOFORM	25	U
1,1-DICHLOROETHENE	9.2	J5	2-HEXANONE	50	U
1,1-DICHLOROETHANE	25	U	4-METHYL-2-PENTANONE	50	U
CHLOROFORM	25	U	TETRACHLOROETHENE	640	J4
1,2-DICHLOROETHANE	25	U	TOLUENE	38	
1,1,1-TRICHLOROETHANE	25	U	CHLOROBENZENE	25	U
CARBON TETRACHLORIDE	25	U	ETHYLBENZENE	1.5	J5
VINYL ACETATE	50	U	STYRENE	25	U
BROMODICHLOROMETHANE	25	U	XYLENE (TOTAL)	8.7	J5
1,1,2,2-TETRACHLOROETHANE	25	U	1,2-DICHLOROETHENE(TOTAL)	48	
1,2-DICHLOROPROPANE	25	U	2-BUTANONE	140	
TRANS-1,3-DICHLOROPROPENE	25	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 98% ✓	BROMOFLUOROBENZENE	(86-115) 102% ✓
1,2-DICHLOROETHANE-D4	(76-114) 101% ✓		

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.02

DATE: 12/20/93

SWLO #: 16375.02 FR9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 12/08/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4.3	J6 ~~J4~~	ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	10	U	4-NITROPHENOL	50	U
1,3-DICHLOROBENZENE	1	J6 ~~J5~~	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	1.3	J6 ~~J5~~	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	10	U	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	4.5	J6 ~~J5~~	DIETHYLPHTHALATE	1.2	~~J5~~ J6
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	10	U	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	50	U
2,4-DIMETHYLPHENOL	7.2	J6 ~~J~~	PHENANTHRENE	10	U
BENZOIC ACID	8.3	JB	ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	10	U
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	10	U	BIS(2-ETHYLHEXYL)PHTHALATE	3	~~J5~~ J6
2-METHYLNAPHTHALENE	3.8	J6 ~~J5~~	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	1.5	~~J5~~ J6
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.02

DATE: 12/23/93

SWLO #: 16375.02 FR2
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 4.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	20	U	NAPHTHA C6-C12	20	U
KEROSENE C9-C18	4210	J4	#6 FUEL OIL C12-C24	20	U
JP-4 C6-C14	20	U			

QA/QC SURROGATE RECOVERIES

NAPHTHALENE	(46-121)	78% ✓

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.02

DATE: 12/20/93

SWLO #: 16375.02 FR2
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS2
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.2	U	ug/l	11/19/93	11/19/93	SW846-7470
SILVER	3.1		ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/18/93	SW846-6010
BARIUM	352	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	25.4	J4	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	1470		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	12.2	J4	ug/l	11/18/93	11/18/93	SW846-6010
NICKEL	694	J4	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	5	U	ug/l	11/18/93	11/18/93	SW846-6010
ZINC	51.9	J4	ug/l	11/18/93	11/24/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.03

DATE: 12/20/93

SWLO #: 16375.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS3
LOCATION:
DATE ANALYZED : 11/17/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 5.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	50	U	TRICHLOROETHENE	25	U
BROMOMETHANE	50	U	DIBROMOCHLOROMETHANE	25	U
VINYL CHLORIDE	50	U	1,1,2-TRICHLOROETHANE	25	U
CHLOROETHANE	50	U	BENZENE	25	U
METHYLENE CHLORIDE	660		CIS-1,3-DICHLOROPROPENE	25	U
ACETONE	260	J6 ~~J1~~	2-CHLOROETHYL VINYL ETHER	50	U
CARBON DISULFIDE	25	U	BROMOFORM	25	U
1,1-DICHLOROETHENE	25	U	2-HEXANONE	50	U
1,1-DICHLOROETHANE	25	U	4-METHYL-2-PENTANONE	50	U
CHLOROFORM	25	U	TETRACHLOROETHENE	46	J4
1,2-DICHLOROETHANE	25	U	TOLUENE	25	U
1,1,1-TRICHLOROETHANE	57		CHLOROBENZENE	25	U
CARBON TETRACHLORIDE	25	U	ETHYLBENZENE	25	U
VINYL ACETATE	50	U	STYRENE	25	U
BROMODICHLOROMETHANE	25	U	XYLENE (TOTAL)	11	(J5)
1,1,2,2-TETRACHLOROETHANE	25	U	1,2-DICHLOROETHENE(TOTAL)	25	U
1,2-DICHLOROPROPANE	25	U	2-BUTANONE	50	U
TRANS-1,3-DICHLOROPROPENE	25	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	100% ✓	BROMOFLUOROBENZENE	(86-115)	97% ✓
1,2-DICHLOROETHANE-D4	(76-114)	98% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/3/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.03

DATE: 12/20/93

SWLO #: 16375.03 N9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS3
LOCATION:
DATE ANALYZED : 12/05/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	9.3	J6 ~~J5~~	ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	10	U	4-NITROPHENOL	50	U
1,3-DICHLOROBENZENE	10	U	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	10	U	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	1.3	J6 ~~J5~~	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	10	U	DIETHYLPHTHALATE	1.8	~~J5~~ J6
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	3	J6 ~~J5~~	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	50	U
2,4-DIMETHYLPHENOL	5.2	J6 ~~J5~~	PHENANTHRENE	10	U
BENZOIC ACID	64	~~J5~~ B	ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	10	U
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	10	U	BIS(2-ETHYLHEXYL)PHTHALATE	17	J3
2-METHYLNAPHTHALENE	3	J6 ~~J5~~	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	7.1	~~J5~~ J6
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.03

DATE: 12/20/93

SWLO #: 16375.03 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS3
LOCATION:

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.2	U	ug/l	11/19/93	11/19/93	SW846-7470
SILVER	1	U	ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/22/93	SW846-6010
BARIUM	438	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	27.9	J4	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	36.9		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	49.1	J4	ug/l	11/18/93	11/22/93	SW846-6010
NICKEL	11.9	J4	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	5	U	ug/l	11/18/93	11/22/93	SW846-6010
ZINC	60.4	J4	ug/l	11/18/93	11/24/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.04

DATE: 12/20/93

SWLO #: 16375.04 EB2
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	1.9	J5	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	17	J6 J1	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	42		TETRACHLOROETHENE	16	J4
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	XYLENE (TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 106%	BROMOFLUOROBENZENE	(86-115) 110%
1,2-DICHLOROETHANE-D4	(76-114) 102%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.04

DATE: 12/20/93

SWLO #: 16375.04 EB9
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 12/05/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/10/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	13	J6	ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	10	U	4-NITROPHENOL	50	U
1,3-DICHLOROBENZENE	10	U	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	10	U	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	1.7	J6 (J5)	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	10	U	DIETHYLPHTHALATE	1.3	(J5) J6
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	10	U	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	50	U
2,4-DIMETHYLPHENOL	10	U	PHENANTHRENE	10	U
BENZOIC ACID	50	U	ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	10	U
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	10	U	BIS(2-ETHYLHEXYL)PHTHALATE	1.5	(J5) J6
2-METHYLNAPHTHALENE	10	U	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	10	U
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.05

DATE: 12/20/93

SWLO #: 16375.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG3001
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.1	
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	16		1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	4.1	(J5)	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	16	J6 ~~J1~~	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	1.1	(J5)	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	21		4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	10	J4
1,2-DICHLOROETHANE	5	U	TOLUENE	5.3	
1,1,1-TRICHLOROETHANE	19		CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	2.4	(J5)
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	XYLENE (TOTAL)	34	
1,1,2,2-TETRACHLOROETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	89	
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	7.4	(J5)
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 101% ✓	BROMOFLUOROBENZENE	(86-115) 105% ✓
1,2-DICHLOROETHANE-D4	(76-114) 98% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.05

DATE: 12/20/93

SWLO #: 16375.05 N9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG3001
LOCATION:
DATE ANALYZED : 12/08/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 25.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	250	U	ACENAPHTHENE	250	U
BIS(2-CHLOROETHYL)ETHER	250	U	2,4-DINITROPHENOL	1200	U
2-CHLOROPHENOL	250	U	4-NITROPHENOL	1200	U
1,3-DICHLOROBENZENE	250	U	DIBENZOFURAN	95	~~J5~~ J6
1,4-DICHLOROBENZENE	250	U	2,4-DINITROTOLUENE	250	U
BENZYL ALCOHOL	250	U	2,6-DINITROTOLUENE	250	U
1,2-DICHLOROBENZENE	250	U	DIETHYLPHTHALATE	250	U
2-METHYLPHENOL(O-CRESOL)	250	U	4-CHLOROPHENYL-PHENYLETHER	250	U
BIS(2-CHLOROISOPROPYL)ETHER	250	U	FLUORENE	34	~~J5~~ J6
4-METHYLPHENOL(P-CRESOL)	250	U	4-NITROANILINE	1200	U
N-NITROSO-DI-N-PROPYLAMINE	250	U	4,6-DINITRO-2-METHYLPHENOL	1200	U
HEXACHLOROETHANE	250	U	N-NITROSODIPHENYLAMINE(1)	250	U
NITROBENZENE	250	U	4-BROMOPHENYL-PHENYLETHER	250	U
ISOPHORONE	250	U	HEXACHLOROBENZENE	250	U
2-NITROPHENOL	250	U	PENTACHLOROPHENOL	1200	U
2,4-DIMETHYLPHENOL	250	U	PHENANTHRENE	28	J
BENZOIC ACID	1200	U	ANTHRACENE	250	U
BIS(2-CHLOROETHOXY)METHANE	250	U	DI-N-BUTYL PHTHALATE	250	U
2,4-DICHLOROPHENOL	250	U	FLUORANTHENE	250	U
1,2,4-TRICHLOROBENZENE	250	U	PYRENE	250	U
NAPHTHALENE	1300	J3	BUTYL BENZYL PHTHALATE	250	U
4-CHLOROANILINE	250	U	3,3'-DICHLOROBENZIDINE	500	U
HEXACHLOROBUTADIENE	250	U	BENZO(A)ANTHRACENE	250	U
4-CHLORO-3-METHYLPHENOL	250	U	BIS(2-ETHYLHEXYL)PHTHALATE	250	U
2-METHYLNAPHTHALENE	2700	J3	CHRYSENE	250	U
HEXACHLOROCYCLOPENTADIENE	250	U	DI-N-OCTYL PHTHALATE	250	U
2,4,6-TRICHLOROPHENOL	250	U	BENZO(B)FLUORANTHENE	250	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/3/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.05

DATE: 12/23/93

SWLO #: 16375.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG3001
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 250.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	1250	U	NAPHTHA C6-C12	1250	U
KEROSENE C9-C18	1120000	J4	#6 FUEL OIL C12-C24	1250	U
JP-4 C6-C14	1250	U			

QA/QC SURROGATE RECOVERIES
NAPHTHALENE (46-121) D ✓ OK

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.05

DATE: 12/20/93

SWLO #: 16375.05 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG3001
LOCATION:

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.2	U	ug/l	11/19/93	11/19/93	SW846-7470
SILVER	1	U	ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/22/93	SW846-6010
BARIUM	434	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	3	U	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	19.6		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	3	U	ug/l	11/18/93	11/22/93	SW846-6010
NICKEL	10	U	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	5	U	ug/l	11/18/93	11/22/93	SW846-6010
ZINC	19.2	J4	ug/l	11/18/93	11/24/93	SW846-6010

SMC 1/3/94

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.06

DATE: 12/20/93

SWLO #: 16375.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS10
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	47	
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	14	J6 ~~J1~~	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	2.3	(J5)	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	11		4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	24	J4
1,2-DICHLOROETHANE	5	U	TOLUENE	160	
1,1,1-TRICHLOROETHANE	67		CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	48	
VINYL ACETATE	10	U	STYRENE	5	U (SW)
BROMODICHLOROMETHANE	5	U	XYLENE (TOTAL)	400	~~E~~ ~~J6~~ J2
1,1,2,2-TETRACHLOROETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	108% ✓	BROMOFLUOROBENZENE	(86-115)	99% ✓
1,2-DICHLOROETHANE-D4	(76-114)	99% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC 1/3/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.06

DATE: 12/20/93

SWLO #: 16375.06 N9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS10
LOCATION:
DATE ANALYZED : 12/05/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 10.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	100	U	ACENAPHTHENE	100	U
BIS(2-CHLOROETHYL)ETHER	100	U	2,4-DINITROPHENOL	500	U
2-CHLOROPHENOL	100	U	4-NITROPHENOL	500	U
1,3-DICHLOROBENZENE	100	U	DIBENZOFURAN	30	~~J3~~ J6
1,4-DICHLOROBENZENE	100	U	2,4-DINITROTOLUENE	100	U
BENZYL ALCOHOL	100	U	2,6-DINITROTOLUENE	100	U
1,2-DICHLOROBENZENE	100	U	DIETHYLPHTHALATE	100	U
2-METHYLPHENOL(O-CRESOL)	100	U	4-CHLOROPHENYL-PHENYLETHER	100	U
BIS(2-CHLOROISOPROPYL)ETHER	100	U	FLUORENE	100	U
4-METHYLPHENOL(P-CRESOL)	110	J6	4-NITROANILINE	500	U
N-NITROSO-DI-N-PROPYLAMINE	100	U	4,6-DINITRO-2-METHYLPHENOL	500	U
HEXACHLOROETHANE	100	U	N-NITROSODIPHENYLAMINE(1)	100	U
NITROBENZENE	100	U	4-BROMOPHENYL-PHENYLETHER	100	U
ISOPHORONE	100	U	HEXACHLOROBENZENE	100	U
2-NITROPHENOL	100	U	PENTACHLOROPHENOL	500	U
2,4-DIMETHYLPHENOL	100	U	PHENANTHRENE	100	U
BENZOIC ACID	500	U	ANTHRACENE	100	U
BIS(2-CHLOROETHOXY)METHANE	100	U	DI-N-BUTYL PHTHALATE	100	U
2,4-DICHLOROPHENOL	100	U	FLUORANTHENE	100	U
1,2,4-TRICHLOROBENZENE	100	U	PYRENE	100	U
NAPHTHALENE	750	J3	BUTYL BENZYL PHTHALATE	100	U
4-CHLOROANILINE	100	U	3,3'-DICHLOROBENZIDINE	200	U
HEXACHLOROBUTADIENE	100	U	BENZO(A)ANTHRACENE	100	U
4-CHLORO-3-METHYLPHENOL	100	U	BIS(2-ETHYLHEXYL)PHTHALATE	100	U
2-METHYLNAPHTHALENE	970	J3	CHRYSENE	100	U
HEXACHLOROCYCLOPENTADIENE	100	U	DI-N-OCTYL PHTHALATE	100	U
2,4,6-TRICHLOROPHENOL	100	U	BENZO(B)FLUORANTHENE	100	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.06

DATE: 12/23/93

SWLO #: 16375.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS10
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 250.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	1250	U	NAPHTHA C6-C12	1250	U
KEROSENE C9-C18	994000	J4	#6 FUEL OIL C12-C24	1250	U
JP-4 C6-C14	1250	U			

QA/QC SURROGATE RECOVERIES
NAPHTHALENE (46-121) D OK

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.06

DATE: 12/20/93

SWLO #: 16375.06 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS10
LOCATION:

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.2	U	ug/l	11/19/93	11/19/93	SW846-7470
SILVER	1	U	ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/22/93	SW846-6010
BARIUM	617	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	3	U	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	15		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	3	U	ug/l	11/18/93	11/22/93	SW846-6010
NICKEL	10	U	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	5	U	ug/l	11/18/93	11/22/93	SW846-6010
ZINC	90.6	J4	ug/l	11/18/93	11/24/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.07

DATE: 12/20/93

SWLO #: 16375.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2127
LOCATION:
DATE ANALYZED : 11/17/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 10.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	100	U	TRICHLOROETHENE	50	U
BROMOMETHANE	100	U	DIBROMOCHLOROMETHANE	50	U
VINYL CHLORIDE	100	U	1,1,2-TRICHLOROETHANE	50	U
CHLOROETHANE	100	U	BENZENE	50	U
METHYLENE CHLORIDE	1300		CIS-1,3-DICHLOROPROPENE	50	U
ACETONE	340	J6 J1	2-CHLOROETHYL VINYL ETHER	100	U
CARBON DISULFIDE	50	U	BROMOFORM	50	U
1,1-DICHLOROETHENE	50	U	2-HEXANONE	100	U
1,1-DICHLOROETHANE	50	U	4-METHYL-2-PENTANONE	100	U
CHLOROFORM	50	U	TETRACHLOROETHENE	50	U
1,2-DICHLOROETHANE	50	U	TOLUENE	16	JS
1,1,1-TRICHLOROETHANE	50	U	CHLOROBENZENE	50	U
CARBON TETRACHLORIDE	50	U	ETHYLBENZENE	50	U
VINYL ACETATE	100	U	STYRENE	50	U
BROMODICHLOROMETHANE	50	U	XYLENE (TOTAL)	50	U
1,1,2,2-TETRACHLOROETHANE	50	U	1,2-DICHLOROETHENE(TOTAL)	50	U
1,2-DICHLOROPROPANE	50	U	2-BUTANONE	230	
TRANS-1,3-DICHLOROPROPENE	50	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	98% ✓	BROMOFLUOROBENZENE	(86-115)	99% ✓
1,2-DICHLOROETHANE-D4	(76-114)	98% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.07

DATE: 12/20/93

SWLO #: 16375.07 N9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2127
LOCATION:
DATE ANALYZED : 12/08/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 50.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4500	JU	ACENAPHTHENE	500	U
BIS(2-CHLOROETHYL)ETHER	500	U	2,4-DINITROPHENOL	2500	U
2-CHLOROPHENOL	500	U	4-NITROPHENOL	2500	U
1,3-DICHLOROBENZENE	500	U	DIBENZOFURAN	500	U
1,4-DICHLOROBENZENE	500	U	2,4-DINITROTOLUENE	500	U
BENZYL ALCOHOL	500	U	2,6-DINITROTOLUENE	500	U
1,2-DICHLOROBENZENE	500	U	DIETHYLPHTHALATE	500	U
2-METHYLPHENOL(O-CRESOL)	500	U	4-CHLOROPHENYL-PHENYLETHER	500	U
BIS(2-CHLOROISOPROPYL)ETHER	500	U	FLUORENE	500	U
4-METHYLPHENOL(P-CRESOL)	500	U	4-NITROANILINE	2500	U
N-NITROSO-DI-N-PROPYLAMINE	500	U	4,6-DINITRO-2-METHYLPHENOL	2500	U
HEXACHLOROETHANE	500	U	N-NITROSODIPHENYLAMINE(1)	500	U
NITROBENZENE	500	U	4-BROMOPHENYL-PHENYLETHER	500	U
ISOPHORONE	500	U	HEXACHLOROBENZENE	500	U
2-NITROPHENOL	500	U	PENTACHLOROPHENOL	2500	U
2,4-DIMETHYLPHENOL	500	U	PHENANTHRENE	500	U
BENZOIC ACID	2500	U	ANTHRACENE	500	U
BIS(2-CHLOROETHOXY)METHANE	500	U	DI-N-BUTYL PHTHALATE	500	U
2,4-DICHLOROPHENOL	500	U	FLUORANTHENE	500	U
1,2,4-TRICHLOROBENZENE	500	U	PYRENE	500	U
NAPHTHALENE	500	U	BUTYL BENZYL PHTHALATE	500	U
4-CHLOROANILINE	500	U	3,3'-DICHLOROBENZIDINE	1000	U
HEXACHLOROBUTADIENE	500	U	BENZO(A)ANTHRACENE	500	U
4-CHLORO-3-METHYLPHENOL	500	U	BIS(2-ETHYLHEXYL)PHTHALATE	500	U
2-METHYLNAPHTHALENE	500	U	CHRYSENE	500	U
HEXACHLOROCYCLOPENTADIENE	500	U	DI-N-OCTYL PHTHALATE	500	U
2,4,6-TRICHLOROPHENOL	500	U	BENZO(B)FLUORANTHENE	500	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/3/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.07

DATE: 12/20/93

SWLO #: 16375.07 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2127
LOCATION:

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.2	U	ug/l	11/19/93	11/19/93	SW846-7470
SILVER	1	U	ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/22/93	SW846-6010
BARIUM	61.3	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	3	U	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	334		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	5.4	J4	ug/l	11/18/93	11/22/93	SW846-6010
NICKEL	10	U	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	5	U	ug/l	11/18/93	11/22/93	SW846-6010
ZINC	94.8	J4	ug/l	11/18/93	11/24/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.08

DATE: 12/20/93

SWLO #: 16375.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2211
LOCATION:
DATE ANALYZED : 11/16/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	1.4	J5	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	16	J6 ~~J1~~	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	3.4	~~J5~~ J6
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	XYLENE (TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 106% ✓	BROMOFLUOROBENZENE	(86-115) 107% ✓
1,2-DICHLOROETHANE-D4	(76-114) 98% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
1/3/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.08

DATE: 12/20/93

SWLO #: 16375.08 N9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2211
LOCATION:
DATE ANALYZED : 12/05/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	27	J6	ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	10	U	4-NITROPHENOL	50	U
1,3-DICHLOROBENZENE	10	U	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	10	U	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	48	J3	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	10	U	DIETHYLPHTHALATE	10	U
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	10	U	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	50	U
2,4-DIMETHYLPHENOL	10	U	PHENANTHRENE	10	U
BENZOIC ACID	2.8 J6 ~~J1~~ ~~JB~~		ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	2.1	~~J1~~ ~~JB~~ J6
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	10	U	BIS(2-ETHYLHEXYL)PHTHALATE	3.3	(J5) J6
2-METHYLNAPHTHALENE	10	U	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	10	U
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.08

DATE: 12/20/93

SWLO #: 16375.08 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2211
LOCATION:

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.2	U	ug/l	11/19/93	11/19/93	SW846-7470
SILVER	1	U	ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/22/93	SW846-6010
BARIUM	363	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	3	U	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	67.5		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	3	U	ug/l	11/18/93	11/22/93	SW846-6010
NICKEL	279	J4	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	5	U	ug/l	11/18/93	11/22/93	SW846-6010
ZINC	29.8	J4	ug/l	11/18/93	11/24/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.09

DATE: 12/20/93

SWLO #: 16375.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS6OLD
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 10.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	100	U	TRICHLOROETHENE	50	U
BROMOMETHANE	100	U	DIBROMOCHLOROMETHANE	50	U
VINYL CHLORIDE	100	U	1,1,2-TRICHLOROETHANE	50	U
CHLOROETHANE	100	U	BENZENE	50	U
METHYLENE CHLORIDE	600		CIS-1,3-DICHLOROPROPENE	50	U
ACETONE	550	~~J6 J1 B~~	2-CHLOROETHYL VINYL ETHER	100	U
CARBON DISULFIDE	50	U	BROMOFORM	50	U
1,1-DICHLOROETHENE	50	U	2-HEXANONE	100	U
1,1-DICHLOROETHANE	50	U	4-METHYL-2-PENTANONE	100	U
CHLOROFORM	10	(J5)	TETRACHLOROETHENE	19	~~(J5)~~ J6
1,2-DICHLOROETHANE	50	U	TOLUENE	130	
1,1,1-TRICHLOROETHANE	50	U	CHLOROBENZENE	50	U
CARBON TETRACHLORIDE	50	U	ETHYLBENZENE	50	U
VINYL ACETATE	100	U	STYRENE	50	U
BROMODICHLOROMETHANE	50	U	XYLENE (TOTAL)	34	(J5)
1,1,2,2-TETRACHLOROETHANE	50	U	1,2-DICHLOROETHENE(TOTAL)	50	U
1,2-DICHLOROPROPANE	50	U	2-BUTANONE	2200	~~E~~ ~~J6~~ J2 (SMC)
TRANS-1,3-DICHLOROPROPENE	50	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	96% ✓	BROMOFLUOROBENZENE	(86-115)	99% ✓
1,2-DICHLOROETHANE-D4	(76-114)	98% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/3/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.09

DATE: 12/20/93

SWLO #: 16375.09 N9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS6OLD
LOCATION:
DATE ANALYZED : 12/09/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 25.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	3400	J	ACENAPHTHENE	250	U
BIS(2-CHLOROETHYL)ETHER	250	U	2,4-DINITROPHENOL	1200	U
2-CHLOROPHENOL	250	U	4-NITROPHENOL	1200	U
1,3-DICHLOROBENZENE	250	U	DIBENZOFURAN	250	U
1,4-DICHLOROBENZENE	250	U	2,4-DINITROTOLUENE	250	U
BENZYL ALCOHOL	250	U	2,6-DINITROTOLUENE	250	U
1,2-DICHLOROBENZENE	250	U	DIETHYLPHTHALATE	250	U
2-METHYLPHENOL(O-CRESOL)	250	U	4-CHLOROPHENYL-PHENYLETHER	250	U
BIS(2-CHLOROISOPROPYL)ETHER	250	U	FLUORENE	250	U
4-METHYLPHENOL(P-CRESOL)	250	U	4-NITROANILINE	1200	U
N-NITROSO-DI-N-PROPYLAMINE	250	U	4,6-DINITRO-2-METHYLPHENOL	1200	U
HEXACHLOROETHANE	250	U	N-NITROSODIPHENYLAMINE(1)	250	U
NITROBENZENE	250	U	4-BROMOPHENYL-PHENYLETHER	250	U
ISOPHORONE	250	U	HEXACHLOROBENZENE	250	U
2-NITROPHENOL	250	U	PENTACHLOROPHENOL	1200	U
2,4-DIMETHYLPHENOL	250	U	PHENANTHRENE	250	U
BENZOIC ACID	1200	U	ANTHRACENE	250	U
BIS(2-CHLOROETHOXY)METHANE	250	U	DI-N-BUTYL PHTHALATE	250	U
2,4-DICHLOROPHENOL	250	U	FLUORANTHENE	250	U
1,2,4-TRICHLOROBENZENE	250	U	PYRENE	250	U
NAPHTHALENE	250	U	BUTYL BENZYL PHTHALATE	250	U
4-CHLOROANILINE	250	U	3,3'-DICHLOROBENZIDINE	500	U
HEXACHLOROBUTADIENE	250	U	BENZO(A)ANTHRACENE	250	U
4-CHLORO-3-METHYLPHENOL	250	U	BIS(2-ETHYLHEXYL)PHTHALATE	29	~~J5~~ J
2-METHYLNAPHTHALENE	250	U	CHRYSENE	250	U
HEXACHLOROCYCLOPENTADIENE	250	U	DI-N-OCTYL PHTHALATE	250	U
2,4,6-TRICHLOROPHENOL	39	J ~~J5~~	BENZO(B)FLUORANTHENE	250	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.09

DATE: 12/20/93

SWLO #: 16375.09 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS6OLD
LOCATION:

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.2	U	ug/l	11/19/93	11/19/93	SW846-7470
SILVER	1	U	ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/22/93	SW846-6010
BARIUM	1640	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	21.4	J4	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	1700		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	50	J4	ug/l	11/18/93	11/22/93	SW846-6010
NICKEL	67.9	J4	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	5	U	ug/l	11/18/93	11/22/93	SW846-6010
ZINC	1150	J4	ug/l	11/18/93	11/24/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.10

DATE: 12/20/93

SWLO #: 16375.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS6NEW
LOCATION:
DATE ANALYZED : 11/17/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 500.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	5000	U	TRICHLOROETHENE	2500	U
BROMOMETHANE	5000	U	DIBROMOCHLOROMETHANE	2500	U
VINYL CHLORIDE	5000	U	1,1,2-TRICHLOROETHANE	2500	U
CHLOROETHANE	5000	U	BENZENE	2500	U
METHYLENE CHLORIDE	88000		CIS-1,3-DICHLOROPROPENE	2500	U
ACETONE	5000	U	2-CHLOROETHYL VINYL ETHER	5000	U
CARBON DISULFIDE	2500	U	BROMOFORM	2500	U
1,1-DICHLOROETHENE	2500	U	2-HEXANONE	5000	U
1,1-DICHLOROETHANE	2500	U	4-METHYL-2-PENTANONE	5000	U
CHLOROFORM	2500	U	TETRACHLOROETHENE	8500	J4
1,2-DICHLOROETHANE	2500	U	TOLUENE	1700	J5
1,1,1-TRICHLOROETHANE	6300		CHLOROBENZENE	2500	U
CARBON TETRACHLORIDE	2500	U	ETHYLBENZENE	2500	U
VINYL ACETATE	5000	U	STYRENE	2500	U
BROMODICHLOROMETHANE	2500	U	XYLENE (TOTAL)	2500	U
1,1,2,2-TETRACHLOROETHANE	2500	U	1,2-DICHLOROETHENE(TOTAL)	2500	U
1,2-DICHLOROPROPANE	2500	U	2-BUTANONE	6600	
TRANS-1,3-DICHLOROPROPENE	2500	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 100% ✓	BROMOFLUOROBENZENE	(86-115) 100% ✓
1,2-DICHLOROETHANE-D4	(76-114) 99% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.10

DATE: 12/20/93

SWLO #: 16375.10 N9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS6NEW
LOCATION:
DATE ANALYZED : 12/08/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 10000.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	480000	J6	ACENAPHTHENE	100000	U
BIS(2-CHLOROETHYL)ETHER	100000	U	2,4-DINITROPHENOL	500000	U
2-CHLOROPHENOL	100000	U	4-NITROPHENOL	500000	U
1,3-DICHLOROBENZENE	100000	U	DIBENZOFURAN	100000	U
1,4-DICHLOROBENZENE	100000	U	2,4-DINITROTOLUENE	100000	U
BENZYL ALCOHOL	1100000	J3	2,6-DINITROTOLUENE	100000	U
1,2-DICHLOROBENZENE	100000	U	DIETHYLPHTHALATE	100000	U
2-METHYLPHENOL(O-CRESOL)	100000	U	4-CHLOROPHENYL-PHENYLETHER	100000	U
BIS(2-CHLOROISOPROPYL)ETHER	100000	U	FLUORENE	100000	U
4-METHYLPHENOL(P-CRESOL)	100000	U	4-NITROANILINE	500000	U
N-NITROSO-DI-N-PROPYLAMINE	100000	U	4,6-DINITRO-2-METHYLPHENOL	500000	U
HEXACHLOROETHANE	100000	U	N-NITROSODIPHENYLAMINE(1)	100000	U
NITROBENZENE	100000	U	4-BROMOPHENYL-PHENYLETHER	100000	U
ISOPHORONE	100000	U	HEXACHLOROBENZENE	100000	U
2-NITROPHENOL	100000	U	PENTACHLOROPHENOL	500000	U
2,4-DIMETHYLPHENOL	100000	U	PHENANTHRENE	100000	U
BENZOIC ACID	500000	U	ANTHRACENE	100000	U
BIS(2-CHLOROETHOXY)METHANE	100000	U	DI-N-BUTYL PHTHALATE	100000	U
2,4-DICHLOROPHENOL	100000	U	FLUORANTHENE	100000	U
1,2,4-TRICHLOROBENZENE	100000	U	PYRENE	100000	U
NAPHTHALENE	100000	U	BUTYL BENZYL PHTHALATE	100000	U
4-CHLOROANILINE	100000	U	3,3'-DICHLOROBENZIDINE	200000	U
HEXACHLOROBUTADIENE	100000	U	BENZO(A)ANTHRACENE	100000	U
4-CHLORO-3-METHYLPHENOL	100000	U	BIS(2-ETHYLHEXYL)PHTHALATE	100000	U
2-METHYLNAPHTHALENE	100000	U	CHRYSENE	100000	U
HEXACHLOROCYCLOPENTADIENE	100000	U	DI-N-OCTYL PHTHALATE	100000	U
2,4,6-TRICHLOROPHENOL	100000	U	BENZO(B)FLUORANTHENE	100000	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.10

DATE: 12/20/93

SWLO #: 16375.10 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTLS6NEW
LOCATION:

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.2	U	ug/l	11/19/93	11/19/93	SW846-7470
SILVER	1	U	ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/22/93	SW846-6010
BARIUM	560	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	19.3	J4	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	8440		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	10.7	J4	ug/l	11/18/93	11/22/93	SW846-6010
NICKEL	10	U	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	6.3		ug/l	11/18/93	11/22/93	SW846-6010
ZINC	119	J4	ug/l	11/18/93	11/24/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.11

DATE: 12/20/93

SWLO #: 16375.11 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2280
LOCATION:
DATE ANALYZED : 11/17/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 200.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	2000	U	TRICHLOROETHENE	1000	U
BROMOMETHANE	2000	U	DIBROMOCHLOROMETHANE	1000	U
VINYL CHLORIDE	2000	U	1,1,2-TRICHLOROETHANE	1000	U
CHLOROETHANE	2000	U	BENZENE	1000	U
METHYLENE CHLORIDE	5800		CIS-1,3-DICHLOROPROPENE	1000	U
ACETONE	2000	U	2-CHLOROETHYL VINYL ETHER	2000	U
CARBON DISULFIDE	1000	U	BROMOFORM	1000	U
1,1-DICHLOROETHENE	1000	U	2-HEXANONE	2000	U
1,1-DICHLOROETHANE	1000	U	4-METHYL-2-PENTANONE	2000	U
CHLOROFORM	1000	U	TETRACHLOROETHENE	1000	U
1,2-DICHLOROETHANE	1000	U	TOLUENE	1200	
1,1,1-TRICHLOROETHANE	1000	U	CHLOROBENZENE	1000	U
CARBON TETRACHLORIDE	1000	U	ETHYLBENZENE	1000	U
VINYL ACETATE	2000	U	STYRENE	1000	U
BROMODICHLOROMETHANE	1000	U	XYLENE (TOTAL)	350	(J5)
1,1,2,2-TETRACHLOROETHANE	1000	U	1,2-DICHLOROETHENE(TOTAL)	1000	U
1,2-DICHLOROPROPANE	1000	U	2-BUTANONE	12000	
TRANS-1,3-DICHLOROPROPENE	1000	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 103% ✓	BROMOFLUOROBENZENE	(86-115) 100% ✓
1,2-DICHLOROETHANE-D4	(76-114) 99% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.11

DATE: 12/20/93

SWLO #: 16375.11 N9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2280
LOCATION:
DATE ANALYZED : 12/05/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 250.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	30000	J6	ACENAPHTHENE	2500	U
BIS(2-CHLOROETHYL)ETHER	2500	U	2,4-DINITROPHENOL	12000	U
2-CHLOROPHENOL	2500	U	4-NITROPHENOL	12000	U
1,3-DICHLOROBENZENE	2500	U	DIBENZOFURAN	2500	U
1,4-DICHLOROBENZENE	2500	U	2,4-DINITROTOLUENE	2500	U
BENZYL ALCOHOL	340	J6 (J5)	2,6-DINITROTOLUENE	2500	U
1,2-DICHLOROBENZENE	2500	U	DIETHYLPHTHALATE	2500	U
2-METHYLPHENOL(O-CRESOL)	2500	U	4-CHLOROPHENYL-PHENYLETHER	2500	U
BIS(2-CHLOROISOPROPYL)ETHER	2500	U	FLUORENE	2500	U
4-METHYLPHENOL(P-CRESOL)	2500	U	4-NITROANILINE	12000	U
N-NITROSO-DI-N-PROPYLAMINE	2500	U	4,6-DINITRO-2-METHYLPHENOL	12000	U
HEXACHLOROETHANE	2500	U	N-NITROSODIPHENYLAMINE(1)	2500	U
NITROBENZENE	2500	U	4-BROMOPHENYL-PHENYLETHER	2500	U
ISOPHORONE	2500	U	HEXACHLOROBENZENE	2500	U
2-NITROPHENOL	2500	U	PENTACHLOROPHENOL	12000	U
2,4-DIMETHYLPHENOL	2500	U	PHENANTHRENE	2500	U
BENZOIC ACID	12000	U	ANTHRACENE	2500	U
BIS(2-CHLOROETHOXY)METHANE	2500	U	DI-N-BUTYL PHTHALATE	2500	U
2,4-DICHLOROPHENOL	2500	U	FLUORANTHENE	2500	U
1,2,4-TRICHLOROBENZENE	2500	U	PYRENE	2500	U
NAPHTHALENE	2500	U	BUTYL BENZYL PHTHALATE	2500	U
4-CHLOROANILINE	2500	U	3,3'-DICHLOROBENZIDINE	5000	U
HEXACHLOROBUTADIENE	2500	U	BENZO(A)ANTHRACENE	2500	U
4-CHLORO-3-METHYLPHENOL	2500	U	BIS(2-ETHYLHEXYL)PHTHALATE	2500	U
2-METHYLNAPHTHALENE	2500	U	CHRYSENE	2500	U
HEXACHLOROCYCLOPENTADIENE	2500	U	DI-N-OCTYL PHTHALATE	2500	U
2,4,6-TRICHLOROPHENOL	410	J6 (J5)	BENZO(B)FLUORANTHENE	2500	U

JMC
1/3/94

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.11

DATE: 12/23/93

SWLO #: 16375.11 N1
PROJECT : TINKER AFB RFI
SAMPLE #: IWTBG2280
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: MODIFIED 8015

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 20.00

TOTAL EXTRACTABLE HYDROCARBONS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
DIESEL C10-C22	100	U	#6 FUEL OIL C12-C24	100	U
KEROSENE C9-C18	100	U	NAPHTHA C6-C12	100	U
JP-4 C6-C14	100	U	MISCELLANEOUS C7-C24	54200	J4

QA/QC SURROGATE RECOVERIES
NAPHTHALENE (46-121) 126% *

Noted.
SMC
1/3/93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.11

DATE: 12/20/93

SWLO #: 16375.11 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG2280
LOCATION:

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.2	U	ug/l	11/19/93	11/19/93	SW846-7470
SILVER	1	U	ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/22/93	SW846-6010
BARIUM	9090	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	124	J4	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	8800		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	25.7	J4	ug/l	11/18/93	11/22/93	SW846-6010
NICKEL	10.8	J4	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	5	U	ug/l	11/18/93	11/22/93	SW846-6010
ZINC	6520	J4	ug/l	11/18/93	11/24/93	SW846-6010

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.12

DATE: 12/20/93

SWLO #: 16375.12 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG3221
LOCATION:
DATE ANALYZED : 11/18/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	16		CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	33	J6 ~~J1 B~~	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	4	J5
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	XYLENE (TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	36	
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110) 107% ✓	BROMOFLUOROBENZENE	(86-115) 114% ✓
1,2-DICHLOROETHANE-D4	(76-114) 108% ✓		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SMC
1/3/94

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.12

DATE: 12/20/93

SWLO #: 16375.12 N9
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG3221
LOCATION:
DATE ANALYZED : 12/05/93
METHOD REFERENCE: SW846-8270
MS Re-Analyses

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/02/93
DILUTION FACTOR: 1.00

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	21	J6	ACENAPHTHENE	10	U
BIS(2-CHLOROETHYL)ETHER	10	U	2,4-DINITROPHENOL	50	U
2-CHLOROPHENOL	10	U	4-NITROPHENOL	50	U
1,3-DICHLOROBENZENE	10	U	DIBENZOFURAN	10	U
1,4-DICHLOROBENZENE	10	U	2,4-DINITROTOLUENE	10	U
BENZYL ALCOHOL	34	J3	2,6-DINITROTOLUENE	10	U
1,2-DICHLOROBENZENE	10	U	DIETHYLPHTHALATE	10	U
2-METHYLPHENOL(O-CRESOL)	10	U	4-CHLOROPHENYL-PHENYLETHER	10	U
BIS(2-CHLOROISOPROPYL)ETHER	10	U	FLUORENE	10	U
4-METHYLPHENOL(P-CRESOL)	10	U	4-NITROANILINE	50	U
N-NITROSO-DI-N-PROPYLAMINE	10	U	4,6-DINITRO-2-METHYLPHENOL	50	U
HEXACHLOROETHANE	10	U	N-NITROSODIPHENYLAMINE(1)	10	U
NITROBENZENE	10	U	4-BROMOPHENYL-PHENYLETHER	10	U
ISOPHORONE	10	U	HEXACHLOROBENZENE	10	U
2-NITROPHENOL	10	U	PENTACHLOROPHENOL	50	U
2,4-DIMETHYLPHENOL	10	U	PHENANTHRENE	10	U
BENZOIC ACID	1.2	J6 ~~J1~~ ~~JB~~	ANTHRACENE	10	U
BIS(2-CHLOROETHOXY)METHANE	10	U	DI-N-BUTYL PHTHALATE	10	U
2,4-DICHLOROPHENOL	10	U	FLUORANTHENE	10	U
1,2,4-TRICHLOROBENZENE	10	U	PYRENE	10	U
NAPHTHALENE	10	U	BUTYL BENZYL PHTHALATE	10	U
4-CHLOROANILINE	10	U	3,3'-DICHLOROBENZIDINE	20	U
HEXACHLOROBUTADIENE	10	U	BENZO(A)ANTHRACENE	10	U
4-CHLORO-3-METHYLPHENOL	10	U	BIS(2-ETHYLHEXYL)PHTHALATE	1	~~J1~~ J6
2-METHYLNAPHTHALENE	10	U	CHRYSENE	10	U
HEXACHLOROCYCLOPENTADIENE	10	U	DI-N-OCTYL PHTHALATE	10	U
2,4,6-TRICHLOROPHENOL	10	U	BENZO(B)FLUORANTHENE	10	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.12

DATE: 12/20/93

SWLO #: 16375.12 N1
PROJECT : TINKER AFB-RFI
SAMPLE #: IWTBG3221
LOCATION:

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00

METAL PARAMETER

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.2	U	ug/l	11/19/93	11/19/93	SW846-7470
SILVER	1	U	ug/l	11/18/93	11/27/93	SW846-7761
ARSENIC	10	U	ug/l	11/18/93	11/22/93	SW846-6010
BARIUM	417	J4	ug/l	11/18/93	11/24/93	SW846-6010
CADMIUM	3	U	ug/l	11/18/93	11/24/93	SW846-6010
CHROMIUM	484		ug/l	11/18/93	11/24/93	SW846-6010
LEAD	3	U	ug/l	11/18/93	11/22/93	SW846-6010
NICKEL	10	U	ug/l	11/18/93	11/24/93	SW846-6010
SELENIUM	5	U	ug/l	11/18/93	11/22/93	SW846-6010
ZINC	15.3	J4	ug/l	11/18/93	11/24/93	SW846-6010

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16375.13

DATE: 12/20/93

SWLO #: 16375.13 TB3
PROJECT : TINKER AFB-RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/17/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/11/93
SAMPLE MATRIX : WG
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	1.6	J5	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	XYLENE (TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	99% ✓	BROMOFLUOROBENZENE	(86-115)	98% ✓
1,2-DICHLOROETHANE-D4	(76-114)	98% ✓			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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1/3/94

TABLE ___
TINKER AIR FORCE BASE RFI
DATA VALIDATION WORKSHEET

SDG: 16642

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4
PCBs	P1	1. Surrogate outliers reported	See Note 1	J4, UJ4
	P2.	2. Surrogate recovery could not be quantitated due to interference	See Note 2	J4, UJ4

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

David Y. Badio DEBADIO

DATA VALIDATOR(Name/Signature)

1-19-94
Date

Table ___

SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS

PROJECT: TINKER AFB

SDG: 16642

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
PCBs	P1	1. The surrogate recovery reported was below the acceptance limit. Reported results or detection limits for the affected samples have been qualified as estimated (J4 or UJ4) and considered biased low. Affected samples are: 16642.02, 03, 12, 15, 21, 25, 27, 29, 31 and 32.
	P2	2. Surrogate recovery could not be quantitated due to matrix interferences in the associate samples. Generally only the surrogate compound decachlorobiphenyl was affected. Reported results or detection limits for PCBs in the affected samples have been qualified as estimated (J4 or UJ4). Affected samples are: 16642.05, 16642.06, 16642.09, 16642.20 and 16642.34.

1. Item number should correspond with the item number on the worksheet.

David Y. Badu [signature] 1-19-94

Data Validator (Name/Signature/Date)

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

CLIENT: ENGINEERING-SCIENCE, INC.
7800 SHOAL CREEK BOULEVARD, SUITE 222W
AUSTIN, TX 78757
ATTN: KEVIN TYNES

REPORT: 16642APb
QASEQ: 931204-001
DATE: 12-30-93

SAMPLE MATRIX: SOIL
SWLO # 16642.03/16642.04
DATE EXTRACTED: 12-04-93
DATE ANALYZED: 12-11-93
METHOD REFERENCE: SW846-8080, EPA METHODOLOGY
SAMPLE ID: I24.2SS2 (MS/MSD)

PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES

	SPIKE ADDED (ug/kg)	AMT FOUND SAMPLE (ug/kg)	MS AMT. FOUND (ug/kg)	MS PERCENT RECOVERY
AR1016	447	0	165	37
AR1260	894	0	462	52

	SPIKE ADDED (ug/kg)	MSD AMT. FOUND (ug/kg)	MSD PERCENT RECOVERY	RPD
AR1016	447	216	48	27
AR1260	894	523	59	12

QA/QC SURROGATE RECOVERIES

MS	
TETRACHLOROMETAXYLENE	42%
DECACHLOROBIPHENYL	28%*
MSD	
TETRACHLOROMETAXYLENE	60%
DECACHLOROBIPHENYL	42%

* = VALUES OUTSIDE OF QC LIMITS
SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

Engineering-Science Inc

Austin, Texas

CARRIER: FEDERAL EXPRESS
AIRBILL #: 850306 2665

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME/LOCATION
AU4017.07	TINKER AFB RFI

SAMPLERS (Signatures) John Osweiler, Chris Valle
John C. Osweiler, Christa Sally Val

SAMPLE NO. Type	DATE	TIME	MATRIX Method		SAMPLE DESCRIPTION Loc ID	Depth Begin	Depth End	NO. OF CONTAINERS	PCB	SVOC 8250 TCL	Analysis Required / Preservation	Field Lot Number / Remarks
N1	11/30/93	0845	SO	G	I24.2551	0.2	0.5	1	✓		0 0 0 A	
N1	11/30/93	0919	SO	G	I24.2552	0.2	0.5	1	✓		0 0 0 A	
FR1	11/30/93	0919	SO	G	I24.2552	0.2	0.5	1	✓		0 0 0 A	
MS1	11/30/93	0919	SO	G	I24.2552	0.2	0.5	1	✓		0 0 0 A	
SD1	11/30/93	0919	SO	G	I24.2552	0.2	0.5	1	✓		0 0 0 A	
N1	11/30/93	0920	SO	G	I24.2553	0.2	0.5	1	✓		0 0 0 A	
N1	11/30/93	0930	SO	G	I24.2554	0.2	0.5	1	✓		0 0 0 A	
N1	11/30/93	0940	SO	G	I24.3551	0.2	0.5	1	✓		0 0 0 A	
N1	11/30/93	0850	SO	G	I24.3552	0.2	0.5	1	✓		0 0 0 A	
N1	11/30/93	0850	SO	G	I24.3553	0.2	0.5	1	✓		0 0 0 A	
N1	12/1/93	0950	SO	G	I24.5551	0.2	0.5	1	✓		0 0 0 A	
N1	12/1/93	0938	SO	G	I24.5552	0.2	0.5	1	✓		0 0 0 A	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
John C. Osweiler	12/1/93	1600	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
	12/2/93	0945	

"Relinquished by" and **"Received by"** boxes must be completed for all transfers.
White: laboratory returns with data, **yellow**: laboratory copy, **pink**: sampler copy

38 F

Engineering-Science Inc

Austin, Texas

CARRIER: FEDERAL EXPRESS
AIRBILL #: 8503062665

CHAIN OF CUSTODY RECORD

PROJECT NO. AU401.07

PROJECT NAME/LOCATION TINKER AFB RFI

SAMPLERS (Signatures) JOHN OSWEILER, CHRIS VAIL

SAMPLE ~~NO.~~ TYPE	DATE	TIME	MATRIX	METHOD	~~SAMPLE DESCRIPTION~~ LOC. ID	DEPTH BEGIN	DEPTH END	NO. OF CONTAINERS	PCB SW8080/ICE	AMBIENT CONDITION BLANK	EQUIPMENT BLANK	TRIP BLANK	COOLER LETTER	~~REMARKS~~ FIELD LOT CONTROL #
N1	11/30/93	1057	SO	G	I24.19SS1	0.1	0.3	1	✓	0	0	0	A	
N1	11/30/93	1055	SO	G	I24.19SS2	0.1	0.3	1	✓	0	0	0	A	
N1	11/30/93	1045	SO	G	I24.19SS3	0.1	0.3	1	✓	0	0	0	A	
N1	11/30/93	1043	SO	G	I24.19SS4	0.1	0.3	1	✓	0	0	0	A	
N1	11/30/93	0945	SO	G	S32.3SS1	0.2	0.5	1	✓	0	0	0	A	
N1	11/30/93	1027	SO	G	S32.1SS1	0.2	0.5	1	✓	0	0	0	A	
N1	11/30/93	1025	SO	G	RCP1SS1	0.2	0.5	1	✓	0	0	0	A	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
John C. Osweiler	12/1/93	1600					
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
					12/2/93	0845	[signature]

"Relinquished by" and "Received by" boxes must be completed for all transfers.

White: laboratory returns with data, yellow: laboratory copy, pink: sampler copy

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Engineering-Science Inc

Austin, Texas

Carrier: Federal Express
Air bill #: 850306 2676

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME/LOCATION
AU401.05	TINKER AFB RFI

SAMPLERS (Signatures) John Osweiler — Chris Vaic

SAMPLE NO. TYPE	DATE	TIME	MATRIX/ Method		SAMPLE DESCRIPTION Location ID	Depth Begin	Depth End	NO. OF CONTAINERS	RCRA 8010/8020 TCL	Analysis Required												Preservation			REMARKS
																						Ambient Cond Blank	Equipment Blank	Trip Blank	Cooler Letter
NI	12/1/93	0755	SE	DS	ESCISE10	0	0	1	✓													0	0	0	B
NI	12/1/93	0830	SE	DS	ESCISE5	0	0	1	✓													0	0	0	B
FRI	12/1/93	0830	SE	DS	ESCISE5	0	0	1	✓													0	0	0	B
MSI	12/1/93	0830	SE	DS	ESCISE5	0	0	1	✓													0	0	0	B
SDI	12/1/93	0830	SE	DS	ESCISE5	0	0	1	✓													0	0	0	B
NI	12/1/93	0847	SE	DS	ESCISE4E	0	0	1	✓													0	0	0	B
NI	12/1/93	0851	SE	DS	ESCISE4W	0	0	1	✓													0	0	0	B
NI	12/1/93	0903 0859 CSW	SE	DS	ESCISE3	0	0	1	✓													0	0	0	B

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
John C. Osweiler	12/1/93	1600	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date 12/2/93	Time 0845	Received by: (Signature)

"Relinquished by" and **"Received by"** boxes must be completed for all transfers.

White: laboratory returns with data, **yellow**: laboratory copy, **pink**: sampler copy

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Engineering-Science Inc

Austin, Texas

Carrier: Federal Express
Airbill # 8503062676

CHAIN OF CUSTODY RECORD

PROJECT NO. AU401.05 & AU401.07

PROJECT NAME/LOCATION: TINKER AFB RFI

SAMPLERS (Signatures): JOHN OSWEILER, CHRIS VAIL

John C. Osweiler, Christie Scully Vail

SAMPLE ~~NO.~~ TYPE	DATE	TIME	MATRIX/ METHOD		~~SAMPLE DESCRIPTION~~ LOCATION ID	DEPTH BEGIN	DEPTH END	NO. OF CONTAINERS	PCB SW8080/IRE	AMBIENT COND. BLANK	EQUIPMENT BLANK	TRIP BLANK	COOLER LETTER	FIELD LOT CONTROL NUMBER ~~REMARKS~~
N1	11/30/93	1107	SO	G	S32.8SS1	0.2	0.5	1	✓	0	0	0	B	
N1	11/30/93	1105	SO	G	S32.8SS2	0.2	0.5	1	✓	0	0	0	B	
FR1	11/30/93	1105	SO	G	S32.8SS2	0.2	0.5	1	✓	0	0	0	B	
N1	11/30/93	1115	SO	G	S32.8SS3	0.2	0.5	1	✓	0	0	0	B	
N1	11/30/93	1125	SO	G	S32.8SS4	0.2	0.5	1	✓	0	0	0	B	
N1	11/30/93	1623	SE	DS	ESCISE1	0	0	1	✓	0	0	0	B	
N1	11/30/93	1640	SE	DS	ESCISE2	0	0	1	✓	0	0	0	B	

NOTE: IRPIMS DATA DISK FOR THESE SAMPLES CAN BE FOUND IN COOLER A.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
John C. Osweiler	12/1/93	1600					
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
					12/2/93	0845	K Collis

37F

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.02

DATE: 12/30/93

SWLO # : 16642.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 12/11/93
METHOD REFERENCE: SW846-8080
GC

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 0.20
DEPTH TO : 0.50
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	34	UJ4	AROCLOR-1248	34	UJ4
AROCLOR-1221	34	UJ4	AROCLOR-1254	34	UJ4
AROCLOR-1232	34	UJ4	AROCLOR-1260	34	UJ4
AROCLOR-1242	34	UJ4			

DYB
1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE (30-143) 27% * DECACHLOROBIPHENYL (40-145) 25% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.03

DATE: 12/30/93

SWLO # : 16642.03 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 12/11/93
METHOD REFERENCE: SW846-8080
GC

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 0.20
DEPTH TO : 0.50
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	165	J4	AROCLOR-1248	34	UJ4
AROCLOR-1221	34	UJ4	AROCLOR-1254	34	UJ4
AROCLOR-1232	34	UJ4	AROCLOR-1260	462	J4
AROCLOR-1242	34	UJ4			

DyB
1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	42%	DECACHLOROBIPHENYL	(40-145)	28% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.05

DATE: 12/30/93

SWLO # : 16642.05 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS2
LOCATION:
DATE ANALYZED : 12/11/93
METHOD REFERENCE: SW846-8080
GC

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 0.20
DEPTH TO : 0.50
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	35	UJ4	AROCLOR-1248	35	UJ4
AROCLOR-1221	35	UJ4	AROCLOR-1254	35	UJ4
AROCLOR-1232	35	UJ4	AROCLOR-1260	35	UJ4
AROCLOR-1242	35	UJ4			

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QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE (30-143)* 78% DECACHLOROBIPHENYL (40-145) I

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.06

DATE: 12/30/93

SWLO # : 16642.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.2SS3
LOCATION:
DATE ANALYZED : 12/11/93
METHOD REFERENCE: SW846-8080
GC

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 0.20
DEPTH TO : 0.50
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	34	UJ4	AROCLOR-1248	34	UJ4
AROCLOR-1221	34	UJ4	AROCLOR-1254	34	UJ4
AROCLOR-1232	34	UJ4	AROCLOR-1260	34	UJ4
AROCLOR-1242	34	UJ4			

DMB
1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	63%	DECACHLOROBIPHENYL	(40-145)	I

I- Surrogate recovery could not be quantitated due to matrix interference in the sample.

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.09

DATE: 12/30/93

SWLO # : 16642.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.3SS2
LOCATION:
DATE ANALYZED : 12/11/93
METHOD REFERENCE: SW846-8080
GC

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 0.20
DEPTH TO : 0.50
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	32	UJ4	AROCLOR-1248	32	U J4
AROCLOR-1221	32	UJ4	AROCLOR-1254	32	U J4
AROCLOR-1232	32	U J4	AROCLOR-1260	32	U J4
AROCLOR-1242	32	U J4			

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QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	74%	DECACHLOROBIPHENYL	(40-145) I

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.12

DATE: 12/30/93

SWLO # : 16642.12 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.5SS2
LOCATION:
DATE ANALYZED : 12/11/93
METHOD REFERENCE: SW846-8080
GC

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 0.20
DEPTH TO : 0.50
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	33	UJ4	AROCLOR-1248	33	UJ4
AROCLOR-1221	33	UJ4	AROCLOR-1254	33	UJ4
AROCLOR-1232	33	UJ4	AROCLOR-1260	33	UJ4
AROCLOR-1242	33	UJ4			

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QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	31%	DECACHLOROBIPHENYL	(40-145)	30% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.15

DATE: 01/07/94

SWLO # : 16642.15 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.19SS3
LOCATION:
DATE ANALYZED : 12/12/93
METHOD REFERENCE: SW846-8080
GC

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.10
DEPTH TO : 0.30
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	31	UJ4	AROCLOR-1248	31	UJ4
AROCLOR-1221	31	UJ4	AROCLOR-1254	31	UJ4
AROCLOR-1232	31	UJ4	AROCLOR-1260	41	J4
AROCLOR-1242	31	UJ4			

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QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	30%	DECACHLOROBIPHENYL	(40-145)	26% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.20

DATE: 12/30/93

SWLO # : 16642.20 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE6
LOCATION:
DATE ANALYZED : 12/12/93
METHOD REFERENCE: SW846-8080
GC

DATE SAMPLED : 12/01/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	37	UJ4	AROCLOR-1248	37	UJ4
AROCLOR-1221	37	UJ4	AROCLOR-1254	37	UJ4
AROCLOR-1232	37	UJ4	AROCLOR-1260	37	UJ4
AROCLOR-1242	37	UJ4			

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1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	55%	DECACHLOROBIPHENYL	(40-145)	I

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.21

DATE: 12/30/93

SWLO # : 16642.21 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE5
LOCATION:
DATE ANALYZED : 12/12/93
METHOD REFERENCE: SW846-8080

DATE SAMPLED : 12/01/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	43	UJ4	AROCLOR-1248	43	UJ4
AROCLOR-1221	43	UJ4	AROCLOR-1254	43	UJ4
AROCLOR-1232	43	UJ4	AROCLOR-1260	43	UJ4
AROCLOR-1242	43	UJ4			

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1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	32%	DECACHLOROBIPHENYL	(40-145)	26% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.25

DATE: 12/30/93

SWLO # : 16642.25 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE4E
LOCATION:
DATE ANALYZED : 12/12/93
METHOD REFERENCE: SW846-8080

DATE SAMPLED : 12/01/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	34	UJ4	AROCLOR-1248	34	UJ4
AROCLOR-1221	34	UJ4	AROCLOR-1254	34	UJ4
AROCLOR-1232	34	UJ4	AROCLOR-1260	34	UJ4
AROCLOR-1242	34	UJ4			

DMB
1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	37%	DECACHLOROBIPHENYL	(40-145)	24% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.27

DATE: 01/07/94

SWLO # : 16642.27 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE3
LOCATION:
DATE ANALYZED : 12/12/93
METHOD REFERENCE: SW846-8080

DATE SAMPLED : 12/01/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	38	UJ4	AROCLOR-1248	38	UJ4
AROCLOR-1221	38	UJ4	AROCLOR-1254	41	J4
AROCLOR-1232	38	UJ4	AROCLOR-1260	38	UJ4
AROCLOR-1242	38	UJ4			

DMB
1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	67%	DECACHLOROBIPHENYL	(40-145)	37% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.29

DATE: 12/30/93

SWLO # : 16642.29 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS2
LOCATION:
DATE ANALYZED : 12/12/93
METHOD REFERENCE: SW846-8080

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.20
DEPTH TO : 0.50
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	31	U J4	AROCLOR-1248	31	U J4
AROCLOR-1221	31	U J4	AROCLOR-1254	31	U J4
AROCLOR-1232	31	U J4	AROCLOR-1260	31	U J4
AROCLOR-1242	31	U J4			

MB
1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	32%	DECACHLOROBIPHENYL	(40-145)	24% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.31

DATE: 12/30/93

SWLO # : 16642.31 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS3
LOCATION:
DATE ANALYZED : 12/12/93
METHOD REFERENCE: SW846-8080

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.20
DEPTH TO : 0.50
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	32	UJ4	AROCLOR-1248	32	UJ4
AROCLOR-1221	32	UJ4	AROCLOR-1254	32	UJ4
AROCLOR-1232	32	UJ4	AROCLOR-1260	32	UJ4
AROCLOR-1242	32	UJ4			

DMB
1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143)	39%	DECACHLOROBIPHENYL	(40-145)	33% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.32

DATE: 12/30/93

SWLO # : 16642.32 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.8SS4
LOCATION:
DATE ANALYZED : 12/12/93
METHOD REFERENCE: SW846-8080

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.20
DEPTH TO : 0.50
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	32	UJ4	AROCLOR-1248	32	UJ4
AROCLOR-1221	32	UJ4	AROCLOR-1254	32	UJ4
AROCLOR-1232	32	UJ4	AROCLOR-1260	32	UJ4
AROCLOR-1242	32	UJ4			

DMB
1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE (30-143) 12% *
DECACHLOROBIPHENYL (40-145) 11% *

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16642.34

DATE: 12/30/93

SWLO # : 16642.34 N1
PROJECT : TINKER AFB RFI
SAMPLE #: ESC1SE2
LOCATION:
DATE ANALYZED : 12/12/93
METHOD REFERENCE: SW846-8080

DATE SAMPLED : 11/30/93
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 12/04/93
DILUTION FACTOR: 1.00

PCBS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	99	U J4	AROCLOR-1248	99	U J4
AROCLOR-1221	99	U J4	AROCLOR-1254	99	U J4
AROCLOR-1232	99	U J4	AROCLOR-1260	99	U J4
AROCLOR-1242	99	U J4			

DMB 1-19-94

QA/QC SURROGATE RECOVERIES

TETRACHLOROMETAXYLENE	(30-143) 58%	DECACHLOROBIPHENYL	(40-145) I	

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

TABLE ___
TINKER AIR FORCE BASE RFI
DATA VALIDATION WORKSHEET

SDG: 16443

PARAMETER	ITEM NO(1)	QA Problem(2)	Affected Samples(3)	DV Qualifier(4)
VOCs	V1	1. Soil lab blank contamination	See Note 1	J1
	V2	2. Water lab blank Contamination	See Note 2	J1
	V3	3. Field blank contamination	See Note 3	None
SVOC	SV1	4. Extraction blank contaminatio	See Note 4	J1

1. Item No. must correspond with item number on the attached comments page.
2. Be brief and concise, use the comments page to describe details.
3. Use Client sample identifications, use the comments page if necessary.
4. Use only acceptable DV qualifiers (See page from the project QAPjP).

David Y. Badio DEBADW I
DATA VALIDATOR(Name/Signature)

12-30-93
Date

Table ___
SUMMARY OF ADDITIONAL DATA VALIDATION COMMENTS
PROJECT: TINKER AFB

SDG: 16443

PARAMETER	ITEM NO.(1)	ADDITIONAL COMMENTS
VOCs	V1	1. Methylene chloride (5ppb) and acetone (23ppb) were detected in the soil lab blanks. All detections of these analytes in the associate soil samples have been qualified as estimated (J1).
	V2	2. Chloroform (1.2ppb) was detected in the water lab blanks. All detections of chloroform in the aqueous samples have been qualified as estimated (J1). The aqueous samples included the trip blanks and the "MB" samples.
	V3	3. Acetone (8.8ppb) was detected in the two field blanks (MB) samples. Detections of acetone in the associate samples have already been qualified due to lab blank contamination. No qualification necessary.
SVOCs	SV1	4. The extraction blanks contained 5 spiking compounds: Phenol, 2-Chlorophenol, 4-Chloro-3-methylphenol, 4-nitrophenol and PCB. All detections of the affected analytes in the samples have been qualified as estimated and considered lab contaminants.

1. Item number should correspond with the item number on the worksheet.

David Y. Badio (DYBADIO) 12-30-93
Data Validator (Name/Signature/Date)

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : K931122A
INST. BATCH: 14661
REPORTED : 12/17/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : K931122A
LOCATION:

ANALYZED : 11/22/93 11:20
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND NOTE 1	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	5	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	23	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
,2-DICHLOROETHENE (TOTAL)	5	ND	2-HEXANONE	10	ND
HLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	89%
1,2-DICHLOROETHANE-D4	(70-121)	99%			

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NOT APPLICABLE

Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

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1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : K931123B
INST. BATCH: 14795
REPORTED : 12/17/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : K931123B
LOCATION:

ANALYZED : 11/23/93 10:07
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : SOIL
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/Kg

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	8.6	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	18	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE(TOTAL)	5	ND	2-HEXANONE	10	ND
CHLOROFORM	5	ND	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

Note 1

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	96%
1,2-DICHLOROETHANE-D4	(70-121)	96%			

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
I = UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
NA = NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

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1700 W. ALBANY SUITE C BROKEN ARROW, OK 74012-1421 (918) 251-2858

ENGINEERING SCIENCES, INC.
7800 SHOAL CREEK BLVD.
SUITE 222 W
AUSTIN, TX 78757

QAQC# : N931123A
INST. BATCH: 4104
REPORTED : 12/17/93

PROJECT : TINKER AFB RFI
LAB# : METHOD BLANK

SAMPLE : N931123A
LOCATION:

ANALYZED : 11/23/93 10:09
DILUTION : 1
%MOISTURE: 0.00
LEVEL : LOW

MATRIX : WATER
METHOD : SW 8240

VOLATILE ORGANICS PRIORITY POLLUTANTS
RESULTS REPORTED IN ug/L

PARAMETER	QUANT. LIMIT	RESULTS	PARAMETER	QUANT. LIMIT	RESULTS
CHLOROMETHANE	10	ND	1,2-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	TRANS-1,3-DICHLOROPROPENE	5	ND
VINYL CHLORIDE	10	ND	TRICHLOROETHENE	5	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
METHYLENE CHLORIDE	5	ND	1,1,2-TRICHLOROETHANE	5	ND
ACETONE	10	ND	BENZENE	5	ND
CARBON DISULFIDE	5	ND	CIS-1,3-DICHLOROPROPENE	5	ND
1,1-DICHLOROETHENE	5	ND	2-CHLOROETHYL VINYL ETHER	10	ND
1,1-DICHLOROETHANE	5	ND	BROMOFORM	5	ND
1,2-DICHLOROETHENE (TOTAL)	5	ND Note 2	2-HEXANONE	10	ND
CHLOROFORM	5	1.2 J	4-METHYL-2-PENTANONE	10	ND
1,2-DICHLOROETHANE	5	ND	TETRACHLOROETHENE	5	ND
2-BUTANONE	10	ND	TOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	CHLOROBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	ETHYLBENZENE	5	ND
VINYL ACETATE	10	ND	STYRENE	5	ND
BROMODICHLOROMETHANE	5	ND	XYLENE (TOTAL)	5	ND
1,1,2,2-TETRACHLOROETHANE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	98%	BROMOFLUOROBENZENE	(86-115) 98%
1,2-DICHLOROETHANE-D4	(76-114)	107%		

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
= UNABLE TO QUANTITATE DUE TO MATRIX INTERFERENCE
- NOT APPLICABLE
Methodology: SM = STANDARD METHODS, 16th EDITION, 1985
EPA = #EPA600/4-79-020, MARCH 1985

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
D = SURROGATES DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION

SW = EPA METHODOLOGY, "#SW846", THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443

DATE: 12/23/93

SWLO QAQC#: 931118-001
PROJECT : TINKER AFB RFI
SAMPLE #: 931118 SBLK1 LB1
LOCATION: LABQC
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: / /
SAMPLE MATRIX : SQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.00

Note 4

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	260	J	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	1600	U
2-CHLOROPHENOL	260	J	4-NITROPHENOL	150	J
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
BENZYL ALCOHOL	330	U	2,6-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL(O-CRESOL)	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL(P-CRESOL)	330	U	4-NITROANILINE	1600	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	1600	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE(1)	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	200	J
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BENZOIC ACID	1600	U	ANTHRACENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	DI-N-BUTYL PHTHALATE	330	U
2,4-DICHLOROPHENOL	330	U	FLUORANTHENE	330	U
1,2,4-TRICHLOROBENZENE	330	U	PYRENE	330	U
NAPHTHALENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLOROANILINE	330	U	3,3'-DICHLOROBENZIDINE	660	U
HEXACHLOROBUTADIENE	330	U	BENZO(A)ANTHRACENE	330	U
4-CHLORO-3-METHYLPHENOL	240	J	BIS(2-ETHYLHEXYL)PHTHALATE	330	U
2-METHYLNAPHTHALENE	330	U	CHRYSENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	DI-N-OCTYL PHTHALATE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BENZO(B)FLUORANTHENE	330	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY
OF OKLAHOMA, INC.

December 23, 1993

Mr. Kevin Tynes
ENGINEERING-SCIENCE, INC.
7800 Shoal Creek Boulevard, Suite 222W
Austin, TX 78757

Subject: Tinker AFB RFI
SDG#: 16443
SWLO #: 16443.01 - 16443.13

Dear Mr. Tynes:

Enclosed we are submitting the hardcopy report and diskette deliverable for your samples received in our laboratory on the 18th of Novemberr, 1993 for the above-captioned project.

Noted

Semivolatile Analysis: The extraction blank was contaminated with acid spiking compounds; phenol, 4-chloro-3-methyphenol, 4-methyphenol, and pentachlorophenol. These compounds were below PQL's. The samples contained approximately the same amounts of these compounds as did the blank; therefore it is expected that all positive hits of these compounds for the samples is due to laboratory contamination. Upon further investigation it has been determined that this contamination originated from the surrogate spiking solution. This solution has been taken out of operations and a new solution is currently in use.

In addition, please note that QC Tool gave the following error because there was no valid parlabel for the following compound.

Xylene.

If in your review you have any questions or require additional information, please call.

Sincerely,

Daryl Alstatt
Project Officer

DA/jc

Enclosures

1700 West Albany • Broken Arrow, OK 74012-1421 • (918) 251-2858 • Fax (918) 251-2599

16443

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS

ES

PROJECT NAME/LOCATION: TINKER AFB, OK

PROJECT NUMBER: AU401.08

SAMPLER(S): MARC HARDER

(Signature) [signature]

CARRIER: [X] Federal Express [ ] UPS

Other

AIRBILL OR CARRIER ID #: 8503061895

PRESERVATIVE

ANALYSIS REQUIRED

FIELD LOT CONTROL NUMBER

Date	Time	Loc ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	VOA (8240)	SVOA (8270)	Metals (6010)	CN (9010)	Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/16/93	—	Field QC		TB1	WQ	NA	0	0	2	X				0	0	1	A	
11/16/93	1000	S32.5SB2		N1	SO	HA	3.5	4.0	3	X	X	X	X	0	0	1	A	
11/16/93	1130	S32.5SB2		N1	SO	HA	5.5	6.0	3	X	X	X	X	0	0	1	A	
11/16/93	1515	S32.5SB1		N1	SO	HA	2.0	3.0	3	X	X	X	X	0	0	1	A	
11/16/93	1540	S32.5SB1		N1	SO	HA	5.0	6.0	3	X	X	X	X	0	0	1	A	
11/16/93	0920	S32.6SB1		N1	SO	HA	2.0	3.0	3	X	X	X	X	0	0	1	A	
11/16/93	1410	I24.11SB4		N1	SO	HA	3.0	4.0	3	X	X	X	X	0	0	1	A	
11/16/93	1410	I24.11SB4		FR1	SO	HA	3.0	4.0	3	X	X	X	X	0	0	1	A	
11/16/93	1440	I24.11SB4		N1	SO	HA	8.0	9.0	3	X	X	X	X	0	0	1	A	

Relinquished by: [signature] (Signature) MH Date ~~11/16/93~~ Time 1700

Received by: (Signature) Date 11/17/93 Time

Relinquished by: (Signature) Date Time

Received by: (Signature) Date Time

Relinquished by: (Signature) Date Time

Received by: [signature] (Signature) Date 11/8/93 Time 0920

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

chaino.dwg

31

16443

CHAIN OF CUSTODY RECORD

ENGINEERING–SCIENCE
AUSTIN, TEXAS
ES

PROJECT NAME/LOCATION: Tinker AFB, OK

PROJECT NUMBER: AU401.08

SAMPLER(S): Marc W. Harder

(Signature): Marc W. Harder

CARRIER: [X] Federal Express [ ] UPS

Other

AIRBILL OR CARRIER ID #: 8503061895

Date	Time	Loc ID	Sample ID/Desc.	Sample Type	Matrix	Sampling Method	Begin Depth	End Depth	NUMBER OF CONTAINERS	PRESERVATIVE	ANALYSIS REQUIRED: VOA (8240)	SVOA (8270)	Metals (6010)	CN (9010)	FIELD LOT CONTROL NUMBER: Ambient Condition Blank	Equipment Blank	Trip Blank	Cooler Letter	REMARKS
11/17/93	—	FieldQC		TB1	WQ	NA	0	0	2		X				0	0	1	A	
11	0815	I24.115B1		N1	SO	HA	4	5	3		X	X	X	X	0	0	1	A	
11	0815	I24.115B1		FR1	SO	HA	4	5	3		X	X	X	X	0	0	1	A	
11	0815	11		MS1	SO	HA	4	5	3		X	X	X	X	0	0	1	A	
11	0815	11		SD1	SO	HA	4	5	3		X	X	X	X	0	0	1	A	
11	0700	11		N1	SO	HA	8	9	3		X	X	X	X	0	0	1	A	
11	1120	FieldQC		MFB1	WQ	NA	0	0	2		X				0	0	1	A	
11	1200	FieldQC		MFB2	WQ	NA	0	0	2		X				0	0	1	A	

Relinquished by: (Signature) — Date 11/17/93 Time 1700

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) — Date — Time

Relinquished by: (Signature) — Date — Time

Received by: (Signature) — Date 11/18/93 Time 0900

White: laboratory returns with data; yellow: laboratory copy; pink: sampler copy.

chain.dwg

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.01

DATE: 12/23/93

SWLO #: 16443.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB2
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 3.50
DEPTH TO : 4.00
DATE PREPARED : / /
DILUTION FACTOR: 1.05

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5.2	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5.2	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5.2	U
CHLOROETHANE	10	U	BENZENE	5.2	U
METHYLENE CHLORIDE	28	J1 B	CIS-1,3-DICHLOROPROPENE	5.2	U
ACETONE	55	J1 B	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5.2	U	BROMOFORM	5.2	U
1,1-DICHLOROETHENE	5.2	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5.2	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5.2	U	TETRACHLOROETHENE	5.2	U
1,2-DICHLOROETHANE	5.2	U	TOLUENE	5.2	U
1,1,1-TRICHLOROETHANE	5.2	U	CHLOROBENZENE	5.2	U
CARBON TETRACHLORIDE	5.2	U	ETHYLBENZENE	5.2	U
VINYL ACETATE	10	U	STYRENE	5.2	U
BROMODICHLOROMETHANE	5.2	U	1,2-DICHLOROETHENE(TOTAL)	5.2	U
1,1,2,2-TETRACHLOROETHANE	5.2	U	XYLENE (TOTAL)	5.2	U
1,2-DICHLOROPROPANE	5.2	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5.2	U			

DMB
12-30-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 105%	BROMOFLUOROBENZENE	(74-121) 103%
1,2-DICHLOROETHANE-D4	(70-121) 105%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.06

DATE: 12/23/93

SWLO #: 16443.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB4
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 3.00
DEPTH TO : 4.00
DATE PREPARED : / /
DILUTION FACTOR: 1.14

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.7	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.7	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.7	U
CHLOROETHANE	11	U	BENZENE	5.7	U
METHYLENE CHLORIDE	11	J1 B	CIS-1,3-DICHLOROPROPENE	5.7	U
ACETONE	24	J1 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.7	U	BROMOFORM	5.7	U
1,1-DICHLOROETHENE	5.7	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.7	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.7	U	TETRACHLOROETHENE	5.7	U
1,2-DICHLOROETHANE	5.7	U	TOLUENE	5.7	U
1,1,1-TRICHLOROETHANE	5.7	U	CHLOROBENZENE	5.7	U
CARBON TETRACHLORIDE	5.7	U	ETHYLBENZENE	5.7	U
VINYL ACETATE	11	U	STYRENE	5.7	U
BROMODICHLOROMETHANE	5.7	U	1,2-DICHLOROETHENE(TOTAL)	5.7	U
1,1,2,2-TETRACHLOROETHANE	5.7	U	XYLENE (TOTAL)	5.7	U
1,2-DICHLOROPROPANE	5.7	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.7	U			

DWB 12-30-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 109%	BROMOFLUOROBENZENE	(74-121) 94%
1,2-DICHLOROETHANE-D4	(70-121) 88%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.07

DATE: 12/23/93

SWLO #: 16443.07 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB4
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 3.00
DEPTH TO : 4.00
DATE PREPARED : / /
DILUTION FACTOR: 1.12

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.6	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.6	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.6	U
CHLOROETHANE	11	U	BENZENE	5.6	U
METHYLENE CHLORIDE	9.6	J1 B	CIS-1,3-DICHLOROPROPENE	5.6	U
ACETONE	25	J1 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.6	U	BROMOFORM	5.6	U
1,1-DICHLOROETHENE	5.6	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.6	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.6	U	TETRACHLOROETHENE	5.6	U
1,2-DICHLOROETHANE	5.6	U	TOLUENE	5.6	U
1,1,1-TRICHLOROETHANE	5.6	U	CHLOROBENZENE	5.6	U
CARBON TETRACHLORIDE	5.6	U	ETHYLBENZENE	5.6	U
VINYL ACETATE	11	U	STYRENE	5.6	U
BROMODICHLOROMETHANE	5.6	U	1,2-DICHLOROETHENE(TOTAL)	5.6	U
1,1,2,2-TETRACHLOROETHANE	5.6	U	XYLENE (TOTAL)	5.6	U
1,2-DICHLOROPROPANE	5.6	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.6	U			

DMB
12-30-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	109%	BROMOFLUOROBENZENE	(74-121)	88%
1,2-DICHLOROETHANE-D4	(70-121)	87%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.08

DATE: 12/23/93

SWLO #: 16443.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB4
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 8.00
DEPTH TO : 9.00
DATE PREPARED : / /
DILUTION FACTOR: 1.25

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**			PARAMETER	RESULTS**	
CHLOROMETHANE	12		U	TRICHLOROETHENE	6.2	U
BROMOMETHANE	12		U	DIBROMOCHLOROMETHANE	6.2	U
VINYL CHLORIDE	12		U	1,1,2-TRICHLOROETHANE	6.2	U
CHLOROETHANE	12		U	BENZENE	6.2	U
METHYLENE CHLORIDE	23	J1	B	CIS-1,3-DICHLOROPROPENE	6.2	U
ACETONE	42	J1	B	2-CHLOROETHYL VINYL ETHER	12	U
CARBON DISULFIDE	6.2		U	BROMOFORM	6.2	U
1,1-DICHLOROETHENE	6.2		U	2-HEXANONE	12	U
1,1-DICHLOROETHANE	6.2		U	4-METHYL-2-PENTANONE	12	U
CHLOROFORM	6.2		U	TETRACHLOROETHENE	6.2	U
1,2-DICHLOROETHANE	6.2		U	TOLUENE	6.2	U
1,1,1-TRICHLOROETHANE	6.2		U	CHLOROBENZENE	6.2	U
CARBON TETRACHLORIDE	6.2		U	ETHYLBENZENE	6.2	U
VINYL ACETATE	12		U	STYRENE	6.2	U
BROMODICHLOROMETHANE	6.2		U	1,2-DICHLOROETHENE(TOTAL)	6.2	U
1,1,2,2-TETRACHLOROETHANE	6.2		U	XYLENE (TOTAL)	6.2	U
1,2-DICHLOROPROPANE	6.2		U	2-BUTANONE	12	U
TRANS-1,3-DICHLOROPROPENE	6.2		U			

DMB
12-30-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	111%	BROMOFLUOROBENZENE	(74-121)	96%
1,2-DICHLOROETHANE-D4	(70-121)	89%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.09

DATE: 12/23/93

SWLO #: 16443.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB1
LOCATION:
DATE ANALYZED : 11/23/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 4.00
DEPTH TO : 5.00
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.4	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	5.4	U
METHYLENE CHLORIDE	13	J1 B	CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	11	U	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	5.4	U
1,2-DICHLOROETHANE	5.4	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE(TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

DMG 12-30-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	91%	BROMOFLUOROBENZENE	(74-121)	102%
1,2-DICHLOROETHANE-D4	(70-121)	80%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.10

DATE: 12/23/93

SWLO #: 16443.10 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB1
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 4.00
DEPTH TO : 5.00
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	54	
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	59	
METHYLENE CHLORIDE	7.5	J1 B	CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	130	J1 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	50		2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	5.4	U
1,2-DICHLOROETHANE	5.4	U	TOLUENE	62	
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	60	
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE(TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

DMB 12-30-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	107%	BROMOFLUOROBENZENE	(74-121)	86%
1,2-DICHLOROETHANE-D4	(70-121)	99%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.11

DATE: 12/23/93

SWLO #: 16443.11 SD1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB1
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 4.00
DEPTH TO : 5.00
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	50	
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	55	
METHYLENE CHLORIDE	6.5	J1 B	CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	16	J1 B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	45		2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	5.4	U
1,2-DICHLOROETHANE	5.4	U	TOLUENE	58	
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	55	
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE(TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

DYB
12-30-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	108%	BROMOFLUOROBENZENE	(74-121)	92%
1,2-DICHLOROETHANE-D4	(70-121)	88%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.12

DATE: 12/23/93

SWLO #: 16443.12 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB1
LOCATION:
DATE ANALYZED : 11/23/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 4.00
DEPTH TO : 5.00
DATE PREPARED : / /
DILUTION FACTOR: 1.08

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	11	U	TRICHLOROETHENE	5.4	U
BROMOMETHANE	11	U	DIBROMOCHLOROMETHANE	5.4	U
VINYL CHLORIDE	11	U	1,1,2-TRICHLOROETHANE	5.4	U
CHLOROETHANE	11	U	BENZENE	5.4	U
METHYLENE CHLORIDE	13	J1 B	CIS-1,3-DICHLOROPROPENE	5.4	U
ACETONE	11	U	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.4	U	BROMOFORM	5.4	U
1,1-DICHLOROETHENE	5.4	U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.4	U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.4	U	TETRACHLOROETHENE	5.4	U
1,2-DICHLOROETHANE	5.4	U	TOLUENE	5.4	U
1,1,1-TRICHLOROETHANE	5.4	U	CHLOROBENZENE	5.4	U
CARBON TETRACHLORIDE	5.4	U	ETHYLBENZENE	5.4	U
VINYL ACETATE	11	U	STYRENE	5.4	U
BROMODICHLOROMETHANE	5.4	U	1,2-DICHLOROETHENE(TOTAL)	5.4	U
1,1,2,2-TETRACHLOROETHANE	5.4	U	XYLENE (TOTAL)	5.4	U
1,2-DICHLOROPROPANE	5.4	U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.4	U			

DYB
12.30.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	99%	BROMOFLUOROBENZENE	(74-121)	98%
1,2-DICHLOROETHANE-D4	(70-121)	79%			

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.13

DATE: 12/23/93

SWLO #: 16443.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB1
LOCATION:
DATE ANALYZED : 11/22/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 8.00
DEPTH TO : 9.00
DATE PREPARED : / /
DILUTION FACTOR: 1.10

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**			PARAMETER	RESULTS**	
CHLOROMETHANE	11		U	TRICHLOROETHENE	5.5	U
BROMOMETHANE	11		U	DIBROMOCHLOROMETHANE	5.5	U
VINYL CHLORIDE	11		U	1,1,2-TRICHLOROETHANE	5.5	U
CHLOROETHANE	11		U	BENZENE	5.5	U
METHYLENE CHLORIDE	19	J1	B	CIS-1,3-DICHLOROPROPENE	5.5	U
ACETONE	17	J1	B	2-CHLOROETHYL VINYL ETHER	11	U
CARBON DISULFIDE	5.5		U	BROMOFORM	5.5	U
1,1-DICHLOROETHENE	5.5		U	2-HEXANONE	11	U
1,1-DICHLOROETHANE	5.5		U	4-METHYL-2-PENTANONE	11	U
CHLOROFORM	5.5		U	TETRACHLOROETHENE	5.5	U
1,2-DICHLOROETHANE	5.5		U	TOLUENE	5.5	U
1,1,1-TRICHLOROETHANE	5.5		U	CHLOROBENZENE	5.5	U
CARBON TETRACHLORIDE	5.5		U	ETHYLBENZENE	5.5	U
VINYL ACETATE	11		U	STYRENE	5.5	U
BROMODICHLOROMETHANE	5.5		U	1,2-DICHLOROETHENE(TOTAL)	5.5	U
1,1,2,2-TETRACHLOROETHANE	5.5		U	XYLENE (TOTAL)	5.5	U
1,2-DICHLOROPROPANE	5.5		U	2-BUTANONE	11	U
TRANS-1,3-DICHLOROPROPENE	5.5		U			

DJB
12.30.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 110%	BROMOFLUOROBENZENE	(74-121) 101%
1,2-DICHLOROETHANE-D4	(70-121) 91%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.14

DATE: 12/23/93

SWLO #: 16443.14 TB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/24/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1.2	J1	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

DMB
12-30-93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	93%	BROMOFLUOROBENZENE	(86-115) 100%
1,2-DICHLOROETHANE-D4	(76-114)	96%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.15

DATE: 12/23/93

SWLO #: 16443.15 TB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/24/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/17/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	10	U	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	1.2	J1 ✓	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	96%	BROMOFLUOROBENZENE	(86-115) 103%
1,2-DICHLOROETHANE-D4	(76-114)	103%		

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.16

DATE: 12/23/93

SWLO #: 16443.16 MB1
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/23/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/17/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	8.4	J5	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

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QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	99%	BROMOFLUOROBENZENE	(86-115)	98%
1,2-DICHLOROETHANE-D4	(76-114)	111%			

NOTE 3

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.17

DATE: 12/23/93

SWLO #: 16443.17 MB2
PROJECT : TINKER AFB RFI
SAMPLE #: FIELDQC
LOCATION:
DATE ANALYZED : 11/23/93
METHOD REFERENCE: SW846-8240

DATE SAMPLED: 11/17/93
SAMPLE MATRIX : WQ
DEPTH FROM : 0.00
DEPTH TO : 0.00
DATE PREPARED : / /
DILUTION FACTOR: 1.00

VOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/l

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	TRICHLOROETHENE	5	U
BROMOMETHANE	10	U	DIBROMOCHLOROMETHANE	5	U
VINYL CHLORIDE	10	U	1,1,2-TRICHLOROETHANE	5	U
CHLOROETHANE	10	U	BENZENE	5	U
METHYLENE CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
ACETONE	8.8	JS	2-CHLOROETHYL VINYL ETHER	10	U
CARBON DISULFIDE	5	U	BROMOFORM	5	U
1,1-DICHLOROETHENE	5	U	2-HEXANONE	10	U
1,1-DICHLOROETHANE	5	U	4-METHYL-2-PENTANONE	10	U
CHLOROFORM	5	U	TETRACHLOROETHENE	5	U
1,2-DICHLOROETHANE	5	U	TOLUENE	5	U
1,1,1-TRICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CARBON TETRACHLORIDE	5	U	ETHYLBENZENE	5	U
VINYL ACETATE	10	U	STYRENE	5	U
BROMODICHLOROMETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
1,1,2,2-TETRACHLOROETHANE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U	2-BUTANONE	10	U
TRANS-1,3-DICHLOROPROPENE	5	U			

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12.30.93

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(88-110)	101%	BROMOFLUOROBENZENE	(86-115)	98%
1,2-DICHLOROETHANE-D4	(76-114)	114%			

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.01

DATE: 12/23/93

SWLO #: 16443.01 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB2
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 3.50
DEPTH TO : 4.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	270	J1 JB	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	280	J1 JB	4-NITROPHENOL	190	J1 JB
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	150	J1 JB
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	270	J1 JB	BIS(2-ETHYLHEXYL)PHTHALATE	90	J5 JB
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.02

DATE: 12/23/93

SWLO #: 16443.02 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB2
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 5.50
DEPTH TO : 6.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	280	J1 JB	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	280	J1 JB	4-NITROPHENOL	200	J1 JB
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	140	J1 JB
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	41	J5 JB
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	290	J1 JB	BIS(2-ETHYLHEXYL)PHTHALATE	99	J5 JB
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

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Attn: KEVIN TYNES

REPORT: 16443.03

DATE: 12/23/93

SWLO #: 16443.03 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 2.00
DEPTH TO : 3.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	260	J1 JB	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	260	J1 JB	4-NITROPHENOL	210	J1 JB
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	210	J1 JB
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	280	J1 JB	BIS(2-ETHYLHEXYL)PHTHALATE	66	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12-30-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
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SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.04

DATE: 12/23/93

SWLO #: 16443.04 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.5SB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 5.00
DEPTH TO : 6.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	260	J1 JB	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	260	J1 JB	4-NITROPHENOL	240	J1 JB
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	250	J1 JB
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	400	U
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	290	J1 JB	BIS(2-ETHYLHEXYL)PHTHALATE	85	J5 JB
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

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12-30-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.05

DATE: 12/23/93

SWLO #: 16443.05 N1
PROJECT : TINKER AFB RFI
SAMPLE #: S32.6SB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 2.00
DEPTH TO : 3.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.14

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	410	J1 B	ACENAPHTHENE	380	U
BIS(2-CHLOROETHYL)ETHER	380	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	310	J1	4-NITROPHENOL	210	J1
1,3-DICHLOROBENZENE	380	U	DIBENZOFURAN	380	U
1,4-DICHLOROBENZENE	380	U	2,4-DINITROTOLUENE	380	U
BENZYL ALCOHOL	380	U	2,6-DINITROTOLUENE	380	U
1,2-DICHLOROBENZENE	380	U	DIETHYLPHTHALATE	380	U
2-METHYLPHENOL(O-CRESOL)	79	J	4-CHLOROPHENYL-PHENYLETHER	380	U
BIS(2-CHLOROISOPROPYL)ETHER	380	U	FLUORENE	380	U
4-METHYLPHENOL(P-CRESOL)	41	J	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	380	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	380	U	N-NITROSODIPHENYLAMINE(1)	380	U
NITROBENZENE	380	U	4-BROMOPHENYL-PHENYLETHER	380	U
ISOPHORONE	380	U	HEXACHLOROBENZENE	380	U
2-NITROPHENOL	380	U	PENTACHLOROPHENOL	200	J1
2,4-DIMETHYLPHENOL	380	U	PHENANTHRENE	380	U
BENZOIC ACID	1800	U	ANTHRACENE	380	U
BIS(2-CHLOROETHOXY)METHANE	380	U	DI-N-BUTYL PHTHALATE	380	U
2,4-DICHLOROPHENOL	380	U	FLUORANTHENE	380	U
1,2,4-TRICHLOROBENZENE	380	U	PYRENE	380	U
NAPHTHALENE	380	U	BUTYL BENZYL PHTHALATE	380	U
4-CHLOROANILINE	380	U	3,3'-DICHLOROBENZIDINE	750	U
HEXACHLOROBUTADIENE	380	U	BENZO(A)ANTHRACENE	380	U
4-CHLORO-3-METHYLPHENOL	360	J1	BIS(2-ETHYLHEXYL)PHTHALATE	114	J
2-METHYLNAPHTHALENE	380	U	CHRYSENE	380	U
HEXACHLOROCYCLOPENTADIENE	380	U	DI-N-OCTYL PHTHALATE	380	U
2,4,6-TRICHLOROPHENOL	380	U	BENZO(B)FLUORANTHENE	380	U

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12-30-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.06

DATE: 12/23/93

SWLO #: 16443.06 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB4
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 3.00
DEPTH TO : 4.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	280	J1 JB	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	300	J1 JB	4-NITROPHENOL	280	J1 JB
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	240	J1 JB
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	320	J1 JB	BIS(2-ETHYLHEXYL)PHTHALATE	79	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12-30-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.07

DATE: 12/23/93

SWLO #: 16443.07 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB4
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 3.00
DEPTH TO : 4.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	280	J1 JB	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	300	J1 JB	4-NITROPHENOL	250	J1 JB
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	240	J1 JB
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	380	
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	310	J1 JB	BIS(2-ETHYLHEXYL)PHTHALATE	85	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12-30-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.08

DATE: 12/23/93

SWLO #: 16443.08 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB4
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 8.00
DEPTH TO : 9.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.20

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	310	J1 ~~JB~~	ACENAPHTHENE	400	U
BIS(2-CHLOROETHYL)ETHER	400	U	2,4-DINITROPHENOL	1900	U
2-CHLOROPHENOL	340	J1 ~~JB~~	4-NITROPHENOL	300	J1 ~~JB~~
1,3-DICHLOROBENZENE	400	U	DIBENZOFURAN	400	U
1,4-DICHLOROBENZENE	400	U	2,4-DINITROTOLUENE	400	U
BENZYL ALCOHOL	400	U	2,6-DINITROTOLUENE	400	U
1,2-DICHLOROBENZENE	400	U	DIETHYLPHTHALATE	400	U
2-METHYLPHENOL(O-CRESOL)	400	U	4-CHLOROPHENYL-PHENYLETHER	400	U
BIS(2-CHLOROISOPROPYL)ETHER	400	U	FLUORENE	400	U
4-METHYLPHENOL(P-CRESOL)	400	U	4-NITROANILINE	1900	U
N-NITROSO-DI-N-PROPYLAMINE	400	U	4,6-DINITRO-2-METHYLPHENOL	1900	U
HEXACHLOROETHANE	400	U	N-NITROSODIPHENYLAMINE(1)	400	U
NITROBENZENE	400	U	4-BROMOPHENYL-PHENYLETHER	400	U
ISOPHORONE	400	U	HEXACHLOROBENZENE	400	U
2-NITROPHENOL	400	U	PENTACHLOROPHENOL	310	J1 ~~JB~~
2,4-DIMETHYLPHENOL	400	U	PHENANTHRENE	400	U
BENZOIC ACID	1900	U	ANTHRACENE	400	U
BIS(2-CHLOROETHOXY)METHANE	400	U	DI-N-BUTYL PHTHALATE	65	J5
2,4-DICHLOROPHENOL	400	U	FLUORANTHENE	400	U
1,2,4-TRICHLOROBENZENE	400	U	PYRENE	400	U
NAPHTHALENE	400	U	BUTYL BENZYL PHTHALATE	400	U
4-CHLOROANILINE	400	U	3,3'-DICHLOROBENZIDINE	790	U
HEXACHLOROBUTADIENE	400	U	BENZO(A)ANTHRACENE	400	U
4-CHLORO-3-METHYLPHENOL	360	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	81	J5
2-METHYLNAPHTHALENE	400	U	CHRYSENE	400	U
HEXACHLOROCYCLOPENTADIENE	400	U	DI-N-OCTYL PHTHALATE	400	U
2,4,6-TRICHLOROPHENOL	400	U	BENZO(B)FLUORANTHENE	400	U

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.09

DATE: 12/23/93

SWLO #: 16443.09 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 4.00
DEPTH TO : 5.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	260	J1 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	280	J1 ~~JB~~	4-NITROPHENOL	210	J1 ~~JB~~
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	140	J1 ~~JB~~
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	310	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	70	JS
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.10

DATE: 12/23/93

SWLO #: 16443.10 MS1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 4.00
DEPTH TO : 5.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	4900	J1	ACENAPHTHENE	2710	
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	5300	J1	4-NITROPHENOL	5250	J1
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	1900		2,4-DINITROTOLUENE	2770	
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	4100		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	4620	J1
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	2820		PYRENE	3400	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	5330	J1	BIS(2-ETHYLHEXYL)PHTHALATE	84	JS
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12.30.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.11

DATE: 12/23/93

SWLO #: 16443.11 SD1
PROJECT : [illegible]KER AFB RFI
SAMPLE #: I24.11SB1
LOCATION:
DATE ANALYZED : 12/01/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 4.00
DEPTH TO : 5.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	48[illegible]	J1 B	ACENAPHTHENE	2690	
BIS(2-CHLOROETHYL)ETHER	36[illegible]	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	5400	J1 B	4-NITROPHENOL	5060	J1 B
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	1950		2,4-DINITROTOLUENE	2730	
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	4140		4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	4380	J1 B
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	2940		PYRENE	3460	
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	5350	J1 B	BIS(2-ETHYLHEXYL)PHTHALATE	78	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

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12-30-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.12

DATE: 12/23/93

SWLO #: 16443.12 FR1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB1
LOCATION:
DATE ANALYZED : 12/02/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 4.00
DEPTH TO : 5.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	300	J1 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	300	J1 ~~JB~~	4-NITROPHENOL	230	J1 ~~JB~~
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	160	J1 ~~JB~~
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	310	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	59	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

DYB
12.30.93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

ENGINEERING SCIENCE, INC.
7800 SHOAL CREEK BLVD.
SUITE 222W
AUSTIN, TX 78757
Attn: KEVIN TYNES

REPORT: 16443.13

DATE: 12/23/93

SWLO #: 16443.13 N1
PROJECT : TINKER AFB RFI
SAMPLE #: I24.11SB1
LOCATION:
DATE ANALYZED : 12/02/93
METHOD REFERENCE: SW846-8270

DATE SAMPLED: 11/16/93
SAMPLE MATRIX : SOIL
DEPTH FROM : 8.00
DEPTH TO : 9.00
DATE PREPARED : 11/18/93
DILUTION FACTOR: 1.10

SEMIVOLATILE ORGANIC COMPOUNDS
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
PHENOL	300	J1 ~~JB~~	ACENAPHTHENE	360	U
BIS(2-CHLOROETHYL)ETHER	360	U	2,4-DINITROPHENOL	1800	U
2-CHLOROPHENOL	300	J1 ~~JB~~	4-NITROPHENOL	240	J1 ~~JB~~
1,3-DICHLOROBENZENE	360	U	DIBENZOFURAN	360	U
1,4-DICHLOROBENZENE	360	U	2,4-DINITROTOLUENE	360	U
BENZYL ALCOHOL	360	U	2,6-DINITROTOLUENE	360	U
1,2-DICHLOROBENZENE	360	U	DIETHYLPHTHALATE	360	U
2-METHYLPHENOL(O-CRESOL)	360	U	4-CHLOROPHENYL-PHENYLETHER	360	U
BIS(2-CHLOROISOPROPYL)ETHER	360	U	FLUORENE	360	U
4-METHYLPHENOL(P-CRESOL)	360	U	4-NITROANILINE	1800	U
N-NITROSO-DI-N-PROPYLAMINE	360	U	4,6-DINITRO-2-METHYLPHENOL	1800	U
HEXACHLOROETHANE	360	U	N-NITROSODIPHENYLAMINE(1)	360	U
NITROBENZENE	360	U	4-BROMOPHENYL-PHENYLETHER	360	U
ISOPHORONE	360	U	HEXACHLOROBENZENE	360	U
2-NITROPHENOL	360	U	PENTACHLOROPHENOL	190	J1 ~~JB~~
2,4-DIMETHYLPHENOL	360	U	PHENANTHRENE	360	U
BENZOIC ACID	1800	U	ANTHRACENE	360	U
BIS(2-CHLOROETHOXY)METHANE	360	U	DI-N-BUTYL PHTHALATE	360	U
2,4-DICHLOROPHENOL	360	U	FLUORANTHENE	360	U
1,2,4-TRICHLOROBENZENE	360	U	PYRENE	360	U
NAPHTHALENE	360	U	BUTYL BENZYL PHTHALATE	360	U
4-CHLOROANILINE	360	U	3,3'-DICHLOROBENZIDINE	730	U
HEXACHLOROBUTADIENE	360	U	BENZO(A)ANTHRACENE	360	U
4-CHLORO-3-METHYLPHENOL	300	J1 ~~JB~~	BIS(2-ETHYLHEXYL)PHTHALATE	68	J5
2-METHYLNAPHTHALENE	360	U	CHRYSENE	360	U
HEXACHLOROCYCLOPENTADIENE	360	U	DI-N-OCTYL PHTHALATE	360	U
2,4,6-TRICHLOROPHENOL	360	U	BENZO(B)FLUORANTHENE	360	U

DMB
12-30-93

**RESULTS REPORTED TO A MAXIMUM OF 3 SIGNIFICANT FIGURES