Final Report
Phase I RCRA Facility Investigation for Appendix I Sites
VOLUME IV

SWMU-26, Ordnance Disposal Area
SWMU-40, AFFF Fire Control Pond

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

September 1994

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List of Acronyms

AFB	Air Force Base
AOC	area of concern
bgs	below ground surface
CAA	Clean Air Act
CAL	Corrective Action Level
CDM	CDM Federal Programs Corporation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm/s	centimeters per second
COE	U.S. Army Corp of Engineers
CMS	Corrective Measures Study
DCQAP	Data Collection Quality Assurance Plan
DERP	Defense Environmental Restoration Program
DOD	U.S. Department of Defense
DQO	Data Quality Objective
DWS	drinking water standards
EC	electric conductivity
EID	Engineering Installation Division
EM	electromagnetic
EMO	Environmental Management Operations
EPA	U.S. Environmental Protection Agency
ES	Engineering Science
FID	flame ionization detector
ft/ft	foot per foot
GC/MS	gas chromatography/mass spectrometry
HCl	hydrochloric acid
HRS	Hazardous Ranking System
HSWA	Hazardous and Solid Waste Amendments
IRP	Installation Restoration Program
LSZ	lower saturated zone
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
MCL	maximum contaminant level
MCLG	maximum contaminant level goal

mg/kg	milligrams per kilogram
mg/L	milligrams per liter
m^3	cubic meters
MS	matrix spike
MSD	matrix spike duplicate
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
ODA	Ordnance Disposal Area
OU	operable unit
PID	photoionization detector
PA/SI	preliminary assessment/site investigation
PCE	tetrachloroethene
QC	quality control
RA	remedial action
RCRA	Resource Conservation and Recovery Act
RD/RA	remedial design/remedial action
RFI	RCRA Facility Investigation
RI/FS	remedial investigation/feasibility study
ROD	record of decision
RPD	relative percent difference
SARA	Superfund Amendments and Reauthorization Act
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TCE	trichloroethene
TDS	total dissolved solids
TOC	total organic carbon
TSD	treatment, storage, and disposal (facility)
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USZ	upper saturated zone

VOA	volatile organic analysis
VOC	volatile organic compounds
WQS	Water Quality Standards
yd^3	cubic yards

Executive Summary

This report provides a summary of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) conducted at the solid waste management unit (SWMU-26), Ordnance Disposal Area (ODA), Tinker Air Force Base (AFB), Oklahoma. The report has been prepared to determine whether hazardous constituents as defined by federal regulations have been released into the environment from the ODA. The RFI for this unit has been conducted in accordance with the Work Plan prepared by CDM Federal Programs Corporation (CDM) (1992). This RFI Report presents the following information:

- Site characterization (Environmental Setting)
- Source term definition (Source Characterization), if any
- Degree of contamination (Contamination Characterization)
- Identification of actual or potential receptors
- Analytical results and analysis (Data Analysis)
- Identification of groundwater protection standards and action levels for the protection of human health and the environment (Protection Standards)
- Conclusions and recommendations for future work.

Tinker AFB is located in central Oklahoma, in the southeast portion of the Oklahoma City metropolitan area, in Oklahoma County. The Base is bounded by Sooner Road to the west, Douglas Boulevard to the east, Interstate 40 to the north, and Southeast 74th Street to the south. The Base encompasses approximately 5,000 acres.

Background. Tinker AFB began operations in 1942 and serves as a worldwide repair depot for a variety of aircraft, weapons, and engines. These activities require the use of hazardous materials and result in the generation of hazardous wastes. These wastes have included spent organic solvents, waste oils, waste paint strippers and sludges, electroplating wastewaters and sludges, alkaline cleaners, acids, Freon™, jet fuels, and radium paints.

In 1984, Congress amended the RCRA with the Hazardous and Solid Waste Amendments (HSWA), which allow U.S. Environmental Protection Agency (EPA) to require, as a permit condition, a facility to undertake corrective action for any release of hazardous waste or

constituents from any SWMU at a treatment, storage, and disposal (TSD) facility. On January 12, 1989, Tinker AFB submitted its Part B permit application for renewal of its operating RCRA Hazardous Waste Storage facility permit. The final RCRA HSWA permit issued on July 1, 1991, requires Tinker AFB to investigate all SWMUs and areas of concern (AOC) and to perform corrective action at those identified as posing a threat to human health or the environment. The permit specifies that an RFI be conducted for 43 identified SWMUs and two AOCs on the Base. This document has been prepared to determine whether sufficient investigations have been conducted to meet the permit requirements for the ODA.

Source Description. The ODA is located near the southeast corner of Tinker AFB and is no longer in operation. The unit was composed of a burn pit measuring approximately 50 feet by 50 feet adjacent to an igloo-shaped bunker. The pit and bunker occupied an area less than one-fourth acre of land. From the early 1960s to 1972, items such as outdated small arms munitions, blasting caps, flares, pyrotechnics, and egress explosives were expended at this site. The frequency of burning was less than once per month. Since 1972 all ordnance disposal required by Tinker AFB has been performed at other locations where suitable facilities and properly trained personnel are available.

There is no visible evidence of the former burn pit, however, the igloo-shaped bunker is still plainly visible and the entire area has been overgrown with vegetation. The site is located on the drainage divide between Crutcho Creek to the north and Elm Creek to the south and is, therefore, far removed from any surface water. The shallowest groundwater within the vicinity of the ODA is approximately 15 to 20 feet in depth.

Site Investigation. During the RFI performed at the ODA, a total of 16 soil samples from the five soil borings conducted and logged at the site for chemical analysis. The analysis included metals (aluminum, arsenic, barium, beryllium, cadmium, chromium, chromium VI, copper, iron, lead, mercury, nickel, silver, and zinc). Organic analyses included volatile and semivolatile compounds. Prior to locating and drilling the five borings, a total field magnetometer survey was performed (Section 4.1) to determine the approximate historical location of the burn pit. The electromagnetic (EM) survey, conducted with a Geonics EM-31 probe measuring earth resistivity, covered a 325-foot by 325-foot grid with stations on 25-foot centers. The EM survey results indicated two anomalies with the approximate dimensions of the former pit to the northwest of the bunker. The EM survey was followed by a Total Field Magnetometer geophysical survey conducted with an EG&G Geometrics model 822L cesium magnetometer over a 200-foot by 200-foot area centered around the anomalies discovered

during the EM survey. The magnetometer survey indicated anomalies representing significant amounts of ferromagnetic/metallic materials in the same areas as the EM survey. The magnetometer survey anomalies were verified using a Schonstedt GA-72CV magnetic locator. The most likely location of the former disposal pit was determined through a combined interpretation of the EM and magnetometer survey data. Four soil borings (SB-011 through SB-014) were then placed within the interpreted boundaries of the burn pit to determine whether a release had occurred, and one boring (SB-010) was placed northeast of the presumed pit to provide background data on soil conditions.

No organics were found in the soils above method reporting limits. Barium and beryllium were detected at and above their respective SWMU Corrective Action Levels (CAL) for soils, but their concentrations were well within the background ranges as reported by the United Geological Survey (USGS) in "Elemental Composition of Surficial Materials from Central Oklahoma" (USGS, 1991). These metals naturally occur at higher concentrations in the central Oklahoma region. No constituents of concern are present in the soils.

Conclusions. Because no constituents of concern are present in the soils at the ODA, previous activities at the ODA have not impacted the soils.

Recommendations. Based on the conclusions of the RFI conducted at the ODA, no further actions are recommended for the site.

1.0 Introduction

The U.S. Department of the Air Force is conducting an Installation Restoration Program (IRP) at Tinker Air Force Base (AFB), Oklahoma (Figure 1-1). This program intends to identify and characterize each solid waste management unit (SWMU) or area of concern (AOC), study and select cleanup methods, if required, and implement a cleanup. In support of this effort, a Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) was conducted at SWMU-26, Ordnance Disposal Area (ODA), at Tinker AFB, Oklahoma (Figure 1-2). This Phase I investigation focuses its efforts on determining if there have been any releases of contamination to the soil and groundwater resulting from temporarily storing hazardous materials within the confines of the ODA.

Adequate information must be gathered in a Phase I RFI to support a Phase II investigation, a Corrective Measures Study (CMS), or interim measures, if necessary. A phased approach has been taken by Tinker AFB for the ODA site investigation. This phasing of the RFI is in accordance with the U.S. Environmental Protection Agency (EPA) RFI guidance documents and is also the most practical approach for this site where little or no information is available on past practices.

Outlined below are the minimum tasks generally required by the EPA for a RCRA investigation of a SWMU or AOC:

- Task I - Description of Current Conditions
- Task II - Work Plan
- Task III - Facility Investigation
- Task IV - Investigative Analysis
- Task V - Report.

The Task I requirements for the ODA have been addressed in the *Description of Current Conditions* (Tinker, 1992), which outlines the geology, hydrogeology, and current conditions of the site. Task II requirements have been addressed in the *Final RFI Work Plan* (CDM Federal Programs Corporation [CDM], 1992) and the Final RFI Work Plan - Amendments (IT Corporation [IT], 1993a). The *Final RFI Work Plan* and the Final RFI Work Plan - Amendments include a Data Management Plan, Project Management Plan, Data Collection Quality Assurance Plan, Health and Safety Plan, and amendments as necessary to perform a Phase I RFI. Tasks III and IV requirements, which characterize the site, determine the presence of

STARTING DATE: 03/17/94	DATE LAST REV.:	DRAFT. CHCK. BY:G. PACHECO	INITIATOR: C. WALLACE	DWG. NO.:
DRAWN BY:P.O. TERRY	DRAWN BY:	ENGR. CHCK. BY: C. WALLACE	PROJ. MGR.:J. TAYLOR	PROJ. NO.:

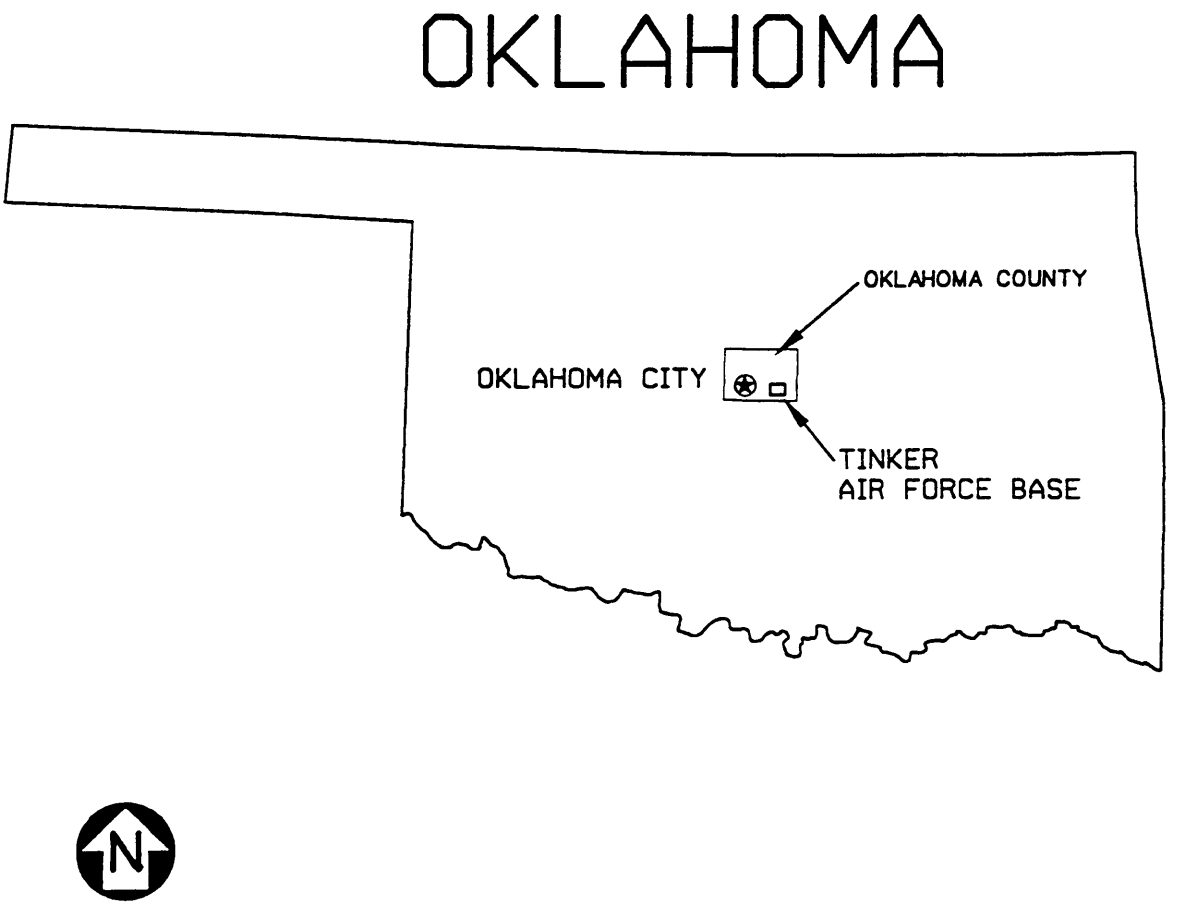

FIGURE 1-1
TINKER AIR FORCE BASE
OKLAHOMA
STATE INDEX MAP

PREPARED FOR
TINKER AFB
OKLAHOMA

3/23/94 POT
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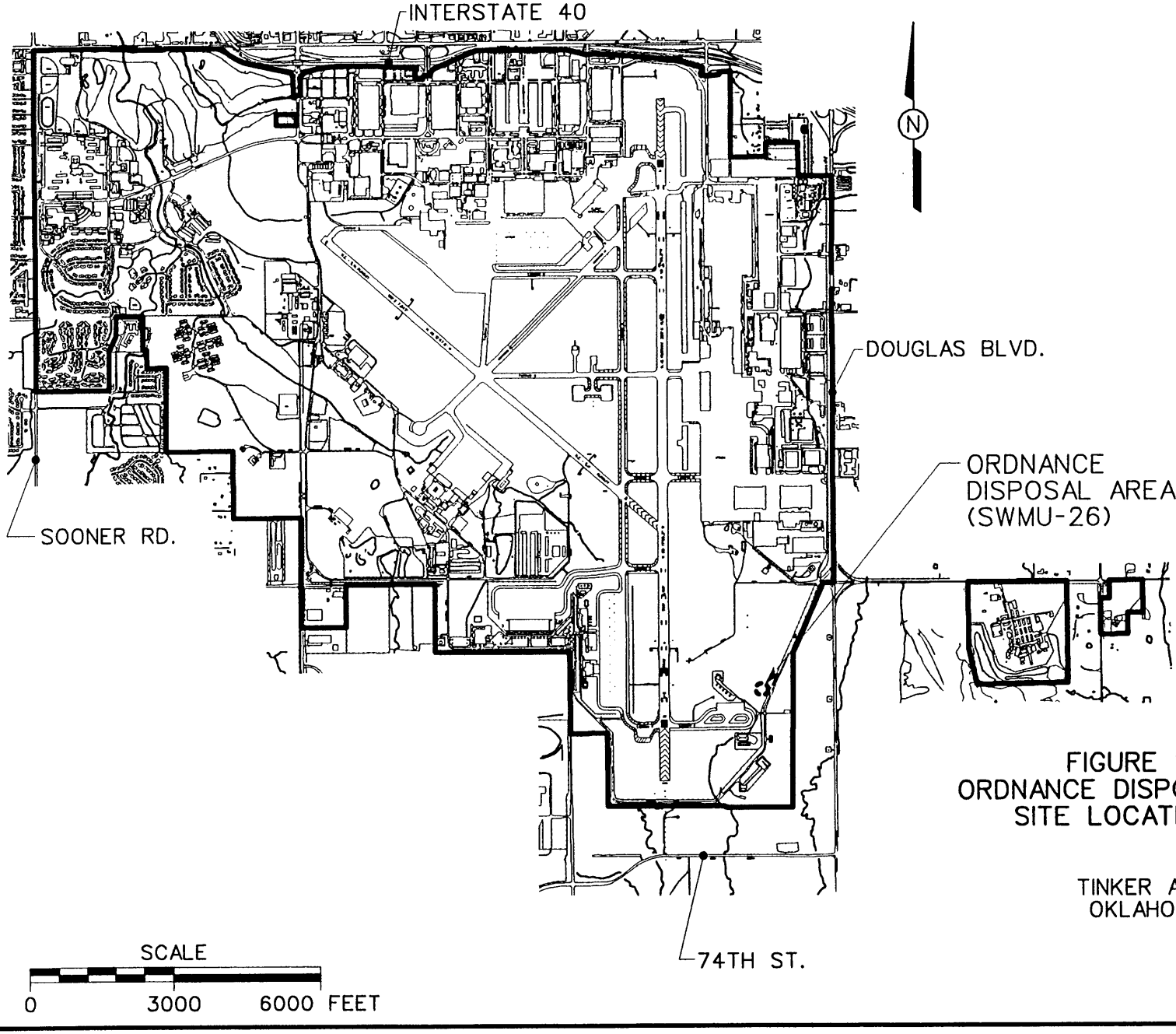


FIGURE 1-2
ORDNANCE DISPOSAL AREA
SITE LOCATION MAP

TINKER AFB
OKLAHOMA

FILENAME: G:\TINKER\40983202.116				
STARTING DATE: 3/30/94	DATE LAST REV.:	DRAFT. CHCK. BY: G. PACHECO	INITIATOR: C. WALLACE	DWG. NO.:
DRAWN BY: L. STOUT	DRAWN BY:	ENGR. CHCK. BY:	PROJ. MGR.: J. TAYLOR	PROJ. NO.:

contamination, and identify actual and potential receptors have been addressed in this report. This report also satisfies the requirements of Task V.

1.1 Purpose

This report has been prepared in response to the U.S. Department of the Air Force, Tinker AFB, Oklahoma request for a Phase I RFI and report for the ODA.

The purpose of this report is to document and present the findings of the RFI conducted at the ODA. The primary objective of the RFI was to determine if contaminant releases to the environment have occurred at the site and to determine if a more comprehensive Phase II RFI or a CMS is required. This RFI Report presents the following information:

- Site characterization (Environmental Setting)
- Source term definition (Source Characterization), if any
- Degree of contamination (Contamination Characterization)
- Identification of actual or potential receptors
- Analytical results and analysis (Data Analysis)
- Identification of action levels for the protection of human health and the environment (Protection Standards)
- Conclusions and recommendations for future work.

This document will also describe the procedures and methods of field sampling and cite any previous investigations conducted at the site.

1.2 Scope of Investigation

The soils below and around the ODA were investigated. Soil samples were taken at various depths below the ODA to determine the presence of subsurface soil contamination. A Total Field Magnetometer Survey was conducted at the ODA to define the historical boundaries of the burn pit, and as a screening method to ensure safe drilling operations.

2.0 Background

2.1 Tinker AFB Facility Description and History

Tinker AFB is located in central Oklahoma, in the southeast portion of the Oklahoma City metropolitan area, in Oklahoma County (Figure 1-1) with its approximate geographic center located at 35° 25' latitude and 97° 24' longitude (U.S. Geological Survey [USGS], 1978). The Base is bounded by Sooner Road to the west, Douglas Boulevard to the east, Interstate 40 to the north, and Southeast 74th Street to the south. An additional area, east of the main Base is used by the Engineering Installation Division (EID) and is known as Area D. The Base encompasses approximately 5,000 acres.

Tinker AFB was originally known as the Midwest Air Depot and began operations in July 1941. The site was activated March 1942 and during World War II the depot was responsible for reconditioning, modifying, and modernizing aircraft, vehicles, and equipment. Tinker AFB now serves as a worldwide repair depot for a variety of aircraft, weapons, and engines. These activities require the use of hazardous materials and result in the generation of hazardous wastes. These wastes have included spent organic solvents, waste oils, waste paint strippers and sludges, electroplating wastewaters and sludges, alkaline cleaners, acids, Freon™, jet fuels, and radium paints. Wastes that are currently generated are managed at two permitted hazardous waste storage facilities. Prior to enactment of RCRA, however, industrial wastes were discharged into unlined landfills and waste pits, streams, sewers, and ponds. Releases from these areas as well as from underground tanks have occurred. As a result, there are numerous sites of soil, groundwater, and surface water contamination on Base.

2.2 Site Description and History

The ODA is located near the southeast corner of Tinker AFB (Figure 1-2) and is no longer in operation. The unit comprises a burn pit measuring approximately 50 feet by 50 feet adjacent to an igloo-shaped bunker. The pit and bunker occupied an area less than one-fourth acre of land. From the early 1960s to 1972 items such as outdated small arms munitions, blasting caps, flares, pyrotechnics, and egress explosives were expended at this site. The frequency of burning was less than once per month. Since 1972 all ordnance disposal required by Tinker AFB has been performed at other locations where suitable facilities and properly trained personnel are available.

There is no visible evidence of the former burn pit, however, the igloo-shaped bunker is still plainly visible and the entire area has been overgrown with vegetation. The site is located on the drainage divide between Crutcho Creek to the north and Elm Creek to the south and is, therefore, far removed from any surface water. The shallowest groundwater within the vicinity of the ODA is approximately 15 to 20 feet in depth.

2.3 Regulatory History and Status

In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to address the cleanup of hazardous waste disposal sites across the country. CERCLA gave the president authority to require responsible parties to remediate the sites or to undertake response actions through use of a fund (the Superfund). The president, through Executive Order 12580, delegated the EPA with the responsibility to investigate and remediate private party hazardous waste disposal sites that created a threat to human health and the environment. The president delegated responsibility for investigation and cleanup of federal facility disposal sites to the various federal agency heads. The Defense Environmental Restoration Program (DERP) was formally established by Congress in Title 10 U.S. Code (USC) 2701-2707 and 2810. DERP provides centralized management for the cleanup of U.S. Department of Defense (DOD) hazardous waste sites consistent with the provisions of CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] 300), and Executive Order 12580. To support the goals of the DERP, the IRP was developed to identify, investigate, and clean up contamination at installations.

Under the Air Force IRP, Tinker AFB began a Phase I study similar to a preliminary assessment/site investigation (PA/SI) in 1981 (Engineering Science [ES], 1982). This study helped locate 14 sites that needed further investigation. Phase II studies were performed in 1983 (Radian Corporation [Radian], 1985a,b).

In 1986, Congress amended CERCLA through the SARA, which waived sovereign immunity for federal facilities. SARA gave EPA authority to oversee the cleanup of federal facilities and to have the final authority for selecting the remedial action (RA) at federal facilities placed on the National Priorities List (NPL) if the EPA and the relevant federal agency cannot concur in the selection. Congress also codified the DERP (SARA Section 211), setting up a fund for the DOD to remediate its sites because the Superfund is not available for

the cleanup of federal facilities. DERP specifies the type of cleanup responses that the fund can be used to address.

In response to SARA, the DOD realigned its IRP to follow the investigation and cleanup stages of the EPA:

- PA/SI
- Remedial investigation/feasibility study (RI/FS)
- Record of Decision (ROD) for selection of a remedial action
- Remedial design/remedial action.

In 1984, Congress amended the RCRA with the Hazardous and Solid Waste Amendments (HSWA) which allow the EPA to require, as a permit condition, a facility to undertake corrective action for any release of hazardous waste or constituents from any SWMU at a treatment, storage, and disposal (TSD) facility. On January 12, 1989 Tinker AFB submitted its Part B permit application for renewal of its operating RCRA hazardous waste storage facility permit.

EPA, in the Hazardous Waste Management Permit for Tinker AFB dated July 1, 1991, identified 43 SWMUs and two AOCs on Tinker AFB that need to be addressed. This permit requires Tinker AFB to investigate all SWMUs and AOCs and to perform corrective action at those identified as posing a threat to human health or the environment. This RFI Report has been prepared to determine whether sufficient investigations have been conducted to meet the permit requirements for the ODA and to document all findings.

2.4 Summary of Previous Investigations

The ODA was recently added to the IRP, and no investigations have been conducted within the immediate vicinity of the site. Several monitoring wells were installed in and around SWMU-13, Industrial Waste Pit No. 2 located approximately 300 feet west of the site. These wells detected constituents that are representative of the industrial waste pit.

3.0 Environmental Setting

3.1 Topography and Drainage

3.1.1 Topography

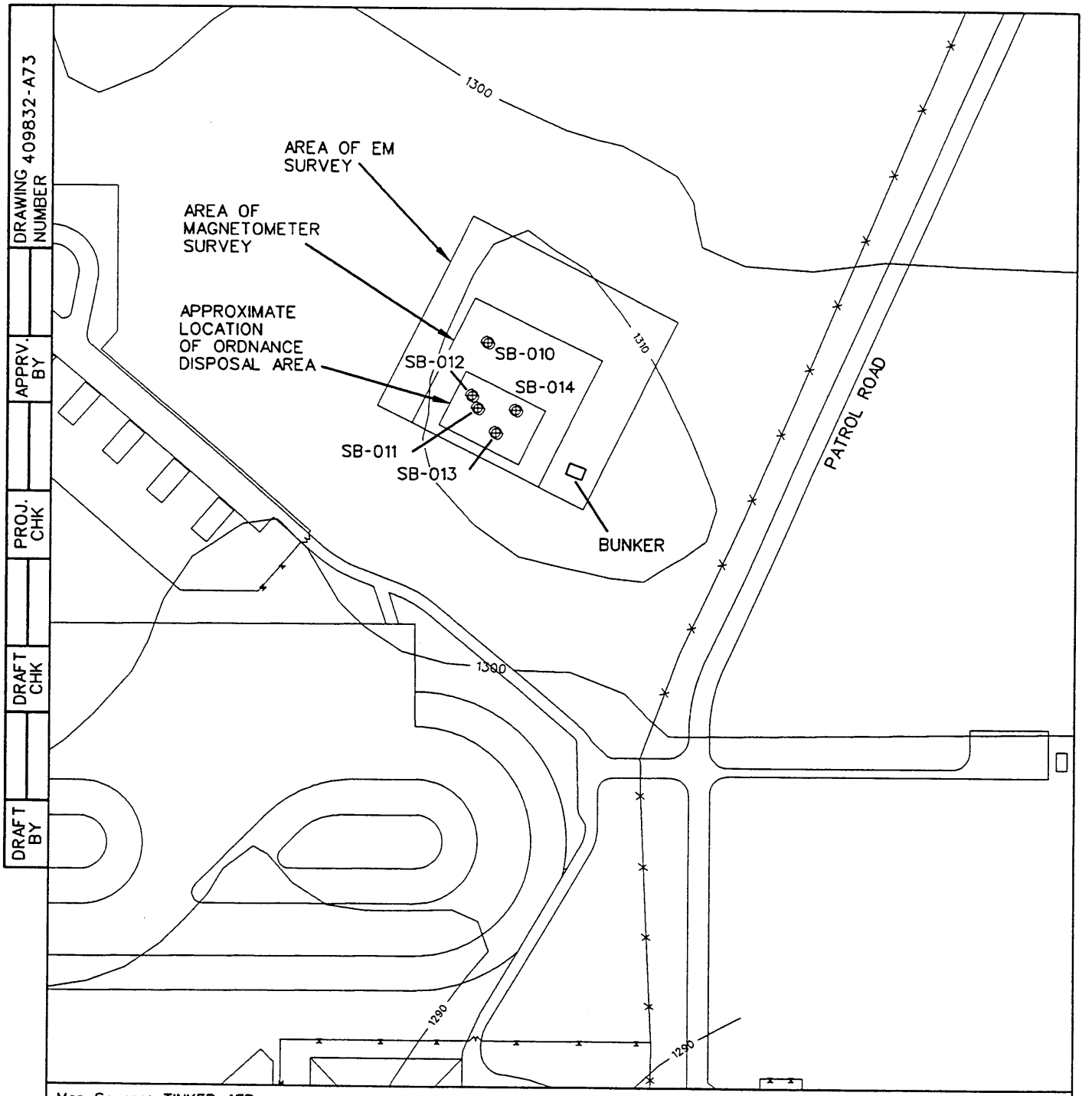
Regional/Tinker AFB. The topography of Oklahoma City and surrounding area varies from generally level to gently rolling in appearance. Local relief is primarily the result of dissection by erosional activity or stream channel development. At Oklahoma City, surface elevations are typically in the range of 1,070 to 1,400 feet mean sea level (msl). At Tinker AFB, ground surface elevations vary from 1,190 feet mls near the northwest corner where Crutcho Creek intersects the Base boundary to approximately 1,320 feet msl at Area D (EID).

Site. The ODA is located on the southeast corner of Tinker AFB (Figure 3-1) on land ranging in elevation from approximately 1,280 feet (near Patrol Road) to more than 1,310 feet, the highest elevation at Tinker AFB. The area is now covered with grass and shows no signs of surface disturbance.

3.1.2 Surface Drainage

Regional/Tinker AFB. Drainage of Tinker AFB land areas is accomplished by overland flow of runoff to diversion structures and thence to area surface streams, which flow intermittently. The northeast portion of the Base is drained primarily by tributaries of Soldier Creek, which is itself a tributary of Crutcho Creek. The north and west sections of the Base, including the main instrument runway, drain to Crutcho Creek, a tributary of the North Canadian River. Two small unnamed intermittent streams crossing installation boundaries south of the main instrument runway generally do not receive significant quantities of Base runoff due to site grading designed to preclude such drainage. These streams, when flowing, extend to Stanley Draper Lake, approximately one-half mile south of the Base.

Site. The ODA is sited at the crest of a low hill with drainage away from the site in all directions. This drainage divide is between Crutcho Creek to the north and Elm Creek to the South and is, therefore, removed from any surface water.



Map Source: TINKER AFB

LEGEND

SB-014 SOIL BORING LOCATION AND IDENTIFICATION NUMBER

FENCE

DRAINAGE

1290 CONTOUR INTERVAL

0 200 FEET

G:\TINKER\40983202.138
Do Not Scale This Drawing

FIGURE 3-1
TOPOGRAPHICAL MAP OF ORDNANCE DISPOSAL AREA WITH LOCATIONS OF SOIL BORINGS

PREPARED FOR

TINKER AFB
OKLAHOMA

3.2 Geology

3.2.1 Regional/Tinker AFB Geology

Tinker AFB is located within the Central Redbed Plain Section of the Central Lowland Physiographic Province, which is tectonically stable. No major fault or fracture zones have been mapped near Tinker AFB. The major lithologic units in the area of the Base are relatively flat-lying and have a regional westward dip of about 0.0076 foot per foot (ft/ft) (Bingham and Moore, 1975).

Geologic formations that underlie Tinker AFB include, from oldest to youngest, the Wellington Formation, Garber Sandstone, and the Hennessey Group; all are Permian in age. All geologic units immediately underlying Tinker AFB are sedimentary in origin. The Garber Sandstone and Wellington Formation are commonly referred to as the Garber-Wellington Formation due to strong lithologic similarities. These formations are characterized by fine-grained, calcareously-cemented sandstones interbedded with shale. The Hennessey Group consists of the Fairmont Shale and the Kingman Siltstone. It overlies the Garber-Wellington Formation along the eastern portion of Cleveland and Oklahoma counties. Quaternary alluvium is found in many undisturbed streambeds and channels located within the area.

Stratigraphy. Tinker AFB lies atop a sedimentary rock column composed of strata that ranges in age from Cambrian to Permian above a Precambrian igneous basement. Quaternary alluvium and terrace deposits can be found overlying bedrock in and near present-day stream valleys. At Tinker, Quaternary deposits consist of unconsolidated weathered bedrock, fill material, windblown sand, and interfingering lenses of sand, silt, clay, and gravel of fluvial origin. The terrace deposits are exposed where stream valleys have downcut through older strata and have left them topographically above present-day deposits. Alluvial sediments range in thickness from less than a foot to nearly 20 feet.

Subsurface (bedrock) geologic units that outcrop at Tinker AFB and are important to understanding groundwater and contaminant concerns at the Base consist of, in descending order: the Hennessey Group, the Garber Sandstone, and the Wellington Formation (Table 3-1). These bedrock units were deposited during the Permian age (230 to 280 million years ago) and are typical of redbed deposits formed during that period. They are composed of a conformable sequence of sandstones, siltstones, and shales. Individual beds are lenticular and vary in thickness over short horizontal distances. Because lithologies are similar and because of a lack of fossils or key beds, the Garber Sandstone and the Wellington Formation are

Table 3-1

Major Geologic Units in the Vicinity of Tinker AFB (Modified from Wood and Burton, 1968) Tinker AFB

(Page 1 of 2)

System	Series	Stratigraphic Unit	Thickness (feet)	Description and Distribution	Water-Bearing Properties
QUATERNARY	PLEISTOCENE AND RECENT	Alluvium	0-70	Unconsolidated and interfingering lenses of sand, silt, clay, and gravel in the flood plains and channels of stream	Moderately permeable. Yields small to moderate quantities of water in valleys of larger streams. Water is very hard, but suitable for most uses, unless contaminated by industrial wastes or oil field brines.
		Terrace deposits	0-100	Unconsolidated and interfingering lenses of sand, silt, gravel, and clay that occur at one or more levels above the flood plains of the principal streams.	Moderately permeable. Locally above the water table and not saturated. Where deposits have sufficient saturated thickness, they are capable of yielding moderate quantities of water to wells. Water is moderately hard to very hard, but less mineralized than water in other aquifers. Suitable for most uses unless contaminated by oil field brines.

Table 3-1

(Page 2 of 2)

System	Series	Stratigraphic Unit	Thickness (feet)	Description and Distribution	Water-Bearing Properties
PERMIAN	LOWER PERMIAN	Hennessey Group (includes Kingman Siltstone and Fairmont Shale)	700	Deep-red clay shale containing thin beds of red sandstone and white or greenish bands of sandy or limey shale. Forms relatively flat to gently rolling grass-covered prairie.	Poorly permeable. Yields meager quantities or very hard, moderately to highly mineralized water to shallow domestic and stock wells. In places water contains large amounts of sulfate.
		Garber Sandstone	500±	Deep-red clay to reddish-orange, massive and cross-bedded fine-grained sandstone interbedded and interfingered with red shale and siltstone	Poorly to moderately permeable. Important source of groundwater in Cleveland and Oklahoma counties. Yields small to moderate quantities of water to deep wells; heavily pumped for industrial and municipal uses in the Norman and Midwest City areas. Water from shallow wells hard to very hard; water from deep wells moderately hard to soft. Lower part contains water too salty for domestic and most industrial uses.
		Wellington Formation	500±	Deep-red to reddish-orange massive and cross-bedded fine-grained sandstone interbedded with red, purple, maroon, and gray shale. Base of formation not exposed in the area.	

difficult to distinguish and are often informally lumped together as the Garber-Wellington Formation. Together, they are about 900 feet thick at Tinker AFB. The interconnected, lenticular nature of sandstones within the sequence forms complex pathways for groundwater movement.

The surficial geology of the north section of the Base is dominated by the Garber Sandstone, which outcrops across a broad area of Oklahoma County. Generally, the Garber outcrop is covered by a thin veneer of soil and/or alluvium up to 20 feet thick. To the south the Garber Sandstone is overlain by outcropping strata of the Hennessey Group including the Kingman Siltstone and the Fairmont Shale (Bingham and Moore, 1975). Drilling information obtained as a result of geotechnical investigations and monitoring well installation confirms the presence of these units.

Depositional Environment. The Permian-age strata presently exposed at the surface in central Oklahoma were deposited along a low-lying north-south oriented coastline. Land features included meandering to braided sediment-loaded streams that flowed generally westward from highlands to the east (ancestral Ozarks). Sand dunes were common as were cut-off stream segments that rapidly evaporated. The climate was arid and vegetation sparse. Offshore the sea was shallow and deepened very gradually to the west. The shoreline position varied over a wide range. Isolated evaporitic basins frequently formed as the shoreline shifted.

Across Oklahoma, this depositional environment resulted in an interfingering collage of fluviatile and windblown sands, clays, shallow marine shales, and evaporite deposits. The overloaded streams and evaporitic basins acted as sumps for heavy metals such as iron, chromium, lead, and barium. Oxidation of iron in the arid climate resulted in the reddish color of many of the sediments. Erosion and chemical breakdown of granitic rocks from the highlands results in extensive clay deposits. Evaporite minerals such as anhydrite ($CaSO_4$), barite ($BaSO_4$), and gypsum ($CaSO_4 \bullet 2H_2O$) are common.

Around Tinker AFB, the Hennessey Group represents deposition in a tidal flat environment cut by shallow, narrow channels. The Hennessey is comprised predominantly of red shales which contain thin beds of sandstone (less than 10 feet thick) and siltstone. In outcrops, "mudball" conglomerates, burrow surfaces, and desiccation cracks are recognized. These units outcrop over roughly the southern half of the Base, thickening to approximately 70 feet

in the southwest from their erosional edge (zero thickness) across the central part of Tinker AFB.

In contrast, the Garber Sandstone and Wellington Formation around Tinker AFB consist of an irregularly interbedded system of lenticular sandstones, siltstones, and shales deposited either in meandering streams in the upper reaches of a delta or in a braided stream environment. Outcrop units north of Tinker AFB exhibit many small to medium channels with cut and fill geometries consistent with a stream setting. Sandstones are typically cross-bedded. Individual beds range in thickness from a few inches to approximately 50 feet and appear massive, but thicker units are often formed from a series of "stacked" thinner beds. Geophysical and lithologic well logs indicate that from 65 to 75 percent of the Garber Sandstone and the Wellington Formation are composed of sandstone at Tinker AFB. The percentage of sandstone in the section decreases to the north, south, and west of the Base. These sandstones are typically fine to very fine grained, friable, and poorly cemented. However, where sandstone is cemented by red muds or by secondary carbonate or iron cements, local thin "hard" intervals exist along disconformities at the base of sandstone beds. Shales are described as ranging from clayey to sandy, are generally discontinuous, and range in thickness from a few inches to about 40 feet.

Stratigraphic Correlation. Correlation of geologic units is difficult due to the discontinuous nature of the sandstone and shale beds. However, cross sections (Figure 3-2) demonstrate that two stratigraphic intervals can be correlated over most of the Base in the conceptual model. These intervals are represented on geologic cross-sections A-A' and B-B' (Figures 3-3 and 3-4). Section A-A' is roughly a dip section and B-B' is approximately a strike section. The first correlatable interval is marked by the base of the Hennessey Group and the first sandstone at the top of the Garber Sandstone. This interval is mappable over the southern half of Tinker AFB. The second interval consists of a shale zone within the Garber Sandstone which, in places, is comprised of a single shale layer and in other places of multiple shale layers. This interval is more continuous than other shale intervals and in cross sections appears mappable over a large part of the Base. It is extrapolated under the central portion of Tinker AFB where little well control exists.

Structure. Tinker AFB lies within a tectonically stable area; no major near-surface faults or fracture zones have been mapped near the Base. Most of the consolidated rock units of the Oklahoma City area dip westward at a low angle. A regional dip of 0.0057 to 0.0076 ft/ft in

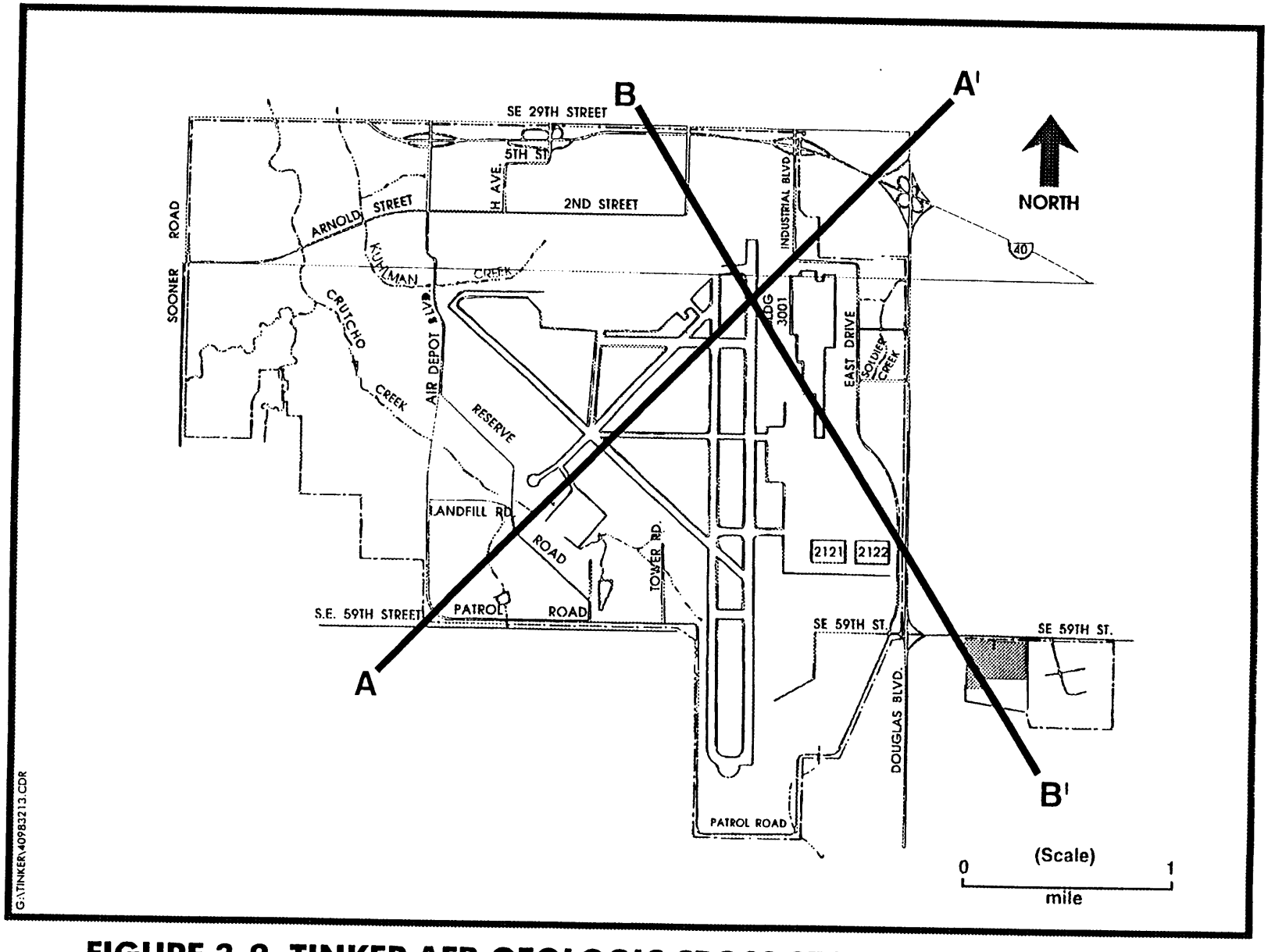


FIGURE 3-2 TINKER AFB GEOLOGIC CROSS SECTION LOCATION MAP

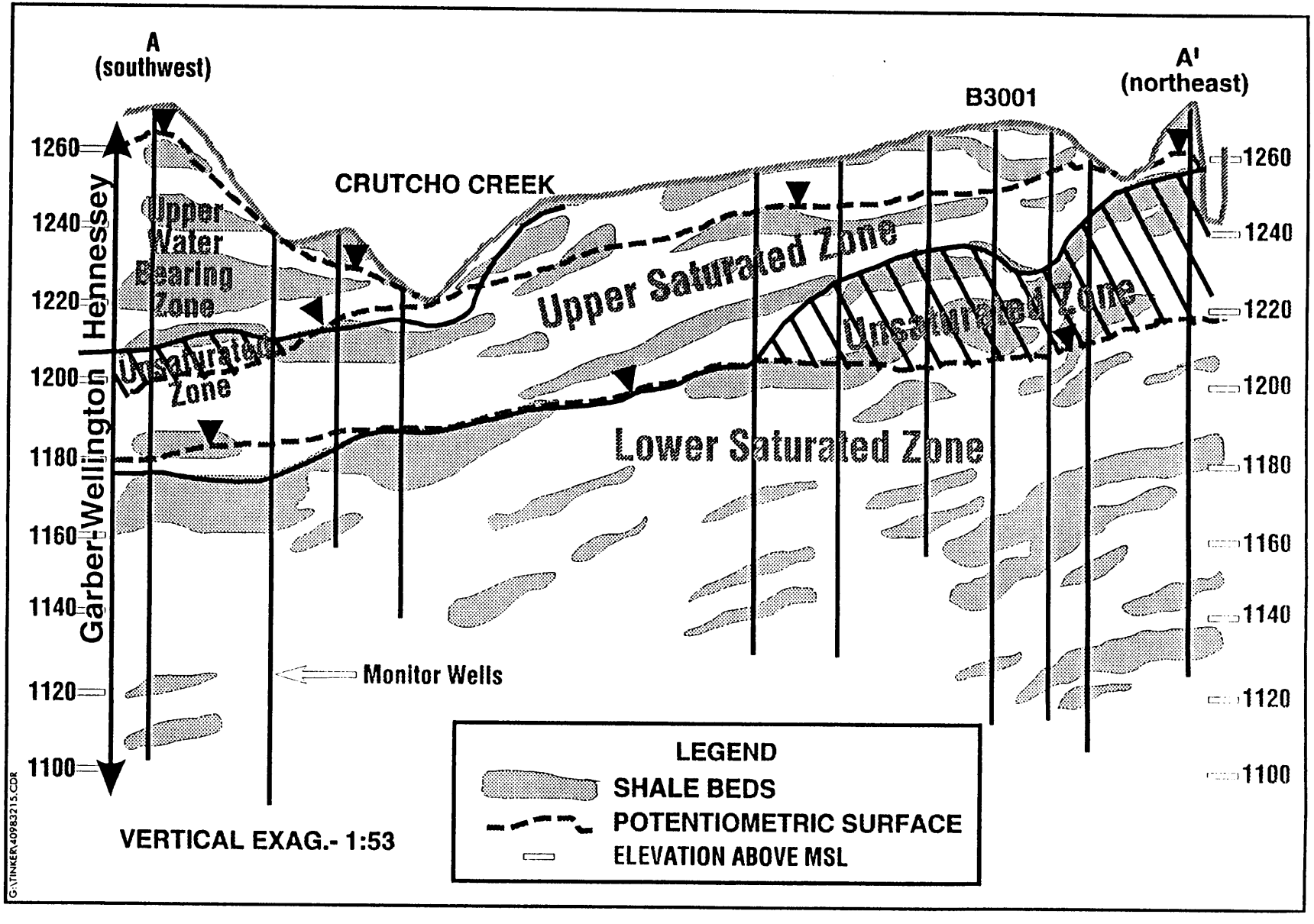


FIGURE 3-3 TINKER AFB GEOLOGIC CROSS SECTION A-A'

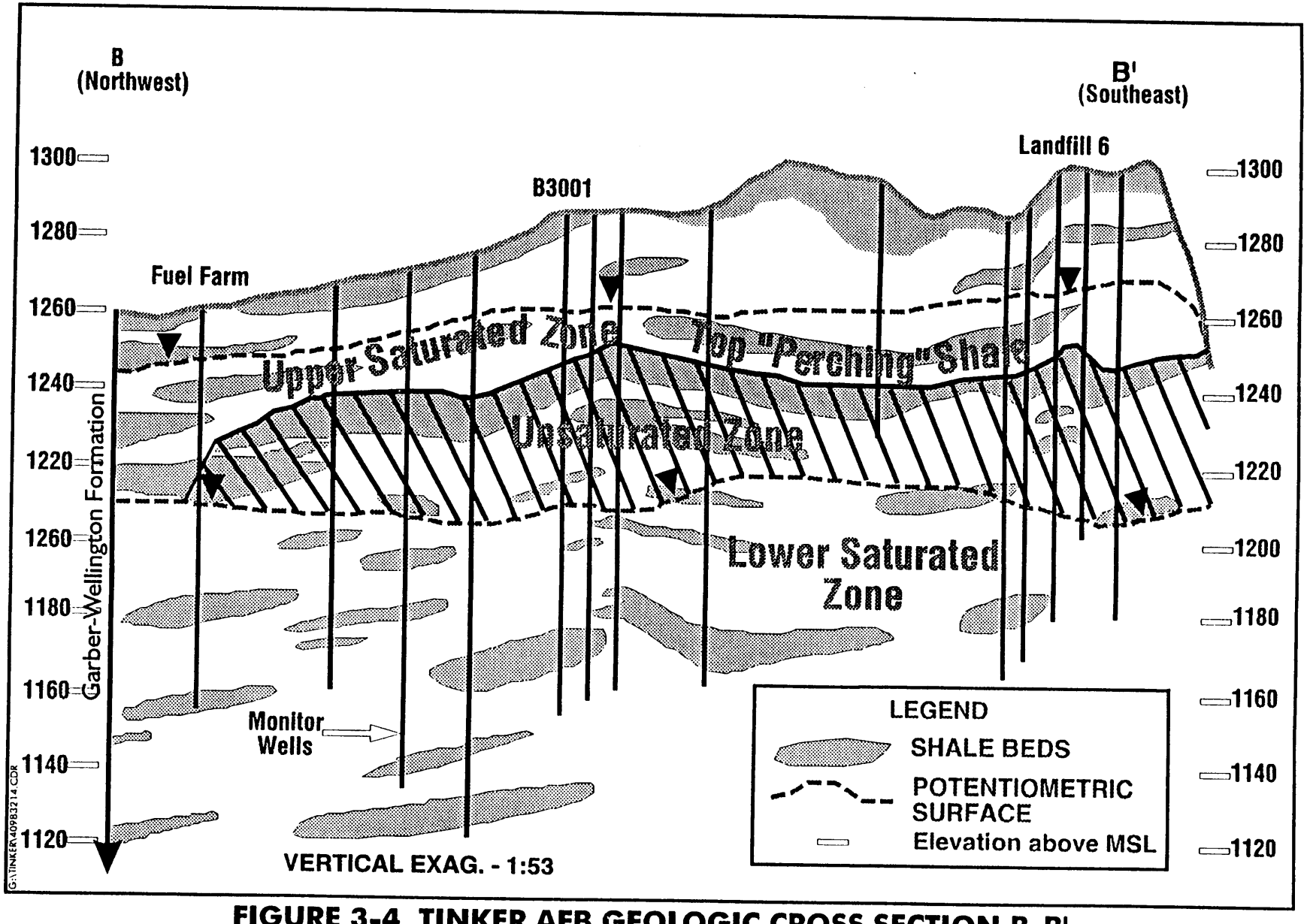


FIGURE 3-4 TINKER AFB GEOLOGIC CROSS SECTION B-B'

a generally westward direction is supported by stratigraphic correlation on geologic cross sections at Tinker AFB. Bedrock units strike slightly west of north.

Although Tinker AFB lies in a tectonically stable area, regional dips are interrupted by buried structural features located west of the base. A published east-to-west generalized geologic cross section, which includes Tinker AFB supports the existence of a northwest-trending structural trough or syncline located near the western margin of the Base. The syncline is mapped adjacent to and just east of a faulted anticlinal structure located beneath the Oklahoma City Oil Field. The fault does not appear to offset Permian-age strata. There are indications that the syncline may act as a "sink" for some regional groundwater (southwest flow) at Tinker AFB before it continues to more distant discharge points.

3.2.2 Site Geology

Surface geologic units at the ODA consist of clay and siltstone of the Hennessey Group. These units are found across the site to a depth of approximately 40 to 60 feet below the ground surface.

Five soil borings were completed to depths between 11.3 and 17.5 feet at the ODA, and did not penetrate through the Hennessey Formation. Based on this boring information, the Hennessey Formation in this area consists predominantly of a sandy silty clay, which can locally be sandier or siltier. Thin sand and silt lenses are also present. Figure 4-1 shows the locations of the soil borings, and Figure 5-2 is a geologic cross section illustrating the shallow geology at the site.

3.3 Hydrology

3.3.1 Regional/Tinker AFB Hydrology

The most important source of potable groundwater in the Oklahoma City metropolitan area is the Central Oklahoma aquifer system. This aquifer extends under much of central Oklahoma and includes water in the Garber Sandstone and Wellington Formation, the overlying alluvium and terrace deposits, and the underlying Chase, Council Grove, and Admire Groups. The Garber Sandstone and the Wellington Formation portion of the Central Oklahoma aquifer system is commonly referred to as the "Garber-Wellington aquifer" and is considered to be a single aquifer because these units were deposited under similar conditions and because many of the best producing wells are completed in this zone. On a regional scale, the aquifer is

confined above by the less permeable Hennessey Group and below by the Late Pennsylvanian Vanoss Group.

Tinker AFB lies within the limits of the Garber-Wellington Groundwater Basin. Currently, Tinker AFB derives most of its water supply from this aquifer and supplements the supply by purchasing from the Oklahoma City Water Department. The nearby communities of Midwest City and Del City derive water supplies from both surface sources and wells tapping the aquifer. Industrial operations, individual homes, farm irrigation, and small communities not served by a municipal distribution system also depend on the Garber-Wellington aquifer. Communities presently depending upon surface supplies such as Oklahoma City also maintain a well system drilled into the Garber-Wellington as a standby source of water in the event of drought.

Recharge of the Garber-Wellington aquifer is accomplished principally by percolation of surface waters crossing the area of outcrop and by rainfall infiltration in this same area. Because most of Tinker AFB is located in an aquifer outcrop area, the Base is considered to be situated in a recharge zone.

According to Wood and Burton (1968) and Wickersham (1979), the quality of groundwater derived from the Garber-Wellington aquifer is generally good, although wide variations in the concentrations of some constituents are known to occur. Wells drilled to excessive depths may encounter a saline zone, generally greater than 900 feet below ground surface. Wells drilled to such depths or those accidentally encountering the saline zone are either grouted over the lowest screens or may be abandoned.

Tinker AFB presently obtains its water supplies from a distribution system comprised of 29 water wells constructed along the east and west Base boundaries and by purchase from the Oklahoma City Water Department. All Base wells are finished into the Garber-Wellington aquifer. Base wells range from 700 to 900 feet in finished depth, with yields ranging from 205 to 250 gallons per minute. The wells incorporate multiple screens, deriving water supplies from sand zones with a combined thickness from 103 to 184 feet (Wickersham, 1979).

Conceptual Hydrologic Model. The conceptual hydrologic model of Tinker AFB involves a comprehensive review of available data, including those from direct measurement sources (borings, water level measurements, pump/slug tests, stream studies) as well as

indirect sources (aerial photographs, topographic maps, published reports). The hydrologic system at Tinker AFB is complex, but the model provides both an approximation of depth to water and an estimated direction of groundwater movement and is therefore useful as a basis for designing field investigations. As information is derived from investigations, the model is continually updated and refined.

Groundwater. As a result of ongoing environmental investigations and the approximately 450 groundwater monitoring wells installed on the Base during various investigations, a better understanding of the specific hydrological framework has emerged. The current conceptual model developed by Tinker AFB (Tinker, 1993), based on the increased understanding of the hydrological framework, has been revised from a previous model adopted by the U.S. Army Corps of Engineers (USACE). Previous studies reported that groundwater was divided into four water bearing zones: the perched aquifer, the top of regional aquifer, the regional aquifer, and the producing zone. In the current model, two principal water table aquifer zones and a third less extensive zone have been identified. The third is limited to the southwest quadrant. The third aquifer zone consisted of saturated siltstone and thin sandstone beds in the Hennessey Shale and equates to the upper water bearing zone (UWBZ) described by the USACE at Landfills 1 through 4 (SWMUs-3 through -6). In addition, numerous shallow, thin saturated beds of siltstone and sandstone exist throughout the Base. These beds are of limited areal extent and are often perched.

In the current conceptual hydrologic model by Tinker AFB, an upper saturated zone (USZ) and a lower saturated zone (LSZ) are recognized in the interval from ground surface to approximately 200 feet. Below this depth is found the producing zone from which the Base draws much of its water supply. Figure 3-5 shows the potentiometric surface for the USZ and Figure 3-6 shows the potentiometric surface for the LSZ. The USZ exists under water table (unconfined) conditions, but may be partially confined locally. Conditions in the LSZ are difficult to determine due to screen placement and overlie long sand packs below the screen interval.

The USZ is found at a depth of 5 to 70 feet below ground surface and has a saturated thickness ranging from less than 1 foot at its eastern boundary to more than 20 feet in places west of Building 3001. The USZ is erosionally truncated by Soldier Creek along the northeastern margin of Tinker AFB (Figure 3-5). This aquifer zone is considered to be a perched aquifer over the eastern one-third of Tinker AFB, where it is separated from the LSZ by an underlying confining shale layer and a vadose zone. The confining interval extends

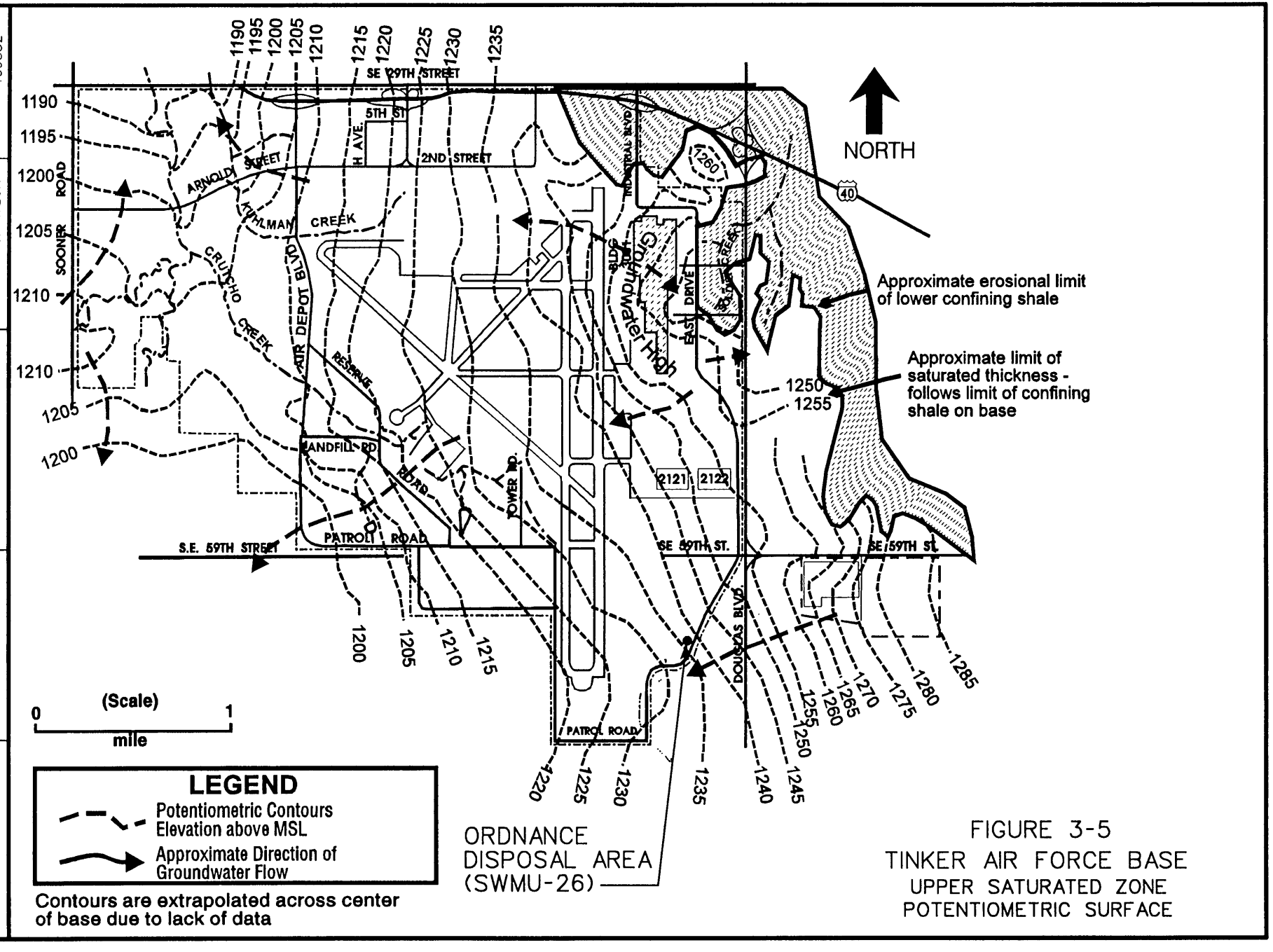


FIGURE 3-5
TINKER AIR FORCE BASE
UPPER SATURATED ZONE
POTENTIOMETRIC SURFACE

STARTING DATE: 01APRIL94	DATE LAST REV.:	DRAFT. CHCK. BY:	INITIATOR: C.WALLACE	DWG. NO.: 40983209C.
DRAWN BY: L. STOUT	DRAWN BY:	ENGR. CHCK. BY:	PROJ. MGR.: J.TAYLOR	PROJ. NO.: 409832

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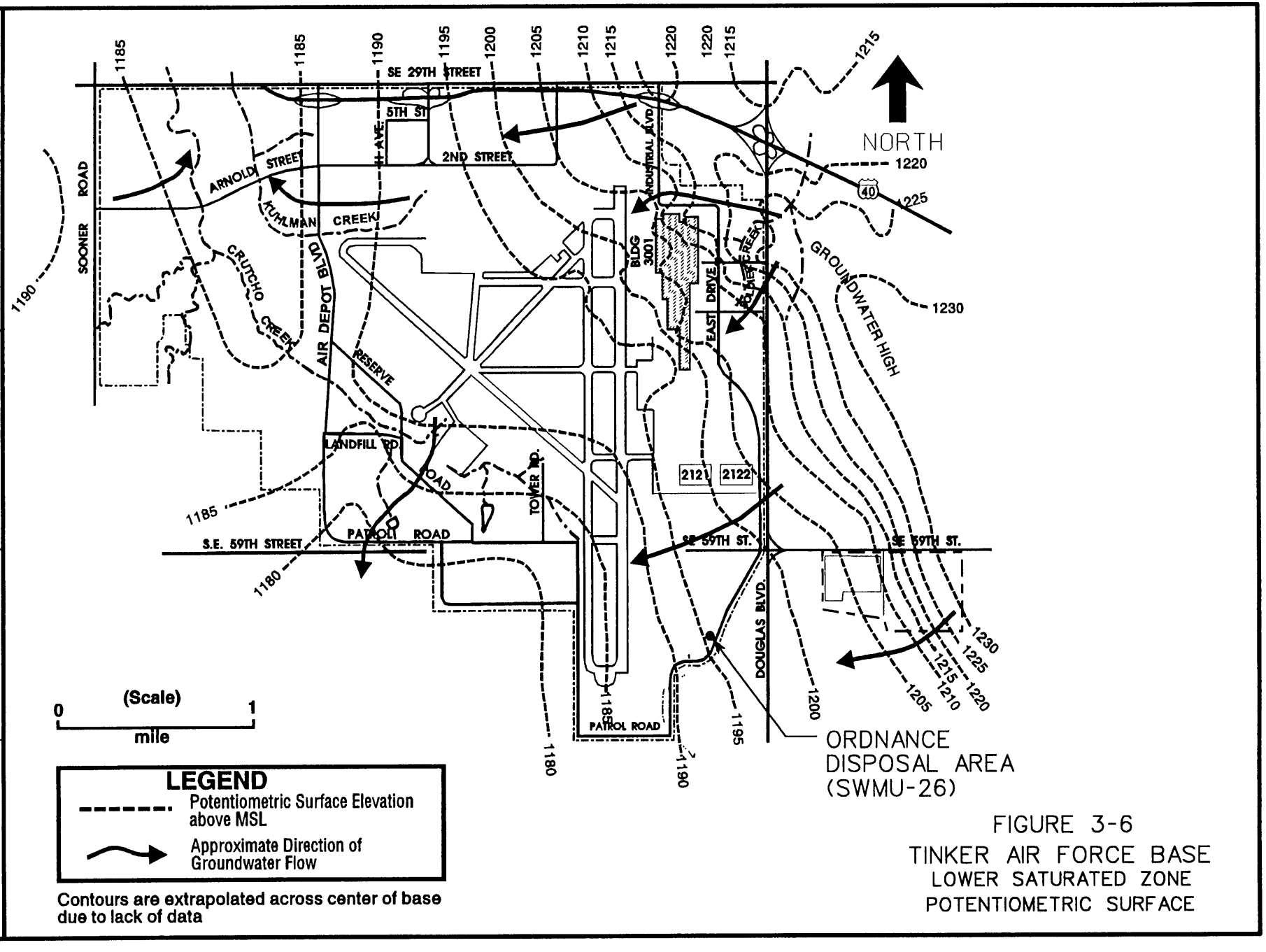

FIGURE 3-6
TINKER AIR FORCE BASE
LOWER SATURATED ZONE
POTENTIOMETRIC SURFACE

STARTING DATE: 23MAR94	DATE LAST REV.:	DRAFT. CHCK. BY:	INITIATOR: C.WALLACE	DWG. NO.:40983209C
DRAWN BY: C.E.TUMLIN	DRAWN BY:	ENGR. CHCK. BY:	PROJ. MGR.: J.TAYLOR	PROJ. NO.:409832

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across the entire Base, but the vadose zone exists over the eastern one-third of this area. The available hydrologic data indicate that the vadose zone does not exist west of a north-south line located approximately 500 to 1,000 feet west of the main runway; consequently, the USZ is not perched west of this line. However, based on potentiometric head data from wells screened above and below the confining shale layer, the USZ remains a discrete aquifer zone distinct from the LSZ even over the western part of the Base. In areas where several shales interfinger to form the lower confining interval rather than a single shale bed, "gaps" may occur. In general, these gaps are not holes in the shale but are places where multiple shales exist that are separated by slightly more permeable strata. Hydrologic data from monitoring wells indicate that these zones allow increased downward flow of groundwater above what normally leaks through the confining layer.

The LSZ is hydraulically interconnected and can be considered one aquifer zone down to approximately 200 feet. This area includes what was referred to by the USACE as the top of regional and regional zones. Hydrologic data from wells screened at different depths at the same location within this zone, however, provide evidence that locally a significant vertical (downward) component of groundwater flow exists in conjunction with lateral flow. The magnitude of the vertical component is highly variable over the Base. Preliminary evidence suggests that the LSZ is hydraulically discrete from the producing zone. Due to variations in topography the top of the lower zone is found at depths ranging from 50 to 100 feet below ground surface under the eastern parts of the Base and as shallow as 30 feet to the west. Differences in potentiometric head values found at successive depths are due to a vertical (downward) component of groundwater flow in addition to lateral flow and the presence or absence of shale layers that locally confine the aquifer system. The LSZ extends east of the Base (east of Soldier Creek) beyond the limits of the USZ where it becomes the first groundwater zone encountered in off-Base wells. Because of the regional dip of bedding, groundwater gradient, and topography, the LSZ just east of the Base is generally encountered at depths of less than 20 feet.

Across the central portion of Tinker AFB, the unsaturated zone separating the USZ and LSZ disappears where the intervening shale layer dips below the surface of the LSZ (Figure 3-6). The disappearance of the unsaturated zone is supported by data from recently completed wells just west of the north-south runway and near Base Operations and by data from wells in the southwest portion of the Base. Measured water levels in two of the new wells show that the LSZ is confined at these locations by the shale separating the USZ and LSZ. No unsaturated interval is present.

To the southwest, measured water levels from wells screened in the Garber Sandstone at Landfills 2 and 4, SWMUs-4 and -6, which correspond in the conceptual model to the USZ under the east part of the Base (Figure 3-5), show that the USZ remains unconfined or is partially confined. This zone is essentially the first water level encountered in the Garber Sandstone on the Base. Potentiometric data from wells in the southwest screened in deeper intervals, that correspond roughly to the LSZ to the east indicate that the LSZ is confined in this area. Data from wells screened at various intervals to a depth of about 90 feet in this area also show that no vadose (unsaturated) zone separates the USZ from the rest of the aquifer. The upper and lower zones cannot be distinguished in this area except by correlating geologic units across Base.

Farther to the southwest of the landfills, near the edge of the Base, another unsaturated zone is found separating groundwater in the Hennessey Group from the Garber-Wellington aquifer. This unsaturated zone is not continuous with that encountered on the east side of the Base. The groundwater in the overlying Hennessey water bearing zone represents the third groundwater zone of more limited areal extent mentioned previously and shown in Figure 3-5. This shallow unconfined aquifer system is located on a topographic high (groundwater divide) in the strata of the Hennessey Group. Radial flow of groundwater off the divide toward nearby tributaries of Crutcho Creek is suggested from limited water level measurements. Additional shallow perched saturated zones of limited areal extent are thought to exist in other sandstone and siltstone beds within the Hennessey water bearing zone. Along the western margin of Tinker AFB west of Crutcho Creek, the shallow groundwater in the Hennessey water bearing zone and probably groundwater in the most shallow saturated zones in the Garber-Wellington aquifer appears to flow toward stream tributaries, and therefore, does not follow regional flow patterns to the west/southwest.

The aquifer zones in the conceptual model are hydraulically connected, although sometimes only to a very local extent, either directly as in the west part of the Base or indirectly through leakage and/or recharge patterns related to local streams. Because Tinker AFB is located in a recharge zone for the Central Oklahoma aquifer both horizontal and vertical (downward) components of groundwater flow exist. Measured potentiometric levels from well clusters with screens and filter packs placed at varying depths within the LSZ show that hydraulic heads decrease with depth and that the magnitude of the vertical component of flow varies with location. This finding is particularly important to recognize where data from these wells are being used to generate potentiometric contour maps.

Although the variability in the geology and the recharge system at Tinker AFB makes it difficult to predict local flow paths, Central Oklahoma aquifer water table data taken from the 1992 USGS Hydrologic Atlas show that regional groundwater flow under Tinker AFB varies from west-northwest to southwest depending on location. This theory is supported by contoured potentiometric data from Base monitoring wells, which show groundwater movement in the upper and lower aquifer zones to generally follow regional dip. Measured normal to potentiometric contours, groundwater flow gradients range from 0.009 to 0.0057 ft/ft. However, because flow in the near-surface portions of the aquifer at Tinker AFB is strongly influenced by topography, local stream-based levels, complex subsurface geology, location in a recharge area, both direction and magnitude of groundwater movement is highly variable. The interaction of these factors not only influences regional flow but gives rise to complicated local, often transient, flow patterns at individual sites.

Several examples demonstrate this variability. Historical water level data around Crutcho Creek indicate that groundwater flow in that area is predominantly to the southwest. However, during high flow conditions bank recharge occurs and shallow local flow patterns near the creek may be reversed. This pattern is probably in effect at other streams as well. In the northeast quadrant of the Base, several factors contribute to groundwater "mounding" in the USZ and to formation of a groundwater high in the LSZ. This mounding leads to radial or semiradial groundwater flow at shallow depths. Finally, in the northeast part of the Base where sufficient data exist, comparison of potentiometric contours from successively deeper levels in the LSZ suggests that groundwater flow directions change with depth, gradually turning from west-southwest to northwest. This change in regional flow is attributed either to effects of pumping from deep water supply wells in the area and/or to the presence of the Deep Fork River located to the north. This river, along with the Canadian River south of Tinker AFB, has been demonstrated by the USGS to act as a major discharge point for regional groundwater in Central Oklahoma.

Surface Water. The interaction of surface water with groundwater is an important factor in predicting local groundwater flow patterns at Tinker AFB. Although no technical stream study data are presently available to determine what degree of interaction occurs between streams and groundwater, some qualitative observations provide clues to the importance of this system. The direction of stream flow on Tinker AFB appears to be controlled largely by a topographic divide, which extends from southwest to northeast across the south part of the Base. Streams that originate on the north side of the divide flow to the north, including Soldier Creek, Crutcho Creek, and Kuhlman Creek. Elm Creek, which has its origin on the

southeast side, flows to the south. Streams that flow northward become perennial before leaving the Base and with no other constant source of water available are considered to be recharged by the aquifer (gaining streams). Some data indicate however that these streams become dry north of the Base during periods of lower precipitation and lose water to the aquifer (losing streams). Information from wells and piezometers near the ponded section of Soldier Creek at the industrial waste treatment plant also suggests that the pond contributes to the groundwater (a losing stream) in the LSZ at that location. Portions of Soldier Creek tributaries (near their headwaters, off-Base)flow only intermittently and probably recharge the aquifer through infiltration during periods of higher precipitation. Finally, where groundwater and stream elevations are the same, the observed direction of groundwater flow may be affected by transient factors such as bank storage from periods of increased precipitation.

Man-Made Structures. In the conceptual model of Tinker AFB it is recognized that man-made features such as buried utilities (storm drains, waste lines) may further complicate the shallow groundwater situation. An additional problem encountered in generating the model involves improper monitoring well construction practices, which not only may contribute preferred pathways for groundwater (and contaminant) movement where wells have multiple screens or overlie long filter packs, but often provide nonrepresentative, biased groundwater and sample data.

The complex groundwater system at Tinker AFB makes correct placement and construction of monitoring and extraction wells critical. A good understanding of the conceptual hydrologic framework is essential to obtain representative data and to minimize errors. An integrated hydrologic conceptual model provides an overview of the groundwater system and leads in turn to more effective site project management.

3.3.2 Site Hydrology

Soil borings were drilled at the ODA to depths ranging from 11.3 feet below ground surface to 17.5 feet below ground surface. Due to the shallow nature of the borings, groundwater was not encountered during the drilling activities. Mud was observed at the bottom of the boring at a depth of 13 feet below ground surface at SB-010 and at 17.5 feet at SB-011.

3.4 Soils

The surface soils of Tinker AFB have been studied by the U.S. Department of Agriculture (USDA), Soil Conservation Service (1969) and by several soil boring projects conducted for geotechnical (foundation construction) investigations. Surface soils of the installation area are

predominantly of two basic types: residual and alluvial. The three major soil associations (Table 3-2) mapped within installation limits are Darrell-Stephenville, Renfrow-Vernon-Bethany, and Dale-Canadian-Port. The residual soils associations, Darrell-Stephenville and Renfrow-Vernon-Bethany are the product of the weathering of underlying bedrock. The alluvial materials of the Dale-Canadian-Port association are stream-deposited silts and sands, whose occurrence is typically restricted to floodplains of area streams.

Table 3-2

Tinker AFB Soil Associations
(Source: USDA, 1969)

Association	Description	Thickness (in.)	Unified Classification[a]	Permeability (in./hr)
Darrell-Stephenville: loamy soils of wooded uplands	Sandy loam Sandy clay loam Soft sandstone (Garber Sandstone)	12-54	SM,ML,SC	2.0-6.30
Renfrow-Vernon-Bethany: loamy and clayey soils on prairie uplands	Silt loam - clay Clay loam Shale (Fairmont Shale)	12-60	ML,CL,MH,CH	<0.60-0.20
Dale-Canadian-Port: loamy soil on low benches near large streams	Fine sandy loam Silty clay loam Loam Clay loam	12-60	SM,ML,CL	0.05-6.30

[a]Unified classifications defined in U.S. Bureau of Reclamation, 5005-86.

4.0 Description of Investigative Methods

The Phase I field investigation of the subsurface conditions at the ODA was conducted from October through December 1993. All activities conducted during the field investigation program were performed in accordance with the Work Plan, the Data Management Plan, the Data Collection Quality Assurance Plan, the Health and Safety Plan, and their Amendments (IT, 1993a). As a Phase I investigation, field activities were designed to provide information on subsurface lithologies and the existence and nature of contamination, if any, in the soils beneath the ODA. Field investigation activities described in the following subsections included geophysical surveying and subsurface soil sampling (Table 4-1). A total of five soil borings were advanced at the ODA (Figure 4-1).

4.1 Magnetometer and Electromagnetic Surveys

The exact location of the 50-foot by 50-foot, former ordnance disposal pit was unknown. Therefore, prior to drilling in the field, magnetometer and electromagnetic (EM) surveys were conducted to determine the precise location of the burning pit. The EM survey, conducted with a Geonics EM-31 probe measuring earth resistivity, covered a 325-by 325-foot grid with stations on 25 foot centers. Based on a review of aerial photographs, the survey grid was positioned north of an 8-foot-high earth covered bunker, which was presumably used as a shelter during small munitions burning operations. The EM survey results indicated two anomalies with the approximate dimensions of the former pit to the northwest of the bunker. From a vantage point atop the bunker, changes in vegetation were observed in the areas of the mapped anomalies. The differences in vegetation included the color and size of the grasses associated with the anomalies. The color of the grasses appeared darker than the native vegetation, while the size of the grasses was taller and more tightly massed than the surrounding native grasses.

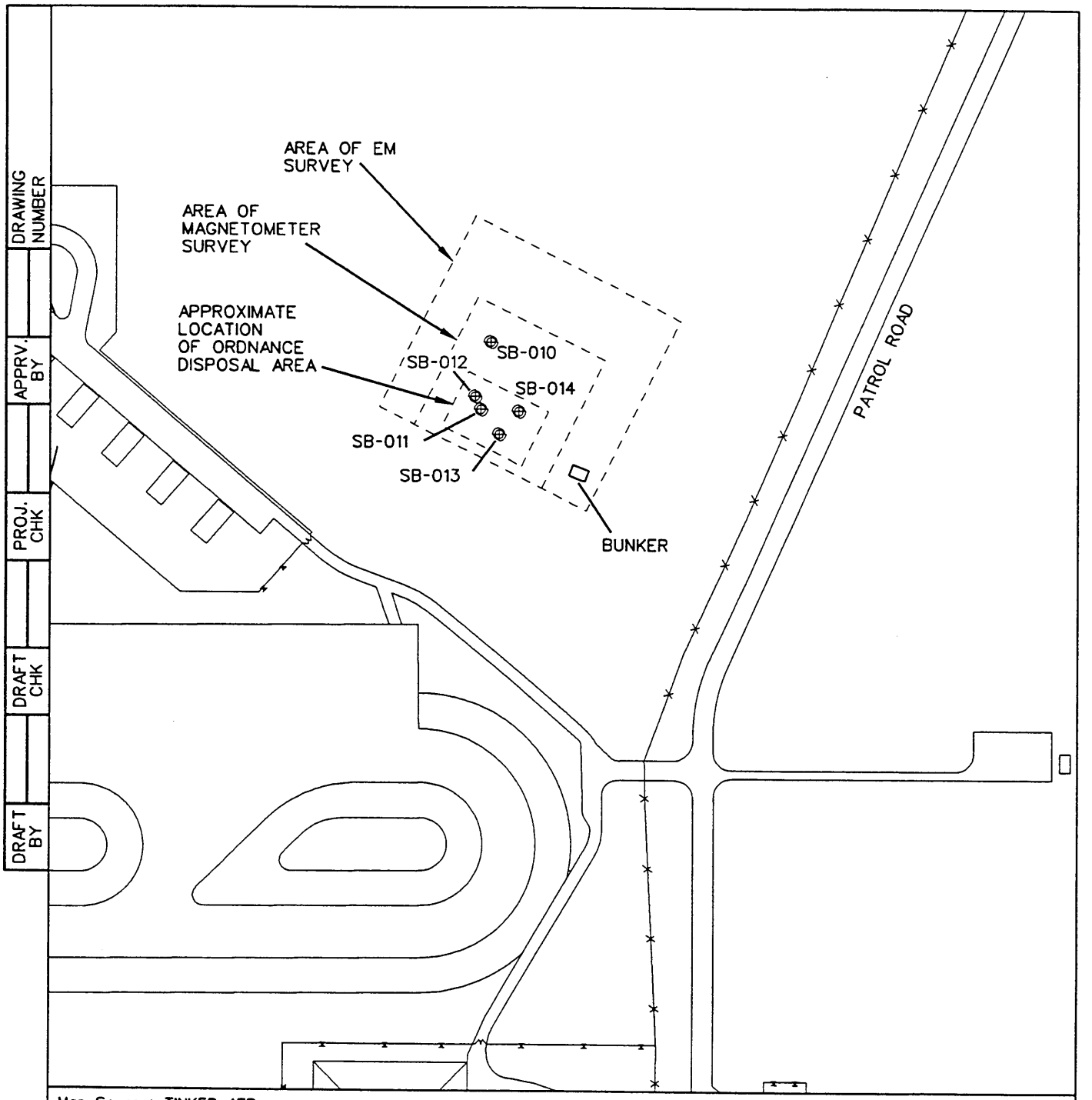
The EM survey was followed by a Total Field Magnetometer geophysical survey conducted with an EG&G Geometrics model 822L cesium magnetometer more than a 200-foot by 200-foot area centered around the anomalies discovered during the EM survey. A more detailed description of the magnetometer survey methodology is provided in Appendix B. The magnetometer survey indicated anomalies representing significant amounts of ferromagnetic/metallic materials in the same areas as the EM survey. The magnetometer survey anomalies were verified using a Schonstedt GA-72CV magnetic locator. The location and size of the anomalies were marked in the field with yellow pin flags. The most likely location of the former disposal pit was determined through a combined interpretation of the EM and

Table 4-1

Summary of RFI Field Activities
SWMU-26, ODA, Tinker AFB

Type of Activity	Number of Locations	Cumulative Footage of Borings/Wells	Average Footage per Boring/Well	No. of Samples Collected for Chemical Analysis					Analyses Performed
				Normal Samples	Duplicates	Rinsates	Field Blanks	Totals	
Soil borings	5	66.6	13.3	15	1	1	0	17	VOCs, SVOCs, metals

Notes: VOCs - Volatile organic compounds - EPA Method 8240.
SVOCs - Semivolatile organic compounds - EPA Method 8270.
Metals - EPA Method 6010: Al, Ag, As (EPA Method 7060); Ba, Be, Cd, Cr, hexavalent Cr (EPA Method 7196); Cu, Fe, Pb (EPA Method 7421); Ni, Zn, and Hg (EPA Method 7471).



Map Source: TINKER AFB

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Do Not Scale This Drawing

N

0 200
FEET

LEGEND

SB-014 SOIL BORING LOCATION AND IDENTIFICATION NUMBER

FENCE

DRAINAGE

FIGURE 4-1
ORDNANCE DISPOSAL AREA
SITE MAP WITH
LOCATIONS OF SOIL BORINGS

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TINKER AFB
OKLAHOMA

magnetometer survey data. Four soil borings were then placed within the interpreted boundaries of the burn pit to determine whether a release had occurred, and one boring was placed northeast of the presumed pit to provide background data on soil conditions.

4.2 Soil Borings

Five shallow soil borings were advanced in the ODA to determine the existence and degree, if any, of soil contamination. One background boring (SB-010) was placed outside of the ODA, as estimated from the magnetometer and EM surveys. Four borings (SB-011 through SB-014) were placed within the estimated disposal area. The shallow soil borings were advanced using hollow-stem augers. Conditions permitting, boreholes were sampled continuously for lithologic and analytical purposes with a 5-foot tube sampler. A 2-foot split-spoon sampler was utilized when the 5-foot sampler could not be advanced. Borings were advanced through harder, less penetrable strata by replacing the tube sampler with a center drilling bit. Borings were completed to depths ranging from 11.3 to 17.5 feet. Groundwater was not encountered in any borehole, although the bottom of SB-011 (17.5 feet) was slightly muddy. Soil borings were backfilled with a cement/bentonite grout upon completion. Lithologic boring logs can be found in Appendix A.

One analytical sample was collected from every 5-foot depth interval based upon field screening with a photoionization detector (PID) and/or flame ionization detector (FID), odor, and visual inspection. Three samples were collected from each boring, with the exception of SB-012, where a duplicate sample was taken. A total of 16 samples were collected and analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), and priority pollutant metals.

4.3 Elevation and Location Surveying

Upon completion, borehole locations and elevations were determined by an Oklahoma state licensed surveyor. The ground surface immediately adjacent to each borehole was surveyed relative to a Base datum provided by Tinker AFB. All locations are provided in the Base coordinate system and elevations are given relative to mean sea level. Documentation of the surveying activities performed at the ODA are contained in Appendix D.

5.0 Investigation Results

The following sections provide an evaluation of data quality and the results of the RFI performed at the ODA. Section 5.1 discusses the methods and procedures used to ensure data quality and useability. Section 5.2 provides a discussion of the source characterization and the potential of the ODA as a contributing source for contamination. Section 5.3 provides details regarding the contaminant characterization via the analysis of the analytical results from the soils investigation. The groundwater was not investigated at the ODA and thus will not be discussed as a part of this RFI Report.

5.1 Data Quality Evaluation

The quality of the analytical data used for the RFI must be sufficient to support the associated risk management decisions. Data quality is ensured through adherence to Data Quality Objectives (DQO) and the sampling and analysis program outlined in the Data Collection Quality Assurance Plan (DCQAP) (IT, 1993b). The DCQAP identifies sampling locations, sampling methods, DQOs, field and laboratory quality control (QC) testing, analytical methods and reporting, and data evaluation and verification. The QC of field and laboratory activities; the assessment of precision, accuracy, and comparability of the data; and the verification of the data are the most significant activities designed to ensure compliance with the DQOs.

5.1.1 Field Quality Control

Field QC testing involved the collection of control samples to aid in evaluating inaccuracies which may be induced by field activities. These control samples include:

- ***Field Blanks.*** A field blank is an amount of water, gas, or solid that is provided to demonstrate the absence of contamination during sampling. Field blanks were only collected for groundwater and waste samples.

- ***Trip Blanks.*** Volatile organics samples are susceptible to contamination by diffusion of organic contaminants into the sample container. Therefore, trip blanks were analyzed to monitor for sample contamination during shipment and storage. No trip blanks were obtained for soil samples, due to the dissimilarity in matrix between the blanks and the actual samples.

- ***Rinsate Blanks.*** A rinsate blank is a volume of rinse solution (e.g., deionized distilled laboratory water or organic solvent) used to rinse a sampling tool which contacts more than one sample. The rinse solution was collected after the

sampling tool was used and cleaned, to demonstrate that no residual contamination remained on the tool to carry over to the next sample.

- ***Field Duplicates.*** Duplicate analyses were performed to evaluate the precision of analysis. Both field and laboratory duplicates were taken and analyzed. Results of these analyses were used to determine the relative percent difference (RPD) between replicate samples.

5.1.2 Laboratory Quality Control

Laboratory QC testing involved the use of control samples to aid in evaluating QC errors which may be induced by laboratory activities. The control samples include:

- ***Method Blanks.*** A method blank is a volume of deionized and distilled laboratory water for liquid samples, or a purified solid matrix for soil/sediment samples, carried through the entire analytical procedure to identify contaminants introduced during the procedure.

- ***Bottle Blanks.*** At a frequency of 1 percent or greater, laboratory-prepared sample containers were tested to verify that the container cleaning procedure is performed acceptable. Parameters of concern for the particular container were tested (e.g., metals for plastic containers).

- ***Laboratory Blanks.*** Distilled water-filled volatile organic analysis (VOA) vials were stored in the laboratory using the same method of storage used for field samples. If the field and trip blanks contained high concentrations of contaminants, the laboratory blank was analyzed to identify the source of contamination.

- ***Matrix Spikes.*** To evaluate the effect of sample matrix on analytical methodology accuracy, a separate sample aliquot was spiked with the analyte of interest and analyzed with approximately ten samples or, if a smaller number of samples are associated with a test series, for each group of samples.

- ***Surrogate Standards.*** Surrogate standards are compounds added to gas chromatography/mass spectrometry (GC/MS) standards, blanks, and samples prior to extraction or purging to monitor the recovery efficiencies of the sample preparation and analytical procedures on a sample-by-sample basis.

5.1.3 Evaluation of Precision and Accuracy

As part of the analytical QC testing program, QC sample results were used to apply precision and accuracy criteria for each parameter that was analyzed. When the analysis of a sample set was completed, the QC data generated were evaluated based on the following criteria:

- ***Method Blank Evaluation.*** The method blank results were evaluated for high readings characteristic of background contamination. If high blank values were observed, laboratory glassware and reagents were checked for contamination and the analysis of future samples halted until the system could be evaluated.

- ***Trip, Field, Laboratory, and Rinsate Blank Evaluation.*** Trip, field, laboratory, and rinsate blank results were evaluated for high readings similar to the method blanks described above. If high blank readings were encountered, the procedure for sample collection, shipment, and laboratory analysis would be reviewed.

- ***Duplicate Sample Evaluation.*** Duplicate sample analysis was used to determine the precision of the analytical method for the sample matrix. The duplicate results will be used to calculate the precision as defined by the RPD.

- ***Matrix Spike Evaluation.*** The observed recovery of the spike versus the theoretical spike recovery was used to calculate accuracy as defined by the percent recovery (%R).

- ***Surrogate Standard Evaluation.*** The results of surrogate standard determinations were compared with the true values spiked into the sample matrix prior to purging or extraction and analysis, and the percent recoveries of the surrogate standards were determined.

- ***Comparability Between Data Sets.*** Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Comparability for sampling and analysis was achieved by specifying and using only well-recognized techniques and accepted standard EPA methods and procedures for sampling and analysis reporting of representative samples.

5.1.4 Data Verification

Data packages and parameters were evaluated against the following criteria to ensure data validity prior to use:

- Sampling documentation (e.g., sample collection log, Chain-of-Custody Form, and Request for Analysis Form) matches samples submitted to samples analyzed.

- Chain-of-Custody Forms are complete.

- Sample identification summary for each sample is present.

- Analytical results for each sample include correct units, detection limits, method used, date sampled, date extracted, date analyzed, dilutions noted.

- Holding times were met.

- Data on field and laboratory duplicate samples for RPDs were within QC limits.
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries were within QC limits.
- Method blanks were within control limits.

5.1.5 Data Useability

The data verification did not identify any reoccurring problems with analytical procedures or analytical reporting. Precision and accuracy for each analytical method as demonstrated by the evaluation or surrogate recoveries, laboratory control samples, MS, and MSD recoveries were satisfactory. The sample identification summaries for all samples and methods were present and complete. No data were found to be invalid. All deficiencies encountered were minor and did not affect the overall quality of the data, since other DQOs were met. Deficiencies were generally the result of matrix interference.

The analytical data generated from the RFI are of sufficient quality to make evaluations and support recommendations.

5.2 Source Characterization Results

Burning activities within the pit area may have released contaminants such as metals and organic compounds to the surface soils. Depending on the actual depth of the pit, infiltration characteristics of the unsaturated zone, and the depth to groundwater in the vicinity of the ODA contaminants may have migrated downward into the unsaturated zone and to the groundwater. No source samples were collected.

5.3 Contaminant Characterization Results

5.3.1 Establishment of Surficial Soil Background Concentrations

Background soil concentrations for trace metals were determined based on a study performed by the USGS titled "Elemental Composition of Surface Soils from Central Oklahoma" (1991). The study area was confined to approximately four counties in central Oklahoma. Tinker AFB lies at the approximate center of this area. A total of 293 B-horizon soil samples were collected throughout this area. Soil samples were collected at the top of the B-horizon, which was usually 20 to 30 centimeters below the surface but ranged from 3 to 50 centimeters below the surface. For site-specific analytes for which the USGS offered no background

value, a site-specific background value was selected for comparison. This site-specific background sampling location was typically from an upgradient monitoring well boring.

The use of B-horizon soil as selected by the USGS for metals background concentrations in soil is conservative in that the soil sampled does not reflect all possible anthropogenic influences. Most of the samples were obtained from hill crests and well drained areas in pasture and forested land, well away from roadways to minimize contamination from vehicular emissions (i.e., nearly "pristine" areas). Trace metal inputs to the study site soils on Base, however, will come from anthropogenic sources outside of the study area, in addition to those sources related to disposal activities or operations within the confines of the study site. Responsibility may therefore be taken for more trace metal impacts than are actually attributable to a given site.

An additional level of conservatism was added in the manner in which the site-specific metals concentrations were compared to the background levels. Typically, the environmental concentrations of trace metals at study sites are represented by the arithmetic upper 95th confidence interval on the mean of a normal distribution. This upper 95th confidence interval value is then compared to the background values. The intent of this typical approach is to estimate a Reasonable Maximum Exposure case (i.e., well above the average case) that is still within the range of possible exposures.

To expedite this comparison and establish greater conservatism, the maximum concentration found at the site of concern, rather than the upper 95th confidence interval value, was compared to the USGS background values. If the environmental concentration of a particular analyte was below or within the minimum-maximum range of the USGS background concentrations, that analyte was considered to be naturally occurring and of no further concern to this investigation. Given the conservative approach of the comparisons, site-specific metals concentrations would have to significantly exceed the USGS background levels and be attributable to operations at the site before they would be considered a contaminant of concern.

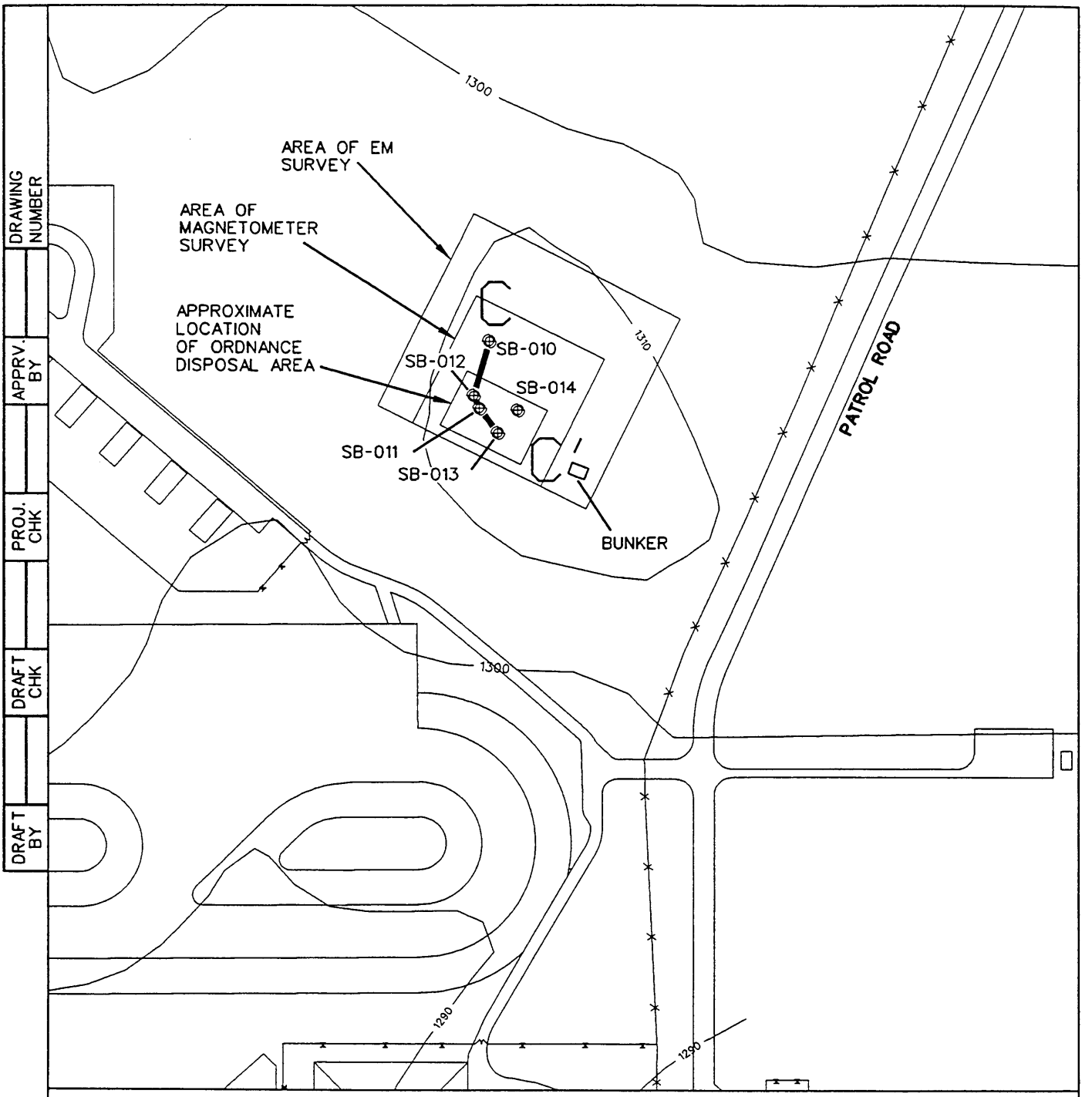
The numerical comparison of site-specific metals concentrations to the USGS background concentrations is presented in the following section.

5.3.2 Soil Characterization

During the RFI performed at the ODA a total of 16 soil samples were collected from the five soil borings conducted at the site. The five soil borings were completed to depths ranging from 11.3 to 17.5 feet at the ODA, and did not penetrate through the Hennessey Formation. Based on this boring information, the Hennessey Formation in this area consists predominantly of a sandy silty clay, which can locally be sandier or siltier. Thin sand and silt lenses are also present. Figure 5-1 indicates the location of the C-C' traverse through the ODA. Figure 5-2 presents the geologic cross section that illustrates the shallow geology of the ODA along the C-C' traverse. Surface geologic units at the ODA consist of clay and siltstone of the Hennessey Group. These units are found across the site to a depth of approximately 40 to 60 feet below ground surface. Figure 5-3 presents the results of the magnetometer survey described in Section 4.1.

The borings were visually logged and the soil samples were submitted to the laboratory for chemical analyses. The analysis included VOCs and SVOCs, and metals (aluminum, arsenic, barium, beryllium, cadmium, chromium, chromium VI, copper, iron, lead, mercury, nickel, silver, and zinc). The samples were retained for analysis based on field screening techniques. The results for detected analytes are presented in Table 5-1. The complete listing of analytical results is contained in Appendix C.

No organics were found in the soils above the method reporting limits. All metals detected in the soils were within the range of background concentrations reported by the USGS. The comparison of metals concentrations to background is presented in Table 5-2.



Map Source: TINKER AFB

LEGEND

SB-014 ⊕	SOIL BORING LOCATION AND IDENTIFICATION NUMBER
—×—×—	FENCE
———	DRAINAGE
—1290—	CONTOUR INTERVAL
━━━	LINE OF CROSS-SECTION

N

0 200
FEET

Do Not Scale This Drawing

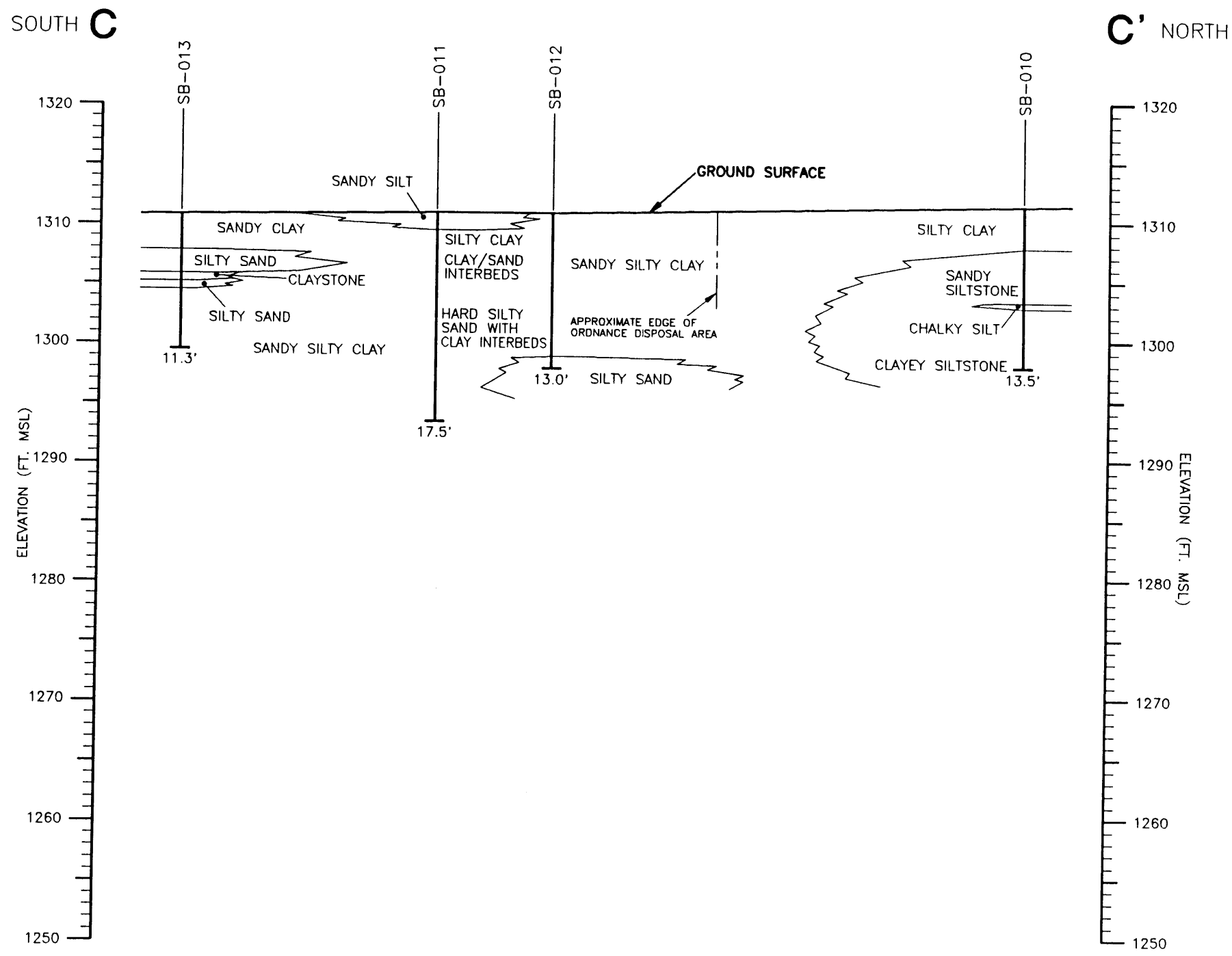
G:\TINKER\40983202.158

DRAWING NUMBER | APPRV. BY | PROJ. CHK | DRAFT CHK | DRAFT BY

FIGURE 5-1
LOCATION MAP FOR CROSS-SECTION C-C' ORDNANCE DISPOSAL AREA WITH LOCATIONS OF SOIL BORINGS

PREPARED FOR

TINKER AFB
OKLAHOMA



EXPLANATION

SB-013 — BORING IDENTIFICATION

BORING

WATER LEVEL ELEVATION (MONTH DAY, YEAR)

13.0' — TOTAL DEPTH DRILLED

LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)

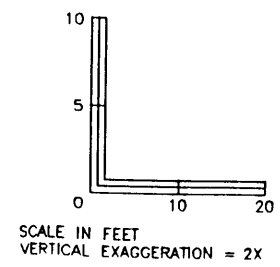


FIGURE 5-2
CROSS-SECTION C-C'
ORDNANCE DISPOSAL AREA

PREPARED FOR

TINKER AFB
OKLAHOMA

DRAWING NUMBER	APPRV. BY	PROJ. CHK	DRAFT CHK	DRAFT BY
409832-B8				JEA 2/1/94

Do Not Scale This Drawing

Do Not Scale This Drawing

DRAFT BY	RPS 1/13/94	DRAFT CHK		PROJ. CHK		APPRV. BY		DRAWING NUMBER 409832-A89

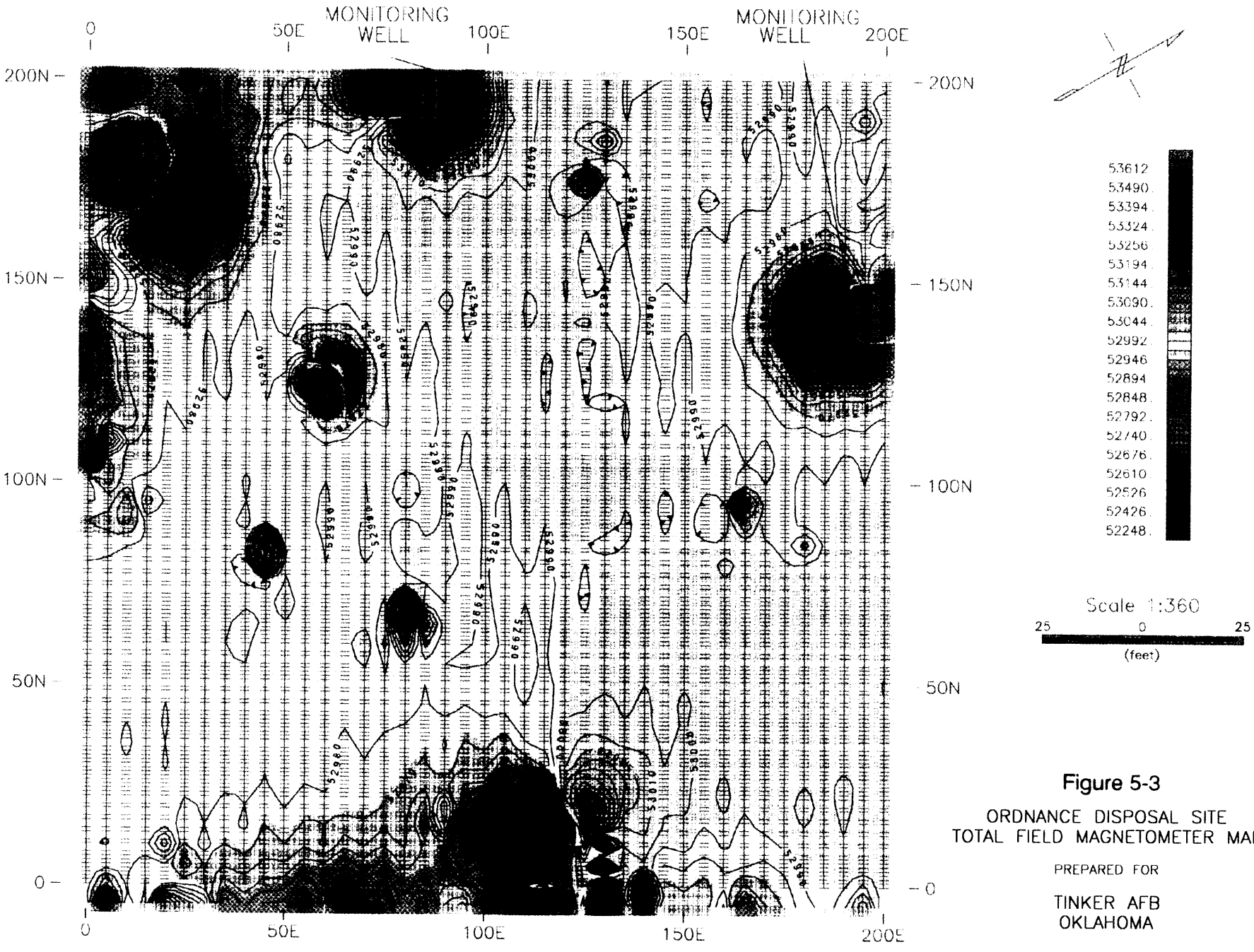


Figure 5-3

ORDNANCE DISPOSAL SITE
TOTAL FIELD MAGNETOMETER MAP

PREPARED FOR

TINKER AFB
OKLAHOMA

Analytical Results for Ordnance Disposal Area
for Soil
Tinker Air Force Base, Oklahoma
Table 5-1

Well/Boring:	SB-010		SB-010		SB-010		SB-011		SB-011		SB - 011		SB-012		SB-012	
Sample ID:	A1134		A1135		A1136		A1142		A1143		A1144		A1138		A1139	
Depth in Feet:	1.5 - 2		7.5 - 8		11 - 11.5		1 - 1.5		8 - 9		13 - 13.3		2.5 - 3		2.5 - 3	
Parameters	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR
Metals (mg/kg)																
Aluminum	11000	N	5100	N	4500	N	11000	N	18000	N	6500	N	15000	N	16000	N
Arsenic - Graphite Furnace	2.8	N	1.4	N	1.2	N	2.2	N					3.9	N	2.9	N
Barium	220		21		390		200	N	1900	N	4000	N	130	N	160	N
Beryllium	0.95		0.51				0.62		1.2				0.77		0.72	
Cadmium	0.6						1						0.87		1.3	
Chromium	17		12		7.8		16		22		17		18		21	
Copper	6.7		2.3		5.7		5.9		19		4.8		5.5		5.7	
Iron	13000	N	8200	N	6500	N	11000	N	14000	N	8900	N	14000	N	16000	N
Lead - Graphite Furnace	8.1	N	1.8	N	6	N	5.4	N	6.3	N	2.3	N	9.9	N	7.3	N
Nickel	8.1		10		7.5		8.9		27		12		8.2		9.4	
Zinc	15		12		10		15		29		13		16		17	

Well/Boring:	SB-012		SB-012		SB - 013		SB-013		SB-013		SB-014		SB-014		SB-014	
Sample ID:	A1140		A1141		A1145		A1146		A1147		A1161		A1162		A1163	
Depth in Feet:	7.5 - 8		12 - 12.5		1 - 1.5		5 - 5.5		10.5 - 11		2.5 - 3		5.5 - 6		11 - 11.3	
Parameters	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR
Metals (mg/kg)																
Aluminum	11000	N	3900	N	16000	N	6000	N	10000	N	9200	N	3200	N	6400	N
Arsenic - Graphite Furnace	4.6	N			4.3	N			1.8	N	4.5	N	1.6	N	1.2	N
Barium	79	N	76	N	350	N	530	N	50	N	170	N	28	N	1700	N
Beryllium	0.76				0.94				0.67		1.8		0.72		0.88	
Cadmium	0.92				1.4						0.59					
Chromium	27		8.4		35		9.2		15		20		16		12	
Copper	6.4		3.6		4.7		3.2		7.2		3				3.9	
Iron	15000	N	8200	N	21000	N	7000	N	14000	N	13000	N	6300	N	8300	N
Lead - Graphite Furnace	3.7	N	2.7	N	6.6	N	2	N	2.2	N	3.9	N	1.2	N	2.2	N
Nickel	19		9.2		14		10		14		14		7.5		12	
Zinc	22		9.9		19		12		18		14		9		15	

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC Limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated

Table 5-2

Soil Metals Background Comparison

Analyte	Site	USGS Background Concentration	
	Maximum Value (ppm)	Detection Limit (ppm)	Range (ppm)
Aluminum	18,000	50	3,800-89,000
Arsenic	4.6	0.1	0.6-21
Barium	4,000	1	47-6,400
Beryllium	1.8	1	<1-3
Cadmium	1.4	2	<2
Chromium	35	1	5-110
Copper	19	1	<1-59
Iron	21,000	50	1,800-58,000
Lead	9.9	4	<4-27
Nickel	27	2	<2-61
Zinc	29	2	3-79

6.0 Potential Receptors

A specific potential human and ecological receptor search has not been performed for the ODA. Data are available in the form of chemical analysis of soils; current and future uses of these media; and ecological and demographic information necessary to initiate a potential receptors search. The following sections describe the data available to begin identification of potential receptors.

6.1 Human Receptors

Tinker AFB is situated on a relatively flat expanse of grassland. Prior to the development of the Base, the area was characterized by large tracts of agricultural land. The Base currently occupies approximately 5,000 acres of semi-improved and unimproved grounds that are used for the airfield, golf course, housing area, offices, shops, and other uses characteristic of military installations.

The Garber-Wellington aquifer, which underlies Tinker AFB, is the single most important source of potable groundwater in the Oklahoma City area. The recharge area for the Garber-Wellington aquifer covers the eastern half of Oklahoma County, including Tinker AFB. Approximately 75 percent of the Base's water supply is obtained from production wells pumping from this aquifer. Industrial operations, individual homes, farm irrigation, and small communities not served by municipal distribution systems also depend on the Garber-Wellington aquifer. Communities, such as Oklahoma City, presently depending upon surface water supplies also maintain a well system drilled into this aquifer as a standby source of water in the event of drought. Lake Stanley Draper, a local surface water supply reservoir with a small portion of its drainage basin within the boundaries of Tinker AFB, serves a significant recreational function as well.

In 1989, approximately 26,000 military and civilian personnel worked at Tinker AFB. Of these, approximately 2,722 personnel occupied on-Base housing, which consisted of 530 family housing units and seven dormitories. At that time, 1,262 of these residents were children. Military personnel and their families who reside on Base represent the nearest receptors to releases from Tinker AFB.

The current land use at and near the Base is not expected to change because the facilities have decades of useful life remaining and the Base has an important and continuing mission.

However, other future land use scenarios and any human receptors associated with those scenarios may need to be considered.

6.2 Ecological Receptors

Tinker AFB lies within a grassland ecosystem, which is typically composed of grasses, forbes, and riparian (i.e., trees, shrubs, and vines associated with water courses) vegetation. This ecosystem has generally experienced fragmentation and disturbances as result of urbanization and industrialization at and near the Base. While no threatened or endangered plant species occur on the Base, the Oklahoma penstemon (*Penstemon oklahomensis*), identified as a rare plant under the Oklahoma Natural Heritage Inventory Program, thrives in several locations on Base. Tinker AFB policy considers rare species as if they were threatened or endangered and provides the same level of protection for these species.

Wildlife on the Base are generally those typically tolerant of human activities and urban environments. No federal threatened or endangered species have been reported at the Base. However, one specie found on the Base, the Texas horned lizard (*Phrynosoma cornutum*), is a Federal Category 2 candidate specie and under review for consideration to be listed as threatened or endangered. Air Force policy (AFR 126-1) considers candidate species as threatened or endangered and provides the same level of protection.

The Oklahoma Department of Wildlife Conservation also lists several species within the state as Species of Special Concern. Information on these species suggests declining populations but information is inadequate to support listing, and additional monitoring of populations is needed to determine the species status. These species also receive protection by Tinker AFB as threatened or endangered species. Of these species, the Swainson's hawk (*Buteo swainsoni*) and the burrowing owl (*Athene cunicularia*) have been sighted on Tinker AFB. The Swainson hawk, a summer visitor and prairie/meadow inhabitant, has been encountered Basewide. The burrowing owl has been known to inhabit the Air Field at the Base.

7.0 Action Levels

An "action level" is defined by EPA in proposed rule 40 CFR 264.521 (55 FR 30798; 7/27/90), "Corrective Action for Solid Waste Management Units (SWMU) at Hazardous Waste Management Facilities," as a health- and environment-based level, determined by EPA to be an indicator for protection of human health and the environment. In the preamble to this proposed rule, the focus of the RFI phase is defined as "characterizing the actual environmental problems at the facilities." As part of this characterization, a comparison of the contaminant concentrations to certain action levels should be made to determine if a significant release of hazardous constituents has occurred. This comparison is then used to determine if further action or corrective measures are required for a SWMU or an AOC. The preamble to the proposed rule states that the concept of action levels was introduced because of the need for "a trigger that will indicate the need for a Corrective Measures Study (CMS) and below which a CMS would not ordinarily be required" (55 FR 30798; 7/27/90). If constituent concentrations exceed certain action levels at a SWMU or an AOC, further action or a CMS may be warranted; if constituent concentrations are below action levels, a finding of no further action may be warranted. This chapter of the report presents the initial analytical data as compared to certain potential action levels.

Action levels are concentrations of contaminants at or below which exposure to humans or the environment should not produce acute or chronic effects.

The action level information is presented in this chapter so that a constituent concentration at a sample location can be compared with its potential action level. Only constituents identified in the analysis are listed in the SWMU-26, ODA table. Table 7-1 shows the action levels for soil, as published in federal or state regulations, policies, guidance documents, or proposed rules.

The action levels listed in Table 7-1 are:

- ***SWMU Corrective Action Levels*** - The first set of action levels provided in the table are those taken from the proposed rule (40 CFR 264.521) and provided as Appendix A to the rule as "Examples of Concentrations Meeting Criteria for

Table 7-1

Action Levels
SWMU-26, ODA, Tinker AFB

Parameters	SWMU CAL[a] Soil (mg/kg)	USGS[b] Background Soil (mg/kg)	SB-010 1.5 - 11.5 ft Range (mg/kg)	SB-011 1 - 13.3 ft Range (mg/kg)	SB-012 2.5 - 12.5 ft Range (mg/kg)	SB-013 1 - 11 ft Range (mg/kg)	SB-014 2.5 - 11.3 ft Range (mg/kg)
Aluminum		89,000	4500-11000	6500-18000	3900-16000	6000-16000	3200-9200
Arsenic	80	21	1.2-2.8	2.2	2.9-4.6	1.8-4.3	1.2-4.5
Barium	4000	6400	21-390	200-4000	76-160	50-530	28-1700
Beryllium	0.2	3	0.51-0.95	0.62-1.2	0.72-0.77	0.67-0.94	0.72-1.8
Cadmium	40	<2	0.6	1.0	.87-1.3	1.4	0.59
Chromium		110	7.8-17	16-22	8.4-27	9.2-35	12-20
Copper		59	2.3-6.7	4.8-19	3.6-6.4	3.2-7.2	3-3.9
Iron		58,000	6500-13000	8900-14000	8200-16000	7000-21000	6300-13000
Lead		27	1.8-8.1	2.3-6.3	2.7-9.9	2.0-6.6	1.2-3.9
Nickel	2000	61	7.5-10	8.9-27	8.2-19	10-14	7.5-14
Zinc		79	10-15	13-29	9.9-22	12-19	9-15

[a]CAL - Corrective Action Levels.
[b]USGS - United States Geological Survey.

Action Levels." These levels are health-risk based and are provided as specific examples of levels below which corrective action would not be required.

- ***USGS Background*** - These values are provided from the USGS report titled "Elemental Composition of Surficial Materials from Central Oklahoma" (USGS, 1991). These values represent the levels of metals which naturally occur in central Oklahoma soils.

Table 7-1 also gives a brief comparative evaluation of the data collected and the related action levels. The data for each detected compound are compared with the appropriate action level in order to identify those constituents (compounds) with concentrations exceeding the action levels. This identification of the compounds above the action levels provides an indication of a potential environmental problem at a specific site. In addition, this information indicates whether there is a need for conducting a CMS so that a corrective action can be implemented/undertaken at the site.

The data included in Table 7-1 are representative of the data presented in Chapter 5.0. For each soil boring, a range was identified and used in the comparison to the action levels.

Barium was detected at the SWMU CAL for barium in soil (4,000 mg/kg) and beryllium was detected at levels above the SWMU CAL for beryllium in soil (0.2 mg/kg). The concentrations of both metals, however, were well within the ranges of barium and beryllium found in background soils as reported by the USGS. These metals naturally occur at higher concentrations in the central Oklahoma region. There are no constituents of concern in the soils.

8.0 Summary and Conclusions

8.1 Summary

A Phase I RFI was conducted at ODA to determine the presence or absence of contamination, which may have resulted from a release from past burning operations at the ODA.

During the RFI performed at the ODA, a total of 16 soil samples were collected from the five soil borings placed at the site. The placement of these borings was based on the interpretation of the field magnetometer and electromagnetic survey of the site. The borings were visually logged and the soil samples were submitted to the laboratory for chemical analysis. The analysis included VOCs and SVOCs, and metals (aluminum, arsenic, barium, beryllium, cadmium, chromium VI, copper, iron, lead, mercury, nickel, silver, and zinc). Four borings (SB-011 through SB-014) were then placed within the interpreted boundaries of the burn pit to determine whether the soils had been impacted, and one boring, SB-010, was placed northeast of the presumed pit to provide background data on soil conditions.

No organic compounds were detected in the soils. Barium and beryllium were detected at and above their respective SWMU CAL for soil but their concentrations were well within the background ranges reported by the USGS. There are no constituents of concern in the soils.

8.2 Conclusions

Because no organic or inorganic constituents of concern are present in the soils at the ODA, previous activities at the ODA have not impacted the soils.

9.0 Recommendations for Additional Work

Based on the conclusions of the RFI conducted at the ODA, no further actions are recommended for the site.

10.0 References

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Tinker AFB, 1992, ***Description of Current Conditions, Tinker AFB, Oklahoma,*** December 1992.

U.S. Bureau of Reclamation, 5005-86, "Procedure for Determining Unified Soil Classification (Visual Method)."

U.S. Department of Agriculture (USDA), 1969, ***Soil Survey of Oklahoma City, Oklahoma,*** U.S. Department of Agriculture Soil Conservation Survey.

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Wickersham, G., 1979, ***Groundwater Resources of the Southern Part of the Garber-Wellington Groundwater Basin in Cleveland and Southern Oklahoma Counties and Parts of Pottawatomie County, Oklahoma,*** Oklahoma Water Resources Board, Hydrologic Investigations Publication 86.

Wood, P. R. and L. C. Burton, 1968, ***Ground-Water Resources: Cleveland and Oklahoma Counties,*** Oklahoma Geological Survey, Circular 71, Norman, Oklahoma, 75 p.

APPENDIX A

BORING LOGS

Client: TINKER AFB
Project Name: TINKER 5001

Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

SOIL BORING SB-010

DRILLING AND SAMPLING INFORMATION

Boring Location: ORDNANCE DISPOSAL AREA
SURFACE ELEV.(FT): 1311.318
TOTAL DEPTH(FT.): 13.5

Logged By: A. GORDON
Date Started: 11/29/93

Drilled By: P. GUERREIN
GEOTECHNOLOGY, INC.
Date Completed: 11/29/93

Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER

Sampling Method: 3" x 5' CONTINUOUS TUBE SAMPLER

Notes: N 146515.850, E 2185941.209

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	FID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY CLAY – slightly plastic; stiff (harder with depth); slightly moist; dusky red (2.5YR-3/3); organic appearance; roots – hard; trace of moisture; dark red (10YR-4/8); less organic appearance	A 1134	42 / 42	0.5	cl		
SILTSTONE – 30% fine grained sand; compact; dry; red (2.5YR-5/8); weakly laminated; gradational contact	A 1135	60 / 60	0.5	ml		5
SILT – nonplastic; hard to firm; trace of moisture; pale yellow (5Y-7/3); sharp contact; chalky texture		36		ml		
CLAYEY SILTSTONE – nonplastic; approximately 10% fine grained sand; very hard; dry; dark red (2.5YR-4/8); well cemented; weakly laminated to massive;	A 1136	36	1.0	ml		10
TOTAL DEPTH = 13.5 FEET						15
						20
						25
						30
						35
						40

DRAFT BY	RPS 12/10/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A38 Sheet 1 of 1

Client: TINKER AFB
Project Name: TINKER 5001

Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

SOIL BORING SB-011

DRILLING AND SAMPLING INFORMATION

Boring Location: ORDNANCE DISPOSAL AREA
SURFACE ELEV.(FT): 1310.433
TOTAL DEPTH(FT.): 17.5
Logged By: A. GORDON
Date Started: 11/30/93
Drilled By: P. GUERREIN
GEOTECHNOLOGY, INC.
Date Completed: 11/30/93
Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER

Sampling Method: 3"x 5' CONTINUOUS TUBE SAMPLER AND
1-1/2"ID x 2' SPLIT SPOON SAMPLER
Notes: N 146421.474, E 2185927.396

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	FID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SANDY SILT - slightly plastic; 20% fine grained sand; stiff; compact; trace of moisture; dark reddish brown (5YR-3/2); organic carbon rich - gradational color change at 0.7' to dusky red (2.5YR-4/4)	A 1142	12 / 12 36	1	ml		
SILTY CLAY - nonplastic; hard; dry; dark red (2.5YR-4/6); dark iron-rich nodules - 40% fines, 60% fine grained sand; interbeds of silty sand; firm; hard; moderately cemented; slightly moist; pale yellowish green (2.5Y-7/3) - 35% silt and fines, 65% sand; trace of moisture; dark red (2.5YR-4/6); dark iron-rich oxidized staining - clasts of well cemented sandstone in cuttings; hard drilling, switched to center bit		36		cl-sm		5
SANDSTONE - 10% clay interbeds, 90% sand; well cemented; hard; dry; red (10R-4/6)	A 1143	12 / 12	2	sp-sc		10
SILTY SANDSTONE - 70% sand; hard; firm; slightly moist; red (10R-4/6); moderately cemented - moist	A 1144	60 60		sm		15
TOTAL DEPTH = 17.5 FEET						20 25 30 35 40

DRAFT BY	RPS 12/10/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A39 Sheet 1 of 1

Client: TINKER AFB
Project Name: TINKER 5001

Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

SOIL BORING SB-012

DRILLING AND SAMPLING INFORMATION

Boring Location: ORDNANCE DISPOSAL AREA
SURFACE ELEV.(FT): 1310.473
TOTAL DEPTH(FT.): 13

Logged By: A. GORDON
Date Started: 11/30/93

Drilled By: P. GUERREIN
GEOTECHNOLOGY, INC.
Date Completed: 11/30/93

Drill Rig Type: CME-75

Drilling Method: 8" HOLLOW STEM AUGER

Sampling Method: 3"x 5' CONTINUOUS TUBE SAMPLER

Notes: N 146439.390, E 2185919.358

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID,PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAYEY SILT – nonplastic; stiff; trace of moisture; dark brown (7.5YR-3/3); gradational contact		36		ml		
SANDY SILTY CLAY – nonplastic; 15% fine grained sand; hard; dry; dark red (2.5YR-4/6); massive gradational contacts	A 1138	36	1			
	A 1139	60		cl		5
– harder; more cemented with depth	A 1140	60 / 60	1			
– mottling of clayey siltstone; firm and very hard; light olive gray (5Y-6/2); sharp contacts				cl-ml		10
SILTY SAND – nonplastic; 25% silt, fine grained sand; hard; compact; friable; slightly moist; dark red (2.5YR-4/8); weak laminations; poorly cemented – harder; drier	A 1141	60	2.5	sm		
TOTAL DEPTH = 13.0 FEET						15, 20, 25, 30, 35, 40

DRAFT BY	RPS 12/13/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A40 Sheet 1 of 1

Client: TINKER AFB
Project Name: TINKER 5001

Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

SOIL BORING SB-013

DRILLING AND SAMPLING INFORMATION

Boring Location: ORDNANCE DISPOSAL AREA
SURFACE ELEV.(FT): 1310.171
TOTAL DEPTH(FT.): 11.3

Logged By: A. GORDON
Date Started: 11/30/93

Drilled By: P. GUERREIN
GEOTECHNOLOGY, INC.
Date Completed: 11/30/93

Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER

Sampling Method: 3"x 5' CONTINUOUS TUBE SAMPLER

Notes: N 146386.651, E 2185952.828

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID,PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SANDY CLAY – slightly plastic; 20% sand; stiff; compact; slightly moist; dusky red (2.5YR-3/3); roots	A 1145	12 / 12	0	cl		
– 15% sand; very hard; trace of moisture; dark red (2.5YR-4/8)		54				
SILTY SAND – 5% silt, fine grained sand; hard; compact; poorly cemented; friable; dry; dark red (2.5YR-4/8); weakly laminated				sm		
SILTY SANDY CLAYSTONE – nonplastic; 20% sand; very hard; dense; well indurated; trace of moisture; dark red (2.5YR-4/8); blocky; no lamination	A 1146	54	0	cl-sm		5
– <20% silt, fine grained sand; firm; well cemented; dry; pale yellowish green (2.5Y-7/3); accounts for 20% of sample		60		cl		
SANDY SILTY CLAY – nonplastic; 10% fine grained sand, 40% silt; very hard; moderately cemented; trace of moisture; dark red (2.5YR-4/8); massive; blocky	A 1147	60	13			10
TOTAL DEPTH = 11.3 FEET						15
						20
						25
						30
						35
						40

DRAFT BY	RPS 12/13/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A41 Sheet 1 of 1

Client: TINKER AFB
Project Name: TINKER 5001

Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

SOIL BORING SB-014

DRILLING AND SAMPLING INFORMATION

Boring Location: ORDNANCE DISPOSAL AREA
SURFACE ELEV.(FT): 1311.061
TOTAL DEPTH(FT.): 11.3

Logged By: A. GORDON
Date Started: 12/1/93

Drilled By: P. GUERREIN
GEOTECHNOLOGY, INC.
Date Completed: 12/1/93

Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER

Sampling Method: 3"x 5' CONTINUOUS TUBE SAMPLER

Notes: N146418.665, E 2185980.834

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SANDY SILTY CLAY – nonplastic; 30% fine grained sand, 70% fines; stiff; compact; trace of moisture dark reddish brown (5YR-3/3); crumbly; organic roots		12 / 12		cl		
SILTY SANDY CLAY – slightly plastic; 20% fine grained sand; hard; compact; trace of moisture; dusky red (2.5YR-3/4); redder with depth; massive; blocky – dusky red (2.5YR-4/4) – dark red (2.5YR-4/6)	A 1161	60	0	cl		
SILTY SAND – nonplastic; 20% clay and silt; firm; hard; dry; friable; dark red (2.5YR-4/8); some fissile layers; harder with depth – well cemented sandstone; (switch to floating center plug)	A 1162	60	0	sm sm-sp		5
SILTY CLAY – nonplastic; very hard; moist in fractures; dark red (2.5YR-4/8); massive; blocky; (switch to continuous tube sampler)		42		cl		
CLAYEY SILTY SANDSTONE – 65% fine grained sand; firm; very hard; trace of moisture; dark red (2.5YR-4/8) with silty sand mottling – 20% silt, 20% fine grained sand; moderately well cemented; dry; pale yellowish green (2.5Y-7/3); accounts for 20% of section – pale yellow (2.5YR-4/8); less mottling	A 1163	42	0.1	sm sm		10
TOTAL DEPTH = 11.3 FEET						15 20 25 30 35 40

DRAFT BY	RPS 12/15/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A42 Sheet 1 of 1

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06/11/91

Department of the Air Force
OC-ALC/EMC
Engineering Building
Tinker AFB, OK 73145
Attention: Dan Luton

Sample Identification: GM910214 Pond 976
Collected By: GM
Date & Time Taken: 05/30/91 1230

Lab Sample Number: 188082 **Received:** 05/31/91 Client: TAFB

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Flash Point	> 212	Degrees F	1300	06/04/91	EPA Method 1010	DG
Surfactants	.72	mg/l	1100	06/07/91	EPA Method 425.1	GS
Aluminum	.05	mg/l	1645	06/04/91	EPA Metod 200.7	GK
Cadmium	<.01	mg/l	1430	06/04/91	EPA Method 200.7	GK
Chromium	<.02	mg/l	1430	06/04/91	EPA Method 200.7	GK
Copper	.02	mg/l	1430	06/04/91	EPA Method 200.7	GK
Nickel	<.05	mg/l	1430	06/04/91	EPA Method 200.7	GK
Lead	<.1	mg/l	1430	06/04/91	EPA Method 200.7	GK
Zinc	.01	mg/l	1430	06/04/91	EPA Method 200.7	GK
Acrolein	ND(100)	ug/l	1019	06/06/91	EPA Method 624	PM
Acrylonitrile	ND(100)	ug/l	1019	06/06/91	EPA Method 624	PM
Benzene	ND(4.4)	ug/l	1019	06/06/91	EPA Method 624	PM
Bromoform	ND(4.7)	ug/l	1019	06/06/91	EPA Method 624	PM
Bromomethane	ND(10)	ug/l	1019	06/06/91	EPA Method 624	PM
Carbon Tetrachloride	ND(2.8)	ug/l	1019	06/06/91	EPA Method 624	PM
Chlorobenzene	ND(6.0)	ug/l	1019	06/06/91	EPA Method 624	PM
loroethane	ND(10)	ug/l	1019	06/06/91	EPA Method 624	PM

Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
2-Chloroethylvinyl ether	ND(10)	ug/l	1019	06/06/91	EPA Method 624	PM
Chloroform	ND(1.6)	ug/l	1019	06/06/91	EPA Method 624	PM
Chloromethane	ND(10)	ug/l	1019	06/06/91	EPA Method 624	PM
Dibromochloromethane	ND(3.1)	ug/l	1019	06/06/91	EPA Method 624	PM
Bromodichloromethane	ND(2.2)	ug/l	1019	06/06/91	EPA Method 624	PM
1,1-Dichloroethane	ND(4.7)	ug/l	1019	06/06/91	EPA Method 8240	PM
1,2-Dichloroethane	ND(2.8)	ug/l	1019	06/06/91	EPA Method 624	PM
1,1-Dichloroethene	ND(2.8)	ug/l	1019	06/06/91	EPA Method 624	PM
ans-1,2-Dichloroethene	ND(1.6)	ug/l	1019	06/06/91	EPA Method 624	PM
Dichlorodiflouromethane	ND(5.0)	ug/l	1019	06/06/91	EPA Method 624	PM
1,2-Dichloropropane	ND(6.0)	ug/l	1019	06/06/91	EPA Method 624	PM
cis-1,3-Dichloropropene	ND(5.0)	ug/l	1019	06/06/91	EPA Method 624	PM
Ethyl benzene	ND(7.2)	ug/l	1019	06/06/91	EPA Method 624	PM
Methylene Chloride	ND(2.8)	ug/l	1019	06/06/91	EPA Method 624	PM
1,1,2,2-Tetrachloroethane	ND(6.9)	ug/l	1019	06/06/91	EPA Method 624	PM
Tetrachloroethene	ND(4.1)	ug/l	1019	06/06/91	EPA Method 624	PM
Toluene	ND(6.0)	ug/l	1019	06/06/91	EPA Method 624	PM
1,1,1-Trichloroethane	ND(3.8)	ug/l	1019	06/06/91	EPA Method 8240	PM
1,1,2-Trichloroethane	ND(5.0)	ug/l	1019	06/06/91	EPA Method 624	PM
Trichloroethene	ND(1.9)	ug/l	1019	06/06/91	EPA Method 624	PM
Trichlorofluoromethane	ND(10)	ug/l	1019	06/06/91	EPA Method 624	PM

Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Vinyl Chloride	ND(10)	ug/l	1019	06/06/91	EPA Method 624	PM
trans-1,3-Dichloropropene	ND(10)	ug/l	1019	06/06/91	EPA Method 624	PM
Oil & Grease	3	mg/l	0600	06/03/91	EPA Method 413.1	BTW

Quality Assurance for the SET with Sample 188082

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
				Flash Point					
	Standard	81	Degrees F	81		100	1300	06/04/91	DG
187910	Duplicate	173	Degrees F	167		104	1300	06/04/91	DG
				Surfactants					
187682	Duplicate	.72	mg/l	.72		100	1100	06/07/91	GS
188082	Duplicate	.72	mg/l	.72		100	1100	06/07/91	GS
187682	Spike		mg/l		.5	90	1100	06/07/91	GS
188082	Spike		mg/l		.5	90	1100	06/07/91	GS
				Aluminum					
	Blank	<.03	mg/l				1645	06/04/91	GK
	Blank	<.05	mg/l				1645	06/04/91	GK
	Standard	1.0	mg/l	1.0		100	1645	06/04/91	GK
	Standard	5.1	mg/l	5.0		102	1645	06/04/91	GK
188082	Duplicate	.05	mg/l	.05		100	1645	06/04/91	GK
187825	Duplicate	19	mg/l	18		105	1645	06/04/91	GK
188082	Spike		mg/l		2.0	103	1645	06/04/91	GK
				Cadmium					
	Blank	<.005	mg/l				1430	06/04/91	GK
	Blank	<.01	mg/l				1430	06/04/91	GK
	Standard	.52	mg/l	.50		104	1430	06/04/91	GK
	Standard	2.6	mg/l	2.5		104	1430	06/04/91	GK
188147	Duplicate	<.005	mg/l	<.005		100	1430	06/04/91	GK
188082	Duplicate	<.01	mg/l	<.01		100	1430	06/04/91	GK
188147	Spike		mg/l		2.0	94	1430	06/04/91	GK
188082	Spike		mg/l		2.0	103	1430	06/04/91	GK
				Chromium					
	Blank	<.01	mg/l				1430	06/04/91	GK
	Blank	<.02	mg/l				1430	06/04/91	GK
	Standard	1.0	mg/l	1.0		100	1430	06/04/91	GK
	Standard	5.2	mg/l	5.0		104	1430	06/04/91	GK
188147	Duplicate	.15	mg/l	.17		113	1430	06/04/91	GK

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Quality Assurance for the SET with Sample 188082

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
188082	Duplicate	<.02	mg/l	<.02		100	1430	06/04/91	GK
188147	Spike		mg/l		2.0	96	1430	06/04/91	GK
188082	Spike		mg/l		2.0	105	1430	06/04/91	GK
				Copper					
	Blank	<.01	mg/l				1430	06/04/91	GK
	Blank	<.2	mg/kg				1430	06/04/91	GK
	Standard	1.0	mg/l	1.0		100	1430	06/04/91	GK
	Standard	5.2	mg/l	5.0		104	1430	06/04/91	GK
188147	Duplicate	<.01	mg/l	<.01		100	1430	06/04/91	GK
187673	Duplicate	70	mg/kg	64		109	1430	06/04/91	GK
188082	Duplicate	.01	mg/l	.02		167	1430	06/04/91	GK
188147	Spike		mg/l		2.0	95	1430	06/04/91	GK
188082	Spike		mg/l		2.0	106	1430	06/04/91	GK
				Nickel					
	Blank	<.02	mg/l				1430	06/04/91	GK
	Blank	<.05	mg/l				1430	06/04/91	GK
	Standard	1.0	mg/l	1.0		100	1430	06/04/91	GK
	Standard	5.2	mg/l	5.0		104	1430	06/04/91	GK
188147	Duplicate	<.02	mg/l	<.02		100	1430	06/04/91	GK
188082	Duplicate	<.05	mg/l	<.05		100	1430	06/04/91	GK
188147	Spike		mg/l		2.0	93	1430	06/04/91	GK
188082	Spike		mg/l		2.0	107	1430	06/04/91	GK
				Lead					
	Blank	<.05	mg/l				1430	06/04/91	GK
	Blank	<.1	mg/l				1430	06/04/91	GK
	Standard	1.0	mg/l	1.0		100	1430	06/04/91	GK
	Standard	5.2	mg/l	5.0		104	1430	06/04/91	GK
188147	Duplicate	<.05	mg/l	<.05		100	1430	06/04/91	GK
188082	Duplicate	<.1	mg/l	<.1		100	1430	06/04/91	GK
188082	Spike		mg/l		4.0	107	1430	06/04/91	GK
188147	Spike		mg/l		2.0	88	1430	06/04/91	GK
				Zinc					
	Blank	.007	mg/l				1430	06/04/91	GK
	Blank	<.2	mg/kg				1430	06/04/91	GK
	Blank	<.01	mg/l				1430	06/04/91	GK
	Standard	1.0	mg/l	1.0		100	1430	06/04/91	GK
	Standard	5.2	mg/l	5.0		104	1430	06/04/91	GK
188147	Duplicate	.038	mg/l	.036		105	1430	06/04/91	GK
187673	Duplicate	42	mg/kg	42		100	1430	06/04/91	GK
188082	Duplicate	.01	mg/l	.01		100	1430	06/04/91	GK
188147	Spike		mg/l		2.0	94	1430	06/04/91	GK
188082	Spike		mg/l		2.0	105	1430	06/04/91	GK
				Oil & Grease					
	Blank	.0000	gms				0600	06/03/91	BTW

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Quality Assurance for the SET with Sample 190427

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	85		100		116	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				99	99	0800	07/05/91	KB
				Ethyl benzene					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	102		100		102	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				75	75	0800	07/05/91	KB
				Toluene					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	95		100		105	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				76	76	0800	07/05/91	KB
				Xylenes					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	107		100		107	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				76	76	0800	07/05/91	KB

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside

C. H. Whiteside, Ph.D., President

SAMPLE COLLECTED AFTER AFF DISCHARGE INTO HOLDING POND.

ENVIRONMENTAL SAMPLING DATA

OEHL USE ONLY

(Use this space for mechanical imprint)

SAMPLING SITE IDENTIFIER (AFR 19-7): 0188

BASE WHERE SAMPLE COLLECTED: TAFB

SAMPLING SITE DESCRIPTION: AFFF POND 976

DATE COLLECTION BEGAN (YYMMDD): 910530

TIME COLLECTION BEGAN (24 hour clock): 1230

COLLECTION METHOD: ☒ GRAB ☐ COMPOSITE _____ HOURS

MAIL REPORTS TO (circle if changed)

ORIGINAL	0188	OC-ALC/EML
COPY 1		
COPY 2		

SAMPLE COLLECTED BY (Name, Grade, AFSC): G. MOWAD

SIGNATURE: G Mowad

AUTOVON:

REASON FOR SUBMISSION: E A

A-ACCIDENT/INCIDENT
R-ROUTINE/PERIODIC
C-COMPLAINT
N-NPDES
F-FOLLOWUP/CLEANUP
O-OTHER (specify) _____

BASE SAMPLE NUMBER: GM 91 0214

OEHL PID:

ANALYSES REQUESTED (Check appropriate blocks)

		GROUP A		Hardness	00900		Silica	00955		2, 4, 5-T	39740
	Ammonia	00610		Iron	01045		Specific Conductance	00095		2, 4, 5-TP-Silvex	39760
	Chemical Oxygen Demand	00340	X	Lead	01051		Sulfate	00945			
	Kjeldahl Nitrogen	00625		Magnesium	00927	X	Surfactans-MBAS	38260			
	Nitrate	00620		Manganese	01055		Turbidity	00076			
	Nitrite	00615		Mercury	71900				X	624 SERIES	
X	Oil & Grease	00560	X	Nickel	01067						
	Organic Carbon	00680		Potassium	00937				X	Flash Point	
	Orthophosphate	00671		Selenium	01147			GROUP H			
	Phosphorus, Total	00665		Silver	01077		Aldrin	39330			
				Sodium	00929		BHC Isomers	39340			
		GROUP D		Thallium	01059		a-BHC	39337			
	Cyanide, Total	00720	X	Zinc	01092		b-BHC	39338			
	Cyanide, Free	00722	X	Aluminum			d-BHC	34259			
							Chlordane	39350			GROUP J
		GROUP E			GROUP G		DDT Isomers	39370		Sulfides	00745
	Phenols	32730		Acidity, Total	70508		p, p-DDD	39310			
				Alkalinity, Total	00410		p, p-DDE	39320			
		GROUP F		Alkalinity, Bicarbonate	00425		p, p-DDT	39300			
	Antimony	01097		Bromide	71870		Dieldrin	39380		ON SITE ANALYSES	
	Arsenic	01002		Carbon Dioxide	00405		Dursban	77969		PARAMETER	VALUE
	Barium	01007		Chloride	00940		Endrin	39390		Flow 50050	mgd
	Beryllium	01012		Color	00080		Heptachlor	39410		Chlorine, Total 50060	mg/l
	Boron	01022		Fluoride	00951		Heptachlor Epoxide	39420		Dissolved Oxygen 00300	mg/l
X	Cadmium	01027		Residue, Total	00500		Lindane	39782		pH 00400	units
	Calcium	00916		Residue, Filterable (TDS)	70300		Methoxychlor	39480		Temperature 00010	°C
	Chromium, Total	01034		Residue, Nonfilterable	00530		Pramitol (Pramaton)	XY4200000		Odor 00086	
	Chromium VI	01032		Residue, Settleable	50085		Toxaphene	39400		Iodide 71865	
X	Copper	01042		Residue, Volatile	00505		2, 4-D	39730		Sulfite 00740	

REMARKS

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 188082

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	1005	mg/l	1000		100	0600	06/03/91	BTW
187857	Duplicate	6	mg/l	6		100	0600	06/03/91	BTW
187857	Duplicate	6	mg/l	6		100	0600	06/03/91	BTW

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside, Ph.D., President

SB-001

ENVIRONMENTAL SAMPLING DATA

(Use this space for mechanical imprint)

190426 (SB-001)

OEHL USE ONLY

SAMPLING SITE IDENTIFIER (AFR 19-7): 0188

BASE WHERE SAMPLE COLLECTED: TAFB

SAMPLING SITE DESCRIPTION: AFFF POND N. W.

DATE COLLECTION BEGAN (YYMMDD): 911 10 7 10R

TIME COLLECTION BEGAN (24 hour clock): 1140

COLLECTION METHOD: ☐ GRAB ☐ COMPOSITE _____ HOURS

MAIL REPORTS TO (circle if changed)

ORIGINAL	0188
COPY 1	
COPY 2	

SAMPLE COLLECTED BY (Name, Grade, AFSC): G. MOWAD

SIGNATURE: G Mowad

AUTOVON:

REASON FOR SUBMISSION: E

A-ACCIDENT/INCIDENT
R-ROUTINE/PERIODIC
C-COMPLAINT
N-NPDES
F-FOLLOWUP/CLEANUP
O-OTHER (specify) _____

BASE SAMPLE NUMBER: GM 91 0256

OEHL PID:

ANALYSES REQUESTED (Check appropriate blocks)

		GROUP A		Hardness	00900		Silica	00955		2, 4, 5-T	39740
	Ammonia	00610		Iron	01045		Specific Conductance	00095		2, 4, 5-TP-Silvex	39760
	Chemical Oxygen Demand	00340	X	Lead	01051		Sulfate	00945			
	Kjeldahl Nitrogen	00625		Magnesium	00927		Surfactants-MBAS	38260			
	Nitrate	00620		Manganese	01055		Turbidity	00076			
	Nitrite	00615		Mercury	71900				X	TPH	
	Oil & Grease	00560	X	Nickel	01067						
	Organic Carbon	00680		Potassium	00937				X	BTEX	
	Orthophosphate	00671		Selenium	01147			GROUP H			
	Phosphorus, Total	00665		Silver	01077		Aldrin	39330			
				Sodium	00929		BHC Isomers	39340			
		GROUP D		Thallium	01059		a-BHC	39337			
	Cyanide, Total	00720	X	Zinc	01092		b-BHC	39338			
	Cyanide, Free	00722					d-BHC	34259			
							Chlordane	39350			GROUP J
		GROUP E			GROUP G		DDT Isomers	39370		Sulfides	00745
	Phenols	32730		Acidity, Total	70508		p, p-DDD	39310			
				Alkalinity, Total	00410		p, p-DDE	39320			
		GROUP F		Alkalinity, Bicarbonate	00425		p, p-DDT	39300			
	Antimony	01097		Bromide	71870		Dieldrin	39380		ON SITE ANALYSES	
	Arsenic	01002		Carbon Dioxide	00405		Dursban	77969		PARAMETER	VALUE
	Barium	01007		Chloride	00940		Endrin	39390		Flow 50050	mgd
	Beryllium	01012		Color	00080		Heptachlor	39410		Chlorine, Total 50060	mg/l
	Boron	01022		Fluoride	00951		Heptachlor Epoxide	39420		Dissolved Oxygen 00300	mg/l
X	Cadmium	01027		Residue, Total	00500		Lindane	39782		pH 00400	units
	Calcium	00916		Residue, Filterable (TDS)	70300		Methoxychlor	39480		Temperature 00010	°C
	Chromium, Total	01034		Residue, Nonfilterable	00530		Pramitol (Pramaton)	XY4200000		Odor 00086	
	Chromium VI	01032		Residue, Settleable	50085		Toxaphene	39400		Iodide 71865	
X	Copper	01042		Residue, Volatile	00505		2, 4-D	39730		Sulfite 00740	

REMARKS

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

07/09/91

Department of the Air Force
OC-ALC/EMC
Engineering Building
Tinker AFB, OK 73145
Attention: Dan Luton

Sample Identification: GM910256
Collected By: GM/MP
Date & Time Taken: 07/02/91 1140
On Site Data: AFFF Pond N.W.

Lab Sample Number: 190426 **Received:** 07/03/91 **Client:** TAFB

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Hydrocarbons	<5	mg/kg	1200	07/05/91	EPA Method 418.1	BW
Hydrocarbon Sonication Extract.	Completed		1200	07/05/91	EPA Method 3550 *MOD	SK
Cadmium	1.2	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Chromium	22	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Copper	12	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Nickel	18	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Lead	10	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Zinc	34	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Benzene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Ethyl benzene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Toluene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Xylenes	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB

Quality Assurance for the SET with Sample 190426

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Hydrocarbons								
	Standard	55	mg/kg	50		110	1200	07/05/91	BW
	Standard	55	mg/kg	50		110	1200	07/05/91	BW

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Analytical Chemistry • Utility Operations

Quality Assurance for the SET with Sample 190426

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
190370	Duplicate	150	mg/kg	160		106	1200	07/05/91	BW
190427	Duplicate	7	mg/kg	7		100	1200	07/05/91	BW
				Cadmium					
	Blank	<.1	mg/kg				0800	07/08/91	GDG
	Standard	.54	mg/kg	.50		108	0800	07/08/91	GDG
	Standard	2.6	mg/kg	2.5		104	0800	07/08/91	GDG
	Standard	4.9	mg/kg	5.0		102	0800	07/08/91	GDG
190424	Duplicate	1.0	mg/kg	1.1		110	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	100	0800	07/08/91	GDG
				Chromium					
	Blank	<.2	mg/kg				0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	10	mg/kg	10		100	0800	07/08/91	GDG
190424	Duplicate	19	mg/kg	20		105	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	95	0800	07/08/91	GDG
				Copper					
	Blank	<.2	mg/kg				0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	9.8	mg/kg	10		102	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	101	0800	07/08/91	GDG
				Nickel					
	Blank	<.6	mg/kg				0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	1.1	mg/kg	1.0		110	0800	07/08/91	GDG
	Standard	5.1	mg/kg	5.0		102	0800	07/08/91	GDG
190424	Duplicate	17	mg/kg	18		106	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	100	0800	07/08/91	GDG
				Lead					
	Blank	<1	mg/kg				0800	07/08/91	GDG
	Standard	9.8	mg/kg	10		102	0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	10	mg/kg	10		100	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	90	0800	07/08/91	GDG
				Zinc					
	Blank	<.1	mg/kg				0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	1.1	mg/kg	1.0		110	0800	07/08/91	GDG
	Standard	5.3	mg/kg	5.0		106	0800	07/08/91	GDG
190424	Duplicate	28	mg/kg	30		107	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	99	0800	07/08/91	GDG
				Benzene					

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Analytical Chemistry • Utility Operations

Quality Assurance for the SET with Sample 190426

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	85		100		116	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				99	99	0800	07/05/91	KB
				Ethyl benzene					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	102		100		102	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				75	75	0800	07/05/91	KB
				Toluene					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	95		100		105	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				76	76	0800	07/05/91	KB
				Xylenes					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	107		100		107	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				76	76	0800	07/05/91	KB

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside

C. H. Whiteside, Ph.D., President

SB-002

ENVIRONMENTAL SAMPLING DATA

OEHL USE ONLY

(Use this space for mechanical imprint)

190424 (SB-002)

SAMPLING SITE IDENTIFIER (AFR 19-7): 0188

BASE WHERE SAMPLE COLLECTED: TAFB

SAMPLING SITE DESCRIPTION: AFFF POND N.E.

DATE COLLECTION BEGAN (YYMMDD): 910702

TIME COLLECTION BEGAN (24 hour clock): 1120

COLLECTION METHOD: [X] GRAB [ ] COMPOSITE _____ HOURS

MAIL REPORTS TO (circle if changed)

ORIGINAL	0188
COPY 1	
COPY 2	

SAMPLE COLLECTED BY (Name, Grade, AFSC): G. MOWAD

SIGNATURE: G Mowad

AUTOVON:

REASON FOR SUBMISSION: E R

A-ACCIDENT/INCIDENT
R-ROUTINE/PERIODIC
C-COMPLAINT
N-NPDES
F-FOLLOWUP/CLEANUP
O-OTHER (specify) _____

BASE SAMPLE NUMBER: BM 91 0254

OEHL PID:

ANALYSES REQUESTED (Check appropriate blocks)

	GROUP A			Hardness	00900		Silica	00955		2, 4, 5-T	39740
	Ammonia	00610		Iron	01045		Specific Conductance	00095		2, 4, 5-TP-Silvex	39760
	Chemical Oxygen Demand	00340	X	Lead	01051		Sulfate	00945			
	Kjeldahl Nitrogen	00625		Magnesium	00927		Surfactans-MBAS	38260			
	Nitrate	00620		Manganese	01055		Turbidity	00076			
	Nitrite	00615		Mercury	71900				X	TPH	
	Oil & Grease	00560	X	Nickel	01067						
	Organic Carbon	00680		Potassium	00937				X	BTEX	
	Orthophosphate	00671		Selenium	01147		GROUP H				
	Phosphorus, Total	00665		Silver	01077		Aldrin	39330			
				Sodium	00929		BHC Isomers	39340			
	GROUP D			Thallium	01059		a-BHC	39337			
	Cyanide, Total	00720	X	Zinc	01092		b-BHC	39338			
	Cyanide, Free	00722					d-BHC	34259			
							Chlordane	39350		GROUP J	
	GROUP E			GROUP G			DDT Isomers	39370		Sulfides	00745
	Phenols	32730		Acidity, Total	70508		p, p-DDD	39310			
				Alkalinity, Total	00410		p, p-DDE	39320			
	GROUP F			Alkalinity, Bicarbonate	00425		p, p-DDT	39300			
	Antimony	01097		Bromide	71870		Dieldrin	39380		ON SITE ANALYSES	
	Arsenic	01002		Carbon Dioxide	00405		Dursban	77969		PARAMETER	VALUE
	Barium	01007		Chloride	00940		Endrin	39390		Flow 50050	mgd
	Beryllium	01012		Color	00080		Heptachlor	39410		Chlorine, Total 50060	mg/l
	Boron	01022		Fluoride	00951		Heptachlor Epoxide	39420		Dissolved Oxygen 00300	mg/l
X	Cadmium	01027		Residue, Total	00500		Lindane	39782		pH 00400	units
	Calcium	00916		Residue, Filterable (TDS)	70300		Methoxychlor	39480		Temperature 00010	°C
	Chromium, Total	01034		Residue, Nonfilterable	00530		Pramitol (Pramaton)	XY4200000		Odor 00086	
	Chromium VI	01032		Residue, Settleable	50085		Toxaphene	39400		Iodide 71865	
X	Copper	01042		Residue, Volatile	00505		2, 4-D	39730		Sulfite 00740	

REMARKS

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

07/09/91

Department of the Air Force
OC-ALC/EMC
Engineering Building
Tinker AFB, OK 73145
Attention: Dan Luton

Sample Identification: GM910254
Collected By: GM/MP
Date & Time Taken: 07/02/91 1120
On Site Data: AFFF Pond N.E.

Lab Sample Number: 190424 **Received:** 07/03/91 **Client:** TAFB

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Hydrocarbons	14	mg/kg	1200	07/05/91	EPA Method 418.1	BW
Hydrocarbon Sonication Extract.	Completed		1200	07/05/91	EPA Method 3550 *MOD	SK
Cadmium	1.0	mg/kg	0800	07/08/91	EPA Method 6010	GDG
romium	20	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Copper	9.9	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Nickel	18	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Lead	10	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Zinc	29	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Benzene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Ethyl benzene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Toluene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Xylenes	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB

Quality Assurance for the SET with Sample 190424

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Hydrocarbons								
	Standard	55	mg/kg	50		110	1200	07/05/91	BW
	Standard	55	mg/kg	50		110	1200	07/05/91	BW

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

Quality Assurance for the SET with Sample 190424

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
190370	Duplicate	150	mg/kg	160		106	1200	07/05/91	BW
190427	Duplicate	7	mg/kg	7		100	1200	07/05/91	BW
				Cadmium					
	Blank	<.1	mg/kg				0800	07/08/91	GDG
	Standard	.54	mg/kg	.50		108	0800	07/08/91	GDG
	Standard	2.6	mg/kg	2.5		104	0800	07/08/91	GDG
	Standard	4.9	mg/kg	5.0		102	0800	07/08/91	GDG
190424	Duplicate	1.0	mg/kg	1.1		110	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	100	0800	07/08/91	GDG
				Chromium					
	Blank	<.2	mg/kg				0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	10	mg/kg	10		100	0800	07/08/91	GDG
190424	Duplicate	19	mg/kg	20		105	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	95	0800	07/08/91	GDG
				Copper					
	Blank	<.2	mg/kg				0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	9.8	mg/kg	10		102	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	101	0800	07/08/91	GDG
				Nickel					
	Blank	<.6	mg/kg				0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	1.1	mg/kg	1.0		110	0800	07/08/91	GDG
	Standard	5.1	mg/kg	5.0		102	0800	07/08/91	GDG
190424	Duplicate	17	mg/kg	18		106	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	100	0800	07/08/91	GDG
				Lead					
	Blank	<1	mg/kg				0800	07/08/91	GDG
	Standard	9.8	mg/kg	10		102	0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	10	mg/kg	10		100	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	90	0800	07/08/91	GDG
				Zinc					
	Blank	<.1	mg/kg				0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	1.1	mg/kg	1.0		110	0800	07/08/91	GDG
	Standard	5.3	mg/kg	5.0		106	0800	07/08/91	GDG
190424	Duplicate	28	mg/kg	30		107	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	99	0800	07/08/91	GDG
				Benzene					

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Quality Assurance for the SET with Sample 190424

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	85		100		116	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				99	99	0800	07/05/91	KB
				Ethyl benzene					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	102		100		102	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				75	75	0800	07/05/91	KB
				Toluene					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	95		100		105	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				76	76	0800	07/05/91	KB
				Xylenes					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	107		100		107	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				76	76	0800	07/05/91	KB

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside

C. H. Whiteside, Ph.D., President

SB-003

ENVIRONMENTAL SAMPLING DATA

(Use this space for mechanical imprint)

190423 (SB-003)

OEHL USE ONLY

SAMPLING SITE IDENTIFIER (AFR 19-7): 0188

BASE WHERE SAMPLE COLLECTED: TAFB

SAMPLING SITE DESCRIPTION: AFFF POND CENTER

DATE COLLECTION BEGAN (YYMMDD): 911071012

TIME COLLECTION BEGAN (24 hour clock): 1110

COLLECTION METHOD: [X] GRAB [ ] COMPOSITE _____ HOURS

MAIL REPORTS TO (circle if changed)

ORIGINAL	0188
COPY 1	
COPY 2	

SAMPLE COLLECTED BY (Name, Grade, AFSC): G. MOWAD

SIGNATURE: G Mowad

AUTOVON:

REASON FOR SUBMISSION: E R

A-ACCIDENT/INCIDENT
R-ROUTINE/PERIODIC
C-COMPLAINT
N-NPDES
F-FOLLOWUP/CLEANUP
O-OTHER (specify) _____

BASE SAMPLE NUMBER: GM 91 0253

OEHL PID:

ANALYSES REQUESTED (Check appropriate blocks)

		GROUP A		Hardness	00900		Silica	00955		2, 4, 5-T	39740
	Ammonia	00610		Iron	01045		Specific Conductance	00095		2, 4, 5-TP-Silvex	39760
	Chemical Oxygen Demand	00340	X	Lead	01051		Sulfate	00945			
	Kjeldahl Nitrogen	00625		Magnesium	00927		Surfactans-MBAS	38260			
	Nitrate	00620		Manganese	01055		Turbidity	00076			
	Nitrite	00615		Mercury	71900				X	TPH	
	Oil & Grease	00560	X	Nickel	01067						
	Organic Carbon	00680		Potassium	00937				X	BTEX	
	Orthophosphate	00671		Selenium	01147			GROUP H			
	Phosphorus, Total	00665		Silver	01077		Aldrin	39330			
				Sodium	00929		BHC Isomers	39340			
		GROUP D		Thallium	01059		a-BHC	39337			
	Cyanide, Total	00720	X	Zinc	01092		b-BHC	39338			
	Cyanide, Free	00722					d-BHC	34259			
							Chlordane	39350			GROUP J
		GROUP E			GROUP G		DDT Isomers	39370		Sulfides	00745
	Phenols	32730		Acidity, Total	70508		p, p-DDD	39310			
				Alkalinity, Total	00410		p, p-DDE	39320			
		GROUP F		Alkalinity, Bicarbonate	00425		p, p-DDT	39300			
	Antimony	01097		Bromide	71870		Dieldrin	39380		ON SITE ANALYSES	
	Arsenic	01002		Carbon Dioxide	00405		Dursban	77969		PARAMETER	VALUE
	Barium	01007		Chloride	00940		Endrin	39390		Flow 50050	mgd
	Beryllium	01012		Color	00080		Heptachlor	39410		Chlorine, Total 50060	mg/l
	Boron	01022		Fluoride	00951		Heptachlor Epoxide	39420		Dissolved Oxygen 00300	mg/l
X	Cadmium	01027		Residue, Total	00500		Lindane	39782		pH 00400	units
	Calcium	00916		Residue, Filterable (TDS)	70300		Methoxychlor	39480		Temperature 00010	°C
X	Chromium, Total	01034		Residue, Nonfilterable	00530		Pramitol (Pramaton)	XY4200000		Odor 00086	
	Chromium VI	01032		Residue, Settleable	50085		Toxaphene	39400		Iodide 71865	
X	Copper	01042		Residue, Volatile	00505		2, 4-D	39730		Sulfite 00740	

REMARKS

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Analytical Chemistry • Utility Operations

07/09/91

Department of the Air Force
OC-ALC/EMC
Engineering Building
Tinker AFB, OK 73145
Attention: Dan Luton

Sample Identification: GM910253
Collected By: GM/MP
Date & Time Taken: 07/02/91 1110
On Site Data: AFFF Pond Center

Lab Sample Number: 190423 **Received:** 07/03/91 **Client:** TAFB

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Hydrocarbons	<5	mg/kg	1200	07/05/91	EPA Method 418.1	BW
Hydrocarbon Sonication Extract.	Completed		1200	07/05/91	EPA Method 3550 *MOD	SK
Cadmium	1.0	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Chromium	20	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Copper	10	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Nickel	17	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Lead	11	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Zinc	30	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Benzene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Ethyl benzene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Toluene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Xylenes	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB

Quality Assurance for the SET with Sample 190423

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Hydrocarbons								
	Standard	55	mg/kg	50		110	1200	07/05/91	BW
	Standard	55	mg/kg	50		110	1200	07/05/91	BW

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Quality Assurance for the SET with Sample 190423

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
190370	Duplicate	150	mg/kg	160		106	1200	07/05/91	BW
190427	Duplicate	7	mg/kg	7		100	1200	07/05/91	BW
				Cadmium					
	Blank	<.1	mg/kg				0800	07/08/91	GDG
	Standard	.54	mg/kg	.50		108	0800	07/08/91	GDG
	Standard	2.6	mg/kg	2.5		104	0800	07/08/91	GDG
	Standard	4.9	mg/kg	5.0		102	0800	07/08/91	GDG
190424	Duplicate	1.0	mg/kg	1.1		110	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	100	0800	07/08/91	GDG
				Chromium					
	Blank	<.2	mg/kg				0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	10	mg/kg	10		100	0800	07/08/91	GDG
190424	Duplicate	19	mg/kg	20		105	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	95	0800	07/08/91	GDG
				Copper					
	Blank	<.2	mg/kg				0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	9.8	mg/kg	10		102	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	101	0800	07/08/91	GDG
				Nickel					
	Blank	<.6	mg/kg				0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	1.1	mg/kg	1.0		110	0800	07/08/91	GDG
	Standard	5.1	mg/kg	5.0		102	0800	07/08/91	GDG
190424	Duplicate	17	mg/kg	18		106	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	100	0800	07/08/91	GDG
				Lead					
	Blank	<1	mg/kg				0800	07/08/91	GDG
	Standard	9.8	mg/kg	10		102	0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	10	mg/kg	10		100	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	90	0800	07/08/91	GDG
				Zinc					
	Blank	<.1	mg/kg				0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	1.1	mg/kg	1.0		110	0800	07/08/91	GDG
	Standard	5.3	mg/kg	5.0		106	0800	07/08/91	GDG
190424	Duplicate	28	mg/kg	30		107	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	99	0800	07/08/91	GDG
				Benzene					

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Quality Assurance for the SET with Sample 190423

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	85		100		116	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				99	99	0800	07/05/91	KB
	Ethyl benzene								
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	102		100		102	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				75	75	0800	07/05/91	KB
	Toluene								
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	95		100		105	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				76	76	0800	07/05/91	KB
	Xylenes								
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	107		100		107	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				76	76	0800	07/05/91	KB

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside, Ph.D., President

(SB-004)

ENVIRONMENTAL SAMPLING DATA

(Use this space for mechanical imprint)

OEHL USE ONLY

SAMPLING SITE IDENTIFIER (AFR 19-7): 0188

BASE WHERE SAMPLE COLLECTED: TAFB

SAMPLING SITE DESCRIPTION: AFFF POND S.E.

190425 (SB-004)

DATE COLLECTION BEGAN (YYMMDD): 910702

TIME COLLECTION BEGAN (24 hour clock): 1130

COLLECTION METHOD: [X] GRAB [ ] COMPOSITE ____ HOURS

MAIL REPORTS TO (circle if changed)

ORIGINAL	0188
COPY 1	
COPY 2	

SAMPLE COLLECTED BY (Name, Grade, AFSC): G. MOWAD

SIGNATURE: G Mowad

AUTOVON:

REASON FOR SUBMISSION: E R

A-ACCIDENT/INCIDENT
R-ROUTINE/PERIODIC
C-COMPLAINT
N-NPDES
F-FOLLOWUP/CLEANUP
O-OTHER (specify) ____

BASE SAMPLE NUMBER: GM 91 0255

OEHL PID:

ANALYSES REQUESTED (Check appropriate blocks)

		GROUP A		Hardness	00900		Silica	00955		2, 4, 5-T	39740
	Ammonia	00610		Iron	01045		Specific Conductance	00095		2, 4, 5-TP-Silvex	39760
	Chemical Oxygen Demand	00340	X	Lead	01051		Sulfate	00945			
	Kjeldahl Nitrogen	00625		Magnesium	00927		Surfactans-MBAS	38260			
	Nitrate	00620		Manganese	01055		Turbidity	00076			
	Nitrite	00615		Mercury	71900				X	TPH	
	Oil & Grease	00560	X	Nickel	01067						
	Organic Carbon	00680		Potassium	00937				X	BTEX	
	Orthophosphate	00671		Selenium	01147			GROUP H			
	Phosphorus, Total	00665		Silver	01077		Aldrin	39330			
				Sodium	00929		BHC Isomers	39340			
		GROUP D		Thallium	01059		a-BHC	39337			
	Cyanide, Total	00720	X	Zinc	01092		b-BHC	39338			
	Cyanide, Free	00722					d-BHC	34259			
							Chlordane	39350			GROUP J
		GROUP E			GROUP G		DDT Isomers	39370		Sulfides	00745
	Phenols	32730		Acidity, Total	70508		p, p-DDD	39310			
				Alkalinity, Total	00410		p, p-DDE	39320			
		GROUP F		Alkalinity, Bicarbonate	00425		p, p-DDT	39300			
	Antimony	01097		Bromide	71870		Dieldrin	39380		ON SITE ANALYSES	
	Arsenic	01002		Carbon Dioxide	00405		Dursban	77969		PARAMETER	VALUE
	Barium	01007		Chloride	00940		Endrin	39390		Flow 50050	mgd
	Beryllium	01012		Color	00080		Heptachlor	39410		Chlorine, Total 50060	mg/l
	Boron	01022		Fluoride	00951		Heptachlor Epoxide	39420		Dissolved Oxygen 00300	mg/l
X	Cadmium	01027		Residue, Total	00500		Lindane	39782		pH 00400	units
	Calcium	00916		Residue, Filterable (TDS)	70300		Methoxychlor	39480		Temperature 00010	°C
	Chromium, Total	01034		Residue, Nonfilterable	00530		Pramitol (Pramaton)	XY4200000		Odor 00086	
	Chromium VI	01032		Residue, Settleable	50085		Toxaphene	39400		Iodide 71865	
X	Copper	01042		Residue, Volatile	00505		2, 4-D	39730		Sulfite 00740	

REMARKS

AF FORM 2752A AF FORMS 2752A AND 2752B FEB 85 REPLACE AF FORM 2752 JAN 81 WHICH WILL BE USED

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Analytical Chemistry • Utility Operations

07/09/91

Department of the Air Force
OC-ALC/EMC
Engineering Building
Tinker AFB, OK 73145
Attention: Dan Luton

Sample Identification: GM910255
Collected By: GM/MP
Date & Time Taken: 07/02/91 1130
On Site Data: AFFF Pond S.E.

Lab Sample Number: 190425 **Received:** 07/03/91 **Client:** TAFB

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Hydrocarbons	<5	mg/kg	1200	07/05/91	EPA Method 418.1	BW
Hydrocarbon Sonication Extract.	Completed		1200	07/05/91	EPA Method 3550 *MOD	SK
Cadmium	1.2	mg/kg	0800	07/08/91	EPA Method 6010	GDG
romium	20	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Copper	10	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Nickel	20	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Lead	10	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Zinc	28	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Benzene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Ethyl benzene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Toluene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Xylenes	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB

Quality Assurance for the SET with Sample 190425

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Hydrocarbons								
	Standard	55	mg/kg	50		110	1200	07/05/91	BW
	Standard	55	mg/kg	50		110	1200	07/05/91	BW

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Analytical Chemistry • Utility Operations

Quality Assurance for the SET with Sample 190425

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
190370	Duplicate	150	mg/kg	160		106	1200	07/05/91	BW
190427	Duplicate	7	mg/kg	7		100	1200	07/05/91	BW
				Cadmium					
	Blank	<.1	mg/kg				0800	07/08/91	GDG
	Standard	.54	mg/kg	.50		108	0800	07/08/91	GDG
	Standard	2.6	mg/kg	2.5		104	0800	07/08/91	GDG
	Standard	4.9	mg/kg	5.0		102	0800	07/08/91	GDG
190424	Duplicate	1.0	mg/kg	1.1		110	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	100	0800	07/08/91	GDG
				Chromium					
	Blank	<.2	mg/kg				0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	10	mg/kg	10		100	0800	07/08/91	GDG
190424	Duplicate	19	mg/kg	20		105	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	95	0800	07/08/91	GDG
				Copper					
	Blank	<.2	mg/kg				0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	9.8	mg/kg	10		102	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	101	0800	07/08/91	GDG
				Nickel					
	Blank	<.6	mg/kg				0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	1.1	mg/kg	1.0		110	0800	07/08/91	GDG
	Standard	5.1	mg/kg	5.0		102	0800	07/08/91	GDG
190424	Duplicate	17	mg/kg	18		106	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	100	0800	07/08/91	GDG
				Lead					
	Blank	<1	mg/kg				0800	07/08/91	GDG
	Standard	9.8	mg/kg	10		102	0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	10	mg/kg	10		100	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	90	0800	07/08/91	GDG
				Zinc					
	Blank	<.1	mg/kg				0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	1.1	mg/kg	1.0		110	0800	07/08/91	GDG
	Standard	5.3	mg/kg	5.0		106	0800	07/08/91	GDG
190424	Duplicate	28	mg/kg	30		107	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	99	0800	07/08/91	GDG
				Benzene					

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2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

Quality Assurance for the SET with Sample 190425

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	85		100		116	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				99	99	0800	07/05/91	KB
				Ethyl benzene					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	102		100		102	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				75	75	0800	07/05/91	KB
				Toluene					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	95		100		105	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				76	76	0800	07/05/91	KB
				Xylenes					
	Blank	<5.0	ug/l				0800	07/05/91	KB
	Standard	107		100		107	0800	07/05/91	KB
190512	Duplicate	<5.0	ug/l	<5.0		100	0800	07/05/91	KB
190512	Spike				76	76	0800	07/05/91	KB

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside

C. H. Whiteside, Ph.D., President

SB-005

ENVIRONMENTAL SAMPLING DATA

(Use this space for mechanical imprint)

190427(SB-005)

OEHL USE ONLY

SAMPLING SITE IDENTIFIER (AFR 19-7): 0188

BASE WHERE SAMPLE COLLECTED: TAFB

SAMPLING SITE DESCRIPTION: AFFF POND S.W.

DATE COLLECTION BEGAN (YYMMDD): 91 10 7 0 2

TIME COLLECTION BEGAN (24 hour clock): 1150

COLLECTION METHOD: ☒ GRAB ☐ COMPOSITE _____ HOURS

MAIL REPORTS TO (circle if changed)

ORIGINAL	0188
COPY 1	
COPY 2	

SAMPLE COLLECTED BY (Name, Grade, AFSC): G. MOWAD

SIGNATURE: G Mowad

AUTOVON:

REASON FOR SUBMISSION: E A

A-ACCIDENT/INCIDENT
(R)-ROUTINE/PERIODIC
C-COMPLAINT
N-NPDES
F-FOLLOWUP/CLEANUP
O-OTHER (specify) _____

BASE SAMPLE NUMBER: GM 91 0257

OEHL PID:

ANALYSES REQUESTED (Check appropriate blocks)

	GROUP A			Hardness	00900		Silica	00955		2, 4, 5-T	39740
	Ammonia	00610		Iron	01045		Specific Conductance	00095		2, 4, 5-TP-Silvex	39760
	Chemical Oxygen Demand	00340	X	Lead	01051		Sulfate	00945			
	Kjeldahl Nitrogen	00625		Magnesium	00927		Surfactans-MBAS	38260			
	Nitrate	00620		Manganese	01055		Turbidity	00076			
	Nitrite	00615		Mercury	71900				X	TPH	
	Oil & Grease	00560	X	Nickel	01067						
	Organic Carbon	00680		Potassium	00937				X	BTEX	
	Orthophosphate	00671		Selenium	01147		GROUP H				
	Phosphorus, Total	00665		Silver	01077		Aldrin	39330			
				Sodium	00929		BHC Isomers	39340			
	GROUP D			Thallium	01059		a-BHC	39337			
	Cyanide, Total	00720	X	Zinc	01092		b-BHC	39338			
	Cyanide, Free	00722					d-BHC	34259			
							Chlordane	39350		GROUP J	
	GROUP E			GROUP G			DDT Isomers	39370		Sulfides	00745
	Phenols	32730		Acidity, Total	70508		p, p-DDD	39310			
				Alkalinity, Total	00410		p, p-DDE	39320			
	GROUP F			Alkalinity, Bicarbonate	00425		p, p-DDT	39300			
	Antimony	01097		Bromide	71870		Dieldrin	39380		ON SITE ANALYSES	
	Arsenic	01002		Carbon Dioxide	00405		Dursban	77969		PARAMETER	VALUE
	Barium	01007		Chloride	00940		Endrin	39390		Flow 50050	mgd
	Beryllium	01012		Color	00080		Heptachlor	39410		Chlorine, Total 50060	mg/l
	Boron	01022		Fluoride	00951		Heptachlor Epoxide	39420		Dissolved Oxygen 00300	mg/l
X	Cadmium	01027		Residue, Total	00500		Lindane	39782		pH 00400	units
	Calcium	00916		Residue, Filterable (TDS)	70300		Methoxychlor	39480		Temperature 00010	°C
	Chromium, Total	01034		Residue, Nonfilterable	00530		Pramitol (Pramaton)	XY4200000		Odor 00086	
	Chromium VI	01032		Residue, Settleable	50085		Toxaphene	39400		Iodide 71865	
X	Copper	01042		Residue, Volatile	00505		2, 4-D	39730		Sulfite 00740	

REMARKS

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

07/09/91

Department of the Air Force
OC-ALC/EMC
Engineering Building
Tinker AFB, OK 73145
Attention: Dan Luton

Sample Identification: GM910257
Collected By: GM/MP
Date & Time Taken: 07/02/91 1150
On Site Data: AFFF Pond S.W.

Lab Sample Number: 190427 **Received:** 07/03/91 **Client:** TAFB

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Hydrocarbons	7	mg/kg	1200	07/05/91	EPA Method 418.1	BW
Hydrocarbon Sonication Extract.	Completed		1200	07/05/91	EPA Method 3550 *MOD	SK
Cadmium	.99	mg/kg	0800	07/08/91	EPA Method 6010	GDG
omium	20	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Copper	9.1	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Nickel	17	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Lead	11	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Zinc	29	mg/kg	0800	07/08/91	EPA Method 6010	GDG
Benzene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Ethyl benzene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Toluene	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB
Xylenes	<5.0	ug/kg	0800	07/05/91	EPA Method 8020	KB

Quality Assurance for the SET with Sample 190427

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Hydrocarbons								
	Standard	55	mg/kg	50		110	1200	07/05/91	BW
	Standard	55	mg/kg	50		110	1200	07/05/91	BW

ANA-LAB CORP.
THE COMPLETE SERVICE LAB
2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914
Analytical Chemistry • Utility Operations

Quality Assurance for the SET with Sample 190427

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
190370	Duplicate	150	mg/kg	160		106	1200	07/05/91	BW
190427	Duplicate	7	mg/kg	7		100	1200	07/05/91	BW
				Cadmium					
	Blank	<.1	mg/kg				0800	07/08/91	GDG
	Standard	.54	mg/kg	.50		108	0800	07/08/91	GDG
	Standard	2.6	mg/kg	2.5		104	0800	07/08/91	GDG
	Standard	4.9	mg/kg	5.0		102	0800	07/08/91	GDG
190424	Duplicate	1.0	mg/kg	1.1		110	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	100	0800	07/08/91	GDG
				Chromium					
	Blank	<.2	mg/kg				0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	10	mg/kg	10		100	0800	07/08/91	GDG
190424	Duplicate	19	mg/kg	20		105	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	95	0800	07/08/91	GDG
				Copper					
	Blank	<.2	mg/kg				0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	9.8	mg/kg	10		102	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	101	0800	07/08/91	GDG
				Nickel					
	Blank	<.6	mg/kg				0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	1.1	mg/kg	1.0		110	0800	07/08/91	GDG
	Standard	5.1	mg/kg	5.0		102	0800	07/08/91	GDG
190424	Duplicate	17	mg/kg	18		106	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	100	0800	07/08/91	GDG
				Lead					
	Blank	<1	mg/kg				0800	07/08/91	GDG
	Standard	9.8	mg/kg	10		102	0800	07/08/91	GDG
	Standard	1.0	mg/kg	1.0		100	0800	07/08/91	GDG
	Standard	5.0	mg/kg	5.0		100	0800	07/08/91	GDG
190424	Duplicate	10	mg/kg	10		100	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	90	0800	07/08/91	GDG
				Zinc					
	Blank	<.1	mg/kg				0800	07/08/91	GDG
	Standard	9.9	mg/kg	10		101	0800	07/08/91	GDG
	Standard	1.1	mg/kg	1.0		110	0800	07/08/91	GDG
	Standard	5.3	mg/kg	5.0		106	0800	07/08/91	GDG
190424	Duplicate	28	mg/kg	30		107	0800	07/08/91	GDG
190424	Spike		mg/kg		1.0	99	0800	07/08/91	GDG
				Benzene					

APPENDIX B

TOTAL FIELD MAGNETOMETER SURVEY

TPJ
11-23-93

INTERNATIONAL TECHNOLOGY CORPORATION

November 13, 1993

Dan McGregor
Site Manager, IT Tinker
Tinker AFB, OK

RE: Total field magnetometer survey of ordnance disposal site, Tinker AFB

A Total Field Magnetometer survey was conducted using an EG&G Geometrics model 822L Cesium magnetometer (822L) over a 200 x 200 foot area. An EDA Omni plus proton precession magnetometer was used as a base station, located 150 feet north of the survey area, and set to take readings at 20 second intervals. The 822L was used to take continuous readings (10/second) along N-S lines, spaced 5 feet apart. After acquiring the last line, the first line was reacquired in two directions to allow manual dedrifting (in the event of base station failure) and to provide QA/QC repeatability data. Data from both the 822L and the base were then downloaded to a laptop for processing.

The data were processed according to standard IT procedures. First base station data were examined for magnetic spikes. Base station data showed normal variations (< 1 nanotesla/20 seconds) with the exception of the first two readings which were deleted. (I was standing next to the base to make sure it was working properly.) Next the base station file was converted to IT File (ITF) format. The 822L file was corrected for mistakes and also converted to ITF format. The 822L file was then software dedrifted and imported into GEOSOFT for further processing. The approximately 2000 data readings for each line were sub-sampled to provide data values at 1 foot intervals. The data were then gridded, contoured and color plotted. The final plot of the data is attached.

The final plot shows several dipolar magnetic anomalies. (A dipolar anomaly has a high side, indicated by purple and a low side, indicated by blue.) The magnetic signatures of two monitoring wells located within the survey area can be seen at the top center and the upper right edge of the map. In addition two large anomalies located at the bottom center and upper left can also be seen. The high amplitude of these anomalies suggests significant amounts of ferromagnetic/metallic materials. Several smaller dipoles can also be seen near the left center of the plot which represent lesser amounts of ferromagnetic debris.

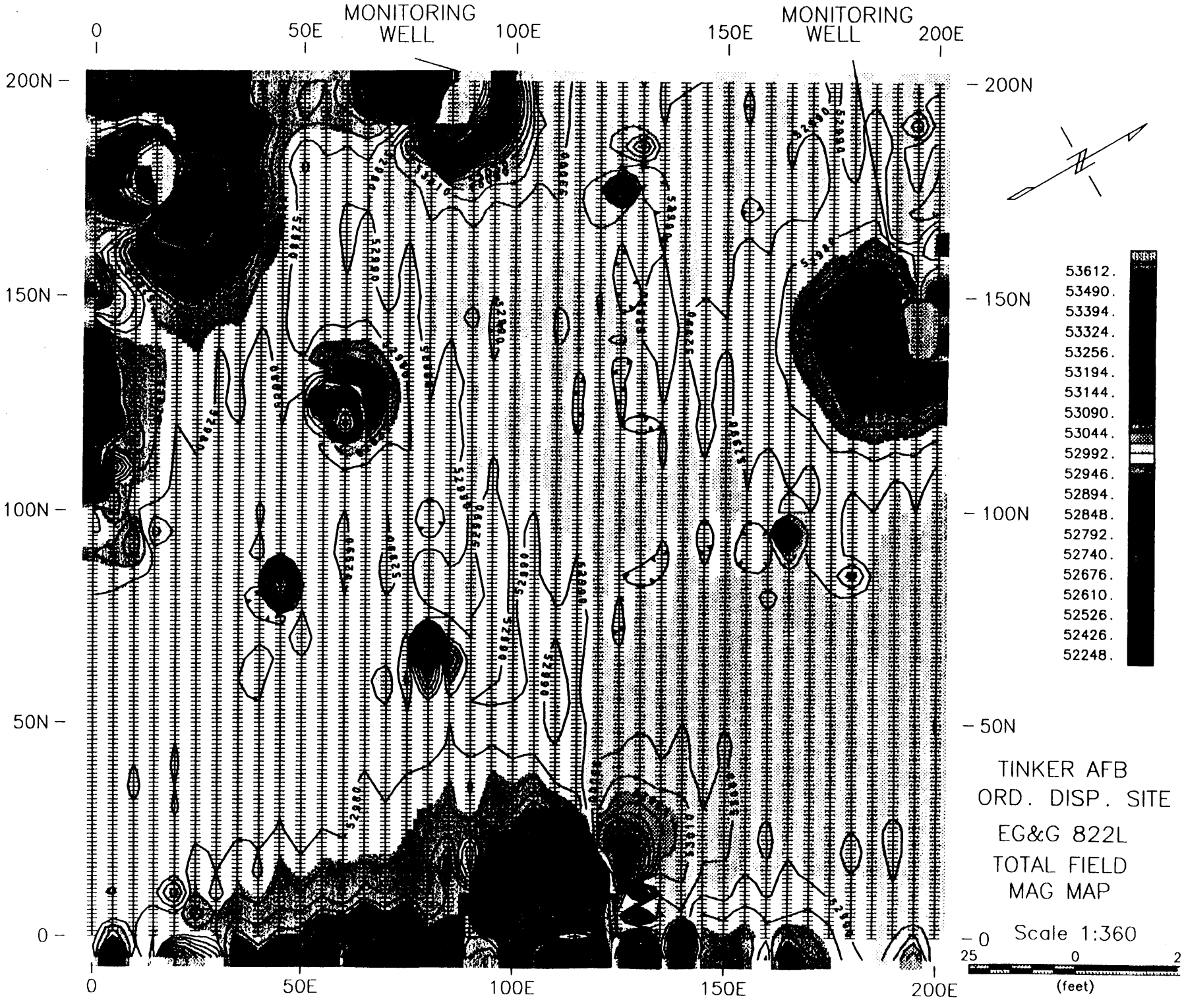
Following data processing, anomaly locations were verified using a Schonstedt GA-72CV magnetic locator. The location and approximate size of four anomalies were marked using yellow pin flags. The anomaly seen at bottom center of the map seems to be caused by multiple objects covering a 10'x 10' area. The smaller amplitude anomaly at grid coordinates (60, 120) indicated a single large object and was marked with a single pin flag. The large amplitude anomaly at the upper left of the map indicated multiple objects covering an approximate 15' x 15' area, and most likely resembles a disposal pit. The forth anomaly marked can only partially

be seen at the left edge of the map between 100N and 150N. The majority of this anomaly is located outside of the survey area and was marked by yellow pin flags.

Based on this survey, the most likely location for a small arms disposal pit is in the upper left of the survey area, possibly emcompassing both of the marked anomalies (anomaly at upper left, and anomaly off left edge of map.)

If you have any questions regarding data collection, processing or interpretation please call me at (714) 660-5307.

Darin Pendergraft
IT Corporation
Project Geophysicist
encl: color maps
job: 409832-03-01


MONITORING WELL
MONITORING WELL
0
50E
100E
150E
200E
200N
150N
100N
50N
0
53612.
53490.
53394.
53324.
53256.
53194.
53144.
53090.
53044.
52992.
52946.
52894.
52848.
52792.
52740.
52676.
52610.
52526.
52426.
52248.
TINKER AFB
ORD. DISP. SITE
EG&G 822L
TOTAL FIELD
MAG MAP
Scale 1:360
25
0
2
(feet)

INTERNATIONAL TECHNOLOGY CORPORATION

By AG Date 11/5/93 Subject EM-Survey at Ordnance Disposal Area Sheet No. 1 of 1

Chkd. By SS Date 11/5/93 Proj. No. 409832.03.01

11/4/93 | 11/5/93 | AG | JS | AG

	93.9																						
	75.2	75.3	72.1	70.7	74.4	74.9	77.3	77.6	65.6	66.0	51.4	53.2	41.0	40.5	40.0	40.2	40.4	40.9	39.6	39.7	40.8	39.7	45.8	45.9	48.9	49.0
	5.2	4.9	7.1	5.8	4.6	5.2	5.3	5.2	1.9	2.2	-1.3	-1.2	-4.7	-4.6	-5.1	-5.5	-6.3	-6.1	-6.5	-6.4	-6.3	-6.7	-7.4	-7.2	-6.6	-6.2
0,300	70.5	73.1	71.0	68.0	70.4	70.7	71.9	72.0	72.9	75.4	57.9	59.6	42.6	42.8	40.7	41.1	39.9	40.0	39.0	39.1	41.0	41.2	44.9	44.8	47.2	47.4
	3.5	-3.0	42.0	4.7	3.4	3.1	3.1	3.0	3.6	3.9	-0.8	-0.1	-4.0	-4.1	-5.1	-5.1	-6.4	-6.5	-6.6	-6.7	-6.4	-6.3	-7.8	-8.2	-6.9	-6.8
	60.5	61.6	62.7	62.5	56.7	59.3	66.0	60.6	70.6	69.4	69.9	70.1	49.0	47.7	42.9	43.0	39.4	39.4	39.0	39.0	41.0	41.2	43.3	43.6	45.1	45.5
	1.0	0.4	0.3	0.3	-0.7	-0.1	-1.5	0.9	2.7	2.3	1.2	1.3	-2.8	-2.9	-4.3	-4.5	-6.6	-6.5	-6.9	-7.0	-6.3	-6.3	-8.1	-8.6	-7.2	-7.0
0,250	56.6	57.2	62.6	58.8	54.6	54.7	47.3	46.9	50.3	52.4	56.1	55.7	56.1	57.5	44.3	44.1	39.8	39.8	37.8	37.9	40.3	40.1	44.0	44.1	41.4	41.8
	-1.2	-1.2	-1.1	-1.1	-1.6	-1.4	-3.0	-3.3	-2.1	-1.7	-1.2	-1.6	-1.2	-1.2	-4.2	-4.4	-6.4	-6.7	-7.1	-7.0	-6.4	-6.9	-8.6	-8.9	-8.3	-7.8
	53.9	55.2	53.4	54.7	47.2	47.3	44.8	45.6	43.3	43.8	48.3	48.1	55.4	58.1	44.7	44.3	41.4	41.3	37.8	37.8	38.3	38.3	40.5	41.5	42.7	42.9
	-2.4	-1.6	-2.5	-2.4	-3.2	-3.3	-3.6	-3.6	-4.0	-3.9	-3.3	-3.5	-1.4	-1.2	-4.1	-4.4	-5.4	-5.1	-7.2	-7.3	-7.2	-7.3	-9.1	-9.8	-8.3	-8.2
0,200	65.7	65.4	55.4	55.2	48.8	48.6	49.1	53.5	46.2	50.0	46.8	47.0	47.1	47.4	43.8	43.8	41.5	42.1	39.0	39.0	38.5	38.8	41.2	41.7	42.5	42.8
	1.1	0.4	-2.5	-2.8	-3.1	-3.2	-2.9	-2.1	-3.1	-2.9	-3.9	-4.3	-3.1	-3.0	-4.1	-4.9	-5.6	-5.5	-6.7	-6.8	-7.0	-7.1	-9.3	-9.4	-8.6	-8.6
	64.1	65.0	59.0	58.2	48.1	42.6	51.1	50.0	54.0	50.4	52.3	48.9	45.8	45.3	43.3	43.6	43.8	44.2	42.6	43.3	42.5	42.5	42.2	42.8	42.0	42.4
	-0.4	0.3	-2.0	-2.2	-3.5	-3.7	-2.7	-2.9	-2.1	-2.8	-3.1	-3.6	-2.9	-3.0	-4.8	-4.6	-5.0	-5.1	-5.8	-5.8	-5.6	-6.0	-8.9	-8.9	-8.9	-8.8
0,150	52.8	54.0	54.0	53.1	46.0	45.8	44.5	44.1	45.2	46.2	48.5	49.9	48.3	48.9	43.3	43.4	52.6	51.5	50.5	50.6	48.2	47.6	47.2	47.4	43.0	42.9
	-3.2	-3.1	-3.2	-3.3	-3.9	-3.7	-3.8	-3.7	-3.5	-3.4	-3.3	-3.1	-2.0	-2.1	-2.9	-3.3	-3.1	-3.4	-4.0	-4.0	-4.6	-4.8	-7.9	-8.3	-8.5	-8.6
	42.5	42.2	46.8	46.6	43.2	43.6	42.7	41.9	44.1	44.7	47.9	47.6	50.0	50.2	52.3	51.9	55.4	56.2	56.1	55.8	54.9	54.6	50.9	52.0	44.5	44.4
	-4.4	-4.5	-4.7	-4.6	-4.1	-4.0	-4.3	-4.4	-3.7	-3.5	-3.1	-3.5	-1.0	-1.2	-1.7	-1.8	-1.8	-1.8	-1.9	-2.0	-2.5	-3.0	-6.9	-7.0	-8.3	-8.2
0,100	48.2	48.9	48.4	48.0	44.9	45.4	45.5	45.6	44.0	45.3	47.5	46.2	49.0	49.7	51.3	51.5	52.8	53.6	58.3	57.1	59.4	60.1	58.1	58.5	49.6	49.0
	-4.1	-4.2	-4.3	-4.3	-3.2	-3.6	-3.4	-3.4	-3.6	-3.4	-3.1	-2.8	-1.1	-0.9	-1.5	-1.7	-2.3	-2.0	-1.2	-1.2	-1.1	-1.1	-5.2	-5.0	-6.7	-6.5
	51.8	52.5	53.0	53.0	51.1	51.6	49.6	49.2	50.6	53.7	49.7	49.6	49.0	49.5	51.6	51.6	53.6	53.4	55.1	55.5	60.5	60.4	60.9	61.0	53.8	53.8
	-2.6	-2.7	-2.7	-2.7	-1.2	-1.2	-2.4	-2.3	-2.8	-2.8	-2.5	-2.7	-1.0	-1.0	-1.9	-2.0	-2.2	-2.1	-1.7	-1.7	-0.5	-0.6	-3.5	-3.3	-5.3	-5.2
0,50	51.7	52.0	56.9	56.3					47.2	60.1	50.2	50.3	48.0	48.3	49.4	49.8	50.6	50.9	53.4	54.1	59.8	59.3	60.2	61.3	57.1	57.4
	-2.6	-2.9	-1.3	-1.4					-1.9	-1.9	-2.2	-2.5	8.6	8.0	0.8	-0.1	-2.9	-2.9	-2.4	-2.2	-0.9	-0.9	-2.6	-2.6	-4.1	-3.9
	53.5	53.3	57.4	56.2	57.4	58.7	51.6	49.8	50.2	50.7	49.1	49.0	46.1	46.3	49.5	49.1	50.9	50.4	55.2	55.7	62.0	62.9	62.0	62.3	58.6	59.0
	-2.4	-2.1	-1.7	-1.7	1.5	2.0	-0.9	-0.8	-2.5	-2.4	-2.9	-3.0	-1.4	-1.5	-2.0	-2.6	-2.9	-3.3	-2.0	-1.9	-0.1	0.1	2.4	-2.3	-3.3	-3.2
	56.5	55.6	55.1	54.9	49.5	50.3	47.2	47.2	46.1	46.5	46.8	46.4	45.8	45.7	50.1	50.0	54.8	55.3	62.9	63.0	67.1	67.0	65.7	65.6	58.0	58.6
	-1.3	-1.8	-2.0	-2.1	-1.7	-1.5	-2.9	-3.0	-3.4	-3.4	-3.7	-3.8	-2.5	-2.6	-2.5	-2.8	-2.2	-1.9	-0.3	-0.6	0.9	0.5	-1.4	-1.6	-3.4	-3.2
			50,0						100,0				150,0				200,0				250,0				300,0	

Back check AG of 0,0: 59.0 58.1, -0.9 -1.0

11/5/93 Back check of 0,0 ACG: 54.8, 53.7; -0.3 -0.5

JS: 52.4, 55.8; -1.2, -1.9

Back check AG of 0,250: 48.0 50.6; -4.2 -3.7

Back check AG of 200,300: 39.5 39.4; -6.3 -6.4

Backcheck JS of 100,100: 42.9, 43.8; -3.9, -3.9

⊕ MW.
⊙ FLAGPOLE

Key – ("Oper" mode) apparent quadrature phase conductivity (x,y) – mS/m or mmho/m
in-phase component (x,y) – ppt of ratio of 2° to 1° B-field ("comp" mode)
⊕-MW ⊙ Flagpole

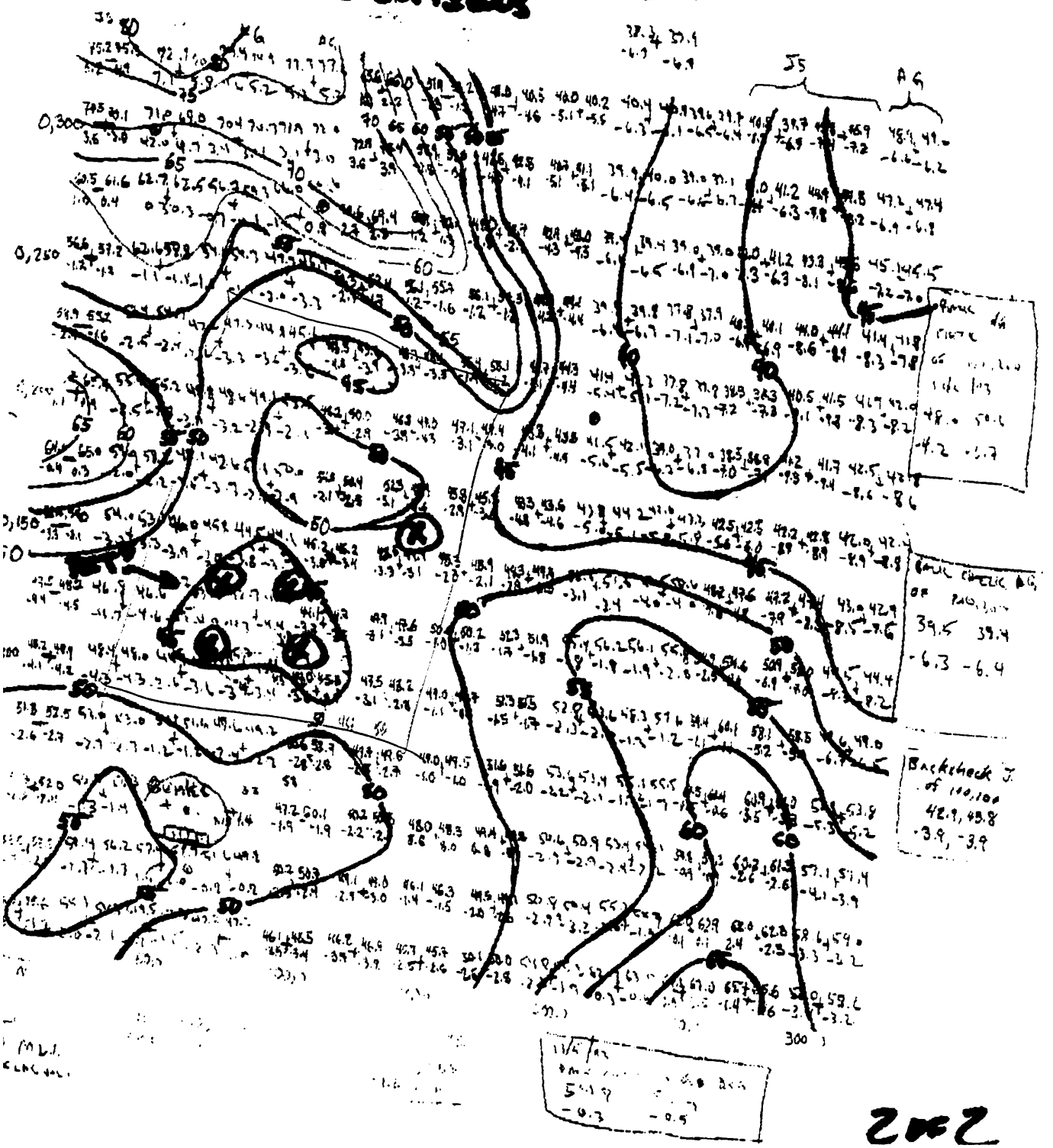
108-10-85

INTERNATIONAL TECHNOLOGY CORPORATION

By AG Date 11/10/93 Subject EM SURVEY RESULTS

Chkd. By ___ Date ___ CONDUCTIVITY Sheet No. 1 of 1

Proj. No. 409832.03.01



2 of 2

OMNI-PLUS Tie-line MAG/VLF R22O Ser #428125
BASESTATION DATA

Reference field: 53000.0
Datum subtracted: 0.0Date 12 NOV 93
Operator: 4002
Records: 237
Bat: 17.3 Volt Lithium: 3.46 Volt
Last time update: 11/12 13:15:00
Start of print: 11/12 16:22:03

Base stn. Pos: 325 Line: 300

TIME	FIELD	CHANGE	DRIFT	RECORD
13:23:55	56369.7	6554.6	3369.7	#1
13:25:00	53114.0	-3255.7	114.0	#2
13:25:20	53114.2	0.2	114.2	#3
13:25:40	53114.3	0.1	114.3	#4
13:26:00	53114.2	-0.1	114.2	#5
13:26:20	53114.4	0.2	114.4	#6
13:26:40	53114.3	-0.1	114.3	#7
13:27:00	53114.6	0.3	114.6	#8
13:27:20	53114.2	-0.4	114.2	#9
13:27:40	53114.5	0.3	114.5	#10
13:28:00	53114.5	0.0	114.5	#11
13:28:20	53114.1	-0.4	114.1	#12
13:28:40	53114.2	0.1	114.2	#13
13:29:00	53114.5	0.3	114.5	#14
13:29:20	53114.5	0.0	114.5	#15
13:29:40	53114.7	0.2	114.7	#16
13:30:00	53114.6	-0.1	114.6	#17
13:30:20	53114.4	-0.2	114.4	#18
13:30:40	53114.6	0.2	114.6	#19
13:31:00	53114.3	-0.3	114.3	#20
13:31:20	53114.7	0.4	114.7	#21
13:31:40	53114.5	-0.2	114.5	#22
13:32:00	53114.6	0.1	114.6	#23
13:32:20	53114.2	-0.4	114.2	#24
13:32:40	53114.4	0.2	114.4	#25
13:33:00	53114.0	-0.4	114.0	#26
13:33:20	53114.5	0.5	114.5	#27
13:33:40	53114.2	-0.3	114.2	#28
13:34:00	53114.0	-0.2	114.0	#29
13:34:20	53114.3	0.3	114.3	#30
13:34:40	53114.1	-0.2	114.1	#31
13:35:00	53114.5	0.4	114.5	#32
13:35:20	53114.4	-0.1	114.4	#33
13:35:40	53114.3	-0.1	114.3	#34
13:36:00	53114.7	0.4	114.7	#35

13:36:20	53114.5	-0.2	114.5	#36
13:36:40	53114.7	0.2	114.7	#37
13:37:00	53114.8	0.1	114.8	#38
13:37:20	53114.6	-0.2	114.6	#39
13:37:40	53114.6	0.0	114.6	#40
13:38:00	53114.7	0.1	114.7	#41
13:38:20	53114.7	0.0	114.7	#42
13:38:40	53114.7	0.0	114.7	#43
13:39:00	53114.8	0.1	114.8	#44
13:39:20	53114.5	-0.3	114.5	#45
13:39:40	53115.0	0.5	115.0	#46
13:40:00	53115.1	0.1	115.1	#47
13:40:20	53114.7	-0.4	114.7	#48
13:40:40	53114.8	0.1	114.8	#49
13:41:00	53114.2	-0.6	114.2	#50
13:41:20	53114.5	0.3	114.5	#51
13:41:40	53114.4	-0.1	114.4	#52
13:42:00	53114.4	0.0	114.4	#53
13:42:20	53114.4	0.0	114.4	#54
13:42:40	53114.2	-0.2	114.2	#55
13:43:00	53114.4	0.2	114.4	#56
13:43:20	53114.1	-0.3	114.1	#57
13:43:40	53114.4	0.3	114.4	#58
13:44:00	53114.4	0.0	114.4	#59
13:44:20	53114.2	-0.2	114.2	#60
13:44:40	53114.1	-0.1	114.1	#61
13:45:00	53114.0	-0.1	114.0	#62
13:45:20	53114.6	0.6	114.6	#63
13:45:40	53114.0	-0.6	114.0	#64
13:46:00	53114.1	0.1	114.1	#65
13:46:20	53114.0	-0.1	114.0	#66
13:46:40	53113.9	-0.1	113.9	#67
13:47:00	53114.0	0.1	114.0	#68
13:47:20	53114.2	0.2	114.2	#69
13:47:40	53113.8	-0.4	113.8	#70
13:48:00	53114.3	0.5	114.3	#71
13:48:20	53114.5	0.2	114.5	#72
13:48:40	53114.1	-0.4	114.1	#73
13:49:00	53114.3	0.2	114.3	#74
13:49:20	53114.6	0.3	114.6	#75
13:49:40	53114.4	-0.2	114.4	#76
13:50:00	53114.3	-0.1	114.3	#77
13:50:20	53114.0	-0.3	114.0	#78
13:50:40	53114.3	0.3	114.3	#79
13:51:00	53114.4	0.1	114.4	#80
13:51:20	53114.2	-0.2	114.2	#81
13:51:40	53114.6	0.4	114.6	#82
13:52:00	53114.6	0.0	114.6	#83
13:52:20	53114.4	-0.2	114.4	#84
13:52:40	53114.3	-0.1	114.3	#85
13:53:00	53114.4	0.1	114.4	#86
13:53:20	53114.5	0.1	114.5	#87
13:53:40	53114.5	0.0	114.5	#88
13:54:00	53114.5	0.0	114.5	#89

13:54:20	53114.5	0.0	114.5	#90
13:54:40	53114.6	0.1	114.6	#91
13:55:00	53114.3	-0.3	114.3	#92
13:55:20	53114.9	0.6	114.9	#93
13:55:40	53114.8	-0.1	114.8	#94
13:56:00	53114.3	-0.5	114.3	#95
13:56:20	53114.7	0.4	114.7	#96
13:56:40	53114.2	-0.5	114.2	#97
13:57:00	53113.9	-0.3	113.9	#98
13:57:20	53114.3	0.4	114.3	#99
13:57:40	53114.5	0.2	114.5	#100
13:58:00	53114.0	-0.5	114.0	#101
13:58:20	53114.5	0.5	114.5	#102
13:58:40	53114.4	-0.1	114.4	#103
13:59:00	53114.2	-0.2	114.2	#104
13:59:20	53114.0	-0.2	114.0	#105
13:59:40	53113.8	-0.2	113.8	#106
14:00:00	53113.9	0.1	113.9	#107
14:00:20	53114.2	0.3	114.2	#108
14:00:40	53114.4	0.2	114.4	#109
14:01:00	53113.7	-0.7	113.7	#110
14:01:20	53113.4	-0.3	113.4	#111
14:01:40	53113.7	0.3	113.7	#112
14:02:00	53113.9	0.2	113.9	#113
14:02:20	53113.9	0.0	113.9	#114
14:02:40	53114.0	0.1	114.0	#115
14:03:00	53114.0	0.0	114.0	#116
14:03:20	53114.2	0.2	114.2	#117
14:03:40	53114.4	0.2	114.4	#118
14:04:00	53114.3	-0.1	114.3	#119
14:04:20	53114.1	-0.2	114.1	#120
14:04:40	53114.4	0.3	114.4	#121
14:05:00	53114.3	-0.1	114.3	#122
14:05:20	53114.8	0.5	114.8	#123
14:05:40	53114.5	-0.3	114.5	#124
14:06:00	53114.4	-0.1	114.4	#125
14:06:20	53114.6	0.2	114.6	#126
14:06:40	53114.2	-0.4	114.2	#127
14:07:00	53114.6	0.4	114.6	#128
14:07:20	53114.7	0.1	114.7	#129
14:07:40	53114.6	-0.1	114.6	#130
14:08:00	53114.5	-0.1	114.5	#131
14:08:20	53114.6	0.1	114.6	#132
14:08:40	53114.6	0.0	114.6	#133
14:09:00	53114.4	-0.2	114.4	#134
14:09:20	53114.7	0.3	114.7	#135
14:09:40	53114.5	-0.2	114.5	#136
14:10:00	53114.8	0.3	114.8	#137
14:10:20	53115.1	0.3	115.1	#138
14:10:40	53114.6	-0.5	114.6	#139
14:11:00	53115.3	0.7	115.3	#140
14:11:20	53114.8	-0.5	114.8	#141
14:11:40	53115.0	0.2	115.0	#142
14:12:00	53114.8	-0.2	114.8	#143

14:12:20	53114.9	0.1	114.9	#144
14:12:40	53115.3	0.4	115.3	#145
14:13:00	53115.1	-0.2	115.1	#146
14:13:20	53115.5	0.4	115.5	#147
14:13:40	53115.2	-0.3	115.2	#148
14:14:00	53115.2	0.0	115.2	#149
14:14:20	53115.4	0.2	115.4	#150
14:14:40	53115.3	-0.1	115.3	#151
14:15:00	53115.7	0.4	115.7	#152
14:15:20	53115.5	-0.2	115.5	#153
14:15:40	53115.3	-0.2	115.3	#154
14:16:00	53115.6	0.3	115.6	#155
14:16:20	53115.5	-0.1	115.5	#156
14:16:40	53115.8	0.3	115.8	#157
14:17:00	53116.1	0.3	116.1	#158
14:17:20	53115.9	-0.2	115.9	#159
14:17:40	53116.3	0.4	116.3	#160
14:18:00	53116.0	-0.3	116.0	#161
14:18:20	53116.0	0.0	116.0	#162
14:18:40	53116.2	0.2	116.2	#163
14:19:00	53116.5	0.3	116.5	#164
14:19:20	53116.6	0.1	116.6	#165
14:19:40	53116.5	-0.1	116.5	#166
14:20:00	53116.8	0.3	116.8	#167
14:20:20	53116.8	0.0	116.8	#168
14:20:40	53116.7	-0.1	116.7	#169
14:21:00	53116.6	-0.1	116.6	#170
14:21:20	53116.9	0.3	116.9	#171
14:21:40	53117.1	0.2	117.1	#172
14:22:00	53117.3	0.2	117.3	#173
14:22:20	53117.1	-0.2	117.1	#174
14:22:40	53117.0	-0.1	117.0	#175
14:23:00	53116.9	-0.1	116.9	#176
14:23:20	53116.9	0.0	116.9	#177
14:23:40	53117.2	0.3	117.2	#178
14:24:00	53117.2	0.0	117.2	#179
14:24:20	53116.9	-0.3	116.9	#180
14:24:40	53117.2	0.3	117.2	#181
14:25:00	53117.0	-0.2	117.0	#182
14:25:20	53116.8	-0.2	116.8	#183
14:25:40	53116.9	0.1	116.9	#184
14:26:00	53116.7	-0.2	116.7	#185
14:26:20	53117.1	0.4	117.1	#186
14:26:40	53116.9	-0.2	116.9	#187
14:27:00	53117.0	0.1	117.0	#188
14:27:20	53116.9	-0.1	116.9	#189
14:27:40	53116.7	-0.2	116.7	#190
14:28:00	53116.6	-0.1	116.6	#191
14:28:20	53116.7	0.1	116.7	#192
14:28:40	53116.9	0.2	116.9	#193
14:29:00	53116.9	0.0	116.9	#194
14:29:20	53116.8	-0.1	116.8	#195
14:29:40	53116.7	-0.1	116.7	#196
14:30:00	53117.0	0.3	117.0	#197

14:30:20	53117.4	0.4	117.4	#198
14:30:40	53117.5	0.1	117.5	#199
14:31:00	53117.4	-0.1	117.4	#200
14:31:20	53117.5	0.1	117.5	#201
14:31:40	53117.0	-0.5	117.0	#202
14:32:00	53117.4	0.4	117.4	#203
14:32:20	53117.2	-0.2	117.2	#204
14:32:40	53117.3	0.1	117.3	#205
14:33:00	53117.2	-0.1	117.2	#206
14:33:20	53117.5	0.3	117.5	#207
14:33:40	53117.6	0.1	117.6	#208
14:34:00	53117.6	0.0	117.6	#209
14:34:20	53117.6	0.0	117.6	#210
14:34:40	53117.7	0.1	117.7	#211
14:35:00	53117.5	-0.2	117.5	#212
14:35:20	53117.4	-0.1	117.4	#213
14:35:40	53117.0	-0.4	117.0	#214
14:36:00	53116.8	-0.2	116.8	#215
14:36:20	53116.7	-0.1	116.7	#216
14:36:40	53117.3	0.6	117.3	#217
14:37:00	53117.1	-0.2	117.1	#218
14:37:20	53116.9	-0.2	116.9	#219
14:37:40	53117.5	0.6	117.5	#220
14:38:00	53117.1	-0.4	117.1	#221
14:38:20	53116.6	-0.5	116.6	#222
14:38:40	53116.5	-0.1	116.5	#223
14:39:00	53116.4	-0.1	116.4	#224
14:39:20	53116.6	0.2	116.6	#225
14:39:40	53116.8	0.2	116.8	#226
14:40:00	53116.2	-0.6	116.2	#227
14:40:20	53116.7	0.5	116.7	#228
14:40:40	53116.4	-0.3	116.4	#229
14:41:00	53115.9	-0.5	115.9	#230
14:41:20	53116.2	0.3	116.2	#231
14:41:40	53116.1	-0.1	116.1	#232
14:42:00	53116.4	0.3	116.4	#233
14:42:20	53116.1	-0.3	116.1	#234
14:42:40	53116.4	0.3	116.4	#235
14:43:00	53116.4	0.0	116.4	#236
14:43:20	53116.8	0.4	116.8	#237

EOF

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316	48340	53114.3
316	48360	53114.2
316	48380	53114.4
316	48400	53114.3
316	48420	53114.6
316	48440	53114.2
316	48460	53114.5
316	48480	53114.5
316	48500	53114.1
316	48520	53114.2
316	48540	53114.5
316	48560	53114.5
316	48580	53114.7
316	48600	53114.6
316	48620	53114.4
316	48640	53114.6
316	48660	53114.3
316	48680	53114.7
316	48700	53114.5
316	48720	53114.6
316	48740	53114.2
316	48760	53114.4
316	48780	53114
316	48800	53114.5
316	48820	53114.2
316	48840	53114
316	48860	53114.3
316	48880	53114.1
316	48900	53114.5
316	48920	53114.4
316	48940	53114.3
316	48960	53114.7
316	48980	53114.5
316	49000	53114.7
316	49020	53114.8
316	49040	53114.6
316	49060	53114.6
316	49080	53114.7
316	49100	53114.7
316	49120	53114.7
316	49140	53114.8
316	49160	53114.5
316	49180	53115
316	49200	53115.1
316	49220	53114.7
316	49240	53114.8
316	49260	53114.2
316	49280	53114.5
316	49300	53114.4
316	49320	53114.4

316	49340	53114.4
316	49360	53114.2
316	49380	53114.4
316	49400	53114.1
316	49420	53114.4
316	49440	53114.4
316	49460	53114.2
316	49480	53114.1
316	49500	53114
316	49520	53114.6
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316	49560	53114.1
316	49580	53114
316	49600	53113.9
316	49620	53114
316	49640	53114.2
316	49660	53113.8
316	49680	53114.3
316	49700	53114.5
316	49720	53114.1
316	49740	53114.3
316	49760	53114.6
316	49780	53114.4
316	49800	53114.3
316	49820	53114
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316	49960	53114.3
316	49980	53114.4
316	50000	53114.5
316	50020	53114.5
316	50040	53114.5
316	50060	53114.5
316	50080	53114.6
316	50100	53114.3
316	50120	53114.9
316	50140	53114.8
316	50160	53114.3
316	50180	53114.7
316	50200	53114.2
316	50220	53113.9
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316	50260	53114.5
316	50280	53114
316	50300	53114.5
316	50320	53114.4
316	50340	53114.2

316	50360	53114
316	50380	53113.8
316	50400	53113.9
316	50420	53114.2
316	50440	53114.4
316	50460	53113.7
316	50480	53113.4
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316	50520	53113.9
316	50540	53113.9
316	50560	53114
316	50580	53114
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316	50620	53114.4
316	50640	53114.3
316	50660	53114.1
316	50680	53114.4
316	50700	53114.3
316	50720	53114.8
316	50740	53114.5
316	50760	53114.4
316	50780	53114.6
316	50800	53114.2
316	50820	53114.6
316	50840	53114.7
316	50860	53114.6
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316	50900	53114.6
316	50920	53114.6
316	50940	53114.4
316	50960	53114.7
316	50980	53114.5
316	51000	53114.8
316	51020	53115.1
316	51040	53114.6
316	51060	53115.3
316	51080	53114.8
316	51100	53115
316	51120	53114.8
316	51140	53114.9
316	51160	53115.3
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316	51220	53115.2
316	51240	53115.2
316	51260	53115.4
316	51280	53115.3
316	51300	53115.7
316	51320	53115.5
316	51340	53115.3
316	51360	53115.6

316	51380	53115.5
316	51400	53115.8
316	51420	53116.1
316	51440	53115.9
316	51460	53116.3
316	51480	53116
316	51500	53116
316	51520	53116.2
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316	51600	53116.8
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316	51660	53116.6
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316	52080	53116.6
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316	52120	53116.9
316	52140	53116.9
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316	52300	53117
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316	52340	53117.2
316	52360	53117.3
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316	52400	53117.5
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316	52440	53117.6
316	52460	53117.6
316	52480	53117.7
316	52500	53117.5
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316	52600	53117.3
316	52620	53117.1
316	52640	53116.9
316	52660	53117.5
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316	52820	53116.7
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316	52940	53116.1
316	52960	53116.4
316	52980	53116.4
316	53000	53116.8

0	0	52985	45	193.82	52959.83	85	47	52978.16	130	80.5	52991.87
0	.42	52984.8	45	193.53	52960.25	85	46.67	52977.95	130	81	52991.24
0	.83	52984.8	45	193.24	52960.77	85	46.33	52977.74	130	81.5	52991.46
0	1.25	52984.59	45	192.94	52961.91	85	46	52977.74	130	82	52992.83
0	1.67	52984.38	45	192.65	52963.49	85	45.67	52978.26	130	82.5	52993.78
0	2.08	52984.27	45	192.35	52964.12	85	45.33	52979.21	130	83	52993.36
0	2.5	52984.06	45	192.06	52964.33	85	45	52979.73	130	83.5	52991.88
0	2.92	52984.17	45	191.76	52964.32	85	44.67	52979.62	130	84	52988.31
0	3.33	52984.17	45	191.47	52964.42	85	44.33	52979.73	130	84.5	52981.05
0	3.75	52984.38	45	191.18	52964.53	85	44	52979.62	130	85	52976.84
0	4.17	52984.27	45	190.88	52965.05	85	43.67	52979.21	130	85.5	52980.11
0	4.58	52983.64	45	190.59	52965.46	85	43.33	52978.68	130	86	52983.57
0	5	52982.18	45	190.29	52965.46	85	43	52978.47	130	86.5	52985.89
0	5.42	52980.92	45	190	52965.35	85	42.67	52978.26	130	87	52988
0	5.83	52980.4	45	189.67	52965.35	85	42.33	52977.85	130	87.5	52990.32
0	6.25	52980.29	45	189.33	52965.56	85	42	52977.64	130	88	52992.53
0	6.67	52980.09	45	189	52965.66	85	41.67	52977.64	130	88.5	52993.88
0	7.08	52979.88	45	188.67	52965.04	85	41.33	52977.43	130	89	52994.84
0	7.5	52979.77	45	188.33	52963.25	85	41	52976.69	130	89.5	52995.15
0	7.92	52980.09	45	188	52961.05	85	40.67	52975.75	130	90	52995.25
0	8.33	52980.41	45	187.67	52960.52	85	40.33	52974.6	130	90.5	52995.67
0	8.75	52981.02	45	187.33	52962.71	85	40	52973.66	130	91	52996.2
0	9.17	52981.55	45	187	52965.23	85	39.5	52972.72	130	91.5	52996.3
0	9.58	52982.07	45	186.67	52966.8	85	39	52972.09	130	92	52995.98
0	10	52981.98	45	186.33	52967.96	85	38.5	52971.46	130	92.5	52995.45
0	10.33	52981.14	45	186	52968.27	85	38	52971.04	130	93	52995.14
0	10.67	52980.93	45	185.67	52968.16	85	37.5	52970.73	130	93.5	52995.45
0	11	52981.14	45	185.33	52967.95	85	37	52970.94	130	94	52996.5
0	11.33	52981.24	45	185	52968.37	85	36.5	52971.56	130	94.5	52997.76
0	11.67	52981.24	45	184.67	52968.47	85	36	52971.77	130	95	52998.07
0	12	52981.35	45	184.33	52968.16	85	35.5	52971.36	130	95.5	52997.86
0	12.33	52982.4	45	184	52967.74	85	35	52970.83	130	96	52997.44
0	12.67	52983.03	45	183.67	52967.52	85	34.5	52970.52	130	96.5	52997.13
0	13	52983.44	45	183.33	52968.36	85	34	52970.1	130	97	52996.8
0	13.33	52983.76	45	183	52970.35	85	33.5	52969.68	130	97.5	52996.06
0	13.67	52983.86	45	182.67	52974.86	85	33	52969.58	130	98	52994.91
0	14	52983.23	45	182.33	52982.82	85	32.5	52969.16	130	98.5	52993.96
0	14.33	52981.98	45	182	52988.61	85	32	52968.74	130	99	52993.21
0	14.67	52981.24	45	181.67	52982.51	85	31.5	52968.63	130	99.5	52992.9
0	15	52980.94	45	181.33	52975.79	85	31	52968.95	130	100	52992.9
0	15.33	52981.04	45	181	52973.38	85	30.5	52969.05	130	100.33	52994.05
0	15.67	52980.63	45	180.67	52972.54	85	30	52968.84	130	100.67	52995.53
0	16	52980.52	45	180.33	52971.48	85	29.5	52968.22	130	101	52996.04
0	16.33	52981.57	45	180	52970.54	85	29	52967.27	130	101.33	52996.04
0	16.67	52982.72	45	179.5	52969.91	85	28.5	52966.44	130	101.67	52996.26
0	17	52983.14	45	179	52969.8	85	28	52965.91	130	102	52996.78
0	17.33	52983.45	45	178.5	52969.7	85	27.5	52965.39	130	102.33	52997.2
0	17.67	52983.66	45	178	52970	85	27	52964.87	130	102.67	52996.89
0	18	52983.35	45	177.5	52970.53	85	26.5	52964.13	130	103	52995.72
0	18.33	52982.41	45	177	52970.74	85	26	52963.4	130	103.33	52994.56
0	18.67	52981.15	45	176.5	52970.84	85	25.5	52962.88	130	103.67	52993.61
0	19	52980.73	45	176	52971.15	85	25	52962.98	130	104	52993.4
0	19.33	52980.94	45	175.5	52971.57	85	24.5	52963.51	130	104.33	52994.02
0	19.67	52980.73	45	175	52971.88	85	24	52963.82	130	104.67	52995.5
0	20	52981.04	45	174.5	52971.88	85	23.5	52963.4	130	105	52996.55
0	20.5	52981.68	45	174	52972.09	85	23	52962.98	130	105.33	52997.08
0	21	52982.52	45	173.5	52971.46	85	22.5	52962.46	130	105.67	52996.96
0	21.5	52983.25	45	173	52970.93	85	22	52961.31	130	106	52996.96
0	22	52983.88	45	172.5	52970.4	85	21.5	52959.74	130	106.33	52997.17
0	22.5	52983.66	45	172	52970.4	85	21	52957.96	130	106.67	52996.75
0	23	52982.52	45	171.5	52970.61	85	20.5	52955.66	130	107	52995.8
0	23.5	52981.25	45	171	52970.81	85	20	52952.73	130	107.33	52994.65
0	24	52980.74	45	170.5	52971.23	85	19.67	52948.55	130	107.67	52993.7
0	24.5	52981.05	45	170	52971.86	85	19.33	52943.22	130	108	52992.95
0	25	52981.05	45	169.5	52972.49	85	19	52936.63	130	108.33	52992.95
0	25.5	52980.64	45	169	52972.8	85	18.67	52929	130	108.67	52994.22
0	26	52981.58	45	168.5	52972.7	85	18.33	52920.96	130	109	52995.69

0	26.5	52982.94	45	168	52971.75	85	18	52914.17	130	109.33	52996.21
0	27	52983.99	45	167.5	52970.59	85	17.67	52910.2	130	109.67	52996.21
0	27.5	52984.83	45	167	52970.38	85	17.33	52908.42	130	110	52995.99
0	28	52984.93	45	166.5	52970.38	85	17	52909.99	130	110.5	52995.89
0	28.5	52983.99	45	166	52970.7	85	16.67	52913.64	130	111	52995.98
0	29	52982.63	45	165.5	52971.11	85	16.33	52918.34	130	111.5	52995.57
0	29.5	52982.1	45	165	52971.74	85	16	52923.36	130	112	52995.14
0	30	52982.21	45	164.5	52972.68	85	15.67	52928.06	130	112.5	52994.72
0	30.5	52982.21	45	164	52973.21	85	15.33	52932.55	130	113	52994.51
0	31	52981.58	45	163.5	52973.42	85	15	52936.84	130	113.5	52994.93
0	31.5	52981.69	45	163	52973.41	85	14.67	52940.18	130	114	52995.45
0	32	52983.05	45	162.5	52973.09	85	14.33	52942.59	130	114.5	52995.88
0	32.5	52984.63	45	162	52972.25	85	14	52944.16	130	115	52995.55
0	33	52985.57	45	161.5	52971.94	85	13.67	52945.93	130	115.5	52995.13
0	33.5	52985.78	45	161	52972.36	85	13.33	52947.08	130	116	52994.91
0	34	52985.57	45	160.5	52972.98	85	13	52947.71	130	116.5	52994.61
0	34.5	52984.52	45	160	52973.71	85	12.67	52948.03	130	117	52993.75
0	35	52983.46	45	159.5	52974.23	85	12.33	52948.44	130	117.5	52992.18
0	35.5	52982.85	45	159	52974.97	85	12	52948.86	130	118	52990.39
0	36	52983.16	45	158.5	52975.38	85	11.67	52949.18	130	118.5	52988.18
0	36.5	52983.06	45	158	52975.38	85	11.33	52949.39	130	119	52985.02
0	37	52982.95	45	157.5	52975.48	85	11	52949.91	130	119.5	52981.13
0	37.5	52984.1	45	157	52974.96	85	10.67	52950.43	130	120	52978.28
0	38	52985.46	45	156.5	52974.54	85	10.33	52950.33	130	120.5	52978.59
0	38.5	52986.3	45	156	52974.64	85	10	52949.8	130	121	52981.21
0	39	52986.72	45	155.5	52974.95	85	9.67	52949.28	130	121.5	52984.38
0	39.5	52986.52	45	155	52975.26	85	9.33	52948.65	130	122	52987.63
0	40	52985.36	45	154.5	52975.89	85	9	52948.23	130	122.5	52990.05
0	40.5	52984	45	154	52976.63	85	8.67	52947.92	130	123	52991.42
0	41	52983.16	45	153.5	52977.25	85	8.33	52947.82	130	123.5	52991.63
0	41.5	52982.95	45	153	52977.56	85	8	52947.71	130	124	52991.41
0	42	52982.86	45	152.5	52977.67	85	7.67	52947.82	130	124.5	52991.3
0	42.5	52982.54	45	152	52977.98	85	7.33	52947.92	130	125	52991.41
0	43	52982.02	45	151.5	52977.46	85	7	52948.13	130	125.5	52992.15
0	43.5	52982.33	45	151	52977.14	85	6.67	52948.55	130	126	52993.71
0	44	52982.65	45	150.5	52977.13	85	6.33	52948.97	130	126.5	52994.67
0	44.5	52982.65	45	150	52977.45	85	6	52948.76	130	127	52994.98
0	45	52983.59	45	149.5	52977.66	85	5.67	52947.92	130	127.5	52994.87
0	45.5	52984.32	45	149	52978.29	85	5.33	52947.5	130	128	52994.87
0	46	52984.43	45	148.5	52978.7	85	5	52946.98	130	128.5	52994.66
0	46.5	52984.11	45	148	52979.13	85	4.67	52946.14	130	129	52994.14
0	47	52984.11	45	147.5	52979.33	85	4.33	52945.41	130	129.5	52993.5
0	47.5	52984.64	45	147	52979.01	85	4	52944.99	130	130	52993.18
0	48	52984.53	45	146.5	52978.49	85	3.67	52944.16	130	130.5	52993.18
0	48.5	52984.43	45	146	52978.17	85	3.33	52943.11	130	131	52993.39
0	49	52985.27	45	145.5	52977.74	85	3	52942.07	130	131.5	52993.6
0	49.5	52985.68	45	145	52977.74	85	2.67	52941.65	130	132	52993.38
0	50	52985.89	45	144.5	52977.64	85	2.33	52941.54	130	132.5	52992.96
0	50.5	52986.1	45	144	52977.64	85	2	52941.23	130	133	52992.22
0	51	52985.8	45	143.5	52977.95	85	1.67	52940.39	130	133.5	52992
0	51.5	52984.23	45	143	52978.36	85	1.33	52939.24	130	134	52992.32
0	52	52982.66	45	142.5	52978.89	85	1	52938.3	130	134.5	52992.32
0	52.5	52981.91	45	142	52978.68	85	.67	52937.36	130	135	52991.58
0	53	52981.39	45	141.5	52978.15	85	.33	52936.94	130	135.5	52990.95
0	53.5	52981.29	45	141	52977.83	85	0	52936.84	130	136	52990.11
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0	54.5	52984.44	45	140	52977.09	90	.42	52947.44	130	137	52989.46
0	55	52985.59	45	139.5	52976.88	90	.83	52947.44	130	137.5	52990.73
0	55.5	52986.43	45	139	52976.57	90	1.25	52947.23	130	138	52991.46
0	56	52986.85	45	138.5	52976.25	90	1.67	52947.44	130	138.5	52991.36
0	56.5	52986.74	45	138	52976.66	90	2.08	52947.34	130	139	52990.94
0	57	52986.22	45	137.5	52977.4	90	2.5	52947.23	130	139.5	52990.3
0	57.5	52985.59	45	137	52977.82	90	2.92	52946.81	130	140	52989.88
0	58	52985.59	45	136.5	52977.71	90	3.33	52946.07	130	140.5	52989.24
0	58.5	52986.22	45	136	52977.29	90	3.75	52945.55	130	141	52988.51
0	59	52986.54	45	135.5	52976.76	90	4.17	52945.44	130	141.5	52987.88
0	59.5	52986.32	45	135	52976.13	90	4.58	52945.86	130	142	52987.02

0	60	52986.54	45	134.5	52975.6	90	5	52945.86	130	142.5	52986.81
0	60.5	52986.32	45	134	52975.6	90	5.42	52945.13	130	143	52987.87
0	61	52986.02	45	133.5	52975.39	90	5.83	52944.29	130	143.5	52989.13
0	61.5	52985.7	45	133	52974.96	90	6.25	52943.55	130	144	52989.44
0	62	52985.38	45	132.5	52975.07	90	6.67	52943.13	130	144.5	52989.12
0	62.5	52984.24	45	132	52975.7	90	7.08	52942.81	130	145	52988.59
0	63	52983.71	45	131.5	52976.64	90	7.5	52942.18	130	145.5	52988.49
0	63.5	52983.5	45	131	52977.27	90	7.92	52941.35	130	146	52989.64
0	64	52983.92	45	130.5	52976.95	90	8.33	52940.82	130	146.5	52989.75
0	64.5	52983.61	45	130	52976.95	90	8.75	52940.61	130	147	52989.21
0	65	52983.19	45	129.5	52976.84	90	9.17	52940.82	130	147.5	52988.79
0	65.5	52983.71	45	129	52976.95	90	9.58	52941.87	130	148	52988.48
0	66	52983.82	45	128.5	52977.16	90	10	52943.64	130	148.5	52988.16
0	66.5	52983.82	45	128	52977.15	90	10.33	52945.01	130	149	52988.69
0	67	52984.03	45	127.5	52976.94	90	10.67	52945.85	130	149.5	52989.62
0	67.5	52983.5	45	127	52977.15	90	11	52947	130	150	52990.05
0	68	52982.25	45	126.5	52977.99	90	11.33	52948.25	130	150.5	52990.15
0	68.5	52981.51	45	126	52979.04	90	11.67	52949.82	130	151	52990.15
0	69	52981.41	45	125.5	52979.35	90	12	52951.4	130	151.5	52990.46
0	69.5	52981.2	45	125	52979.46	90	12.33	52952.65	130	152	52990.68
0	70	52981.41	45	124.5	52979.88	90	12.67	52954.33	130	152.5	52990.04
0	70.5	52982.25	45	124	52979.35	90	13	52956.43	130	153	52989.4
0	71	52983.09	45	123.5	52978.62	90	13.33	52958.32	130	153.5	52988.88
0	71.5	52983.61	45	123	52978.41	90	13.67	52959.57	130	154	52988.35
0	72	52983.71	45	122.5	52978.51	90	14	52960.2	130	154.5	52988.45
0	72.5	52983.19	45	122	52978.41	90	14.33	52960.73	130	155	52989.6
0	73	52981.72	45	121.5	52978.41	90	14.67	52965.96	130	155.5	52991.18
0	73.5	52980.89	45	121	52979.14	90	15	52961.14	130	156	52992.13
0	74	52980.89	45	120.5	52980.19	90	15.33	52964.49	130	156.5	52992.45
0	74.5	52981.3	45	120	52981.03	90	15.67	52971.83	130	157	52992.75
0	75	52981.3	45	119.5	52981.24	90	16	52981.91	130	157.5	52993.07
0	75.5	52981.51	45	119	52981.03	90	16.33	52993.98	130	158	52993.38
0	76	52982.14	45	118.5	52981.13	90	16.67	53013.09	130	158.5	52992.86
0	76.5	52982.67	45	118	52981.13	90	17	53045.68	130	159	52992.22
0	77	52982.67	45	117.5	52981.34	90	17.33	53089.04	130	159.5	52991.48
0	77.5	52982.35	45	117	52981.34	90	17.67	53123.73	130	160	52990.85
0	78	52981.2	45	116.5	52981.13	90	18	53132.38	130	160.5	52990.85
0	78.5	52978.27	45	116	52980.92	90	18.33	53115.92	130	161	52992.01
0	79	52975.75	45	115.5	52980.92	90	18.67	53090.2	130	161.5	52993.16
0	79.5	52975.65	45	115	52981.24	90	19	53055.45	130	162	52993.68
0	80	52976.8	45	114.5	52981.55	90	19.33	53021.59	130	162.5	52993.78
0	80.5	52977.53	45	114	52981.34	90	19.67	53001.53	130	163	52993.89
0	81	52977.64	45	113.5	52980.82	90	20	52990.82	130	163.5	52994.31
0	81.5	52978.16	45	113	52980.4	90	20.33	52982.21	130	164	52994.2
0	82	52978.79	45	112.5	52980.19	90	20.67	52974.13	130	164.5	52992.93
0	82.5	52979	45	112	52980.19	90	21	52966.89	130	165	52991.88
0	83	52978.58	45	111.5	52980.71	90	21.33	52961.64	130	165.5	52991.35
0	83.5	52977.43	45	111	52980.92	90	21.67	52959.33	130	166	52991.04
0	84	52975.75	45	110.5	52981.45	90	22	52958.91	130	166.5	52991.35
0	84.5	52974.71	45	110	52982.08	90	22.33	52958.91	130	167	52992.71
0	85	52974.08	45	109.67	52982.92	90	22.67	52959.02	130	167.5	52993.66
0	85.5	52973.34	45	109.33	52983.65	90	23	52959.33	130	168	52994.08
0	86	52972.61	45	109	52983.97	90	23.33	52959.96	130	168.5	52993.87
0	86.5	52972.93	45	108.67	52984.07	90	23.67	52960.91	130	169	52993.75
0	87	52973.13	45	108.33	52984.18	90	24	52961.11	130	169.5	52993.86
0	87.5	52973.34	45	108	52983.86	90	24.33	52960.58	130	170	52993.65
0	88	52973.24	45	107.67	52983.55	90	24.67	52960.27	130	170.33	52993.02
0	88.5	52972.51	45	107.33	52983.44	90	25	52959.85	130	170.67	52992.18
0	89	52970.94	45	107	52983.23	90	25.33	52959.95	130	171	52991.33
0	89.5	52969.37	45	106.67	52983.23	90	25.67	52960.69	130	171.33	52990.48
0	90	52968.32	45	106.33	52983.76	90	26	52962.26	130	171.67	52990.38
0	90.5	52967.69	45	106	52984.18	90	26.33	52963.94	130	172	52991.11
0	91	52966.85	45	105.67	52984.7	90	26.67	52966.14	130	172.33	52991.74
0	91.5	52966.43	45	105.33	52984.7	90	27	52969.91	130	172.67	52991.43
0	92	52967.17	45	105	52984.28	90	27.33	52975.27	130	173	52990.59
0	92.5	52969.47	45	104.67	52984.07	90	27.67	52978.3	130	173.33	52989.42
0	93	52971.56	45	104.33	52983.86	90	28	52978.51	130	173.67	52988.47

0	93.5	52973.66	45	104	52983.55	90	28.33	52978.61	130	174	52986.79
0	94	52976.59	45	103.67	52983.44	90	28.67	52977.46	130	174.33	52984.37
0	94.5	52979.94	45	103.33	52983.76	90	29	52974.94	130	174.67	52982.15
0	95	52983.09	45	103	52983.97	90	29.33	52973.47	130	175	52981.1
0	95.5	52986.65	45	102.67	52984.49	90	29.67	52974.21	130	175.33	52981.2
0	96	52990.42	45	102.33	52985.02	90	30	52975.26	130	175.67	52982.89
0	96.5	52993.98	45	102	52985.86	90	31	52976.51	130	176	52984.98
0	97	52996.92	45	101.67	52986.28	90	32	52979.02	130	176.33	52986.36
0	97.5	52999.33	45	101.33	52986.38	90	33	52983.11	130	176.67	52988.14
0	98	52999.64	45	101	52987.01	90	34	52985.63	130	177	52990.66
0	98.5	52996.92	45	100.67	52986.8	90	35	52983.11	130	177.33	52993.5
0	99	52992.2	45	100.33	52986.28	90	36	52979.23	130	177.67	52994.87
0	99.5	52988.32	45	100	52985.75	90	37	52977.24	130	178	52994.77
0	100	52985.18	45	99	52985.23	90	38	52975.98	130	178.33	52993.49
0	100.5	52981.2	45	98	52984.6	90	39	52974.62	130	178.67	52992.65
0	101	52978.27	45	97	52984.28	90	40	52974.82	130	179	52991.81
0	101.5	52976.07	45	96	52984.6	90	40.33	52976.19	130	179.33	52990.65
0	102	52968.95	45	95	52985.44	90	40.67	52977.13	130	179.67	52989.39
0	102.5	52943.31	45	94	52985.86	90	41	52977.44	130	180	52988.45
0	103	52909.75	45	93	52985.44	90	41.33	52978.28	130	180.5	52987.08
0	103.5	52886.67	45	92	52985.12	90	41.67	52979.43	130	181	52985.3
0	104	52868.1	45	91	52985.12	90	42	52980.48	130	181.5	52982.77
0	104.5	52845.78	45	90	52985.02	90	42.33	52980.69	130	182	52980.14
0	105	52824.24	45	89.67	52985.23	90	42.67	52980.27	130	182.5	52982.03
0	105.5	52820.37	45	89.33	52985.44	90	43	52980.38	130	183	52993.82
0	106	52830.09	45	89	52985.54	90	43.33	52980.69	130	183.5	53018.79
0	106.5	52838.46	45	88.67	52985.75	90	43.67	52981.21	130	184	53060.65
0	107	52842.02	45	88.33	52986.59	90	44	52982.27	130	184.5	53103.21
0	107.5	52847.14	45	88	52987.64	90	44.33	52983.52	130	185	53081.87
0	108	52859.07	45	87.67	52988.27	90	44.67	52983.93	130	185.5	53033.54
0	108.5	52873.52	45	87.33	52988.38	90	45	52983.62	130	186	53009.83
0	109	52886.93	45	87	52988.48	90	45.33	52983.83	130	186.5	52999.42
0	109.5	52897.41	45	86.67	52989.74	90	45.67	52983.93	130	187	52993.42
0	110	52904.33	45	86.33	52992.36	90	46	52983.93	130	187.5	52990.47
0	110.5	52908	45	86	52997.4	90	46.33	52983.51	130	188	52989.63
0	111	52911.88	45	85.67	53004.54	90	46.67	52982.89	130	188.5	52989.63
0	111.5	52917.23	45	85.33	53015.89	90	47	52982.57	130	189	52989.95
0	112	52922.9	45	85	53038.28	90	47.33	52982.46	130	189.5	52990.16
0	112.5	52927.51	45	84.67	53082.48	90	47.67	52983.29	130	190	52990.27
0	113	52931.71	45	84.33	53156.63	90	48	52985.18	130	190.5	52991.01
0	113.5	52935.7	45	84	53275.83	90	48.33	52986.97	130	191	52992.9
0	114	52937.17	45	83.67	53480.42	90	48.67	52988.02	130	191.5	52994.69
0	114.5	52937.07	45	83.33	53790.75	90	49	52988.65	130	192	52995.43
0	115	52935.81	45	83	53822.62	90	49.33	52989.49	130	192.5	52995.53
0	115.5	52933.92	45	82.67	53435.38	90	49.67	52989.59	130	193	52995.86
0	116	52932.34	45	82.33	53078.1	90	50	52989.28	130	193.5	52996.39
0	116.5	52929.82	45	82	52899.11	90	50.5	52988.23	130	194	52996.6
0	117	52927.41	45	81.67	52829.42	90	51	52987.91	130	194.5	52996.18
0	117.5	52925.1	45	81.33	52827.75	90	51.5	52988.02	130	195	52995.86
0	118	52922.27	45	81	52862.62	90	52	52988.64	130	195.5	52995.97
0	118.5	52921.01	45	80.67	52891.68	90	52.5	52990.11	130	196	52996.29
0	119	52922.06	45	80.33	52914.38	90	53	52991.05	130	196.5	52997.02
0	119.5	52922.16	45	80	52929.98	90	53.5	52991.37	130	197	52998.29
0	120	52919.01	45	79.5	52940.24	90	54	52991.47	130	197.5	52998.71
0	120.5	52913.46	45	79	52949.15	90	54.5	52991.68	130	198	52998.61
0	121	52905.17	45	78.5	52958.06	90	55	52990.95	130	198.5	52997.87
0	121.5	52896.89	45	78	52965.08	90	55.5	52989.27	130	199	52997.76
0	122	52892.28	45	77.5	52969.49	90	56	52987.9	130	199.5	52998.71
0	122.5	52890.81	45	77	52972.43	90	56.5	52986.84	130	200	53000.62
0	123	52889.03	45	76.5	52974.73	90	57	52986.32	135	200	52987.92
0	123.5	52885.36	45	76	52976.62	90	57.5	52987.16	135	199.71	52988.04
0	124	52882.53	45	75.5	52978.2	90	58	52988.94	135	199.41	52988.04
0	124.5	52884	45	75	52979.88	90	58.5	52990.1	135	199.12	52988.13
0	125	52886.93	45	74.5	52981.24	90	59	52990.62	135	198.82	52988.14
0	125.5	52888.82	45	74	52982.08	90	59.5	52990.94	135	198.53	52988.25
0	126	52889.55	45	73.5	52982.39	90	60	52991.25	135	198.24	52988.14
0	126.5	52891.12	45	73	52982.92	90	60.5	52990.52	135	197.94	52988.14

0	127	52894.48	45	72.5	52983.34	90	61	52989.05	135	197.65	52988.14
0	127.5	52896.68	45	72	52983.23	90	61.5	52987.79	135	197.35	52988.36
0	128	52895.73	45	71.5	52983.23	90	62	52986.52	135	197.06	52988.68
0	128.5	52892.8	45	71	52983.34	90	62.5	52985.68	135	196.76	52989.2
0	129	52889.45	45	70.5	52983.34	90	63	52985.47	135	196.47	52989.51
0	129.5	52887.77	45	70	52983.55	90	63.5	52986.2	135	196.18	52989.41
0	130	52888.5	45	69.67	52984.28	90	64	52987.15	135	195.88	52989.3
0	130.5	52889.45	45	69.33	52985.12	90	64.5	52987.25	135	195.59	52988.89
0	131	52889.66	45	69	52985.96	90	65	52986.94	135	195.29	52987.73
0	131.5	52889.66	45	68.67	52986.38	90	65.5	52987.15	135	195	52986.59
0	132	52888.92	45	68.33	52986.38	90	66	52987.77	135	194.71	52986.07
0	132.5	52886.83	45	68	52986.38	90	66.5	52987.98	135	194.41	52985.65
0	133	52885.15	45	67.67	52986.07	90	67	52987.66	135	194.12	52985.76
0	133.5	52884.63	45	67.33	52985.75	90	67.5	52987.45	135	193.82	52986.7
0	134	52885.04	45	67	52985.75	90	68	52987.24	135	193.53	52987.86
0	134.5	52886.09	45	66.67	52986.07	90	68.5	52987.24	135	193.24	52988.59
0	135	52887.35	45	66.33	52986.7	90	69	52988.71	135	192.94	52988.7
0	135.5	52889.45	45	66	52987.75	90	69.5	52989.76	135	192.65	52987.86
0	136	52891.65	45	65.67	52989.42	90	70	52990.18	135	192.35	52986.81
0	136.5	52894.37	45	65.33	52990.79	90	70.5	52990.5	135	192.06	52986.71
0	137	52897.31	45	65	52991.52	90	71	52991.02	135	191.76	52987.02
0	137.5	52898.56	45	64.67	52991.52	90	71.5	52990.5	135	191.47	52987.44
0	138	52898.56	45	64.33	52991.1	90	72	52989.33	135	191.18	52988.08
0	138.5	52899.72	45	64	52989.53	90	72.5	52988.18	135	190.88	52989.02
0	139	52903.49	45	63.67	52986.8	90	73	52987.23	135	190.59	52989.75
0	139.5	52908.84	45	63.33	52985.33	90	73.5	52986.71	135	190.29	52989.96
0	140	52912.93	45	63	52985.12	90	74	52987.44	135	190	52990.17
0	140.5	52916.29	45	62.67	52985.02	90	74.5	52989.23	135	189.5	52990.27
0	141	52918.6	45	62.33	52985.23	90	75	52990.07	135	189	52990.18
0	141.5	52923.32	45	62	52985.23	90	75.5	52990.07	135	188.5	52989.96
0	142	52932.45	45	61.67	52985.44	90	76	52990.06	135	188	52989.66
0	142.5	52942.32	45	61.33	52985.86	90	76.5	52990.27	135	187.5	52989.13
0	143	52946.83	45	61	52986.28	90	77	52990.7	135	187	52988.3
0	143.5	52949.14	45	60.67	52986.07	90	77.5	52990.9	135	186.5	52987.88
0	144	52955.76	45	60.33	52985.96	90	78	52990.9	135	186	52988.3
0	144.5	52972.47	45	60	52985.75	90	78.5	52991	135	185.5	52988.82
0	145	52992.98	45	59.5	52985.02	90	79	52991.53	135	185	52989.25
0	145.5	53001.39	45	59	52983.97	90	79.5	52992.58	135	184.5	52989.56
0	146	53003.18	45	58.5	52983.44	90	80	52994.68	135	184	52990.19
0	146.5	53006.45	45	58	52982.92	90	80.5	52996.36	135	183.5	52990.61
0	147	53017.71	45	57.5	52982.6	90	81	52996.98	135	183	52990.93
0	147.5	53037.94	45	57	52982.81	90	81.5	52997.41	135	182.5	52991.13
0	148	53057.55	45	56.5	52983.23	90	82	52997.82	135	182	52990.61
0	148.5	53064.3	45	56	52984.18	90	82.5	52996.87	135	181.5	52989.89
0	149	53062.71	45	55.5	52984.91	90	83	52994.88	135	181	52989.78
0	149.5	53065.88	45	55	52985.02	90	83.5	52992.67	135	180.5	52989.89
0	150	53082.02	45	54.5	52984.6	90	84	52991.31	135	180	52989.99
0	150.33	53102.09	45	54	52984.39	90	84.5	52990.36	135	179.5	52990.1
0	150.67	53108.64	45	53.5	52984.28	90	85	52990.26	135	179	52990.3
0	151	53106.1	45	53	52983.97	90	85.5	52992.04	135	178.5	52990.52
0	151.33	53103.99	45	52.5	52983.76	90	86	52993.29	135	178	52990.73
0	151.67	53110.65	45	52	52983.76	90	86.5	52993.41	135	177.5	52990.52
0	152	53121.85	45	51.5	52983.76	90	87	52992.88	135	177	52989.9
0	152.33	53118.47	45	51	52983.86	90	87.5	52992.66	135	176.5	52989.16
0	152.67	53102.62	45	50.5	52984.18	90	88	52992.24	135	176	52988.54
0	153	53086.04	45	50	52984.6	90	88.5	52991.51	135	175.5	52988.01
0	153.33	53075.37	45	49.67	52985.12	90	89	52990.25	135	175	52987.81
0	153.67	53071.05	45	49.33	52985.33	90	89.5	52989.09	135	174.5	52987.61
0	154	53068.73	45	49	52984.81	90	90	52988.46	135	174	52987.4
0	154.33	53060.92	45	48.67	52984.49	90	90.5	52988.57	135	173.5	52987.5
0	154.67	53052.06	45	48.33	52983.97	90	91	52989.62	135	173	52988.02
0	155	53044.16	45	48	52983.13	90	91.5	52990.55	135	172.5	52988.45
0	155.33	53040.57	45	47.67	52982.92	90	92	52990.76	135	172	52988.34
0	155.67	53039.52	45	47.33	52982.71	90	92.5	52990.45	135	171.5	52988.14
0	156	53035.94	45	47	52982.6	90	93	52990.55	135	171	52987.72
0	156.33	53028.88	45	46.67	52982.81	90	93.5	52990.55	135	170.5	52987.09
0	156.67	53021.71	45	46.33	52983.34	90	94	52990.13	135	170	52986.67

0	157	53017.5	45	46	52984.07	90	94.5	52989.29	135	169.5	52986.57
0	157.33	53015.29	45	45.67	52984.39	90	95	52988.66	135	169	52986.36
0	157.67	53013.29	45	45.33	52984.18	90	95.5	52988.02	135	168.5	52986.47
0	158	53010.55	45	45	52983.97	90	96	52988.23	135	168	52987.1
0	158.33	53009.39	45	44.67	52983.65	90	96.5	52989.5	135	167.5	52987.94
0	158.67	53008.76	45	44.33	52982.92	90	97	52991.07	135	167	52988.57
0	159	53009.18	45	44	52982.29	90	97.5	52991.8	135	166.5	52988.57
0	159.33	53009.81	45	43.67	52981.87	90	98	52991.7	135	166	52988.46
0	159.67	53009.6	45	43.33	52981.55	90	98.5	52991.49	135	165.5	52988.25
0	160	53008.13	45	43	52981.24	90	99	52991.59	135	165	52988.04
0	160.5	53007.39	45	42.67	52981.24	90	99.5	52991.59	135	164.5	52988.15
0	161	53008.24	45	42.33	52981.55	90	100	52990.96	135	164	52988.15
0	161.5	53009.92	45	42	52982.39	90	100.5	52990.23	135	163.5	52988.04
0	162	53011.71	45	41.67	52982.71	90	101	52989.7	135	163	52988.25
0	162.5	53014.13	45	41.33	52982.39	90	101.5	52989.48	135	162.5	52988.78
0	163	53017.92	45	41	52982.18	90	102	52990.11	135	162	52989.72
0	163.5	53021.92	45	40.67	52982.08	90	102.5	52991.79	135	161.5	52990.34
0	164	53025.5	45	40.33	52981.76	90	103	52993.16	135	161	52990.03
0	164.5	53028.67	45	40	52981.66	90	103.5	52993.47	135	160.5	52989.72
0	165	53031.83	45	39.5	52981.76	90	104	52993.68	135	160	52989.4
0	165.5	53034.35	45	39	52981.67	90	104.5	52993.79	135	159.5	52988.78
0	166	53036.67	45	38.5	52981.67	90	105	52993.68	135	159	52988.78
0	166.5	53039.41	45	38	52981.98	90	105.5	52992.73	135	158.5	52988.88
0	167	53042.57	45	37.5	52982.61	90	106	52991.48	135	158	52988.78
0	167.5	53046.58	45	37	52983.45	90	106.5	52990.73	135	157.5	52988.88
0	168	53051.85	45	36.5	52983.87	90	107	52990.43	135	157	52989.3
0	168.5	53057.02	45	36	52983.77	90	107.5	52990.94	135	156.5	52989.72
0	169	53062.4	45	35.5	52983.14	90	108	52992.41	135	156	52989.82
0	169.5	53068.2	45	35	52982.93	90	108.5	52993.78	135	155.5	52989.72
0	170	53073.48	45	34.5	52982.4	90	109	52994.2	135	155	52989.51
0	170.5	53077.49	45	34	52981.68	90	109.5	52994.3	135	154.5	52989.09
0	171	53080.97	45	33.5	52981.25	90	110	52994.83	135	154	52988.57
0	171.5	53084.56	45	33	52981.05	90	110.5	52995.14	135	153.5	52988.36
0	172	53087.94	45	32.5	52980.73	90	111	52994.52	135	153	52987.94
0	172.5	53090.89	45	32	52980.42	90	111.5	52993.37	135	152.5	52987.42
0	173	53093.11	45	31.5	52980.63	90	112	52992.11	135	152	52987
0	173.5	53095.43	45	31	52981.26	90	112.5	52990.73	135	151.5	52987.1
0	174	53097.02	45	30.5	52981.89	90	113	52989.89	135	151	52987.42
0	174.5	53097.23	45	30	52981.89	90	113.5	52990.84	135	150.5	52987.21
0	175	53096.17	45	29.67	52981.36	90	114	52992.32	135	150	52986.58
0	175.5	53095.43	45	29.33	52980.53	90	114.5	52992.95	135	149.5	52986.16
0	176	53094.91	45	29	52980	90	115	52993.16	135	149	52985.85
0	176.5	53094.27	45	28.67	52979.38	90	115.5	52993.37	135	148.5	52985.74
0	177	53094.91	45	28.33	52978.86	90	116	52993.47	135	148	52985.95
0	177.5	53095.75	45	28	52978.75	90	116.5	52992.84	135	147.5	52986.37
0	178	53097.23	45	27.67	52978.65	90	117	52991.69	135	147	52986.68
0	178.5	53099.02	45	27.33	52978.54	90	117.5	52990.64	135	146.5	52987.21
0	179	53099.34	45	27	52978.45	90	118	52990.01	135	146	52987.73
0	179.5	53096.6	45	26.67	52978.45	90	118.5	52989.9	135	145.5	52988.25
0	180	53090.36	45	26.33	52978.96	90	119	52990.32	135	145	52988.46
0	180.5	53083.29	45	26	52979.7	90	119.5	52991.48	135	144.5	52988.36
0	181	53080.44	45	25.67	52980.12	90	120	52992	135	144	52988.15
0	181.5	53079.7	45	25.33	52979.81	90	120.5	52992	135	143.5	52987.94
0	182	53078.96	45	25	52979.18	90	121	52992.32	135	143	52987.52
0	182.5	53076.85	45	24.67	52978.76	90	121.5	52995.47	135	142.5	52987.21
0	183	53071.15	45	24.33	52978.03	90	122	52992.54	135	142	52987.1
0	183.5	53061.76	45	24	52977.29	90	122.5	52991.59	135	141.5	52986.89
0	184	53052.17	45	23.67	52976.87	90	123	52990.54	135	141	52986.89
0	184.5	53045.74	45	23.33	52976.45	90	123.5	52989.91	135	140.5	52987.31
0	185	53040.05	45	23	52975.93	90	124	52989.7	135	140	52987.94
0	185.5	53033.72	45	22.67	52975.73	90	124.5	52991.17	135	139.5	52988.46
0	186	53027.19	45	22.33	52976.04	90	125	52992.64	135	139	52988.25
0	186.5	53020.45	45	22	52976.36	90	125.5	52993.06	135	138.5	52988.04
0	187	53013.39	45	21.67	52976.46	90	126	52993.06	135	138	52987.63
0	187.5	53006.66	45	21.33	52976.04	90	126.5	52993.38	135	137.5	52987.31
0	188	52999.82	45	21	52975.41	90	127	52993.59	135	137	52987.21
0	188.5	52992.35	45	20.67	52974.89	90	127.5	52993.06	135	136.5	52987.21

0	189	52984.25	45	20.33	52974.05	90	128	52992.01	135	136	52987
0	189.5	52977.52	45	20	52973.21	90	128.5	52990.96	135	135.5	52987.31
0	190	52972.57	45	19.5	52972.58	90	129	52990.44	135	135	52988.25
0	190.5	52967	45	19	52972.17	90	129.5	52990.54	135	134.5	52989.09
0	191	52959.33	45	18.5	52971.54	90	130	52990.96	135	134	52989.3
0	191.5	52950.61	45	18	52971.23	90	130.5	52992.34	135	133.5	52989.19
0	192	52943.05	45	17.5	52971.23	90	131	52993.27	135	133	52988.78
0	192.5	52936.12	45	17	52971.65	90	131.5	52993.27	135	132.5	52987.94
0	193	52930.77	45	16.5	52971.44	90	132	52993.39	135	132	52987.73
0	193.5	52924.89	45	16	52970.7	90	132.5	52993.7	135	131.5	52987.83
0	194	52917.86	45	15.5	52970.39	90	133	52993.8	135	131	52987.94
0	194.5	52912.51	45	15	52969.98	90	133.5	52992.96	135	130.5	52987.94
0	195	52910.41	45	14.5	52969.25	90	134	52991.8	135	130	52988.25
0	195.5	52909.15	45	14	52968.71	90	134.5	52991.08	135	129.5	52988.88
0	196	52907.37	45	13.5	52968.29	90	135	52990.66	135	129	52989.51
0	196.5	52904.65	45	13	52967.78	90	135.5	52991.29	135	128.5	52989.93
0	197	52902.23	45	12.5	52967.36	90	136	52992.55	135	128	52989.93
0	197.5	52901.5	45	12	52967.25	90	136.5	52993.28	135	127.5	52990.14
0	198	52902.76	45	11.5	52967.46	90	137	52993.39	135	127	52990.34
0	198.5	52907.27	45	11	52967.46	90	137.5	52993.28	135	126.5	52990.45
0	199	52914.71	45	10.5	52966.83	90	138	52993.28	135	126	52990.34
0	199.5	52925.21	45	10	52965.89	90	138.5	52993.49	135	125.5	52990.14
0	200	52938.22	45	9.5	52964.85	90	139.	52992.86	135	125	52989.82
5	200	52598.36	45	9	52963.7	90	139.5	52992.13	135	124.5	52989.51
5	199.71	52592.21	45	8.5	52962.33	90	140	52991.71	135	124	52989.4
5	199.41	52581.68	45	8	52961.39	90	140.33	52991.18	135	123.5	52989.82
5	199.12	52574.07	45	7.5	52960.55	90	140.67	52991.29	135	123	52989.93
5	198.82	52572.71	45	7	52960.03	90	141	52992.55	135	122.5	52989.51
5	198.53	52574.48	45	6.5	52959.71	90	141.33	52994.03	135	122	52989.09
5	198.24	52574.18	45	6	52959.5	90	141.67	52994.55	135	121.5	52988.78
5	197.94	52569.28	45	5.5	52959.29	90	142	52994.87	135	121	52988.67
5	197.65	52563.64	45	5	52958.98	90	142.33	52995.71	135	120.5	52988.78
5	197.35	52560.1	45	4.5	52958.14	90	142.67	52996.76	135	120	52988.78
5	197.06	52559.58	45	4	52956.88	90	143	52997.7	135	119.5	52988.78
5	196.76	52569.27	45	3.5	52955.95	90	143.33	52998.86	135	119	52988.99
5	196.47	52594.08	45	3	52954.27	90	143.67	53000.96	135	118.5	52989.4
5	196.18	52622.56	45	2.5	52952.59	90	144	53004.84	135	118	52989.82
5	195.88	52651.49	45	2	52951.23	90	144.33	53011.14	135	117.5	52989.93
5	195.59	52673.66	45	1.5	52949.97	90	144.67	53017.66	135	117	52989.61
5	195.29	52692.59	45	1	52948.61	90	145	53019.97	135	116.5	52989.4
5	195	52721.18	45	.5	52947.25	90	145.33	53015.77	135	116	52989.09
5	194.71	52758.82	45	0	52946.2	90	145.67	53009.78	135	115.5	52988.46
5	194.41	52788.95	50	0	52943.02	90	146	53004.84	135	115	52988.25
5	194.12	52811.66	50	.42	52943.97	90	146.33	53001.17	135	114.5	52988.36
5	193.82	52830.48	50	.83	52945.22	90	146.67	52997.7	135	114	52988.15
5	193.53	52846.59	50	1.25	52946.9	90	147	52994.34	135	113.5	52988.25
5	193.24	52862.07	50	1.67	52949.32	90	147.33	52992.36	135	113	52988.78
5	192.94	52879.14	50	2.08	52952.25	90	147.67	52991.41	135	112.5	52989.51
5	192.65	52894.11	50	2.5	52954.25	90	148	52991.2	135	112	52989.93
5	192.35	52906.55	50	2.92	52955.39	90	148.33	52991.41	135	111.5	52989.72
5	192.06	52916.58	50	3.33	52956.34	90	148.67	52992.77	135	111	52989.51
5	191.76	52926.18	50	3.75	52957.39	90	149	52994.45	135	110.5	52989.3
5	191.47	52936.54	50	4.17	52958.44	90	149.33	52994.77	135	110	52989.19
5	191.18	52948.26	50	4.58	52958.86	90	149.67	52994.56	135	109.5	52989.51
5	190.88	52959.05	50	5	52958.75	90	150	52994.77	135	109	52989.72
5	190.59	52968.35	50	5.42	52958.54	90	150.5	52994.98	135	108.5	52989.93
5	190.29	52976.5	50	5.83	52958.86	90	151	52994.77	135	108	52990.45
5	190	52984.43	50	6.25	52959.5	90	151.5	52993.62	135	107.5	52991.18
5	189.5	52993.43	50	6.67	52960.65	90	152	52992.67	135	107	52992.23
5	189	53005.61	50	7.08	52962.43	90	152.5	52992.04	135	106.5	52993.17
5	188.5	53018.95	50	7.5	52964.43	90	153	52991.94	135	106	52993.59
5	188	53032.2	50	7.92	52965.79	90	153.5	52993.09	135	105.5	52993.8
5	187.5	53043.97	50	8.33	52966.73	90	154	52994.67	135	105	52993.9
5	187	53055	50	8.75	52967.89	90	154.5	52995.4	135	104.5	52993.48
5	186.5	53066.68	50	9.17	52969.04	90	155	52995.51	135	104	52993.06
5	186	53081.12	50	9.58	52969.57	90	155.5	52995.61	135	103.5	52992.96
5	185.5	53096.84	50	10	52969.89	90	156	52996.24	135	103	52992.65

5	185	53112.68	50	10.5	52969.98	90	156.5	52996.56	135	102.5	52992.54
5	184.5	53127.89	50	11	52970.3	90	157	52995.62	135	102	52992.65
5	184	53143.65	50	11.5	52970.83	90	157.5	52994.78	135	101.5	52992.86
5	183.5	53162.17	50	12	52971.99	90	158	52994.78	135	101	52992.86
5	183	53184.87	50	12.5	52973.04	90	158.5	52994.78	135	100.5	52992.54
5	182.5	53208.02	50	13	52973.35	90	159	52995.73	135	100	52991.91
5	182	53229.37	50	13.5	52973.46	90	159.5	52997.09	135	99.67	52991.5
5	181.5	53248.84	50	14	52973.88	90	160	52997.62	135	99.33	52991.18
5	181	53268.97	50	14.5	52974.61	90	160.5	52997.83	135	99	52990.76
5	180.5	53295.31	50	15	52975.13	90	161	52997.93	135	98.67	52990.34
5	180	53327.22	50	15.5	52975.14	90	161.5	52997.72	135	98.33	52989.72
5	179.67	53361.18	50	16	52975.04	90	162	52997.41	135	98	52989.3
5	179.33	53392.43	50	16.5	52975.14	90	162.5	52996.67	135	97.67	52989.4
5	179	53421.34	50	17	52975.77	90	163	52996.25	135	97.33	52989.72
5	178.67	53444.09	50	17.5	52977.03	90	163.5	52995.83	135	97	52990.03
5	178.33	53456.8	50	18	52978.4	90	164	52995.94	135	96.67	52989.51
5	178	53460.54	50	18.5	52979.03	90	164.5	52996.57	135	96.33	52988.78
5	177.67	53462.79	50	19	52979.45	90	165	52998.35	135	96	52988.67
5	177.33	53464.92	50	19.5	52979.76	90	165.5	52999.61	135	95.67	52988.36
5	177	53465.67	50	20	52980.39	90	166	53000.04	135	95.33	52988.36
5	176.67	53464.18	50	20.33	52981.13	90	166.5	53000.45	135	95	52988.46
5	176.33	53462.68	50	20.67	52982.29	90	167	53000.88	135	94.67	52988.57
5	176	53458.08	50	21	52983.64	90	167.5	53001.09	135	94.33	52988.88
5	175.67	53449.41	50	21.33	52984.48	90	168	53000.77	135	94	52990.03
5	175.33	53439.48	50	21.67	52983.75	90	168.5	53000.56	135	93.67	52991.39
5	175	53426.88	50	22	52983.23	90	169	53000.98	135	93.33	52992.44
5	174.67	53409.05	50	22.33	52983.34	90	169.5	53001.51	135	93	52993.06
5	174.33	53387.3	50	22.67	52982.8	90	170	53002.98	135	92.67	52993.27
5	174	53364.06	50	23	52982.5	90	170.5	53005.5	135	92.33	52993.17
5	173.67	53343.94	50	23.33	52983.02	90	171	53007.39	135	92	52992.23
5	173.33	53324.14	50	23.67	52984.28	90	171.5	53008.44	135	91.67	52990.55
5	173	53302.34	50	24	52984.6	90	172	53009.49	135	91.33	52988.46
5	172.67	53278.66	50	24.33	52983.97	90	172.5	53010.86	135	91	52985.95
5	172.33	53256.7	50	24.67	52983.02	90	173	53012.33	135	90.67	52984.8
5	172	53236.22	50	25	52983.02	90	173.5	53013.06	135	90.33	52985.53
5	171.67	53216.83	50	25.33	52983.34	90	174	53013.17	135	90	52987.1
5	171.33	53196.28	50	25.67	52983.97	90	174.5	53013.38	135	89.5	52988.25
5	171	53172.48	50	26	52984.49	90	175	53014.43	135	89	52988.78
5	170.67	53148.69	50	26.33	52985.44	90	175.5	53016.01	135	88.5	52988.57
5	170.33	53129.68	50	26.67	52985.75	90	176	53018.63	135	88	52988.78
5	170	53114.8	50	27	52985.75	90	176.5	53022	135	87.5	52988.46
5	169.5	53100.13	50	27.33	52986.07	90	177	53024.84	135	87	52988.36
5	169	53083.88	50	27.67	52985.96	90	177.5	53027.16	135	86.5	52988.36
5	168.5	53065.13	50	28	52985.55	90	178	53030.1	135	86	52988.36
5	168	53045.75	50	28.33	52985.13	90	178.5	53033.57	135	85.5	52988.57
5	167.5	53034.7	50	28.67	52984.92	90	179	53037.25	135	85	52989.4
5	167	53034.28	50	29	52984.71	90	179.5	53040.5	135	84.5	52990.14
5	166.5	53035.97	50	29.33	52985.45	90	180	53043.14	135	84	52990.45
5	166	53034.49	50	29.67	52987.02	90	180.5	53046.19	135	83.5	52990.34
5	165.5	53026.92	50	30	52987.65	90	181	53050.5	135	83	52990.03
5	165	53015.66	50	30.5	52987.65	90	181.5	53056.82	135	82.5	52989.72
5	164.5	53005.79	50	31	52988.28	90	182	53063.97	135	82	52989.19
5	164	52999.16	50	31.5	52989.23	90	182.5	53072.18	135	81.5	52988.88
5	163.5	52994.64	50	32	52990.06	90	183	53080.19	135	81	52988.99
5	163	52990.86	50	32.5	52990.17	90	183.5	53088.93	135	80.5	52989.09
5	162.5	52987.08	50	33	52989.12	90	184	53099.36	135	80	52989.3
5	162	52984.24	50	33.5	52987.34	90	184.5	53112.23	135	79.5	52989.61
5	161.5	52981.93	50	34	52986.08	90	185	53127.73	135	79	52990.03
5	161	52980.25	50	34.5	52985.55	90	185.5	53145.04	135	78.5	52990.66
5	160.5	52978.78	50	35	52985.97	90	186	53162.57	135	78	52990.66
5	160	52977.42	50	35.5	52986.93	90	186.5	53183.61	135	77.5	52990.24
5	159.5	52976.26	50	36	52987.23	90	187	53209.11	135	77	52990.03
5	159	52975.84	50	36.5	52987.23	90	187.5	53238.75	135	76.5	52989.61
5	158.5	52976.04	50	37	52987.23	90	188	53272.79	135	76	52989.4
5	158	52977.52	50	37.5	52987.45	90	188.5	53308.04	135	75.5	52989.3
5	157.5	52978.98	50	38	52987.55	90	189	53348.21	135	75	52989.3
5	157	52980.45	50	38.5	52986.82	90	189.5	53399.02	135	74.5	52989.19

5	156.5	52982.34	50	39	52986.39	90	190	53459.2	135	74	52989.3
5	156	52984.76	50	39.5	52986.4	90	190.33	53518.35	135	73.5	52989.72
5	155.5	52987.07	50	40	52986.82	90	190.67	53568.39	135	73	52990.66
5	155	52988.85	50	40.5	52988.5	90	191	53616.71	135	72.5	52991.5
5	154.5	52990.43	50	41	52990.49	90	191.33	53672.97	135	72	52991.91
5	154	52993.05	50	41.5	52990.7	90	191.67	53743.2	135	71.5	52991.81
5	153.5	52996.1	50	42	52989.86	90	192	53825.92	135	71	52992.23
5	153	52999.45	50	42.5	52989.24	90	192.33	53914.32	135	70.5	52992.54
5	152.5	53001.76	50	43	52989.24	90	192.67	53997.27	135	70	52992.44
5	152	53003.34	50	43.5	52989.86	90	193	54087.29	135	69.67	52992.44
5	151.5	53004.6	50	44	52990.07	90	193.33	54179.33	135	69.33	52992.64
5	151	53006.28	50	44.5	52989.34	90	193.67	54254.92	135	69	52992.64
5	150.5	53008.6	50	45	52987.87	90	194	54306.96	135	68.67	52992.74
5	150	53010.91	50	45.5	52984.93	90	194.33	54337.71	135	68.33	52993.16
5	149.67	53011.32	50	46	52983.46	90	194.67	54347.82	135	68	52993.58
5	149.33	53011.11	50	46.5	52985.46	90	195	54351.73	135	67.67	52993.79
5	149	53011.43	50	47	52987.57	90	195.33	54360.98	135	67.33	52993.37
5	148.67	53013	50	47.5	52988.51	90	195.67	54378.39	135	67	52992.85
5	148.33	53015.52	50	48	52989.04	90	196	54396.14	135	66.67	52992.73
5	148	53016.89	50	48.5	52989.35	90	196.33	54420.87	135	66.33	52992.21
5	147.67	53016.05	50	49	52989.56	90	196.67	54474	135	66	52991.89
5	147.33	53014.47	50	49.5	52989.14	90	197	54551.43	135	65.67	52991.8
5	147	53013.32	50	50	52988.09	90	197.33	54650.3	135	65.33	52991.79
5	146.67	53012.37	50	50.5	52987.57	90	197.67	54761.01	135	65	52992
5	146.33	53011.32	50	51	52986.73	90	198	54885.45	135	64.67	52992.31
5	146	53009.11	50	51.5	52986.73	90	198.33	54983.76	135	64.33	52993.04
5	145.67	53008.05	50	52	52987.99	90	198.67	55029.97	135	64	52993.78
5	145.33	53008.26	50	52.5	52988.83	90	199	55026.67	135	63.67	52994.2
5	145	53009.52	50	53	52988.51	90	199.33	54995.51	135	63.33	52993.99
5	144.67	53009.73	50	53.5	52987.88	90	199.67	54965.49	135	63	52993.67
5	144.33	53006.47	50	54	52987.25	90	200	54938.8	135	62.67	52992.93
5	144	53000.8	50	54.5	52987.88	95	200	53234.46	135	62.33	52992.41
5	143.67	52996.28	50	55	52988.2	95	199.71	53237.2	135	62	52992.3
5	143.33	52992.92	50	55.5	52987.25	95	199.41	53241	135	61.67	52992.09
5	143	52990.07	50	56	52986.32	95	199.12	53241.63	135	61.33	52992.2
5	142.67	52987.25	50	56.5	52985.68	95	198.82	53241	135	61	52992.72
5	142.33	52983.68	50	57	52985.68	95	198.53	53241.32	135	60.67	52993.45
5	142	52979.16	50	57.5	52986.84	95	198.24	53245.12	135	60.33	52994.19
5	141.67	52975.27	50	58	52988	95	197.94	53253.23	135	60	52994.71
5	141.33	52972.75	50	58.5	52988.3	95	197.65	53264.21	135	59.5	52994.59
5	141	52971.38	50	59	52988.3	95	197.35	53275.6	135	59	52994.71
5	140.67	52970.33	50	59.5	52988.21	95	197.06	53284.36	135	58.5	52994.71
5	140.33	52968.23	50	60	52988.1	95	196.76	53289.22	135	58	52994.18
5	140	52965.72	50	60.5	52987.26	95	196.47	53290.59	135	57.5	52993.44
5	139.5	52963.2	50	61	52986.32	95	196.18	53290.17	135	57	52993.13
5	139	52961.2	50	61.5	52985.16	95	195.88	53288.59	135	56.5	52992.61
5	138.5	52959.41	50	62	52984.64	95	195.59	53286.79	135	56	52992.19
5	138	52957.73	50	62.5	52985.27	95	195.29	53285.31	135	55.5	52992.08
5	137.5	52955.32	50	63	52987.47	95	195	53284.9	135	55	52992.5
5	137	52952.49	50	63.5	52988.84	95	194.71	53284.59	135	54.5	52993.13
5	136.5	52949.97	50	64	52989.26	95	194.41	53285.32	135	54	52993.33
5	136	52947.98	50	64.5	52989.46	95	194.12	53286.8	135	53.5	52993.13
5	135.5	52946.4	50	65	52989.99	95	193.82	53287.01	135	53	52992.91
5	135	52945.25	50	65.5	52989.99	95	193.53	53286.7	135	52.5	52992.81
5	134.5	52944.41	50	66	52989.26	95	193.24	53286.7	135	52	52992.7
5	134	52943.78	50	66.5	52988.63	95	192.94	53284.06	135	51.5	52992.81
5	133.5	52943.05	50	67	52988.32	95	192.65	53277.63	135	51	52993.22
5	133	52942.41	50	67.5	52988.21	95	192.35	53269.18	135	50.5	52993.85
5	132.5	52941.78	50	68	52989.05	95	192.06	53258.11	135	50	52995
5	132	52940.84	50	68.5	52990.84	95	191.76	53245.88	135	49.5	52996.05
5	131.5	52940.21	50	69	52992.83	95	191.47	53234.18	135	49	52996.89
5	131	52940	50	69.5	52994.83	95	191.18	53220.9	135	48.5	52997.4
5	130.5	52940	50	70	52997.45	95	190.88	53209.95	135	48	52997.61
5	130	52940.32	50	70.5	53002.18	95	190.59	53200.48	135	47.5	52997.71
5	129.5	52941.16	50	71	53008.9	95	190.29	53192.48	135	47	52997.71
5	129	52942	50	71.5	53014.57	95	190	53184.59	135	46.5	52997.71
5	128.5	52942.42	50	72	53015.52	95	189.5	53176.39	135	46	52997.5

5	128	52942.63	50	72.5	53008.79	95	189	53166.5	135	45.5	52997.29
5	127.5	52942.63	50	73	52994.09	95	188.5	53155.38	135	45	52997.4
5	127	52942.33	50	73.5	52981.6	95	188	53143.4	135	44.5	52997.5
5	126.5	52941.49	50	74	52978.88	95	187.5	53132.38	135	44	52997.5
5	126	52940.86	50	74.5	52979.82	95	187	53122.72	135	43.5	52997.61
5	125.5	52940.33	50	75	52980.97	95	186.5	53114.75	135	43	52998.13
5	125	52939.7	50	75.5	52982.02	95	186	53108.45	135	42.5	52998.75
5	124.5	52939.5	50	76	52983.49	95	185.5	53101.95	135	42	52999.17
5	124	52939.82	50	76.5	52985.29	95	185	53094.3	135	41.5	52999.48
5	123.5	52940.23	50	77	52986.75	95	184.5	53085.61	135	41	52999.8
5	123	52940.45	50	77.5	52987.8	95	184	53077.02	135	40.5	52999.9
5	122.5	52939.71	50	78	52988.74	95	183.5	53068.95	135	40	53000
5	122	52938.98	50	78.5	52989.68	95	183	53061.41	135	39.5	53000.21
5	121.5	52938.25	50	79	52991.05	95	182.5	53054.5	135	39	53000.63
5	121	52937.2	50	79.5	52992.11	95	182	53048.96	135	38.5	53001.25
5	120.5	52936.37	50	80	52992.42	95	181.5	53044.44	135	38	53002.19
5	120	52935.85	50	80.5	52991.79	95	181	53040.55	135	37.5	53003.45
5	119.5	52935.74	50	81	52990.85	95	180.5	53036.98	135	37	53004.7
5	119	52936.26	50	81.5	52989.48	95	180	53033.52	135	36.5	53005.65
5	118.5	52934.48	50	82	52987.18	95	179.67	53030.58	135	36	53006.38
5	118	52930.2	50	82.5	52984.03	95	179.33	53028.28	135	35.5	53007.32
5	117.5	52922.54	50	83	52981.3	95	179	53025.87	135	35	53008.16
5	117	52907.88	50	83.5	52978.36	95	178.67	53023.03	135	34.5	53008.79
5	116.5	52880.57	50	84	52976.26	95	178.33	53020.2	135	34	53009.93
5	116	52838.03	50	84.5	52977.1	95	178	53016.94	135	33.5	53011.18
5	115.5	52793.37	50	85	52979.41	95	177.67	53013.9	135	33	53012.66
5	115	52765.44	50	85.5	52980.88	95	177.33	53011.7	135	32.5	53013.8
5	114.5	52793.16	50	86	52981.3	95	177	53009.92	135	32	53015.06
5	114	53010.8	50	86.5	52981.4	95	176.67	53008.34	135	31.5	53016.63
5	113.5	53265.98	50	87	52982.46	95	176.33	53006.77	135	31	53018.2
5	113	53221.03	50	87.5	52983.5	95	176	53006.36	135	30.5	53019.25
5	112.5	53129.86	50	88	52983.82	95	175.67	53006.25	135	30	53020.19
5	112	53082.49	50	88.5	52983.71	95	175.33	53005.52	135	29.67	53021.13
5	111.5	53055.11	50	89	52983.62	95	175	53004.26	135	29.33	53021.13
5	111	53031.95	50	89.5	52984.46	95	174.67	53002.69	135	29	53021.13
5	110.5	53011.23	50	90	52986.45	95	174.33	53001.53	135	28.67	53021.96
5	110	52995.8	50	90.5	52988.23	95	174	53000.28	135	28.33	53023.84
5	109.5	52984.66	50	91	52988.97	95	173.67	52999.33	135	28	53025.83
5	109	52975.74	50	91.5	52989.49	95	173.33	52998.81	135	27.67	53027.51
5	108.5	52969.12	50	92	52990.23	95	173	52998.39	135	27.33	53028.45
5	108	52964.51	50	92.5	52990.96	95	172.67	52997.77	135	27	53028.56
5	107.5	52961.37	50	93	52990.65	95	172.33	52997.45	135	26.67	53029.07
5	107	52959.16	50	93.5	52989.81	95	172	52997.66	135	26.33	53030.02
5	106.5	52957.16	50	94	52988.76	95	171.67	52997.87	135	26	53031.18
5	106	52956.54	50	94.5	52988.03	95	171.33	52997.77	135	25.67	53032.12
5	105.5	52958.54	50	95	52988.24	95	171	52997.45	135	25.33	53032
5	105	52959.9	50	95.5	52989.39	95	170.67	52997.35	135	25	53031.48
5	104.5	52960.11	50	96	52990.23	95	170.33	52996.72	135	24.67	53031.27
5	104	52959.8	50	96.5	52990.23	95	170	52996.2	135	24.33	53031.48
5	103.5	52958.76	50	97	52989.91	95	169.5	52995.88	135	24	53031.79
5	103	52956.55	50	97.5	52989.81	95	169	52995.36	135	23.67	53031.69
5	102.5	52954.77	50	98	52989.91	95	168.5	52994.95	135	23.33	53030.96
5	102	52954.14	50	98.5	52989.18	95	168	52994.74	135	23	53030.12
5	101.5	52954.25	50	99	52988.13	95	167.5	52994.95	135	22.67	53029.38
5	101	52953.73	50	99.5	52987.3	95	167	52994.95	135	22.33	53028.96
5	100.5	52953.73	50	100	52986.78	95	166.5	52994.74	135	22	53028.64
5	100	52954.25	50	100.5	52987.41	95	166	52993.9	135	21.67	53027.59
5	99.5	52954.78	50	101	52988.98	95	165.5	52993.27	135	21.33	53026.02
5	99	52954.88	50	101.5	52989.92	95	165	52992.96	135	21	53024.56
5	98.5	52953.31	50	102	52989.71	95	164.5	52992.64	135	20.67	53023.82
5	98	52949.43	50	102.5	52989.3	95	164	52992.43	135	20.33	53023.93
5	97.5	52947.75	50	103	52989.19	95	163.5	52992.43	135	20	53024.35
5	97	52951.01	50	103.5	52989.3	95	163	52992.43	135	19.67	53024.77
5	96.5	52959.51	50	104	52988.67	95	162.5	52992.23	135	19.33	53024.98
5	96	52974.52	50	104.5	52987.72	95	162	52992.65	135	19	53024.98
5	95.5	52998.36	50	105	52987.09	95	161.5	52993.6	135	18.67	53025.17
5	95	53011.39	50	105.5	52986.88	95	161	52994.43	135	18.33	53025.38

5	94.5	52992.26	50	106	52987.3	95	160.5	52994.22	135	18	53023.81
5	94	52972	50	106.5	52988.35	95	160	52993.07	135	17.67	53017.32
5	93.5	52962.14	50	107	52989.09	95	159.5	52991.39	135	17.33	53011.77
5	93	52957.74	50	107.5	52989.3	95	159	52989.93	135	17	53010.41
5	92.5	52956.58	50	108	52989.5	95	158.5	52988.78	135	16.67	53010.31
5	92	52957.63	50	108.5	52989.93	95	158	52988.47	135	16.33	53010.62
5	91.5	52959.52	50	109	52989.71	95	157.5	52988.78	135	16	53011.34
5	91	52961.83	50	109.5	52988.46	95	157	52989.73	135	15.67	53011.97
5	90.5	52963.3	50	110	52987.3	95	156.5	52990.56	135	15.33	53011.77
5	90	52963.83	50	110.5	52986.25	95	156	52990.77	135	15	53010.93
5	89.5	52964.67	50	111	52985.53	95	155.5	52990.98	135	14.67	53009.88
5	89	52966.35	50	111.5	52985.84	95	155	52990.88	135	14.33	53008.73
5	88.5	52967.4	50	112	52986.79	95	154.5	52990.25	135	14	53007.47
5	88	52967.92	50	112.5	52986.79	95	154	52989.73	135	13.67	53006.42
5	87.5	52968.55	50	113	52986.68	95	153.5	52989.63	135	13.33	53004.43
5	87	52969.61	50	113.5	52986.79	95	153	52989.11	135	13	53002.55
5	86.5	52971.4	50	114	52987	95	152.5	52989	135	12.67	53001.29
5	86	52973.92	50	114.5	52986.79	95	152	52989	135	12.33	53000.77
5	85.5	52976.44	50	115	52985.84	95	151.5	52988.79	135	12	53000.45
5	85	52978.01	50	115.5	52984.57	95	151	52988.48	135	11.67	53000.24
5	84.5	52978.64	50	116	52983.73	95	150.5	52988.79	135	11.33	53000.24
5	84	52979.38	50	116.5	52983.21	95	150	52989.63	135	11	52999.72
5	83.5	52979.39	50	117	52983.84	95	149.5	52990.37	135	10.67	52999.61
5	83	52979.28	50	117.5	52984.79	95	149	52990.78	135	10.33	53000.03
5	82.5	52979.6	50	118	52985.52	95	148.5	52990.27	135	10	53000.34
5	82	52979.7	50	118.5	52985.21	95	148	52989.64	135	9.5	53000.45
5	81.5	52979.91	50	119	52985	95	147.5	52988.49	135	9	53000.02
5	81	52980.02	50	119.5	52985.2	95	147	52987.02	135	8.5	52999.5
5	80.5	52980.65	50	120	52985.1	95	146.5	52985.97	135	8	52998.77
5	80	52981.39	50	120.5	52984.47	95	146	52984.51	135	7.5	52998.03
5	79.5	52981.71	50	121	52983.42	95	145.5	52982.83	135	7	52996.57
5	79	52981.5	50	121.5	52982.26	95	145	52982.41	135	6.5	52994.06
5	78.5	52981.81	50	122	52982.16	95	144.5	52983.88	135	6	52991.34
5	78	52981.71	50	122.5	52983.94	95	144	52986.09	135	5.5	52988.71
5	77.5	52981.5	50	123	52985.1	95	143.5	52987.55	135	5	52986.84
5	77	52981.39	50	123.5	52984.68	95	143	52988.5	135	4.5	52985.27
5	76.5	52981.39	50	124	52983.1	95	142.5	52988.6	135	4	52983.28
5	76	52981.61	50	124.5	52981.95	95	142	52988.92	135	3.5	52980.66
5	75.5	52982.03	50	125	52982.26	95	141.5	52988.92	135	3	52978.98
5	75	52982.45	50	125.5	52982.68	95	141	52988.91	135	2.5	52977.63
5	74.5	52983.2	50	126	52982.26	95	140.5	52988.91	135	2	52976.06
5	74	52983.4	50	126.5	52980.37	95	140	52988.91	135	1.5	52973.86
5	73.5	52983.5	50	127	52978.16	95	139.67	52988.91	135	1	52971.14
5	73	52983.72	50	127.5	52978.48	95	139.33	52989.01	135	.5	52968.32
5	72.5	52983.51	50	128	52979.54	95	139	52989.64	135	0	52965.65
5	72	52982.99	50	128.5	52979.63	95	138.67	52990.27	140	0	53226.63
5	71.5	52982.67	50	129	52978.58	95	138.33	52990.27	140	.29	53257.79
5	71	52982.36	50	129.5	52977.32	95	138	52989.84	140	.59	53285.28
5	70.5	52982.25	50	130	52976.9	95	137.67	52989.32	140	.88	53302.48
5	70	52982.46	50	130.33	52976.59	95	137.33	52988.9	140	1.18	53318.53
5	69.67	52983.31	50	130.67	52975.85	95	137	52988.16	140	1.47	53311.73
5	69.33	52984.15	50	131	52974.7	95	136.67	52988.06	140	1.76	53241.36
5	69	52984.26	50	131.33	52973.55	95	136.33	52988.16	140	2.06	53136.94
5	68.67	52984.05	50	131.67	52973.13	95	136	52988.05	140	2.35	53068.5
5	68.33	52984.05	50	132	52974.28	95	135.67	52988.16	140	2.65	53034.19
5	68	52983.52	50	132.33	52976.06	95	135.33	52988.57	140	2.94	53015.58
5	67.67	52983.01	50	132.67	52977.22	95	135	52989.41	140	3.24	53005.17
5	67.33	52982.8	50	133	52977.43	95	134.67	52990.56	140	3.53	52998.98
5	67	52982.27	50	133.33	52977.32	95	134.33	52991.19	140	3.82	52995.3
5	66.67	52981.75	50	133.67	52977.85	95	134	52991.19	140	4.12	52992.89
5	66.33	52982.17	50	134	52978.16	95	133.67	52990.66	140	4.41	52991.31
5	66	52982.91	50	134.33	52977.85	95	133.33	52990.45	140	4.71	52990.68
5	65.67	52983.32	50	134.67	52977.43	95	133	52989.82	140	5	52990.47
5	65.33	52983.54	50	135	52977.21	95	132.67	52989.4	140	5.29	52990.57
5	65	52983.33	50	135.33	52977.11	95	132.33	52989.4	140	5.59	52991.31
5	64.67	52983.44	50	135.67	52978.05	95	132	52989.3	140	5.88	52992.68
5	64.33	52983.23	50	136	52979.95	95	131.67	52988.98	140	6.18	52994.36

5	64	52983.02	50	136.33	52980.67	95	131.33	52988.77	140	6.47	52996.04
5	63.67	52983.23	50	136.67	52980.77	95	131	52989.18	140	6.76	52997.2
5	63.33	52983.13	50	137	52980.77	95	130.67	52990.02	140	7.06	52998.67
5	63	52983.45	50	137.33	52981.4	95	130.33	52990.65	140	7.35	53000.25
5	62.67	52984.18	50	137.67	52981.82	95	130	52990.86	140	7.65	53001.51
5	62.33	52984.92	50	138	52981.93	95	129.5	52990.44	140	7.94	53001.51
5	62	52985.97	50	138.33	52981.51	95	129	52990.13	140	8.24	53000.67
5	61.67	52987.13	50	138.67	52980.98	95	128.5	52989.8	140	8.53	53000.56
5	61.33	52989.86	50	139	52980.67	95	128	52989.8	140	8.82	53001.19
5	61	52991.95	50	139.33	52981.61	95	127.5	52989.8	140	9.12	53002.66
5	60.67	52988.71	50	139.67	52983.08	95	127	52989.8	140	9.41	53004.66
5	60.33	52985.24	50	140	52983.82	95	126.5	52989.7	140	9.71	53005.71
5	60	52983.77	50	141	52984.34	95	126	52989.59	140	10	53006.55
5	59.5	52983.14	50	142	52984.55	95	125.5	52989.28	140	10.5	53007.08
5	59	52983.35	50	143	52984.97	95	125	52989.37	140	11	53007.81
5	58.5	52984.2	50	144	52985.07	95	124.5	52990.21	140	11.5	53008.86
5	58	52985.04	50	145	52984.13	95	124	52990.94	140	12	53010.34
5	57.5	52985.78	50	146	52983.39	95	123.5	52990.94	140	12.5	53011.39
5	57	52985.99	50	147	52982.97	95	123	52990.42	140	13	53011.18
5	56.5	52986.3	50	148	52982.97	95	122.5	52990.11	140	13.5	53010.75
5	56	52985.79	50	149	52983.61	95	122	52990.2	140	14	53010.66
5	55.5	52985.04	50	150	52984.65	95	121.5	52990.11	140	14.5	53011.29
5	55	52984.83	50	150.5	52985.07	95	121	52990.31	140	15	53012.45
5	54.5	52984.63	50	151	52985.17	95	120.5	52990.31	140	15.5	53012.87
5	54	52984.63	50	151.5	52985.28	95	120	52990.51	140	16	53013.39
5	53.5	52985.26	50	152	52985.8	95	119.5	52990.71	140	16.5	53013.71
5	53	52985.89	50	152.5	52986.12	95	119	52990.93	140	17	53014.13
5	52.5	52986.31	50	153	52985.38	95	118.5	52991.13	140	17.5	53014.65
5	52	52986.21	50	153.5	52984.65	95	118	52991.34	140	18	53015.39
5	51.5	52985.8	50	154	52984.12	95	117.5	52990.92	140	18.5	53015.7
5	51	52985.16	50	154.5	52984.02	95	117	52990.3	140	19	53015.27
5	50.5	52984.54	50	155	52985.17	95	116.5	52990.3	140	19.5	53014.75
5	50	52984.12	50	155.5	52986.33	95	116	52990.09	140	20	53014.54
5	49.5	52983.91	50	156	52986.43	95	115.5	52990.09	140	20.33	53014.33
5	49	52983.8	50	156.5	52986.21	95	115	52990.09	140	20.67	53014.64
5	48.5	52984.43	50	157	52986.21	95	114.5	52990.18	140	21	53015.38
5	48	52985.6	50	157.5	52986.01	95	114	52989.87	140	21.33	53015.89
5	47.5	52986.75	50	158	52985.17	95	113.5	52989.76	140	21.67	53015.68
5	47	52987.49	50	158.5	52984.12	95	113	52990.39	140	22	53015.68
5	46.5	52987.49	50	159	52983.48	95	112.5	52991.12	140	22.33	53015.79
5	46	52987.49	50	159.5	52983.59	95	112	52991.53	140	22.67	53016.1
5	45.5	52986.96	50	160	52984.01	95	111.5	52991.22	140	23	53015.99
5	45	52986.34	50	160.5	52985.06	95	111	52990.48	140	23.33	53015.04
5	44.5	52985.91	50	161	52985.9	95	110.5	52990.07	140	23.67	53013.78
5	44	52985.61	50	161.5	52986.11	95	110	52989.12	140	24	53012.73
5	43.5	52985.19	50	162	52986.21	95	109.67	52988.28	140	24.33	53012.2
5	43	52985.08	50	162.5	52986.42	95	109.33	52987.96	140	24.67	53012.3
5	42.5	52985.4	50	163	52986.42	95	109	52987.55	140	25	53012.93
5	42	52985.82	50	163.5	52985.58	95	108.67	52987.02	140	25.33	53014.09
5	41.5	52986.25	50	164	52984.53	95	108.33	52986.7	140	25.67	53014.71
5	41	52985.93	50	164.5	52983.69	95	108	52987.44	140	26	53014.82
5	40.5	52985.71	50	165	52983.27	95	107.67	52988.59	140	26.33	53015.02
5	40	52985.3	50	165.5	52983.59	95	107.33	52989.43	140	26.67	53015.65
5	39.5	52984.67	50	166	52984.74	95	107	52989.73	140	27	53016.18
5	39	52984.15	50	166.5	52985.69	95	106.67	52989.84	140	27.33	53015.76
5	38.5	52983.52	50	167	52985.47	95	106.33	52989.42	140	27.67	53014.7
5	38	52983	50	167.5	52985.36	95	106	52988.58	140	28	53014.07
5	37.5	52982.9	50	168	52985.57	95	105.67	52988.16	140	28.33	53013.65
5	37	52983.63	50	168.5	52985.36	95	105.33	52988.26	140	28.67	53013.75
5	36.5	52984.58	50	169	52984.11	95	105	52988.25	140	29	53014.38
5	36	52985.2	50	169.5	52983.05	95	104.67	52988.25	140	29.33	53015.33
5	35.5	52984.88	50	170	52982.63	95	104.33	52988.36	140	29.67	53015.95
5	35	52984.99	50	170.5	52982.84	95	104	52988.78	140	30	53016.26
5	34.5	52984.99	50	171	52983.58	95	103.67	52989.2	140	31	53015.84
5	34	52984.46	50	171.5	52984.94	95	103.33	52988.99	140	32	53013.53
5	33.5	52984.04	50	172	52985.47	95	103	52988.15	140	33	53010.48
5	33	52983.94	50	172.5	52985.36	95	102.67	52987.31	140	34	53008.07

5	32.5	52983.94	50	173	52985.36	95	102.33	52986.79	140	35	53005.85
5	32	52983.93	50	173.5	52985.68	95	102	52986.46	140	36	53004.27
5	31.5	52984.45	50	174	52985.78	95	101.67	52986.57	140	37	53003.12
5	31	52985.19	50	174.5	52984.52	95	101.33	52986.57	140	38	53002.28
5	30.5	52985.5	50	175	52983.05	95	101	52986.57	140	39	53002.38
5	30	52985.4	50	175.5	52982.21	95	100.67	52986.36	140	40	53002.9
5	29.5	52985.29	50	176	52981.9	95	100.33	52986.36	140	40.33	53002.79
5	29	52984.86	50	176.5	52982.32	95	100	52986.98	140	40.67	53002.16
5	28.5	52984.02	50	177	52983.05	95	99.5	52987.81	140	41	53004.37
5	28	52983.5	50	177.5	52983.05	95	99	52988.34	140	41.33	53001.11
5	27.5	52983.29	50	178	52982.74	95	98.5	52988.13	140	41.67	53000.79
5	27	52982.97	50	178.5	52982.74	95	98	52987.6	140	42	53000.26
5	26.5	52982.97	50	179	52983.37	95	97.5	52987.4	140	42.33	52999.32
5	26	52983.29	50	179.5	52983.57	95	97	52986.86	140	42.67	52998.79
5	25.5	52983.7	50	180	52983.04	95	96.5	52986.66	140	43	52998.47
5	25	52984.01	50	180.5	52983.57	95	96	52986.65	140	43.33	52998.99
5	24.5	52983.8	50	181	52985.67	95	95.5	52986.44	140	43.67	53000.67
5	24	52983.59	50	181.5	52990.49	95	95	52986.23	140	44	53001.93
5	23.5	52983.38	50	182	52997.95	95	94.5	52986.23	140	44.33	53002.46
5	23	52983.38	50	182.5	53004.46	95	94	52986.76	140	44.67	53002.76
5	22.5	52983.59	50	183	53009.39	95	93.5	52987.28	140	45	53002.97
5	22	52983.91	50	183.5	53011.39	95	93	52987.38	140	45.33	53003.18
5	21.5	52983.79	50	184	53004.14	95	92.5	52986.75	140	45.67	53002.45
5	21	52983.27	50	184.5	52990.18	95	92	52986.12	140	46	53001.29
5	20.5	52982.85	50	185	52980.73	95	91.5	52985.7	140	46.33	53000.45
5	20	52983.27	50	185.5	52975.38	95	91	52985.38	140	46.67	52999.92
5	19.5	52983.48	50	186	52972.45	95	90.5	52985.07	140	47	52999.92
5	19	52983.47	50	186.5	52971.29	95	90	52984.95	140	47.33	53000.55
5	18.5	52983.36	50	187	52971.18	95	89.5	52984.74	140	47.67	53001.49
5	18	52982.84	50	187.5	52970.98	95	89	52984.54	140	48	53001.9
5	17.5	52982.21	50	188	52968.45	95	88.5	52984.95	140	48.33	53001.8
5	17	52981.79	50	188.5	52962.8	95	88	52985.79	140	48.67	53001.48
5	16.5	52981.46	50	189	52952.41	95	87.5	52986.32	140	49	53001.38
5	16	52981.26	50	189.5	52942.45	95	87	52986.32	140	49.33	53001.16
5	15.5	52981.57	50	190	52948.54	95	86.5	52985.99	140	49.67	53000.32
5	15	52982.09	50	190.33	52968.14	95	86	52986.1	140	50	52998.85
5	14.5	52982.83	50	190.67	52989.75	95	85.5	52985.78	140	50.5	52997.48
5	14	52983.14	50	191	53008.65	95	85	52985.47	140	51	52996.54
5	13.5	52982.83	50	191.33	53014.01	95	84.5	52985.26	140	51.5	52996.54
5	13	52982.09	50	191.67	53001.19	95	84	52985.05	140	52	52998.21
5	12.5	52981.25	50	192	52989.12	95	83.5	52984.63	140	52.5	53000.2
5	12	52980.4	50	192.33	52982.09	95	83	52984.32	140	53	53000.83
5	11.5	52980.3	50	192.67	52978.21	95	82.5	52984.93	140	53.5	53001.15
5	11	52979.88	50	193	52976.11	95	82	52986.09	140	54	53001.25
5	10.5	52979.14	50	193.33	52975.27	95	81.5	52986.82	140	54.5	53001.04
5	10	52978.3	50	193.67	52974.12	95	81	52986.82	140	55	52999.67
5	9.71	52977.67	50	194	52972.75	95	80.5	52987.03	140	55.5	52998.09
5	9.43	52976.94	50	194.33	52971.7	95	80	52987.13	140	56	52996.73
5	9.14	52975.67	50	194.67	52971.28	95	79.67	52987.23	140	56.5	52995.78
5	8.86	52972.41	50	195	52972.23	95	79.33	52987.54	140	57	52995.35
5	8.57	52969.37	50	195.33	52974.12	95	79	52987.86	140	57.5	52996.2
5	8.29	52976.72	50	195.67	52974.53	95	78.67	52987.96	140	58	52998.08
5	8	52988.69	50	196	52973.8	95	78.33	52987.75	140	58.5	52999.13
5	7.71	52998.13	50	196.33	52972.64	95	78	52987.96	140	59	52999.45
5	7.43	53010.23	50	196.67	52971.27	95	77.67	52988.91	140	59.5	52999.55
5	7.14	53034.2	50	197	52970.33	95	77.33	52989.21	140	60	52999.54
5	6.86	53076.73	50	197.33	52969.29	95	77	52988.69	140	60.5	52999.54
5	6.57	53086.85	50	197.67	52968.55	95	76.67	52987.22	140	61	52999.33
5	6.29	53037.46	50	198	52967.81	95	76.33	52985.54	140	61.5	52998.81
5	6	52971.88	50	198.33	52967.18	95	76	52984.29	140	62	52998.27
5	5.71	52920.71	50	198.67	52967.5	95	75.67	52983.96	140	62.5	52997.43
5	5.43	52918.29	50	199	52968.76	95	75.33	52983.96	140	63	52997.12
5	5.14	52939.25	50	199.33	52968.97	95	75	52983.86	140	63.5	52997.85
5	4.86	52953.61	50	199.67	52968.65	95	74.67	52984.28	140	64	52998.8
5	4.57	52961.69	50	200	52968.76	95	74.33	52985.32	140	64.5	52999.21
5	4.29	52966.62	55	200	52967.71	95	74	52986.79	140	65	52999.52
5	4	52970.08	55	199.58	52969.49	95	73.67	52987.84	140	65.5	52999.84

5	3.71	52972.8	55	199.17	52969.91	95	73.33	52988.26	140	66	53000.36
5	3.43	52974.91	55	198.75	52968.44	95	73	52988.35	140	66.5	53001.09
5	3.14	52976.58	55	198.33	52966.24	95	72.67	52988.77	140	67	53000.68
5	2.86	52977.63	55	197.92	52964.68	95	72.33	52988.67	140	67.5	52999.3
5	2.57	52978.26	55	197.5	52964.14	95	72	52988.14	140	68	52998.04
5	2.29	52978.79	55	197.08	52963.63	95	71.67	52988.14	140	68.5	52997.41
5	2	52978.79	55	196.67	52962.79	95	71.33	52987.93	140	69	52996.89
5	1.71	52978.04	55	196.25	52962.27	95	71	52987.5	140	69.5	52997.19
5	1.43	52977.52	55	195.83	52962.58	95	70.67	52987.41	140	70	52997.93
5	1.14	52976.99	55	195.42	52962.69	95	70.33	52987.4	140	70.5	52998.45
5	.86	52975.84	55	195	52962.79	95	70	52987.4	140	71	52998.35
5	.57	52974.16	55	194.58	52962.79	95	69.5	52987.09	140	71.5	52998.02
5	.29	52972.58	55	194.17	52962.99	95	69	52986.46	140	72	52997.71
5	0	52972.37	55	193.75	52963.1	95	68.5	52985.93	140	72.5	52997.29
10	0	52979	55	193.33	52963.62	95	68	52985.82	140	73	52996.34
10	.42	52979.41	55	192.92	52964.87	95	67.5	52985.4	140	73.5	52994.98
10	.83	52980.56	55	192.5	52966.02	95	67	52985.08	140	74	52993.61
10	1.25	52981.5	55	192.08	52966.97	95	66.5	52984.98	140	74.5	52992.45
10	1.67	52981.19	55	191.67	52967.38	95	66	52985.08	140	75	52992.24
10	2.08	52980.35	55	191.25	52967.49	95	65.5	52985.29	140	75.5	52992.76
10	2.5	52979.62	55	190.83	52967.7	95	65	52986.02	140	76	52994.13
10	2.92	52978.98	55	190.42	52967.91	95	64.5	52987.29	140	76.5	52994.86
10	3.33	52978.77	55	190	52968.12	95	64	52988.32	140	77	52994.64
10	3.75	52979.4	55	189.67	52968.54	95	63.5	52988.53	140	77.5	52994.33
10	4.17	52980.13	55	189.33	52968.95	95	63	52987.9	140	78	52994.12
10	4.58	52980.45	55	189	52969.48	95	62.5	52986.75	140	78.5	52993.91
10	5	52980.55	55	188.67	52970.63	95	62	52985.49	140	79	52994.01
10	5.42	52980.76	55	188.33	52971.88	95	61.5	52984.44	140	79.5	52993.58
10	5.83	52981.8	55	188	52973.45	95	61	52984.13	140	80	52992.95
10	6.25	52983.16	55	187.67	52974.59	95	60.5	52984.02	140	80.33	52992.64
10	6.67	52983.89	55	187.33	52975.23	95	60	52983.91	140	80.67	52992.22
10	7.08	52984.21	55	187	52976.16	95	59.5	52985.06	140	81	52992.21
10	7.5	52984.94	55	186.67	52976.91	95	59	52990.3	140	81.33	52993.79
10	7.92	52985.89	55	186.33	52977.11	95	58.5	52997.84	140	81.67	52994.73
10	8.33	52986.2	55	186	52977.63	95	58	53002.05	140	82	52994.83
10	8.75	52986.09	55	185.67	52978.57	95	57.5	53000.88	140	82.33	52995.15
10	9.17	52986.82	55	185.33	52979.3	95	57	52997.53	140	82.67	52995.88
10	9.58	52988.6	55	185	52979.62	95	56.5	52994.49	140	83	52996.2
10	10	52990.17	55	184.67	52979.72	95	56	52992.29	140	83.33	52995.56
10	10.5	52987.24	55	184.33	52979.62	95	55.5	52990.61	140	83.67	52994.61
10	11	52982.84	55	184	52979.3	95	55	52989.67	140	84	52993.56
10	11.5	52982.52	55	183.67	52978.78	95	54.5	52988.63	140	84.33	52993.04
10	12	52983.46	55	183.33	52978.36	95	54	52986.32	140	84.67	52992.62
10	12.5	52984.61	55	183	52978.15	95	53.5	52983.59	140	85	52992.82
10	13	52985.76	55	182.67	52977.63	95	53	52983.59	140	85.33	52993.76
10	13.5	52986.18	55	182.33	52977.11	95	52.5	52984.75	140	85.67	52994.6
10	14	52985.66	55	182	52977.42	95	52	52985.59	140	86	52994.91
10	14.5	52984.82	55	181.67	52978.15	95	51.5	52985.38	140	86.33	52994.91
10	15	52983.98	55	181.33	52978.88	95	51	52984.23	140	86.67	52994.91
10	15.5	52983.66	55	181	52979.51	95	50.5	52983.28	140	87	52995.22
10	16	52984.7	55	180.67	52980.24	95	50	52982.55	140	87.33	52995.12
10	16.5	52985.96	55	180.33	52981.07	95	49.67	52981.82	140	87.67	52994.28
10	17	52986.59	55	180	52981.7	95	49.33	52981.29	140	88	52993.64
10	17.5	52986.9	55	179.5	52981.91	95	49	52981.08	140	88.33	52993.01
10	18	52987.43	55	179	52982.64	95	48.67	52980.66	140	88.67	52992.59
10	18.5	52987.31	55	178.5	52982.96	95	48.33	52980.87	140	89	52992.69
10	19	52985.32	55	178	52982.75	95	48	52981.61	140	89.33	52993.73
10	19.5	52983.13	55	177.5	52982.64	95	47.67	52982.23	140	89.67	52994.05
10	20	52982.6	55	177	52982.85	95	47.33	52982.55	140	90	52993.73
10	20.5	52983.12	55	176.5	52982.85	95	47	52981.92	140	90.5	52993.42
10	21	52984.17	55	176	52982.96	95	46.67	52981.08	140	91	52993.31
10	21.5	52985.53	55	175.5	52983.17	95	46.33	52980.45	140	91.5	52993.21
10	22	52986.25	55	175	52983.48	95	46	52979.51	140	92	52992.79
10	22.5	52986.46	55	174.5	52983.79	95	45.67	52978.79	140	92.5	52992.25
10	23	52986.67	55	174	52984	95	45.33	52978.47	140	93	52991.83
10	23.5	52986.99	55	173.5	52983.89	95	45	52978.26	140	93.5	52991.41
10	24	52987.41	55	173	52984.11	95	44.67	52978.16	140	94	52991.82

10	24.5	52987.2	55	172.5	52984.11	95	44.33	52978.16	140	94.5	52993.09
10	25	52986.57	55	172	52983.89	95	44	52978.68	140	95	52994.45
10	25.5	52985.84	55	171.5	52984.11	95	43.67	52979.21	140	95.5	52995.39
10	26	52985.42	55	171	52984.21	95	43.33	52979.31	140	96	52995.81
10	26.5	52985.84	55	170.5	52984.41	95	43	52978.37	140	96.5	52996.34
10	27	52986.99	55	170	52984.84	95	42.67	52977.21	140	97	52997.06
10	27.5	52987.72	55	169.5	52985.67	95	42.33	52975.96	140	97.5	52997.7
10	28	52987.93	55	169	52986.3	95	42	52974.81	140	98	52997.69
10	28.5	52988.04	55	168.5	52986.3	95	41.67	52973.97	140	98.5	52997.69
10	29	52988.56	55	168	52985.77	95	41.33	52973.55	140	99	52997.89
10	29.5	52988.67	55	167.5	52985.67	95	41	52972.92	140	99.5	52997.89
10	30	52988.46	55	167	52985.04	95	40.67	52972.61	140	100	52998.21
10	30.5	52988.14	55	166.5	52984.73	95	40.33	52972.92	140	100.5	52998.63
10	31	52989.08	55	166	52984.83	95	40	52973.13	140	101	52998.73
10	31.5	52994.64	55	165.5	52984.83	95	39	52972.93	140	101.5	52998.63
10	32	53001.25	55	165	52984.83	95	38	52972.2	140	102	52998.3
10	32.5	52998.21	55	164.5	52984.94	95	37	52971.36	140	102.5	52997.79
10	33	52992.96	55	164	52985.46	95	36	52970.09	140	103	52997.25
10	33.5	52990.76	55	163.5	52986.4	95	35	52968.95	140	103.5	52996.52
10	34	52989.71	55	163	52986.71	95	34	52967.8	140	104	52995.46
10	34.5	52989.08	55	162.5	52986.51	95	33	52966.54	140	104.5	52994.84
10	35	52988.88	55	162	52986.29	95	32	52965.59	140	105	52994.41
10	35.5	52988.25	55	161.5	52985.55	95	31	52964.55	140	105.5	52994.41
10	36	52987.2	55	161	52984.82	95	30	52963.5	140	106	52995.35
10	36.5	52986.46	55	160.5	52984.51	95	29.67	52962.46	140	106.5	52996.61
10	37	52986.57	55	160	52984.3	95	29.33	52961.83	140	107	52996.71
10	37.5	52987.83	55	159.5	52984.3	95	29	52961.3	140	107.5	52996.39
10	38	52989.19	55	159	52984.61	95	28.67	52960.36	140	108	52996.5
10	38.5	52989.61	55	158.5	52985.34	95	28.33	52959.42	140	108.5	52996.81
10	39	52989.61	55	158	52986.08	95	28	52958.48	140	109	52996.82
10	39.5	52990.13	55	157.5	52986.18	95	27.67	52956.8	140	109.5	52995.77
10	40	52990.76	55	157	52985.87	95	27.33	52954.92	140	110	52994.61
10	40.5	52990.34	55	156.5	52985.76	95	27	52953.45	140	110.5	52993.36
10	41	52989.19	55	156	52985.24	95	26.67	52952.4	140	111	52992.52
10	41.5	52988.25	55	155.5	52984.4	95	26.33	52951.25	140	111.5	52992.62
10	42	52987.72	55	155	52984.09	95	26	52950.42	140	112	52993.57
10	42.5	52988.14	55	154.5	52983.67	95	25.67	52950	140	112.5	52993.99
10	43	52989.71	55	154	52983.14	95	25.33	52949.69	140	113	52993.99
10	43.5	52990.55	55	153.5	52982.62	95	25	52949.17	140	113.5	52993.78
10	44	52990.34	55	153	52982.82	95	24.67	52948.54	140	114	52993.99
10	44.5	52990.03	55	152.5	52983.25	95	24.33	52948.02	140	114.5	52993.78
10	45	52989.71	55	152	52983.66	95	24	52947.81	140	115	52993.05
10	45.5	52989.19	55	151.5	52983.55	95	23.67	52946.45	140	115.5	52992.11
10	46	52988.35	55	151	52983.36	95	23.33	52944.46	140	116	52991.58
10	46.5	52987.41	55	150.5	52983.25	95	23	52942.68	140	116.5	52991.16
10	47	52986.57	55	150	52983.03	95	22.67	52941.43	140	117	52991.48
10	47.5	52986.05	55	149.5	52982.61	95	22.33	52940.59	140	117.5	52992.84
10	48	52986.99	55	149	52982.51	95	22	52939.75	140	118	52993.79
10	48.5	52988.46	55	148.5	52982.4	95	21.67	52938.6	140	118.5	52994.21
10	49	52989.08	55	148	52982.3	95	21.33	52937.45	140	119	52994.52
10	49.5	52989.08	55	147.5	52982.51	95	21	52936.51	140	119.5	52994.95
10	50	52989.19	55	147	52982.93	95	20.67	52935.46	140	120	52995.15
10	50.5	52989.29	55	146.5	52983.35	95	20.33	52934.1	140	120.5	52994.52
10	51	52988.98	55	146	52983.24	95	20	52932.64	140	121	52993.38
10	51.5	52988.04	55	145.5	52982.82	95	19.67	52931.07	140	121.5	52992.22
10	52	52986.78	55	145	52982.51	95	19.33	52928.88	140	122	52991.49
10	52.5	52985.63	55	144.5	52981.88	95	19	52926.68	140	122.5	52990.96
10	53	52985.21	55	144	52981.46	95	18.67	52924.79	140	123	52991.28
10	53.5	52986.05	55	143.5	52981.25	95	18.33	52923.34	140	123.5	52992.33
10	54	52986.78	55	143	52980.73	95	18	52922.09	140	124	52992.85
10	54.5	52986.78	55	142.5	52980.09	95	17.67	52920.72	140	124.5	52992.85
10	55	52986.57	55	142	52979.68	95	17.33	52920.09	140	125	52993.07
10	55.5	52986.88	55	141.5	52979.36	95	17	52919.05	140	125.5	52993.39
10	56	52987.41	55	141	52979.15	95	16.67	52917.9	140	126	52992.96
10	56.5	52987.09	55	140.5	52978.52	95	16.33	52916.13	140	126.5	52992.13
10	57	52986.15	55	140	52977.06	95	16	52914.56	140	127	52991.29
10	57.5	52985.31	55	139.75	52975.7	95	15.67	52912.89	140	127.5	52990.65

10	58	52984.68	55	139.5	52974.75	95	15.33	52909.75	140	128	52990.34
10	58.5	52984.89	55	139.25	52973.71	95	15	52906.72	140	128.5	52990.44
10	59	52986.15	55	139	52972.66	95	14.67	52903.59	140	129	52991.5
10	59.5	52987.41	55	138.75	52971.51	95	14.33	52899.72	140	129.5	52992.55
10	60	52987.93	55	138.5	52970.15	95	14	52894.91	140	130	52992.97
10	60.5	52988.46	55	138.25	52969.1	95	13.67	52888.96	140	130.5	52992.97
10	61	52989.19	55	138	52968.37	95	13.33	52883.74	140	131	52992.98
10	61.5	52989.4	55	137.75	52967.95	95	13	52882.17	140	131.5	52993.08
10	62	52988.35	55	137.5	52966.7	95	12.67	52883.95	140	132	52992.56
10	62.5	52987.2	55	137.25	52964.29	95	12.33	52888.34	140	132.5	52991.19
10	63	52986.36	55	137	52961.78	95	12	52894.09	140	133	52990.24
10	63.5	52985.84	55	136.75	52959.69	95	11.67	52899.21	140	133.5	52989.61
10	64	52986.67	55	136.5	52957.7	95	11.33	52902.34	140	134	52988.98
10	64.5	52987.3	55	136.25	52955.61	95	11	52904.43	140	134.5	52989.2
10	65	52987.2	55	136	52952.06	95	10.67	52906.52	140	135	52990.46
10	65.5	52986.88	55	135.75	52946.93	95	10.33	52909.13	140	135.5	52991.41
10	66	52986.88	55	135.5	52943.28	95	10	52911.96	140	136	52991.73
10	66.5	52986.46	55	135.25	52941.92	95	9.5	52914.14	140	136.5	52991.73
10	67	52985.63	55	135	52942.44	95	9	52915.93	140	137	52991.83
10	67.5	52985	55	134.75	52942.33	95	8.5	52917.7	140	137.5	52991.94
10	68	52984.37	55	134.5	52940.14	95	8	52919.27	140	138	52991.73
10	68.5	52984.47	55	134.25	52939.51	95	7.5	52920.32	140	138.5	52990.99
10	69	52985.52	55	134	52944.01	95	7	52921.05	140	139	52990.25
10	69.5	52986.88	55	133.75	52950.38	95	6.5	52921.89	140	139.5	52989.41
10	70	52987.3	55	133.5	52955.92	95	6	52922.3	140	140	52988.68
10	70.5	52987.2	55	133.25	52957.49	95	5.5	52922.83	140	140.5	52989.21
10	71	52987.09	55	133	52955.61	95	5	52923.77	140	141	52990.58
10	71.5	52987.2	55	132.75	52952.68	95	4.5	52924.5	140	141.5	52991
10	72	52987.51	55	132.5	52951.43	95	4	52924.93	140	142	52990.79
10	72.5	52987.09	55	132.25	52952.89	95	3.5	52925.23	140	142.5	52990.58
10	73	52986.46	55	132	52954.98	95	3	52927.95	140	143	52990.68
10	73.5	52986.05	55	131.75	52957.07	95	2.5	52932.77	140	143.5	52990.58
10	74	52985.94	55	131.5	52959.17	95	2	52936.74	140	144	52989.84
10	74.5	52986.78	55	131.25	52960.84	95	1.5	52938.73	140	144.5	52989.11
10	75	52987.72	55	131	52961.89	95	1	52939.56	140	145	52988.8
10	75.5	52987.83	55	130.75	52964.29	95	.5	52940.72	140	145.5	52988.91
10	76	52987.3	55	130.5	52973.71	95	0	52942.19	140	146	52989.75
10	76.5	52986.99	55	130.25	52987.52	100	0	52939.99	140	146.5	52991.43
10	77	52986.67	55	130	53005.43	100	.42	52939.78	140	147	52992.48
10	77.5	52985.84	55	129.5	53026.71	100	.83	52939.78	140	147.5	52992.48
10	78	52984.89	55	129	53047.37	100	1.25	52939.88	140	148	52992.8
10	78.5	52983.84	55	128.5	53067.1	100	1.67	52939.78	140	148.5	52993.53
10	79	52983.22	55	128	53084.64	100	2.08	52939.68	140	149	52993.95
10	79.5	52983.43	55	127.5	53096.41	100	2.5	52939.15	140	149.5	52993.95
10	80	52983.95	55	127	53107.66	100	2.92	52937.9	140	150	52993.32
10	80.5	52983.95	55	126.5	53129.65	100	3.33	52936.02	140	150.5	52992.18
10	81	52983.95	55	126	53138.71	100	3.75	52933.82	140	151	52991.34
10	81.5	52984.16	55	125.5	53134.18	100	4.17	52934.76	140	151.5	52991.44
10	82	52984.37	55	125	53122.39	100	4.58	52930.37	140	152	52992.6
10	82.5	52983.32	55	124.5	53103.25	100	5	52928.7	140	152.5	52993.65
10	83	52981.33	55	124	53079.6	100	5.42	52926.61	140	153	52994.17
10	83.5	52979.23	55	123.5	53063.95	100	5.83	52923.99	140	153.5	52994.28
10	84	52977.56	55	123	53057.13	100	6.25	52920.75	140	154	52994.17
10	84.5	52976.82	55	122.5	53051.78	100	6.67	52916.16	140	154.5	52994.29
10	85	52977.14	55	122	53045.06	100	7.08	52909.69	140	155	52993.96
10	85.5	52976.72	55	121.5	53033.52	100	7.5	52902.57	140	155.5	52993.02
10	86	52975.36	55	121	53019.58	100	7.92	52896.01	140	156	52992.39
10	86.5	52973.79	55	120.5	53007.94	100	8.33	52890.16	140	156.5	52991.87
10	87	52972.32	55	120	53001.45	100	8.75	52884.41	140	157	52991.45
10	87.5	52970.85	55	119.67	52997.68	100	9.17	52878.78	140	157.5	52991.98
10	88	52969.39	55	119.33	52994.12	100	9.58	52875.13	140	158	52993.34
10	88.5	52967.08	55	119	52989.09	100	10	52873.04	140	158.5	52994.18
10	89	52964.05	55	118.67	52983.44	100	10.33	52870.74	140	159	52994.39
10	89.5	52960.38	55	118.33	52981.03	100	10.67	52868.54	140	159.5	52995.02
10	90	52956.19	55	118	52980.3	100	11	52866.24	140	160	52995.87
10	90.5	52949.91	55	117.67	52979.99	100	11.33	52863.72	140	160.5	52996.39
10	91	52940.08	55	117.33	52979.36	100	11.67	52861.52	140	161	52995.87

10	91.5	52928.99	55	117	52978.1	100	12	52858.91	140	161.5	52994.51
10	92	52917.8	55	116.67	52976.53	100	12.33	52855.98	140	162	52993.14
10	92.5	52908.5	55	116.33	52976.01	100	12.67	52853.05	140	162.5	52992.62
10	93	52905.47	55	116	52976.85	100	13	52849.91	140	163	52993.04
10	93.5	52915.4	55	115.67	52978.31	100	13.33	52847.2	140	163.5	52993.98
10	94	52937.25	55	115.33	52979.36	100	13.67	52843.84	140	164	52994.09
10	94.5	52966.45	55	115	52979.46	100	14	52840.39	140	164.5	52993.98
10	95	52993.07	55	114.67	52978.63	100	14.33	52837.25	140	165	52993.88
10	95.5	53004.92	55	114.33	52978.42	100	14.67	52834.64	140	165.5	52994.2
10	96	53004.39	55	114	52978.83	100	15	52833.08	140	166	52994.52
10	96.5	52999.36	55	113.67	52979.04	100	15.33	52832.97	140	166.5	52994.2
10	97	52994.43	55	113.33	52979.57	100	15.67	52834.75	140	167	52993.57
10	97.5	52990.03	55	113	52979.99	100	16	52838.83	140	167.5	52992.94
10	98	52985.42	55	112.67	52980.2	100	16.33	52844.27	140	168	52992.52
10	98.5	52981.43	55	112.33	52980.82	100	16.67	52850.44	140	168.5	52992.63
10	99	52978.19	55	112	52981.66	100	17	52857.24	140	169	52993.99
10	99.5	52975.78	55	111.67	52982.39	100	17.33	52865.62	140	169.5	52995.04
10	100	52974.94	55	111.33	52982.71	100	17.67	52875.25	140	170	52995.25
10	101	52974	55	111	52982.71	100	18	52882.79	140	170.5	52995.25
10	102	52973.16	55	110.67	52982.6	100	18.33	52887.51	140	171	52995.05
10	103	52972.53	55	110.33	52982.81	100	18.67	52890.97	140	171.5	52994.63
10	104	52971.9	55	110	52982.81	100	19	52895.37	140	172	52994.11
10	105	52972.11	55	109.5	52982.92	100	19.33	52901.13	140	172.5	52993.06
10	106	52972.84	55	109	52983.13	100	19.67	52906.8	140	173	52992.22
10	107	52972.63	55	108.5	52983.23	100	20	52911.09	140	173.5	52991.8
10	108	52971.27	55	108	52983.44	100	20.33	52914.03	140	174	52991.59
10	109	52969.81	55	107.5	52983.86	100	20.67	52916.33	140	174.5	52991.8
10	110	52969.18	55	107	52984.38	100	21	52919.06	140	175	52992.86
10	110.5	52969.39	55	106.5	52985.11	100	21.33	52922.31	140	175.5	52993.79
10	111	52968.55	55	106	52985.53	100	21.67	52924.41	140	176	52994.22
10	111.5	52965.09	55	105.5	52985.43	100	22	52926.09	140	176.5	52994.12
10	112	52960.07	55	105	52985.22	100	22.33	52927.45	140	177	52994.22
10	112.5	52953.89	55	104.5	52984.91	100	22.67	52929.55	140	177.5	52994.54
10	113	52949.81	55	104	52984.28	100	23	52932.49	140	178	52994.54
10	113.5	52949.28	55	103.5	52983.75	100	23.33	52936.05	140	178.5	52994.01
10	114	52949.81	55	103	52983.54	100	23.67	52938.89	140	179	52993.49
10	114.5	52949.28	55	102.5	52983.02	100	24	52940.68	140	179.5	52993.28
10	115	52947.71	55	102	52982.92	100	24.33	52941.82	140	180	52993.5
10	115.5	52946.77	55	101.5	52983.75	100	24.67	52943.19	140	180.5	52994.23
10	116	52948.45	55	101	52985.22	100	25	52945.08	140	181	52995.8
10	116.5	52950.75	55	100.5	52986.58	100	25.33	52946.97	140	181.5	52996.75
10	117	52952.01	55	100	52987.52	100	25.67	52948.65	140	182	52996.96
10	117.5	52952.95	55	99.5	52987.73	100	26	52950.43	140	182.5	52996.75
10	118	52954.2	55	99	52987.84	100	26.33	52951.48	140	183	52996.75
10	118.5	52955.56	55	98.5	52987.42	100	26.67	52951.9	140	183.5	52996.86
10	119	52956.3	55	98	52987.1	100	27	52952.74	140	184	52996.44
10	119.5	52956.4	55	97.5	52987	100	27.33	52953.89	140	184.5	52995.49
10	120	52956.4	55	97	52987	100	27.67	52955.04	140	185	52994.44
10	120.5	52956.61	55	96.5	52986.89	100	28	52955.68	140	185.5	52993.72
10	121	52957.55	55	96	52986.58	100	28.33	52956.09	140	186	52993.61
10	121.5	52959.23	55	95.5	52986.58	100	28.67	52957.04	140	186.5	52994.03
10	122	52960.07	55	95	52986.89	100	29	52958.62	140	187	52994.87
10	122.5	52960.07	55	94.5	52987	100	29.33	52960.09	140	187.5	52995.08
10	123	52961.01	55	94	52986.58	100	29.67	52962.19	140	188	52994.77
10	123.5	52962.79	55	93.5	52986.16	100	30	52965.24	140	188.5	52994.14
10	124	52962.79	55	93	52986.27	100	31	52967.44	140	189	52993.93
10	124.5	52961.64	55	92.5	52986.16	100	32	52968.39	140	189.5	52993.73
10	125	52960.17	55	92	52986.16	100	33	52969.43	140	190	52992.98
10	125.5	52959.12	55	91.5	52986.68	100	34	52970.8	140	190.33	52992.46
10	126	52958.71	55	91	52987.31	100	35	52972.06	140	190.67	52992.25
10	126.5	52959.54	55	90.5	52988.67	100	36	52973	140	191	52992.15
10	127	52960.69	55	90	52990.45	100	37	52973.84	140	191.33	52992.15
10	127.5	52960.8	55	89.67	52990.98	100	38	52974.16	140	191.67	52992.78
10	128	52960.59	55	89.33	52990.66	100	39	52975	140	192	52993.52
10	128.5	52961.01	55	89	52989.3	100	40	52976.37	140	192.33	52994.04
10	129	52961.96	55	88.67	52987.63	100	40.5	52977.93	140	192.67	52993.94
10	129.5	52962.59	55	88.33	52986.37	100	41	52979.2	140	193	52993.73

10	130	52962.59	55	88	52985.22	100	41.5	52979.73	140	193.33	52993.62
10	130.5	52961.96	55	87.67	52984.59	100	42	52980.14	140	193.67	52993.84
10	131	52961.12	55	87.33	52984.07	100	42.5	52981.19	140	194	52993.95
10	131.5	52960.5	55	87	52983.54	100	43	52982.25	140	194.33	52993.95
10	132	52961.33	55	86.67	52983.23	100	43.5	52982.98	140	194.67	52993.95
10	132.5	52962.07	55	86.33	52983.54	100	44	52982.88	140	195	52993.84
10	133	52962.17	55	86	52984.17	100	44.5	52982.46	140	195.33	52994.26
10	133.5	52962.69	55	85.67	52984.38	100	45	52982.56	140	195.67	52995.73
10	134	52964.16	55	85.33	52984.07	100	45.5	52983.09	140	196	52998.04
10	134.5	52965.1	55	85	52983.75	100	46	52984.34	140	196.33	53000.25
10	135	52965.43	55	84.67	52983.75	100	46.5	52985.6	140	196.67	53001.82
10	135.5	52965.01	55	84.33	52983.44	100	47	52986.23	140	197	53002.98
10	136	52965.32	55	84	52983.23	100	47.5	52986.44	140	197.33	53004.13
10	136.5	52966.47	55	83.67	52983.02	100	48	52986.97	140	197.67	53004.98
10	137	52968.25	55	83.33	52983.02	100	48.5	52987.92	140	198	53003.3
10	137.5	52970.14	55	83	52983.34	100	49	52988.55	140	198.33	52999.21
10	138	52971.08	55	82.67	52984.07	100	49.5	52988.86	140	198.67	52994.48
10	138.5	52972.03	55	82.33	52984.91	100	50	52988.43	140	199	52990.07
10	139	52973.61	55	82	52985.64	100	50.5	52988.02	140	199.33	52986.19
10	139.5	52975.27	55	81.67	52985.74	100	51	52987.59	140	199.67	52983.46
10	140	52975.91	55	81.33	52985.32	100	51.5	52987.27	140	200	52984.19
10	140.5	52975.7	55	81	52985.11	100	52	52987.91	145	200	52991.75
10	141	52976.12	55	80.67	52984.38	100	52.5	52989.27	145	199.71	52991.75
10	141.5	52977.06	55	80.33	52983.75	100	53	52989.69	145	199.41	52991.75
10	142	52979.05	55	80	52983.34	100	53.5	52989.69	145	199.12	52991.64
10	142.5	52981.46	55	79	52982.92	100	54	52989.59	145	198.82	52991.12
10	143	52983.04	55	78	52982.81	100	54.5	52989.27	145	198.53	52990.71
10	143.5	52983.56	55	77	52983.23	100	55	52988.96	145	198.24	52990.08
10	144	52984.82	55	76	52983.86	100	55.5	52988.95	145	197.94	52989.34
10	144.5	52986.49	55	75	52984.07	100	56	52988.95	145	197.65	52988.71
10	145	52986.71	55	74	52983.34	100	56.5	52988.84	145	197.35	52988.29
10	145.5	52985.25	55	73	52982.18	100	57	52988.95	145	197.06	52988.29
10	146	52983.67	55	72	52981.03	100	57.5	52989.26	145	196.76	52989.03
10	146.5	52983.57	55	71	52979.88	100	58	52990	145	196.47	52989.55
10	147	52984.93	55	70	52979.88	100	58.5	52990.74	145	196.18	52989.34
10	147.5	52987.03	55	69.5	52981.24	100	59	52990.84	145	195.88	52989.55
10	148	52989.54	55	69	52984.17	100	59.5	52990.63	145	195.59	52989.45
10	148.5	52990.28	55	68.5	52986.37	100	60	52990.3	145	195.29	52989.34
10	149	52989.66	55	68	52986.06	100	60.33	52990.52	145	195	52989.25
10	149.5	52989.13	55	67.5	52985.53	100	60.67	52991.16	145	194.71	52989.46
10	150	52988.93	55	67	52985.43	100	61	52991.57	145	194.41	52989.56
10	150.5	52987.77	55	66.5	52984.7	100	61.33	52991.88	145	194.12	52989.67
10	151	52984.94	55	66	52983.44	100	61.67	52992.3	145	193.82	52989.88
10	151.5	52980.96	55	65.5	52982.39	100	62	52993.04	145	193.53	52990.4
10	152	52977.71	55	65	52981.14	100	62.33	52994.09	145	193.24	52990.93
10	152.5	52975.72	55	64.5	52980.4	100	62.67	52994.41	145	192.94	52991.35
10	153	52974.05	55	64	52980.2	100	63	52994.3	145	192.65	52991.14
10	153.5	52971.11	55	63.5	52980.51	100	63.33	52994.09	145	192.35	52991.04
10	154	52967.03	55	63	52981.24	100	63.67	52994.2	145	192.06	52990.82
10	154.5	52963.58	55	62.5	52982.18	100	64	52994.29	145	191.76	52990.41
10	155	52961.17	55	62	52983.13	100	64.33	52993.88	145	191.47	52989.99
10	155.5	52959.08	55	61.5	52984.17	100	64.67	52992.71	145	191.18	52989.99
10	156	52955.73	55	61	52984.38	100	65	52991.66	145	190.88	52989.78
10	156.5	52951.12	55	60.5	52983.75	100	65.33	52990.82	145	190.59	52989.57
10	157	52946.73	55	60	52983.34	100	65.67	52990.4	145	190.29	52989.26
10	157.5	52942.65	55	59.67	52982.92	100	66	52990.61	145	190	52989.47
10	158	52939.51	55	59.33	52982.6	100	66.33	52991.55	145	189.5	52989.68
10	158.5	52937.21	55	59	52982.5	100	66.67	52992.19	145	189	52989.79
10	159	52934.8	55	58.67	52982.29	100	67	52992.5	145	188.5	52989.27
10	159.5	52931.56	55	58.33	52982.08	100	67.33	52992.49	145	188	52989.16
10	160	52927.79	55	58	52982.18	100	67.67	52993.02	145	187.5	52989.69
10	160.5	52924.46	55	57.67	52983.02	100	68	52993.55	145	187	52989.9
10	161	52922.68	55	57.33	52983.75	100	68.33	52993.23	145	186.5	52989.9
10	161.5	52922.37	55	57	52983.75	100	68.67	52992.49	145	186	52990
10	162	52922.78	55	56.67	52983.34	100	69	52991.55	145	185.5	52990.11
10	162.5	52923.93	55	56.33	52983.23	100	69.33	52990.71	145	185	52990
10	163	52926.23	55	56	52982.18	100	69.67	52989.97	145	184.5	52989.91

10	163.5	52933.24	55	55.67	52981.77	100	70	52990.06	145	184	52989.59
10	164	52944.02	55	55.33	52982.81	100	70.5	52990.27	145	183.5	52989.91
10	164.5	52955.96	55	55	52987.63	100	71	52990.27	145	183	52990.21
10	165	52968.73	55	54.67	52997.37	100	71.5	52990.18	145	182.5	52990.01
10	165.5	52981.62	55	54.33	53003.02	100	72	52990.27	145	182	52989.49
10	166	52995.66	55	54	53000.72	100	72.5	52990.48	145	181.5	52989.17
10	166.5	53015.59	55	53.67	52996.63	100	73	52990.38	145	181	52988.96
10	167	53044.88	55	53.33	52992.86	100	73.5	52989.33	145	180.5	52988.96
10	167.5	53079.25	55	53	52989.09	100	74	52988.07	145	180	52989.06
10	168	53114.09	55	52.67	52986.37	100	74.5	52987.86	145	179.5	52989.16
10	168.5	53148.86	55	52.33	52984.38	100	75	52988.07	145	179	52989.16
10	169	53184.84	55	52	52983.13	100	75.5	52989.33	145	178.5	52989.27
10	169.5	53219.82	55	51.67	52982.5	100	76	52990.58	145	178	52990.11
10	170	53256.42	55	51.33	52981.56	100	76.5	52991.32	145	177.5	52990.74
10	170.5	53301.57	55	51	52980.61	100	77	52991.63	145	177	52990.52
10	171	53363.26	55	50.67	52979.88	100	77.5	52992.47	145	176.5	52989.79
10	171.5	53450.36	55	50.33	52979.46	100	78	52993.42	145	176	52989.15
10	172	53559.57	55	50	52979.99	100	78.5	52993.84	145	175.5	52989.05
10	172.5	53689.77	55	49.5	52982.08	100	79	52993	145	175	52989.36
10	173	53836.62	55	49	52987.94	100	79.5	52991.84	145	174.5	52989.98
10	173.5	53983.26	55	48.5	52993.6	100	80	52990.68	145	174	52990.41
10	174	54114.15	55	48	52991.82	100	80.5	52989.52	145	173.5	52990.4
10	174.5	54202.91	55	47.5	52988.05	100	81	52989.41	145	173	52990.19
10	175	54255.52	55	47	52985.53	100	81.5	52990.25	145	172.5	52990.4
10	175.5	54287.37	55	46.5	52983.96	100	82	52990.46	145	172	52990.61
10	176	54320.66	55	46	52983.02	100	82.5	52990.68	145	171.5	52990.93
10	176.5	54353.23	55	45.5	52982.71	100	83	52990.68	145	171	52990.4
10	177	54365	55	45	52982.92	100	83.5	52991.52	145	170.5	52989.66
10	177.5	54349.16	55	44.5	52983.34	100	84	52991.83	145	170	52989.34
10	178	54320.95	55	44	52983.54	100	84.5	52991.41	145	169.5	52989.03
10	178.5	54278.47	55	43.5	52982.81	100	85	52990.78	145	169	52988.82
10	179	54223.95	55	43	52982.39	100	85.5	52990.24	145	168.5	52988.92
10	179.5	54157.58	55	42.5	52982.29	100	86	52989.82	145	168	52988.92
10	180	54091.7	55	42	52981.87	100	86.5	52989.82	145	167.5	52988.61
10	180.5	54019.74	55	41.5	52981.66	100	87	52990.24	145	167	52988.81
10	181	53933.55	55	41	52981.77	100	87.5	52990.56	145	166.5	52989.23
10	181.5	53836.65	55	40.5	52981.66	100	88	52990.67	145	166	52989.54
10	182	53741.69	55	40	52981.45	100	88.5	52990.56	145	165.5	52989.44
10	182.5	53654.25	55	39.5	52981.66	100	89	52990.66	145	165	52989.02
10	183	53577.08	55	39	52982.29	100	89.5	52990.98	145	164.5	52988.91
10	183.5	53508.43	55	38.5	52983.13	100	90	52991.18	145	164	52988.8
10	184	53442.18	55	38	52983.34	100	90.5	52990.98	145	163.5	52988.8
10	184.5	53377.14	55	37.5	52983.02	100	91	52990.87	145	163	52988.69
10	185	53318.54	55	37	52982.39	100	91.5	52990.66	145	162.5	52988.48
10	185.5	53274.02	55	36.5	52981.97	100	92	52990.76	145	162	52988.27
10	186	53238.21	55	36	52981.45	100	92.5	52991.39	145	161.5	52988.59
10	186.5	53203.25	55	35.5	52981.14	100	93	52991.92	145	161	52989.43
10	187	53167.59	55	35	52981.35	100	93.5	52991.92	145	160.5	52990.36
10	187.5	53136.07	55	34.5	52981.56	100	94	52991.71	145	160	52990.57
10	188	53112.36	55	34	52981.87	100	94.5	52991.6	145	159.5	52990.57
10	188.5	53093.9	55	33.5	52982.5	100	95	52991.7	145	159	52990.78
10	189	53077.34	55	33	52983.44	100	95.5	52991.38	145	158.5	52990.47
10	189.5	53060.06	55	32.5	52984.28	100	96	52990.75	145	158	52990.05
10	190	53042.89	55	32	52984.49	100	96.5	52989.7	145	157.5	52989.84
10	190.29	53029.55	55	31.5	52984.49	100	97	52989.07	145	157	52989.73
10	190.57	53020.53	55	31	52984.7	100	97.5	52988.75	145	156.5	52989.51
10	190.86	53012.13	55	30.5	52984.38	100	98	52989.17	145	156	52989.72
10	191.14	53002.17	55	30	52984.17	100	98.5	52990.22	145	155.5	52990.25
10	191.43	52990.74	55	29.67	52984.28	100	99	52990.86	145	155	52990.67
10	191.71	52978.9	55	29.33	52984.17	100	99.5	52990.96	145	154.5	52990.88
10	192	52967.79	55	29	52983.86	100	100	52991.28	145	154	52990.55
10	192.29	52957.75	55	28.67	52983.44	100	100.5	52992	145	153.5	52990.24
10	192.57	52949.47	55	28.33	52982.92	100	101	52992.74	145	153	52990.04
10	192.86	52940.79	55	28	52982.81	100	101.5	52993.27	145	152.5	52989.82
10	193.14	52928.54	55	27.67	52982.71	100	102	52992.95	145	152	52989.4
10	193.43	52915.17	55	27.33	52981.97	100	102.5	52992.11	145	151.5	52989.4
10	193.71	52903.05	55	27	52981.03	100	103	52991.58	145	151	52989.29

10	194	52893.96	55	26.67	52980.82	100	103.5	52992.11	145	150.5	52989.07
10	194.29	52886.13	55	26.33	52980.2	100	104	52992.84	145	150	52989.18
10	194.57	52877.36	55	26	52979.46	100	104.5	52993.47	145	149.5	52989.49
10	194.86	52867.34	55	25.67	52979.15	100	105	52993.68	145	149	52989.7
10	195.14	52855.97	55	25.33	52978.73	100	105.5	52993.57	145	148.5	52989.28
10	195.43	52843.77	55	25	52978.42	100	106	52993.68	145	148	52988.76
10	195.71	52832.26	55	24.67	52978.42	100	106.5	52993.89	145	147.5	52988.22
10	196	52821.07	55	24.33	52978.42	100	107	52993.47	145	147	52987.29
10	196.29	52808.63	55	24	52978.94	100	107.5	52992.73	145	146.5	52986.55
10	196.57	52794.42	55	23.67	52978.94	100	108	52992.1	145	146	52986.13
10	196.86	52779.27	55	23.33	52978.63	100	108.5	52991.57	145	145.5	52985.5
10	197.14	52768.84	55	23	52977.89	100	109	52991.46	145	145	52984.97
10	197.43	52764.98	55	22.67	52976.64	100	109.5	52992.1	145	144.5	52984.76
10	197.71	52762.79	55	22.33	52976.11	100	110	52993.26	145	144	52984.96
10	198	52760.07	55	22	52975.59	100	110.5	52993.67	145	143.5	52985.59
10	198.29	52757.88	55	21.67	52975.17	100	111	52994.09	145	143	52985.8
10	198.57	52757.68	55	21.33	52975.17	100	111.5	52994.4	145	142.5	52985.38
10	198.86	52760.08	55	21	52975.07	100	112	52995.03	145	142	52985.17
10	199.14	52770.83	55	20.67	52974.86	100	112.5	52995.14	145	141.5	52984.86
10	199.43	52785.86	55	20.33	52974.65	100	113	52994.61	145	141	52984.32
10	199.71	52801.22	55	20	52974.44	100	113.5	52993.67	145	140.5	52984.22
10	200	52815.01	55	19.67	52974.75	100	114	52993.14	145	140	52984.43
15	200	52920.34	55	19.33	52975.28	100	114.5	52993.04	145	139.5	52984.43
15	199.71	52920.66	55	19	52975.17	100	115	52993.46	145	139	52984.64
15	199.41	52921.09	55	18.67	52974.54	100	115.5	52994.52	145	138.5	52984.85
15	199.12	52921.4	55	18.33	52973.5	100	116	52994.83	145	138	52985.37
15	198.82	52921.72	55	18	52972.77	100	116.5	52994.41	145	137.5	52986
15	198.53	52921.72	55	17.67	52972.03	100	117	52993.89	145	137	52986.1
15	198.24	52921.82	55	17.33	52971.2	100	117.5	52993.79	145	136.5	52985.99
15	197.94	52921.4	55	17	52970.67	100	118	52993.79	145	136	52986.31
15	197.65	52920.88	55	16.67	52970.25	100	118.5	52993.79	145	135.5	52986.2
15	197.35	52920.56	55	16.33	52969.63	100	119	52993.79	145	135	52985.99
15	197.06	52920.14	55	16	52969.52	100	119.5	52993.59	145	134.5	52986.09
15	196.76	52920.56	55	15.67	52970.04	100	120	52993.59	145	134	52986.09
15	196.47	52921.51	55	15.33	52970.46	100	120.5	52993.91	145	133.5	52985.98
15	196.18	52922.98	55	15	52970.15	100	121	52994.64	145	133	52986.19
15	195.88	52924.13	55	14.67	52969.31	100	121.5	52995.38	145	132.5	52986.82
15	195.59	52924.97	55	14.33	52967.95	100	122	52995.38	145	132	52987.55
15	195.29	52925.81	55	14	52967.22	100	122.5	52995.18	145	131.5	52988.08
15	195	52927.18	55	13.67	52966.17	100	123	52995.18	145	131	52987.87
15	194.71	52928.45	55	13.33	52965.55	100	123.5	52995.28	145	130.5	52987.75
15	194.41	52929.39	55	13	52965.02	100	124	52994.97	145	130	52987.75
15	194.12	52930.02	55	12.67	52964.61	100	124.5	52994.34	145	129.5	52987.54
15	193.82	52929.91	55	12.33	52964.08	100	125	52993.39	145	129	52987.44
15	193.53	52929.39	55	12	52963.56	100	125.5	52992.45	145	128.5	52987.54
15	193.24	52930.44	55	11.67	52963.56	100	126	52991.93	145	128	52987.43
15	192.94	52933.28	55	11.33	52964.19	100	126.5	52991.3	145	127.5	52987.23
15	192.65	52936.21	55	11	52964.5	100	127	52991.72	145	127	52987.13
15	192.35	52938.32	55	10.67	52964.08	100	127.5	52992.67	145	126.5	52987.53
15	192.06	52939.79	55	10.33	52963.25	100	128	52992.99	145	126	52988.37
15	191.76	52940.31	55	10	52962.3	100	128.5	52992.88	145	125.5	52988.79
15	191.47	52942.83	55	9.6	52961.26	100	129	52992.88	145	125	52988.58
15	191.18	52947.46	55	9.2	52959.69	100	129.5	52993.09	145	124.5	52988.48
15	190.88	52952.39	55	8.8	52958.43	100	130	52993.32	145	124	52988.47
15	190.59	52955.97	55	8.4	52957.07	100	130.5	52993	145	123.5	52988.26
15	190.29	52955.76	55	8	52955.51	100	131	52992.58	145	123	52987.95
15	190	52954.29	55	7.6	52953.94	100	131.5	52992.05	145	122.5	52988.05
15	189.67	52953.77	55	7.2	52952.68	100	132	52991.75	145	122	52987.94
15	189.33	52957.96	55	6.8	52951.85	100	132.5	52991.64	145	121.5	52987.73
15	189	52977.42	55	6.4	52951.32	100	133	52992.17	145	121	52987.41
15	188.67	53015.31	55	6	52950.38	100	133.5	52992.8	145	120.5	52987.52
15	188.33	53048.3	55	5.6	52949.02	100	134	52993.02	145	120	52988.14
15	188	53067.29	55	5.2	52947.67	100	134.5	52992.8	145	119.67	52988.88
15	187.67	53086.4	55	4.8	52946.31	100	135	52992.91	145	119.33	52989.09
15	187.33	53125.71	55	4.4	52944.63	100	135.5	52993.12	145	119	52988.67
15	187	53188.1	55	4	52942.86	100	136	52993.23	145	118.67	52988.35
15	186.67	53248.49	55	3.6	52941.29	100	136.5	52992.91	145	118.33	52988.13

15	186.33	53308.8	55	3.2	52939.51	100	137	52992.5	145	118	52987.82
15	186	53376.3	55	2.8	52937.63	100	137.5	52992.19	145	117.67	52987.82
15	185.67	53462.39	55	2.4	52935.54	100	138	52991.98	145	117.33	52988.03
15	185.33	53577.89	55	2	52933.77	100	138.5	52992.29	145	117	52987.71
15	185	53713.5	55	1.6	52931.78	100	139	52992.82	145	116.67	52987.5
15	184.67	53855.93	55	1.2	52929.27	100	139.5	52993.36	145	116.33	52987.61
15	184.33	53996.76	55	.8	52926.14	100	140	52993.88	145	116	52988.34
15	184	54144.06	55	.4	52923.11	100	140.5	52994.09	145	115.67	52989.38
15	183.67	54320.4	55	0	52919.98	100	141	52994.62	145	115.33	52990.01
15	183.33	54546.58	60	0	52934.21	100	141.5	52995.04	145	115	52990.01
15	183	54808.16	60	.42	52934.64	100	142	52995.14	145	114.67	52989.38
15	182.67	55074.55	60	.83	52935.27	100	142.5	52994.84	145	114.33	52988.65
15	182.33	55333.9	60	1.25	52935.9	100	143	52994.52	145	114	52987.8
15	182	55622.55	60	1.67	52936.64	100	143.5	52994.21	145	113.67	52987.38
15	181.67	55968.91	60	2.08	52937.8	100	144	52994	145	113.33	52987.59
15	181.33	56411.34	60	2.5	52939.37	100	144.5	52994.73	145	113	52988.11
15	181	56934.93	60	2.92	52941.26	100	145	52995.48	145	112.67	52988.64
15	180.67	57399.55	60	3.33	52943.46	100	145.5	52996.01	145	112.33	52989.48
15	180.33	57743.91	60	3.75	52945.36	100	146	52995.69	145	112	52990.42
15	180	58017.21	60	4.17	52946.72	100	146.5	52995.48	145	111.67	52991.46
15	179.67	58343.66	60	4.58	52947.88	100	147	52995.59	145	111.33	52992.09
15	179.33	58778.36	60	5	52949.36	100	147.5	52995.49	145	111	52991.99
15	179	59298.16	60	5.42	52951.03	100	148	52994.75	145	110.67	52991.78
15	178.67	59626.56	60	5.83	52951.87	100	148.5	52994.23	145	110.33	52991.67
15	178.33	59568.59	60	6.25	52952.41	100	149	52993.39	145	110	52991.46
15	178	59274.75	60	6.67	52952.41	100	149.5	52992.76	145	109.5	52991.04
15	177.67	58739.18	60	7.08	52952.93	100	150	52992.45	145	109	52990.73
15	177.33	58097.9	60	7.5	52954.61	100	150.5	52992.87	145	108.5	52990.41
15	177	57595.39	60	7.92	52960.91	100	151	52993.82	145	108	52989.88
15	176.67	57363.04	60	8.33	52976.35	100	151.5	52994.34	145	107.5	52989.98
15	176.33	57306.15	60	8.75	52986.86	100	152	52994.45	145	107	52990.72
15	176	57260.88	60	9.17	52980.87	100	152.5	52994.35	145	106.5	52991.35
15	175.67	57006.18	60	9.58	52973.41	100	153	52994.88	145	106	52991.56
15	175.33	56628.54	60	10	52968.7	100	153.5	52995.09	145	105.5	52991.55
15	175	56232.83	60	10.5	52966.07	100	154	52994.88	145	105	52991.55
15	174.67	55847.63	60	11	52965.34	100	154.5	52994.46	145	104.5	52991.76
15	174.33	55495.85	60	11.5	52965.23	100	155	52994.26	145	104	52991.34
15	174	55179.35	60	12	52965.14	100	155.5	52993.94	145	103.5	52991.02
15	173.67	54878.21	60	12.5	52965.14	100	156	52993.94	145	103	52991.13
15	173.33	54594.63	60	13	52965.56	100	156.5	52994.47	145	102.5	52991.13
15	173	54356.65	60	13.5	52966.61	100	157	52995.11	145	102	52991.02
15	172.67	54155.19	60	14	52968.29	100	157.5	52994.9	145	101.5	52991.33
15	172.33	53967.21	60	14.5	52969.66	100	158	52994.06	145	101	52991.96
15	172	53797.23	60	15	52970.61	100	158.5	52993.53	145	100.5	52992.38
15	171.67	53634.7	60	15.5	52971.34	100	159	52993.21	145	100	52992.38
15	171.33	53486.71	60	16	52971.98	100	159.5	52993.64	145	99.5	52991.85
15	171	53351.97	60	16.5	52972.72	100	160	52994.07	145	99	52990.48
15	170.67	53235.98	60	17	52973.24	100	160.5	52994.07	145	98.5	52989.64
15	170.33	53142.44	60	17.5	52973.04	100	161	52994.07	145	98	52988.9
15	170	53068.71	60	18	52972.94	100	161.5	52993.86	145	97.5	52988.06
15	169.67	53003.92	60	18.5	52973.04	100	162	52993.96	145	97	52987.75
15	169.33	52938.44	60	19	52973.57	100	162.5	52994.92	145	96.5	52987.85
15	169	52869.01	60	19.5	52974.41	100	163	52996.71	145	96	52987.75
15	168.67	52803.2	60	20	52976.09	100	163.5	52997.76	145	95.5	52987.54
15	168.33	52751.32	60	20.33	52977.25	100	164	52998.29	145	95	52987.32
15	168	52719	60	20.67	52977.99	100	164.5	52999.34	145	94.5	52987.53
15	167.67	52698.89	60	21	52978.51	100	165	52999.98	145	94	52988.05
15	167.33	52685.34	60	21.33	52979.57	100	165.5	52999.45	145	93.5	52988.26
15	167	52670.68	60	21.67	52980.52	100	166	52998.51	145	93	52987.95
15	166.67	52654.34	60	22	52980.73	100	166.5	52997.77	145	92.5	52987.84
15	166.33	52641.77	60	22.33	52980.2	100	167	52997.15	145	92	52987.52
15	166	52638.44	60	22.67	52979.68	100	167.5	52996.62	145	91.5	52987.31
15	165.67	52645.09	60	23	52979.36	100	168	52996.2	145	91	52987.31
15	165.33	52653.2	60	23.33	52979.69	100	168.5	52997.15	145	90.5	52987.31
15	165	52662.04	60	23.67	52980.53	100	169	52998.41	145	90	52987.41
15	164.67	52670.05	60	24	52981.79	100	169.5	52999.05	145	89.5	52987.94
15	164.33	52678.79	60	24.33	52982.63	100	170	52999.16	145	89	52988.78

15	164	52688.79	60	24.67	52982.95	100	170.33	52999.58	145	88.5	52990.13
15	163.67	52701.39	60	25	52983.16	100	170.67	53000	145	88	52991.08
15	163.33	52716.5	60	25.33	52983.38	100	171	53000.31	145	87.5	52991.71
15	163	52731.09	60	25.67	52983.17	100	171.33	53000.21	145	87	52992.02
15	162.67	52745.28	60	26	52982.01	100	171.67	52999.9	145	86.5	52992.02
15	162.33	52759.79	60	26.33	52981.07	100	172	52999.59	145	86	52990.66
15	162	52774.61	60	26.67	52980.75	100	172.33	52999.69	145	85.5	52989.82
15	161.67	52788.72	60	27	52980.64	100	172.67	53000.54	145	85	52989.4
15	161.33	52801.89	60	27.33	52980.86	100	173	53001.48	145	84.5	52989.08
15	161	52812.45	60	27.67	52982.02	100	173.33	53001.91	145	84	52988.87
15	160.67	52821.56	60	28	52983.49	100	173.67	53002.44	145	83.5	52989.08
15	160.33	52829.73	60	28.33	52984.02	100	174	53003.18	145	83	52989.92
15	160	52836.85	60	28.67	52984.23	100	174.33	53003.91	145	82.5	52991.29
15	159.67	52842.71	60	29	52984.75	100	174.67	53004.66	145	82	52992.13
15	159.33	52848.58	60	29.33	52985.17	100	175	53004.96	145	81.5	52992.44
15	159	52855.07	60	29.67	52985.39	100	175.33	53005.08	145	81	52992.87
15	158.67	52862.09	60	30	52985.18	100	175.67	53005.4	145	80.5	52993.08
15	158.33	52869.75	60	30.5	52984.87	100	176	53005.93	145	80	52993.08
15	158	52877.4	60	31	52984.45	100	176.33	53006.77	145	79.5	52993.29
15	157.67	52884.43	60	31.5	52983.82	100	176.67	53008.35	145	79	52993.71
15	157.33	52891.03	60	32	52983.61	100	177	53010.14	145	78.5	52993.92
15	157	52897.33	60	32.5	52984.55	100	177.33	53011.41	145	78	52994.23
15	156.67	52903.21	60	33	52985.3	100	177.67	53012.46	145	77.5	52994.55
15	156.33	52908.35	60	33.5	52985.4	100	178	53013.52	145	77	52994.76
15	156	52912.55	60	34	52985.3	100	178.33	53014.78	145	76.5	52995.18
15	155.67	52915.81	60	34.5	52985.3	100	178.67	53015.94	145	76	52995.18
15	155.33	52918.86	60	35	52985.3	100	179	53016.89	145	75.5	52994.87
15	155	52921.79	60	35.5	52984.46	100	179.33	53017.52	145	75	52994.97
15	154.67	52924.52	60	36	52983.3	100	179.67	53018.37	145	74.5	52994.34
15	154.33	52927.27	60	36.5	52982.68	100	180	53019.32	145	74	52993.5
15	154	52930.3	60	37	52982.26	100	180.5	53020.48	145	73.5	52993.2
15	153.67	52933.45	60	37.5	52981.95	100	181	53022.17	145	73	52993.09
15	153.33	52936.82	60	38	52982.26	100	181.5	53024.18	145	72.5	52993.29
15	153	52940.39	60	38.5	52983.52	100	182	53026.07	145	72	52993.5
15	152.67	52944.29	60	39	52984.05	100	182.5	53028.18	145	71.5	52994.04
15	152.33	52948.08	60	39.5	52984.16	100	183	53030.08	145	71	52994.77
15	152	52951.86	60	40	52984.48	100	183.5	53031.55	145	70.5	52995.39
15	151.67	52955.65	60	40.5	52985.11	100	184	53032.92	145	70	52995.93
15	151.33	52959.75	60	41	52985.53	100	184.5	53034.4	145	69.67	52996.03
15	151	52962.9	60	41.5	52985.32	100	185	53035.88	145	69.33	52995.82
15	150.67	52963.64	60	42	52984.27	100	185.5	53037.57	145	69	52995.82
15	150.33	52962.8	60	42.5	52983.32	100	186	53039.88	145	68.67	52995.4
15	150	52962.48	60	43	52982.8	100	186.5	53042.95	145	68.33	52994.77
15	149.5	52962.59	60	43.5	52982.91	100	187	53046.43	145	68	52994.25
15	149	52963.01	60	44	52983.65	100	187.5	53048.64	145	67.67	52993.51
15	148.5	52963.54	60	44.5	52985.01	100	188	53049.8	145	67.33	52992.78
15	148	52964.06	60	45	52985.64	100	188.5	53051.38	145	67	52992.78
15	147.5	52965.11	60	45.5	52985.85	100	189	53053.28	145	66.67	52993.62
15	147	52965.96	60	46	52985.96	100	189.5	53055.51	145	66.33	52993.93
15	146.5	52966.48	60	46.5	52986.18	100	190	53058.14	145	66	52994.04
15	146	52966.7	60	47	52986.28	100	190.5	53060.25	145	65.67	52993.62
15	145.5	52967.54	60	47.5	52985.86	100	191	53061.73	145	65.33	52993.62
15	145	52968.39	60	48	52985.13	100	191.5	53062.68	145	65	52993.09
15	144.5	52969.54	60	48.5	52984.5	100	192	53063.64	145	64.67	52992.67
15	144	52970.91	60	49	52984.29	100	192.5	53065.01	145	64.33	52992.79
15	143.5	52972.6	60	49.5	52985.02	100	193	53066.8	145	64	52992.68
15	143	52974.48	60	50	52986.5	100	193.5	53068.38	145	63.67	52992.89
15	142.5	52975.54	60	50.5	52987.45	100	194	53069.34	145	63.33	52993.41
15	142	52975.33	60	51	52987.76	100	194.5	53069.66	145	63	52994.25
15	141.5	52975.12	60	51.5	52987.87	100	195	53069.87	145	62.67	52995.1
15	141	52974.91	60	52	52988.18	100	195.5	53070.4	145	62.33	52995.62
15	140.5	52974.38	60	52.5	52988.19	100	196	53071.66	145	62	52995.62
15	140	52973.86	60	53	52987.55	100	196.5	53071.88	145	61.67	52996.15
15	139.5	52973.44	60	53.5	52986.41	100	197	53070.51	145	61.33	52996.36
15	139	52972.81	60	54	52985.78	100	197.5	53068.09	145	61	52996.25
15	138.5	52971.96	60	54.5	52985.25	100	198	53066.08	145	60.67	52996.15
15	138	52971.34	60	55	52985.78	100	198.5	53065.24	145	60.33	52996.36

15	137.5	52971.02	60	55.5	52987.56	100	199	53064.5	145	60	52996.67
15	137	52970.91	60	56	52989.66	100	199.5	53063.03	145	59.5	52997.09
15	136.5	52971.02	60	56.5	52990.52	100	200	53060.82	145	59	52997.3
15	136	52971.13	60	57	52990.83	105	200	53003.04	145	58.5	52997.51
15	135.5	52970.7	60	57.5	52991.36	105	199.71	53002.72	145	58	52997.72
15	135	52970.18	60	58	52991.78	105	199.41	53001.99	145	57.5	52997.51
15	134.5	52969.66	60	58.5	52991.36	105	199.12	53000.61	145	57	52997.3
15	134	52969.13	60	59	52989.89	105	198.82	52997.88	145	56.5	52996.88
15	133.5	52969.24	60	59.5	52988.63	105	198.53	52995.14	145	56	52995.31
15	133	52968.29	60	60	52987.79	105	198.24	52993.24	145	55.5	52994.15
15	132.5	52967.13	60	60.5	52987.79	105	197.94	52994.71	145	55	52993.64
15	132	52966.61	60	61	52989.05	105	197.65	52999.23	145	54.5	52993.11
15	131.5	52966.4	60	61.5	52989.79	105	197.35	53003.44	145	54	52992.38
15	131	52966.4	60	62	52989.68	105	197.06	53006.91	145	53.5	52992.38
15	130.5	52966.61	60	62.5	52989.47	105	196.76	53010.07	145	53	52993.11
15	130	52967.45	60	63	52989.27	105	196.47	53012.38	145	52.5	52993.74
15	129.67	52968.08	60	63.5	52989.17	105	196.18	53012.7	145	52	52993.95
15	129.33	52968.4	60	64	52988.54	105	195.88	53012.06	145	51.5	52993.53
15	129	52968.4	60	64.5	52987.49	105	195.59	53011.75	145	51	52993.22
15	128.67	52968.19	60	65	52986.65	105	195.29	53011.01	145	50.5	52993.01
15	128.33	52967.87	60	65.5	52986.45	105	195	53010.48	145	50	52992.9
15	128	52967.13	60	66	52986.45	105	194.71	53010.26	145	49.5	52992.9
15	127.67	52966.5	60	66.5	52986.75	105	194.41	53010.68	145	49	52992.9
15	127.33	52965.98	60	67	52987.18	105	194.12	53011.21	145	48.5	52993.01
15	127	52965.57	60	67.5	52986.97	105	193.82	53011.53	145	48	52993.43
15	126.67	52965.57	60	68	52986.55	105	193.53	53011.63	145	47.5	52993.96
15	126.33	52966.3	60	68.5	52986.24	105	193.24	53011.41	145	47	52994.8
15	126	52967.04	60	69	52986.55	105	192.94	53011.31	145	46.5	52995.54
15	125.67	52967.66	60	69.5	52986.77	105	192.65	53011.41	145	46	52995.84
15	125.33	52968.2	60	70	52986.56	105	192.35	53011.52	145	45.5	52995.75
15	125	52968.2	60	70.5	52986.04	105	192.06	53011.83	145	45	52995.84
15	124.67	52967.77	60	71	52985.3	105	191.76	53012.24	145	44.5	52995.84
15	124.33	52967.67	60	71.5	52985.09	105	191.47	53012.35	145	44	52995.64
15	124	52967.14	60	72	52985.73	105	191.18	53012.14	145	43.5	52995.64
15	123.67	52966.72	60	72.5	52986.68	105	190.88	53012.03	145	43	52995.64
15	123.33	52966.72	60	73	52987.2	105	190.59	53012.45	145	42.5	52995.64
15	123	52966.72	60	73.5	52987.41	105	190.29	53012.66	145	42	52995.96
15	122.67	52966.72	60	74	52987.41	105	190	53012.65	145	41.5	52996.69
15	122.33	52966.83	60	74.5	52987.73	105	189.5	53012.02	145	41	52997.32
15	122	52967.36	60	75	52987.31	105	189	53011.6	145	40.5	52997.95
15	121.67	52968.2	60	75.5	52986.89	105	188.5	53010.97	145	40	52997.84
15	121.33	52968.93	60	76	52986.69	105	188	53010.22	145	39.5	52997.84
15	121	52969.25	60	76.5	52987.11	105	187.5	53009.49	145	39	52997.63
15	120.67	52969.25	60	77	52987.63	105	187	53008.75	145	38.5	52997.32
15	120.33	52968.83	60	77.5	52988.89	105	186.5	53008.01	145	38	52997.11
15	120	52968.73	60	78	52990.16	105	186	53007.27	145	37.5	52997.32
15	119.5	52968.52	60	78.5	52990.59	105	185.5	53006.96	145	37	52997.32
15	119	52968.52	60	79	52990.47	105	185	53006.74	145	36.5	52997.42
15	118.5	52968.42	60	79.5	52990.27	105	184.5	53006.53	145	36	52997.64
15	118	52968.73	60	80	52990.48	105	184	53006.11	145	35.5	52997.64
15	117.5	52969.05	60	80.5	52990.48	105	183.5	53005.36	145	35	52997.96
15	117	52969.47	60	81	52989.95	105	183	53004.73	145	34.5	52998.17
15	116.5	52970.1	60	81.5	52988.9	105	182.5	53004.2	145	34	52997.96
15	116	52971.05	60	82	52988.17	105	182	53003.68	145	33.5	52997.96
15	115.5	52971.36	60	82.5	52987.76	105	181.5	53003.14	145	33	52998.06
15	115	52971.05	60	83	52988.28	105	181	53002.82	145	32.5	52997.85
15	114.5	52971.26	60	83.5	52989.32	105	180.5	53002.4	145	32	52997.96
15	114	52970.94	60	84	52990.39	105	180	53002.09	145	31.5	52998.06
15	113.5	52970.1	60	84.5	52990.81	105	179.67	53001.98	145	31	52998.17
15	113	52969.68	60	85	52990.7	105	179.33	53002.19	145	30.5	52998.69
15	112.5	52969.48	60	85.5	52990.49	105	179	53002.39	145	30	52999.43
15	112	52969.57	60	86	52990.61	105	178.67	53002.5	145	29.5	53000.06
15	111.5	52969.57	60	86.5	52990.19	105	178.33	53002.29	145	29	53000.48
15	111	52969.89	60	87	52989.24	105	178	53001.76	145	28.5	53000.59
15	110.5	52970.64	60	87.5	52988.71	105	177.67	53001.23	145	28	53000.59
15	110	52971.05	60	88	52988.71	105	177.33	53000.5	145	27.5	53000.79
15	109.5	52971.16	60	88.5	52988.82	105	177	52999.86	145	27	53000.27

15	109	52971.05	60	89	52989.77	105	176.67	52999.33	145	26.5	52999.75
15	108.5	52970.85	60	89.5	52991.34	105	176.33	52998.81	145	26	52999.54
15	108	52970.85	60	90	52991.98	105	176	52998.07	145	25.5	52999.64
15	107.5	52970.53	60	90.5	52992.09	105	175.67	52998.06	145	25	52999.75
15	107	52970.32	60	91	52992.09	105	175.33	52998.38	145	24.5	52999.96
15	106.5	52970.32	60	91.5	52992.2	105	175	52998.38	145	24	53000.59
15	106	52970.53	60	92	52992.3	105	174.67	52998.16	145	23.5	53000.91
15	105.5	52970.85	60	92.5	52991.67	105	174.33	52997.74	145	23	53001.22
15	105	52971.58	60	93	52990.73	105	174	52997.21	145	22.5	53001.12
15	104.5	52972.74	60	93.5	52989.78	105	173.67	52997	145	22	53001.22
15	104	52973.58	60	94	52989.36	105	173.33	52996.79	145	21.5	53001.22
15	103.5	52973.69	60	94.5	52989.26	105	173	52996.16	145	21	53000.91
15	103	52973.79	60	95	52989.78	105	172.67	52995.42	145	20.5	53000.59
15	102.5	52974.11	60	95.5	52990.21	105	172.33	52994.89	145	20	53000.49
15	102	52974.42	60	96	52990.43	105	172	52994.15	145	19.67	53000.28
15	101.5	52974.85	60	96.5	52990.21	105	171.67	52992.99	145	19.33	53000.28
15	101	52975.38	60	97	52990.53	105	171.33	52992.04	145	19	53000.28
15	100.5	52976.01	60	97.5	52990.85	105	171	52992.36	145	18.67	53000.8
15	100	52976.86	60	98	52990.85	105	170.67	52993.3	145	18.33	53001.22
15	99.67	52978.43	60	98.5	52990.11	105	170.33	52993.82	145	18	53001.44
15	99.33	52980.54	60	99	52989.79	105	170	52993.51	145	17.67	53000.92
15	99	52982.96	60	99.5	52989.28	105	169.5	52992.87	145	17.33	53000.08
15	98.67	52985.28	60	100	52989.28	105	169	52992.55	145	17	52999.24
15	98.33	52987.38	60	100.33	52990.12	105	168.5	52992.45	145	16.67	52998.5
15	98	52990.54	60	100.67	52991.17	105	168	52992.02	145	16.33	52998.08
15	97.67	52994.65	60	101	52990.96	105	167.5	52991.6	145	16	52997.66
15	97.33	52999.6	60	101.33	52990.45	105	167	52991.5	145	15.67	52997.55
15	97	53005.5	60	101.67	52989.91	105	166.5	52991.29	145	15.33	52997.77
15	96.67	53011.93	60	102	52989.59	105	166	52991.17	145	15	52997.87
15	96.33	53019.52	60	102.33	52989.08	105	165.5	52991.07	145	14.67	52998.4
15	96	53026.79	60	102.67	52988.03	105	165	52991.49	145	14.33	52999.03
15	95.67	53028.8	60	103	52987.19	105	164.5	52992.43	145	14	52998.92
15	95.33	53025	60	103.33	52986.66	105	164	52993.05	145	13.67	52998.4
15	95	53018.57	60	103.67	52986.56	105	163.5	52992.96	145	13.33	52997.45
15	94.67	53012.68	60	104	52986.99	105	163	52992.63	145	13	52996.62
15	94.33	53006.66	60	104.33	52988.14	105	162.5	52992.53	145	12.67	52995.46
15	94	52998.86	60	104.67	52988.56	105	162	52992.21	145	12.33	52994.31
15	93.67	52990.96	60	105	52988.14	105	161.5	52991.48	145	12	52992.84
15	93.33	52989.07	60	105.33	52987.72	105	161	52991.05	145	11.67	52991.89
15	93	52990.76	60	105.67	52987.41	105	160.5	52990.73	145	11.33	52991.16
15	92.67	52992.97	60	106	52986.46	105	160	52990.52	145	11	52990.75
15	92.33	52995.71	60	106.33	52985.2	105	159.5	52990.41	145	10.67	52990.32
15	92	52996.56	60	106.67	52984.27	105	159	52990.41	145	10.33	52990
15	91.67	52992.24	60	107	52983.22	105	158.5	52991.05	145	10	52990.01
15	91.33	52988.13	60	107.33	52982.06	105	158	52991.67	145	9.67	52989.59
15	91	52985.81	60	107.67	52981.64	105	157.5	52991.88	145	9.33	52988.86
15	90.67	52984.55	60	108	52982.17	105	157	52991.56	145	9	52988.02
15	90.33	52983.92	60	108.33	52982.8	105	156.5	52990.83	145	8.67	52987.28
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15	89.5	52982.76	60	109	52982.39	105	155.5	52989.88	145	8	52984.98
15	89	52979.92	60	109.33	52981.55	105	155	52989.04	145	7.67	52983.72
15	88.5	52978.55	60	109.67	52980.6	105	154.5	52988.71	145	7.33	52982.56
15	88	52978.23	60	110	52978.92	105	154	52988.82	145	7	52981.72
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15	85.5	52980.35	60	112.5	52968.85	105	151.5	52990.29	145	5.33	52979.94
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15	51	52983.95	60	148	52988.84	105	121.33	52991	150	24	53000.21
15	50.5	52984.27	60	148.33	52989.25	105	121	52991	150	24.5	53001.26
15	50	52983.95	60	148.67	52988.83	105	120.67	52990.68	150	25	53002
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15	49	52983.73	60	149.33	52987.78	105	120	52989.72	150	26	53002.1
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15	46	52984.25	60	152	52990.5	105	117	52990.78	150	29	53000.61
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15	44	52985.7	60	154	52989.13	105	115	52991.62	150	31	53004.29
15	43.5	52985.28	60	154.5	52988.49	105	114.5	52991.3	150	31.5	53005.13
15	43	52984.86	60	155	52988.29	105	114	52991.09	150	32	53006.07
15	42.5	52984.64	60	155.5	52988.17	105	113.5	52990.78	150	32.5	53006.28
15	42	52984.54	60	156	52988.8	105	113	52990.56	150	33	53005.13
15	41.5	52984.11	60	156.5	52989.85	105	112.5	52990.34	150	33.5	53003.13
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15	40.5	52984.42	60	157.5	52991.32	105	111.5	52990.66	150	34.5	53000.92
15	40	52985.37	60	158	52991.21	105	111	52991.4	150	35	53001.02
15	39.5	52985.79	60	158.5	52991.32	105	110.5	52992.04	150	35.5	53001.75
15	39	52985.57	60	159	52991.52	105	110	52992.24	150	36	53002.28
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15	34	52985.54	60	164	52992.02	105	105	52992.97	150	41	52999.85
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15	33	52985.12	60	165	52992.44	105	104	52992.66	150	42	53001.11
15	32.5	52984.79	60	165.5	52992.13	105	103.5	52992.45	150	42.5	53001.11
15	32	52984.05	60	166	52991.18	105	103	52992.03	150	43	53001.11
15	31.5	52983.32	60	166.5	52989.92	105	102.5	52991.29	150	43.5	53001.52
15	31	52982.89	60	167	52989.07	105	102	52990.98	150	44	53001.62
15	30.5	52982.46	60	167.5	52988.65	105	101.5	52990.55	150	44.5	53001.1
15	30	52982.25	60	168	52988.75	105	101	52990.34	150	45	53001.2
15	29.67	52982.14	60	168.5	52989.7	105	100.5	52989.91	150	45.5	53001.62
15	29.33	52982.56	60	169	52990.64	105	100	52989.39	150	46	53002.04
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15	28.67	52983.3	60	170	52990.74	105	99	52989.6	150	47	53000.88
15	28.33	52982.97	60	170.5	52991.16	105	98.5	52989.81	150	47.5	53000.04
15	28	52982.34	60	171	52991.16	105	98	52989.49	150	48	52999.62
15	27.67	52982.23	60	171.5	52990.43	105	97.5	52989.07	150	48.5	52999.09
15	27.33	52981.91	60	172	52989.05	105	97	52988.76	150	49	52998.88
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20	169.33	51686.89
20	169.67	51596.01

65	83	52983.39
65	82.5	52983.28
65	82	52983.8
65	81.5	52984.43
65	81	52984.32
65	80.5	52983.7
65	80	52983.48
65	79.67	52982.85
65	79.33	52982.43
65	79	52981.68
65	78.67	52980.63
65	78.33	52981.16
65	78	52983.68
65	77.67	52985.36
65	77.33	52985.77
65	77	52985.14
65	76.67	52984.39
65	76.33	52983.66
65	76	52982.71
65	75.67	52981.98
65	75.33	52981.66
65	75	52981.34
65	74.67	52981.13
65	74.33	52981.23
65	74	52981.65
65	73.67	52982.27
65	73.33	52983.01
65	73	52982.8
65	72.67	52982.27
65	72.33	52982.26
65	72	52982.37
65	71.67	52982.58
65	71.33	52982.79
65	71	52982.67
65	70.67	52982.46
65	70.33	52982.78
65	70	52983.62
65	69.5	52984.03
65	69	52983.71
65	68.5	52982.87
65	68	52982.77
65	67.5	52982.55
65	67	52982.44
65	66.5	52982.64
65	66	52982.64
65	65.5	52983.06
65	65	52983.48
65	64.5	52984.43
65	64	52985.59
65	63.5	52986.43
65	63	52986.21
65	62.5	52985.68
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65	61.5	52984.83
65	61	52984.51
65	60.5	52984.41
65	60	52984.41
65	59.5	52984.4
65	59	52984.5
65	58.5	52984.93
65	58	52985.02
65	57.5	52984.92
65	57	52984.18
65	56.5	52983.86
65	56	52983.23
65	55.5	52982.38
65	55	52981.75

110	43.67	52989.13
110	44	52989.55
110	44.33	52989.55
110	44.67	52990.09
110	45	52990.83
110	45.33	52991.04
110	45.67	52990.82
110	46	52990.08
110	46.33	52989.55
110	46.67	52989.44
110	47	52989.86
110	47.33	52991.03
110	47.67	52992.41
110	48	52993.05
110	48.33	52993.26
110	48.67	52993.69
110	49	52994.11
110	49.33	52993.79
110	49.67	52992.94
110	50	52991.88
110	50.5	52991.14
110	51	52990.5
110	51.5	52990.61
110	52	52991.34
110	52.5	52991.98
110	53	52992.2
110	53.5	52992.2
110	54	52991.98
110	54.5	52991.98
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110	55.5	52991.45
110	56	52990.92
110	56.5	52990.49
110	57	52989.96
110	57.5	52989.43
110	58	52989.43
110	58.5	52990.28
110	59	52991.34
110	59.5	52991.87
110	60	52991.98
110	60.33	52992.4
110	60.67	52993.25
110	61	52993.57
110	61.33	52992.93
110	61.67	52991.65
110	62	52990.59
110	62.33	52989.84
110	62.67	52989.1
110	63	52988.46
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110	63.67	52989.74
110	64	52990.06
110	64.33	52990.16
110	64.67	52990.48
110	65	52990.8
110	65.33	52991.12
110	65.67	52990.8
110	66	52990.27
110	66.33	52989.74
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110	67	52989.63
110	67.33	52990.59
110	67.67	52991.12
110	68	52991.21
110	68.33	52991
110	68.67	52990.91
110	69	52990.8

155	199.41	52989.91
155	199.12	52988.96
155	198.82	52987.18
155	198.53	52984.56
155	198.24	52981.73
155	197.94	52980.48
155	197.65	52981.31
155	197.35	52982.77
155	197.06	52984.13
155	196.76	52985.07
155	196.47	52985.6
155	196.18	52986.12
155	195.88	52986.74
155	195.59	52987.36
155	195.29	52987.68
155	195	52987.57
155	194.71	52987.36
155	194.41	52987.98
155	194.12	52989.24
155	193.82	52990.6
155	193.53	52991.54
155	193.24	52992.26
155	192.94	52992.16
155	192.65	52990.27
155	192.35	52987.87
155	192.06	52987.96
155	191.76	52989.12
155	191.47	52989.95
155	191.18	52990.26
155	190.88	52990.58
155	190.59	52990.58
155	190.29	52990.25
155	190	52989.95
155	189.5	52989.84
155	189	52989.63
155	188.5	52989.3
155	188	52989.3
155	187.5	52989.83
155	187	52990.56
155	186.5	52991.08
155	186	52991.29
155	185.5	52991.61
155	185	52991.18
155	184.5	52990.34
155	184	52989.71
155	183.5	52989.19
155	183	52988.87
155	182.5	52988.55
155	182	52988.76
155	181.5	52989.39
155	181	52990.02
155	180.5	52990.43
155	180	52990.21
155	179.5	52990.74
155	179	52992.1
155	178.5	52994.3
155	178	52996.69
155	177.5	52997.95
155	177	52997.53
155	176.5	52994.29
155	176	52991.77
155	175.5	52990.61
155	175	52990.3
155	174.5	52989.78
155	174	52988.94
155	173.5	52988.52
155	173	52987.88

20	170	51543.86	65	54.5	52981.02	110	69.33	52990.47	155	172.5	52987.36
20	170.33	51520.57	65	54	52980.06	110	69.67	52989.94	155	172	52986.94
20	170.67	51526.96	65	53.5	52979.43	110	70	52989.3	155	171.5	52986.84
20	171	51522.89	65	53	52979.85	110	70.5	52988.77	155	171	52986.41
20	171.33	51499.63	65	52.5	52981	110	71	52988.56	155	170.5	52986.3
20	171.67	51459.9	65	52	52982.05	110	71.5	52988.56	155	170	52986.93
20	172	51475.28	65	51.5	52982.47	110	72	52989.2	155	169.5	52987.87
20	172.33	51600.18	65	51	52983.1	110	72.5	52989.3	155	169	52988.6
20	172.67	51761.52	65	50.5	52983.52	110	73	52989.41	155	168.5	52988.92
20	173	51941.49	65	50	52982.88	110	73.5	52989.2	155	168	52989.02
20	173.33	52120.11	65	49.67	52982.36	110	74	52989.2	155	167.5	52990.38
20	173.67	52292.17	65	49.33	52982.35	110	74.5	52989.52	155	167	52993.2
20	174	52468.83	65	49	52982.25	110	75	52989.52	155	166.5	52996.24
20	174.33	52713.29	65	48.67	52982.14	110	75.5	52988.88	155	166	52999.89
20	174.67	53030.65	65	48.33	52982.13	110	76	52988.35	155	165.5	53002.73
20	175	53317.26	65	48	52982.34	110	76.5	52987.49	155	165	52999.16
20	175.33	53516.57	65	47.67	52982.24	110	77	52986.22	155	164.5	52986.07
20	175.67	53630.15	65	47.33	52982.02	110	77.5	52985.26	155	164	52974.67
20	176	53675.64	65	47	52980.86	110	78	52986.54	155	163.5	52972.04
20	176.33	53677.87	65	46.67	52979.71	110	78.5	52988.34	155	163	52972.88
20	176.67	53688.07	65	46.33	52978.66	110	79	52989.82	155	162.5	52974.35
20	177	53729.36	65	46	52977.5	110	79.5	52990.79	155	162	52976.33
20	177.33	53772.86	65	45.67	52976.33	110	80.	52991.73	155	161.5	52978.74
20	177.67	53786.01	65	45.33	52975.7	110	80.5	52992.37	155	161	52980.73
20	178	53762.84	65	45	52975.81	110	81	52992.9	155	160.5	52981.97
20	178.33	53708.28	65	44.67	52978	110	81.5	52992.69	155	160	52982.91
20	178.67	53609.12	65	44.33	52982.73	110	82	52992.05	155	159.5	52983.75
20	179	53482.49	65	44	52987.57	110	82.5	52991.31	155	159	52984.38
20	179.33	53367.08	65	43.67	52990.62	110	83	52990.57	155	158.5	52984.16
20	179.67	53279.96	65	43.33	52991.76	110	83.5	52990.78	155	158	52983.95
20	180	53205.89	65	43	52990.4	110	84	52992.05	155	157.5	52984.26
20	180.33	53132.55	65	42.67	52987.35	110	84.5	52993.11	155	157	52984.37
20	180.67	53061.52	65	42.33	52984.4	110	85	52993.54	155	156.5	52983.74
20	181	52998.32	65	42	52982.5	110	85.5	52993.43	155	156	52983.32
20	181.33	52965.14	65	41.67	52981.24	110	86	52993.43	155	155.5	52983.1
20	181.67	52949.78	65	41.33	52979.98	110	86.5	52993.43	155	155	52983.1
20	182	52932.86	65	41	52979.25	110	87	52993	155	154.5	52983.21
20	182.33	52910.45	65	40.67	52979.55	110	87.5	52992.27	155	154	52983.52
20	182.67	52885.64	65	40.33	52979.88	110	88	52991.62	155	153.5	52983.52
20	183	52862.73	65	40	52979.87	110	88.5	52991.19	155	153	52983.73
20	183.33	52849.76	65	39.5	52979.23	110	89	52991.3	155	152.5	52984.24
20	183.67	52853.94	65	39	52978.82	110	89.5	52992.15	155	152	52984.66
20	184	52858.44	65	38.5	52977.75	110	90	52993.42	155	151.5	52985.4
20	184.33	52863.88	65	38	52977.02	110	90.5	52994.06	155	151	52985.5
20	184.67	52867.13	65	37.5	52976.49	110	91	52994.17	155	150.5	52985.18
20	185	52866.18	65	37	52976.18	110	91.5	52994.59	155	150	52984.97
20	185.33	52860.54	65	36.5	52975.86	110	92	52995.23	155	149.67	52984.76
20	185.67	52856.88	65	36	52976.06	110	92.5	52995.33	155	149.33	52984.55
20	186	52861.05	65	35.5	52976.27	110	93	52994.91	155	149	52984.75
20	186.33	52865.86	65	35	52976.8	110	93.5	52994.27	155	148.67	52984.75
20	186.67	52871.93	65	34.5	52977.21	110	94	52993.42	155	148.33	52984.85
20	187	52883.76	65	34	52977	110	94.5	52992.68	155	148	52985.17
20	187.33	52891.82	65	33.5	52976.47	110	95	52992.36	155	147.67	52985.79
20	187.67	52897.58	65	33	52976.16	110	95.5	52992.68	155	147.33	52986.41
20	188	52905.22	65	32.5	52975.83	110	96	52993.52	155	147	52986.63
20	188.33	52912.45	65	32	52975.94	110	96.5	52993.73	155	146.67	52986.31
20	188.67	52915.7	65	31.5	52976.25	110	97	52993.63	155	146.33	52985.99
20	189	52915.7	65	31	52976.36	110	97.5	52993.63	155	146	52985.68
20	189.33	52913.92	65	30.5	52976.14	110	98	52993.95	155	145.67	52984.95
20	189.67	52912.24	65	30	52976.03	110	98.5	52994.27	155	145.33	52984.2
20	190	52912.03	65	29.5	52976.35	110	99	52994.16	155	145	52983.79
20	190.29	52913.71	65	29	52976.34	110	99.5	52993.84	155	144.67	52983.26
20	190.57	52917.48	65	28.5	52976.02	110	100	52993.41	155	144.33	52983.05
20	190.86	52920.83	65	28	52975.39	110	100.5	52993.09	155	144	52982.95
20	191.14	52922.4	65	27.5	52974.76	110	101	52993.2	155	143.67	52983.16
20	191.43	52923.35	65	27	52974.02	110	101.5	52994.16	155	143.33	52983.57
20	191.71	52923.98	65	26.5	52973.7	110	102	52995.43	155	143	52983.88

20	192	52923.66	65	26	52973.6	110	102.5	52995.54	155	142.67	52983.46
20	192.29	52922.94	65	25.5	52973.48	110	103	52995.43	155	142.33	52982.83
20	192.57	52923.98	65	25	52973.7	110	103.5	52995.54	155	142	52982.51
20	192.86	52925.55	65	24.5	52974.11	110	104	52995.64	155	141.67	52982.09
20	193.14	52927.23	65	24	52974.74	110	104.5	52995.43	155	141.33	52981.88
20	193.43	52928.8	65	23.5	52975.48	110	105	52994.89	155	141	52981.99
20	193.71	52929.64	65	23	52975.99	110	105.5	52994.05	155	140.67	52981.88
20	194	52929.96	65	22.5	52975.57	110	106	52993.41	155	140.33	52981.45
20	194.29	52931.64	65	22	52975.26	110	106.5	52992.88	155	140	52981.14
20	194.57	52934.36	65	21.5	52974.94	110	107	52992.98	155	139.5	52981.56
20	194.86	52936.15	65	21	52974.31	110	107.5	52993.51	155	139	52982.4
20	195.14	52936.78	65	20.5	52973.26	110	108	52994.25	155	138.5	52983.02
20	195.43	52937.09	65	20	52972.63	110	108.5	52994.68	155	138	52983.13
20	195.71	52937.3	65	19.67	52972	110	109	52994.68	155	137.5	52982.8
20	196	52937.3	65	19.33	52971.48	110	109.5	52994.68	155	137	52983.01
20	196.29	52937.61	65	19	52971.38	110	110	52994.68	155	136.5	52983.01
20	196.57	52937.82	65	18.67	52972	110	110.33	52997.23	155	136	52982.91
20	196.86	52937.93	65	18.33	52972.32	110	110.67	52994.15	155	135.5	52982.91
20	197.14	52938.14	65	18	52971.79	110	111	52993.62	155	135	52983.02
20	197.43	52938.36	65	17.67	52970.64	110	111.33	52993.19	155	134.5	52982.92
20	197.71	52939.4	65	17.33	52969.7	110	111.67	52992.87	155	134	52982.81
20	198	52941.29	65	17	52968.86	110	112	52993.51	155	133.5	52982.92
20	198.29	52943.49	65	16.67	52968.02	110	112.33	52994.68	155	133	52983.34
20	198.57	52944.13	65	16.33	52967.5	110	112.67	52995.85	155	132.5	52984.07
20	198.86	52943.81	65	16	52966.76	110	113	52995.95	155	132	52984.59
20	199.14	52943.39	65	15.67	52966.13	110	113.33	52995.85	155	131.5	52984.5
20	199.43	52942.55	65	15.33	52965.6	110	113.67	52996.06	155	131	52984.29
20	199.71	52940.56	65	15	52965.29	110	114	52996.16	155	130.5	52984.39
20	200	52938.04	65	14.67	52965.39	110	114.33	52995.74	155	130	52984.29
25	200	52885.05	65	14.33	52965.29	110	114.67	52994.89	155	129.5	52984.18
25	199.71	52886	65	14	52964.76	110	115	52994.04	155	129	52984.29
25	199.41	52887.55	65	13.67	52963.61	110	115.33	52993.4	155	128.5	52984.3
25	199.12	52889.87	65	13.33	52962.56	110	115.67	52992.98	155	128	52984.3
25	198.82	52893.11	65	13	52961.3	110	116	52992.77	155	127.5	52984.3
25	198.53	52897.29	65	12.67	52959.72	110	116.33	52993.19	155	127	52984.72
25	198.24	52901.38	65	12.33	52958.79	110	116.67	52994.04	155	126.5	52985.45
25	197.94	52904.93	65	12	52958.05	110	117	52994.15	155	126	52985.97
25	197.65	52907.97	65	11.67	52957.21	110	117.33	52994.15	155	125.5	52985.88
25	197.35	52910.17	65	11.33	52956.27	110	117.67	52994.15	155	125	52985.36
25	197.06	52911.95	65	11	52955.84	110	118	52994.68	155	124.5	52985.15
25	196.76	52914.46	65	10.67	52955.73	110	118.33	52994.47	155	124	52984.94
25	196.47	52918.23	65	10.33	52955.43	110	118.67	52993.93	155	123.5	52984.73
25	196.18	52922.42	65	10	52954.27	110	119	52992.87	155	123	52984.62
25	195.88	52926.3	65	9.6	52953.02	110	119.33	52992.13	155	122.5	52984.41
25	195.59	52929.96	65	9.2	52951.55	110	119.67	52991.39	155	122	52984.11
25	195.29	52933.63	65	8.8	52949.34	110	120	52991.49	155	121.5	52984.42
25	195	52937.2	65	8.4	52947.24	110	120.5	52992.34	155	121	52985.16
25	194.71	52941.07	65	8	52945.77	110	121	52992.77	155	120.5	52986.2
25	194.41	52944.43	65	7.6	52944.41	110	121.5	52992.87	155	120	52986.62
25	194.12	52948.2	65	7.2	52943.04	110	122	52992.77	155	119.5	52986.52
25	193.82	52951.97	65	6.8	52941.37	110	122.5	52993.3	155	119	52986.2
25	193.53	52956.07	65	6.4	52939.58	110	123	52993.72	155	118.5	52985.79
25	193.24	52960.37	65	6	52938.01	110	123.5	52993.72	155	118	52985.48
25	192.94	52963.73	65	5.6	52936.64	110	124	52993.3	155	117.5	52985.17
25	192.65	52963.1	65	5.2	52934.76	110	124.5	52992.55	155	117	52984.85
25	192.35	52960.06	65	4.8	52932.55	110	125	52991.81	155	116.5	52984.64
25	192.06	52956.7	65	4.4	52930.14	110	125.5	52991.28	155	116	52984.43
25	191.76	52954.39	65	4	52927.63	110	126	52991.07	155	115.5	52984.64
25	191.47	52952.51	65	3.6	52925.54	110	126.5	52991.6	155	115	52985.48
25	191.18	52949.47	65	3.2	52923.75	110	127	52992.55	155	114.5	52986.54
25	190.88	52944.12	65	2.8	52921.76	110	127.5	52993.3	155	114	52987.58
25	190.59	52937.73	65	2.4	52919.35	110	128	52993.72	155	113.5	52987.79
25	190.29	52936.15	65	2	52916.73	110	128.5	52994.04	155	113	52987.69
25	190	52935.53	65	1.6	52913.38	110	129	52994.78	155	112.5	52987.9
25	189.67	52934.27	65	1.2	52909.81	110	129.5	52994.47	155	112	52987.7
25	189.33	52931.86	65	.8	52906.77	110	130	52993.93	155	111.5	52987.7
25	189	52922.13	65	.4	52904.26	110	130.5	52993.51	155	111	52987.8

25	188.67	52908.09	65	0	52902.16	110	131	52993.19	155	110.5	52987.7
25	188.33	52896.16	70	0	52929.99	110	131.5	52993.19	155	110	52987.7
25	188	52886.43	70	.29	52929.78	110	132	52993.3	155	109.5	52988.01
25	187.67	52876.91	70	.59	52929.57	110	132.5	52993.62	155	109	52988.64
25	187.33	52866.36	70	.88	52929.25	110	133	52994.68	155	108.5	52989.48
25	187	52855.28	70	1.18	52929.05	110	133.5	52995.63	155	108	52989.91
25	186.67	52845.46	70	1.47	52928.95	110	134	52996.27	155	107.5	52989.8
25	186.33	52837.42	70	1.76	52928.95	110	134.5	52996.69	155	107	52989.59
25	186	52829.6	70	2.06	52929.16	110	135	52996.91	155	106.5	52989.8
25	185.67	52819.89	70	2.35	52929.58	110	135.5	52997.33	155	106	52989.7
25	185.33	52807.48	70	2.65	52930.21	110	136	52997.44	155	105.5	52989.59
25	185	52791.01	70	2.94	52931.15	110	136.5	52997.23	155	105	52989.81
25	184.67	52771.52	70	3.24	52932.41	110	137	52996.91	155	104.5	52989.71
25	184.33	52753.31	70	3.53	52933.66	110	137.5	52997.01	155	104	52989.81
25	184	52735.81	70	3.82	52935.13	110	138	52997.33	155	103.5	52990.23
25	183.67	52716.3	70	4.12	52937.64	110	138.5	52997.97	155	103	52990.65
25	183.33	52694.2	70	4.41	52941.74	110	139	52999.35	155	102.5	52990.86
25	183	52669.29	70	4.71	52947.19	110	139.5	53000.94	155	102	52990.75
25	182.67	52640.66	70	5	52951.38	110	140	53001.69	155	101.5	52990.23
25	182.33	52617.58	70	5.29	52951.59	110	140.5	53002	155	101	52990.24
25	182	52598.88	70	5.59	52949.6	110	141	53002.32	155	100.5	52989.93
25	181.67	52579.56	70	5.88	52948.24	110	141.5	53002.85	155	100	52989.4
25	181.33	52556.63	70	6.18	52947.92	110	142	53002.75	155	99.5	52989.19
25	181	52527.42	70	6.47	52948.34	110	142.5	53001.9	155	99	52989.09
25	180.67	52488.98	70	6.76	52949.82	110	143	53000.84	155	98.5	52988.89
25	180.33	52444.36	70	7.06	52951.71	110	143.5	52999.99	155	98	52988.57
25	180	52407.18	70	7.35	52953.07	110	144	52999.56	155	97.5	52988.68
25	179.67	52375.52	70	7.65	52954.12	110	144.5	52999.67	155	97	52989.2
25	179.33	52342.87	70	7.94	52954.75	110	145	53000.09	155	96.5	52989.62
25	179	52299.28	70	8.24	52955.58	110	145.5	53001.05	155	96	52989.84
25	178.67	52246.44	70	8.53	52956.63	110	146	53001.47	155	95.5	52989.52
25	178.33	52183.31	70	8.82	52957.58	110	146.5	53001.47	155	95	52988.89
25	178	52117.35	70	9.12	52958.31	110	147	53001.15	155	94.5	52988.58
25	177.67	52069.77	70	9.41	52958.73	110	147.5	53000.94	155	94	52987.96
25	177.33	52029.95	70	9.71	52959.25	110	148	53000.94	155	93.5	52987.22
25	177	51987.31	70	10	52960.21	110	148.5	53000.73	155	93	52986.81
25	176.67	51928.24	70	10.5	52961.68	110	149	53000.31	155	92.5	52986.28
25	176.33	51852.6	70	11	52963.77	110	149.5	52999.67	155	92	52985.87
25	176	51769.59	70	11.5	52965.66	110	150	52998.5	155	91.5	52985.35
25	175.67	51726.7	70	12	52966.39	110	150.33	52997.65	155	91	52985.55
25	175.33	51718.27	70	12.5	52967.02	110	150.67	52996.69	155	90.5	52986.19
25	175	51715.09	70	13	52967.34	110	151	52996.27	155	90	52986.5
25	174.67	51703.43	70	13.5	52967.65	110	151.33	52996.27	155	89.67	52986.4
25	174.33	51684.39	70	14	52966.93	110	151.67	52997.12	155	89.33	52985.98
25	174	51667.93	70	14.5	52965.98	110	152	52997.65	155	89	52985.66
25	173.67	51673.25	70	15	52964.52	110	152.33	52997.54	155	88.67	52985.67
25	173.33	51717.35	70	15.5	52962.41	110	152.67	52997.23	155	88.33	52985.78
25	173	51763.16	70	16	52960.74	110	153	52997.33	155	88	52985.88
25	172.67	51811.93	70	16.5	52963.89	110	153.33	52997.44	155	87.67	52986.09
25	172.33	51852.04	70	17	52967.87	110	153.67	52997.12	155	87.33	52986.2
25	172	51879.33	70	17.5	52970.18	110	154	52996.27	155	87	52986.3
25	171.67	51903.14	70	18	52971.75	110	154.33	52995.1	155	86.67	52986.93
25	171.33	51947.42	70	18.5	52972.7	110	154.67	52993.93	155	86.33	52987.98
25	171	52010.62	70	19	52973.96	110	155	52992.87	155	86	52989.14
25	170.67	52062.45	70	19.5	52974.59	110	155.33	52992.13	155	85.67	52989.66
25	170.33	52111.89	70	20	52974.6	110	155.67	52991.92	155	85.33	52990.08
25	170	52162.88	70	20.33	52974.8	110	156	52992.55	155	85	52990.71
25	169.5	52211.05	70	20.67	52975.12	110	156.33	52993.51	155	84.67	52991.34
25	169	52253.34	70	21	52975.86	110	156.67	52993.83	155	84.33	52991.87
25	168.5	52294.45	70	21.33	52977.43	110	157	52993.83	155	84	52992.5
25	168	52335.21	70	21.67	52978.37	110	157.33	52993.72	155	83.67	52992.92
25	167.5	52367.64	70	22	52978.37	110	157.67	52993.93	155	83.33	52993.02
25	167	52402.3	70	22.33	52978.58	110	158	52994.15	155	83	52993.23
25	166.5	52437.63	70	22.67	52979	110	158.33	52994.36	155	82.67	52993.66
25	166	52469.74	70	23	52979.63	110	158.67	52994.36	155	82.33	52994.29
25	165.5	52498.83	70	23.33	52979.54	110	159	52994.36	155	82	52994.8
25	165	52529.43	70	23.67	52978.59	110	159.33	52994.04	155	81.67	52994.91

25	164.5	52562.18	70	24	52977.86	110	159.67	52993.83	155	81.33	52994.29
25	164	52595.07	70	24.33	52977.65	110	160	52994.04	155	81	52993.87
25	163.5	52622.8	70	24.67	52977.75	110	160.5	52995.1	155	80.67	52993.34
25	163	52647.32	70	25	52978.17	110	161	52996.06	155	80.33	52993.03
25	162.5	52669.75	70	25.33	52979.33	110	161.5	52996.48	155	80	52993.04
25	162	52692.94	70	25.67	52980.06	110	162	52996.27	155	79.5	52993.15
25	161.5	52714.57	70	26	52980.17	110	162.5	52996.27	155	79	52993.04
25	161	52733.9	70	26.33	52979.85	110	163	52996.38	155	78.5	52993.15
25	160.5	52749.85	70	26.67	52979.55	110	163.5	52996.38	155	78	52993.56
25	160	52763.61	70	27	52979.23	110	164	52996.06	155	77.5	52994.41
25	159.67	52775.98	70	27.33	52978.8	110	164.5	52995.85	155	77	52995.25
25	159.33	52787.41	70	27.67	52977.87	110	165	52995.42	155	76.5	52995.88
25	159	52797.88	70	28	52977.03	110	165.5	52995.1	155	76	52995.88
25	158.67	52807.2	70	28.33	52976.19	110	166	52994.89	155	75.5	52995.77
25	158.33	52816.48	70	28.67	52975.56	110	166.5	52995.21	155	75	52994.73
25	158	52825.57	70	29	52975.77	110	167	52996.16	155	74.5	52993.26
25	157.67	52834.23	70	29.33	52976.82	110	167.5	52997.23	155	74	52992.63
25	157.33	52842.36	70	29.67	52977.88	110	168	52997.76	155	73.5	52992.12
25	157	52850.5	70	30	52978.93	110	168.5	52997.76	155	73	52991.48
25	156.67	52858.74	70	30.5	52979.56	110	169	52997.86	155	72.5	52991.07
25	156.33	52866.67	70	31	52980.5	110	169.5	52998.08	155	72	52991.49
25	156	52873.55	70	31.5	52980.71	110	170	52998.39	155	71.5	52992.64
25	155.67	52879.58	70	32	52980.4	110	170.33	52998.29	155	71	52993.7
25	155.33	52884.87	70	32.5	52979.87	110	170.67	52997.86	155	70.5	52994.21
25	155	52889.63	70	33	52979.56	110	171	52997.54	155	70	52994
25	154.67	52893.66	70	33.5	52979.77	110	171.33	52997.23	155	69.67	52993.91
25	154.33	52897.15	70	34	52980.92	110	171.67	52997.33	155	69.33	52994.22
25	154	52900.43	70	34.5	52982.39	110	172	52997.76	155	69	52994.22
25	153.67	52903.71	70	35	52983.34	110	172.33	52998.61	155	68.67	52994.22
25	153.33	52907	70	35.5	52983.75	110	172.67	52999.24	155	68.33	52993.91
25	153	52910.49	70	36	52983.96	110	173	52999.46	155	68	52993.29
25	152.67	52914.31	70	36.5	52984.5	110	173.33	52999.35	155	67.67	52992.66
25	152.33	52918.02	70	37	52984.81	110	173.67	52999.67	155	67.33	52992.24
25	152	52921.73	70	37.5	52983.97	110	174	52999.99	155	67	52992.14
25	151.67	52925.02	70	38	52983.34	110	174.33	52999.99	155	66.67	52992.35
25	151.33	52927.67	70	38.5	52982.72	110	174.67	52999.77	155	66.33	52992.45
25	151	52930.32	70	39	52982.61	110	175	52999.67	155	66	52991.82
25	150.67	52932.76	70	39.5	52983.66	110	175.33	53000.31	155	65.67	52991.63
25	150.33	52934.45	70	40	52984.81	110	175.67	53002.11	155	65.33	52991.42
25	150	52936.25	70	40.5	52985.14	110	176	53004.45	155	65	52991
25	149.67	52938.27	70	41	52985.45	110	176.33	53003.38	155	64.67	52990.68
25	149.33	52940.28	70	41.5	52985.98	110	176.67	53001.26	155	64.33	52990.58
25	149	52942.19	70	42	52986.4	110	177	52999.88	155	64	52990.16
25	148.67	52944.21	70	42.5	52985.66	110	177.33	52999.24	155	63.67	52989.86
25	148.33	52946.22	70	43	52984.72	110	177.67	52999.35	155	63.33	52990.16
25	148	52948.34	70	43.5	52984.09	110	178	53000.09	155	63	52990.9
25	147.67	52950.25	70	44	52983.98	110	178.33	53000.62	155	62.67	52991.84
25	147.33	52952.38	70	44.5	52984.41	110	178.67	53000.62	155	62.33	52992.16
25	147	52954.5	70	45	52985.77	110	179	53000.31	155	62	52992.47
25	146.67	52956.2	70	45.5	52986.82	110	179.33	52999.88	155	61.67	52992.89
25	146.33	52956.41	70	46	52986.93	110	179.67	52999.67	155	61.33	52993.21
25	146	52956.41	70	46.5	52987.14	110	180	52999.67	155	61	52993.32
25	145.67	52956.73	70	47	52987.35	110	180.5	53000.52	155	60.67	52993.22
25	145.33	52957.59	70	47.5	52987.25	110	181	53001.69	155	60.33	52993.01
25	145	52958.32	70	48	52986.41	110	181.5	53002.22	155	60	52992.9
25	144.67	52959.07	70	48.5	52985.25	110	182	53002.43	155	59.5	52993.11
25	144.33	52959.92	70	49	52983.89	110	182.5	53002.64	155	59	52993.43
25	144	52961.19	70	49.5	52983.05	110	183	53003.07	155	58.5	52993.43
25	143.67	52962.57	70	50	52983.99	110	183.5	53002.85	155	58	52992.81
25	143.33	52963.85	70	50.5	52985.26	110	184	53002.32	155	57.5	52992.28
25	143	52964.7	70	51	52985.89	110	184.5	53001.9	155	57	52992.07
25	142.67	52965.44	70	51.5	52986	110	185	53001.47	155	56.5	52991.55
25	142.33	52965.76	70	52	52986	110	185.5	53001.26	155	56	52991.34
25	142	52965.55	70	52.5	52986.1	110	186	53001.47	155	55.5	52991.24
25	141.67	52965.33	70	53	52986.1	110	186.5	53002.32	155	55	52991.14
25	141.33	52965.33	70	53.5	52985.58	110	187	53003.7	155	54.5	52991.35
25	141	52965.76	70	54	52985.16	110	187.5	53004.55	155	54	52992.08

25	140.67	52965.97	70	54.5	52985.38	110	188	53004.77	155	53.5	52993.24
25	140.33	52966.5	70	55	52985.89	110	188.5	53004.87	155	53	52994.07
25	140	52967.46	70	55.5	52988.41	110	189	53005.19	155	52.5	52994.5
25	139.67	52968.31	70	56	52992.1	110	189.5	53005.3	155	52	52994.18
25	139.33	52969.16	70	56.5	52995.88	110	190	53004.66	155	51.5	52994.08
25	139	52969.8	70	57	52999.13	110	190.29	53003.6	155	51	52994.19
25	138.67	52970.12	70	57.5	53001.76	110	190.57	53002.32	155	50.5	52993.77
25	138.33	52970.32	70	58	53004.28	110	190.86	53001.26	155	50	52993.35
25	138	52970.54	70	58.5	53006.17	110	191.14	53000.52	155	49.5	52993.25
25	137.67	52970.64	70	59	53007.95	110	191.43	53000.94	155	49	52993.14
25	137.33	52970.96	70	59.5	53007.64	110	191.71	53002.54	155	48.5	52993.14
25	137	52971.18	70	60	53004.8	110	192	53004.34	155	48	52993.67
25	136.67	52971.5	70	60.5	53000.71	110	192.29	53005.62	155	47.5	52994.51
25	136.33	52971.92	70	61	52997.99	110	192.57	53006.68	155	47	52995.24
25	136	52972.35	70	61.5	52995.46	110	192.86	53008.06	155	46.5	52995.56
25	135.67	52972.88	70	62	52992.32	110	193.14	53008.16	155	46	52995.66
25	135.33	52973.52	70	62.5	52989.17	110	193.43	53006.78	155	45.5	52995.77
25	135	52973.94	70	63	52986.75	110	193.71	53005.4	155	45	52995.45
25	134.67	52973.73	70	63.5	52986.02	110	194	53004.23	155	44.5	52995.14
25	134.33	52973.73	70	64	52985.81	110	194.29	53003.28	155	44	52994.83
25	134	52973.3	70	64.5	52985.29	110	194.57	53002.54	155	43.5	52994.62
25	133.67	52972.99	70	65	52984.65	110	194.86	53002	155	43	52994.51
25	133.33	52972.88	70	65.5	52984.13	110	195.14	53001.9	155	42.5	52994.51
25	133	52972.99	70	66	52984.03	110	195.43	53002.32	155	42	52994.83
25	132.67	52972.99	70	66.5	52985.08	110	195.71	53002.96	155	41.5	52995.35
25	132.33	52972.77	70	67	52986.97	110	196	53002.96	155	41	52995.56
25	132	52973.09	70	67.5	52988.23	110	196.29	53002.96	155	40.5	52995.56
25	131.67	52973.63	70	68	52988.76	110	196.57	53002.55	155	40	52995.45
25	131.33	52974.38	70	68.5	52988.86	110	196.86	53002.33	155	39.5	52995.03
25	131	52974.7	70	69	52988.97	110	197.14	53002.12	155	39	52994.2
25	130.67	52974.48	70	69.5	52988.65	110	197.43	53001.48	155	38.5	52993.78
25	130.33	52974.27	70	70	52987.51	110	197.71	53000.85	155	38	52993.78
25	130	52974.27	70	70.5	52986.55	110	198	53000.42	155	37.5	52993.88
25	129.5	52973.85	70	71	52985.93	110	198.29	53000.1	155	37	52994.2
25	129	52973.63	70	71.5	52985.62	110	198.57	52999.89	155	36.5	52994.83
25	128.5	52973.53	70	72	52986.04	110	198.86	53000.43	155	36	52995.56
25	128	52973.42	70	72.5	52987.19	110	199.14	53001.91	155	35.5	52996.08
25	127.5	52973.31	70	73	52988.03	110	199.43	53003.09	155	35	52996.4
25	127	52973.74	70	73.5	52988.35	110	199.71	53003.3	155	34.5	52996.29
25	126.5	52974.59	70	74	52988.77	110	200	53002.87	155	34	52996.6
25	126	52975.54	70	74.5	52989.71	115	200	52997.44	155	33.5	52996.4
25	125.5	52976.08	70	75	52989.71	115	199.58	52997.23	155	33	52996.08
25	125	52975.97	70	75.5	52988.56	115	199.17	52996.7	155	32.5	52995.98
25	124.5	52975.76	70	76	52987.52	115	198.75	52996.49	155	32	52996.08
25	124	52975.76	70	76.5	52986.57	115	198.33	52996.28	155	31.5	52995.98
25	123.5	52975.54	70	77	52986.57	115	197.92	52996.28	155	31	52996.19
25	123	52975.23	70	77.5	52988.15	115	197.5	52996.39	155	30.5	52996.5
25	122.5	52975.23	70	78	52989.62	115	197.08	52996.39	155	30	52996.92
25	122	52975.44	70	78.5	52990.35	115	196.67	52995.97	155	29.67	52997.34
25	121.5	52975.65	70	79	52990.77	115	196.25	52995.65	155	29.33	52997.44
25	121	52975.75	70	79.5	52991.09	115	195.83	52995.54	155	29	52997.44
25	120.5	52976.17	70	80	52990.89	115	195.42	52995.33	155	28.67	52997.34
25	120	52976.92	70	80.5	52989.73	115	195	52995.22	155	28.33	52996.19
25	119.5	52977.55	70	81	52988.68	115	194.58	52995.22	155	28	52995.24
25	119	52977.88	70	81.5	52988.05	115	194.17	52995.01	155	27.67	52995.14
25	118.5	52977.88	70	82	52988.16	115	193.75	52994.9	155	27.33	52995.35
25	118	52977.88	70	82.5	52989.1	115	193.33	52994.7	155	27	52995.24
25	117.5	52977.55	70	83	52990.99	115	192.92	52994.91	155	26.67	52995.45
25	117	52977.23	70	83.5	52992.36	115	192.5	52995.34	155	26.33	52995.66
25	116.5	52977.02	70	84	52992.99	115	192.08	52995.76	155	26	52995.98
25	116	52977.23	70	84.5	52992.99	115	191.67	52995.87	155	25.67	52995.98
25	115.5	52977.23	70	85	52993.3	115	191.25	52995.55	155	25.33	52995.87
25	115	52977.55	70	85.5	52993.42	115	190.83	52995.34	155	25	52995.77
25	114.5	52977.98	70	86	52992.26	115	190.42	52994.91	155	24.67	52995.77
25	114	52978.51	70	86.5	52990.58	115	190	52994.71	155	24.33	52995.45
25	113.5	52979.14	70	87	52989.11	115	189.67	52994.5	155	24	52995.24
25	113	52979.46	70	87.5	52988.38	115	189.33	52994.5	155	23.67	52995.03

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25	97.67	52978.17
25	97.33	52979.13
25	97	52980.72
25	96.67	52981.99
25	96.33	52982.21
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25	95.67	52982.63
25	95.33	52982.1
25	95	52981.25
25	94.67	52980.82
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25	93.67	52980.08
25	93.33	52978.58
25	93	52977.52
25	92.67	52978.27
25	92.33	52979.33
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25	91.67	52980.07
25	91.33	52980.18
25	91	52980.28
25	90.67	52980.71
25	90.33	52980.92
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70	121	52967.46
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115	188.33	52994.07
115	188	52994.82
115	187.67	52995.35
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115	175.5	52995.06
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115	168	52995.5
115	167.67	52995.61
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115	167	52994.66
115	166.67	52994.23
115	166.33	52993.6
115	166	52992.86
115	165.67	52992.54
115	165.33	52992.12
115	165	52991.06
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115	163.67	52990.84
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155	21	52995.24
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155	19.5	52992.42
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155	18.5	52991.27
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155	16	52991.06
155	15.5	52990.43
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155	5.33	52976.3
155	5	52975.99
155	4.67	52975.57
155	4.33	52974.84
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160	1.18	52971.05
160	1.47	52968.86

25	84	52980.38	70	121.5	52967.15	115	163.33	52991.58	160	1.76	52970
25	83.5	52980.91	70	122	52966.1	115	163	52992.11	160	2.06	52971.88
25	83	52981.87	70	122.5	52964.95	115	162.67	52991.68	160	2.35	52973.24
25	82.5	52982.82	70	123	52963.27	115	162.33	52990.51	160	2.65	52973.97
25	82	52983.57	70	123.5	52961.49	115	162	52989.56	160	2.94	52974.49
25	81.5	52983.57	70	124	52959.91	115	161.67	52989.45	160	3.24	52975.33
25	81	52983.57	70	124.5	52958.66	115	161.33	52989.45	160	3.53	52976.48
25	80.5	52983.99	70	125	52958.04	115	161	52989.13	160	3.82	52977
25	80	52983.99	70	125.5	52958.46	115	160.67	52988.91	160	4.12	52976.69
25	79.5	52983.99	70	126	52959.5	115	160.33	52989.12	160	4.41	52976.59
25	79	52984.1	70	126.5	52959.91	115	160	52989.55	160	4.71	52976.68
25	78.5	52984.31	70	127	52959.5	115	159.5	52989.87	160	5	52977.31
25	78	52984.31	70	127.5	52958.98	115	159	52989.76	160	5.29	52978.04
25	77.5	52984.73	70	128	52958.88	115	158.5	52989.11	160	5.59	52979.61
25	77	52985.16	70	128.5	52958.56	115	158	52988.8	160	5.88	52982.12
25	76.5	52985.8	70	129	52958.25	115	157.5	52988.7	160	6.18	52983.9
25	76	52986.21	70	129.5	52958.25	115	157	52988.37	160	6.47	52985.15
25	75.5	52986	70	130	52958.67	115	156.5	52988.58	160	6.76	52985.78
25	75	52985.68	70	130.5	52959.51	115	156	52988.69	160	7.06	52986.51
25	74.5	52985.47	70	131	52961.3	115	155.5	52988.69	160	7.35	52987.14
25	74	52985.04	70	131.5	52964.44	115	155	52988.8	160	7.65	52987.77
25	73.5	52984.62	70	132	52966.85	115	154.5	52988.89	160	7.94	52987.87
25	73	52984.19	70	132.5	52968.11	115	154	52989.64	160	8.24	52987.97
25	72.5	52983.87	70	133	52969.16	115	153.5	52990.59	160	8.53	52988.28
25	72	52983.56	70	133.5	52970	115	153	52991.44	160	8.82	52988.7
25	71.5	52983.45	70	134	52970.84	115	152.5	52991.76	160	9.12	52988.7
25	71	52983.56	70	134.5	52971.27	115	152	52991.75	160	9.41	52988.81
25	70.5	52984.19	70	135	52971.57	115	151.5	52992.29	160	9.71	52990.59
25	70	52984.94	70	135.5	52972.11	115	151	52992.82	160	10	52992.16
25	69.67	52985.04	70	136	52972.63	115	150.5	52993.13	160	10.5	52992.68
25	69.33	52985.04	70	136.5	52973.68	115	150	52993.45	160	11	52992.57
25	69	52984.93	70	137	52975.57	115	149.5	52994.08	160	11.5	52992.57
25	68.67	52984.5	70	137.5	52977.98	115	149	52994.62	160	12	52992.77
25	68.33	52983.98	70	138	52980.08	115	148.5	52995.04	160	12.5	52993.19
25	68	52983.55	70	138.5	52981.66	115	148	52995.67	160	13	52992.98
25	67.67	52983.34	70	139	52982.6	115	147.5	52996.73	160	13.5	52992.46
25	67.33	52983.34	70	139.5	52983.54	115	147	52997.79	160	14	52991.94
25	67	52983.77	70	140	52983.96	115	146.5	52998.43	160	14.5	52991.83
25	66.67	52984.3	70	140.33	52983.45	115	146	52998.75	160	15	52991.73
25	66.33	52984.71	70	140.67	52983.14	115	145.5	52998.96	160	15.5	52992.67
25	66	52985.14	70	141	52982.93	115	145	52999.05	160	16	52994.65
25	65.67	52985.14	70	141.33	52983.45	115	144.5	52999.05	160	16.5	52996.64
25	65.33	52984.82	70	141.67	52984.71	115	144	52998.63	160	17	52998.1
25	65	52984.71	70	142	52986.6	115	143.5	52998.31	160	17.5	52999.15
25	64.67	52984.4	70	142.33	52987.54	115	143	52998.31	160	18	53000.2
25	64.33	52984.29	70	142.67	52987.75	115	142.5	52998.31	160	18.5	53001.03
25	64	52984.18	70	143	52987.66	115	142	52998.1	160	19	53001.45
25	63.67	52984.18	70	143.33	52988.07	115	141.5	52997.77	160	19.5	53000.93
25	63.33	52984.18	70	143.67	52988.18	115	141	52997.77	160	20	53000.41
25	63	52984.5	70	144	52987.54	115	140.5	52998.3	160	20.33	52999.98
25	62.67	52985.03	70	144.33	52986.71	115	140	52998.62	160	20.67	52999.66
25	62.33	52985.78	70	144.67	52986.29	115	139.67	52998.51	160	21	52999.66
25	62	52986.31	70	145	52986.4	115	139.33	52998.3	160	21.33	53014.85
25	61.67	52986.1	70	145.33	52987.45	115	139	52997.98	160	21.67	53002.49
25	61.33	52985.88	70	145.67	52989.34	115	138.67	52997.03	160	22	53003.54
25	61	52985.77	70	146	52990.07	115	138.33	52996.27	160	22.33	53003.96
25	60.67	52985.02	70	146.33	52990.39	115	138	52995.53	160	22.67	53004.79
25	60.33	52984.49	70	146.67	52990.6	115	137.67	52995	160	23	53006.15
25	60	52983.96	70	147	52990.92	115	137.33	52994.58	160	23.33	53007.73
25	59.5	52983.32	70	147.33	52991.23	115	137	52994.15	160	23.67	53006.57
25	59	52982.9	70	147.67	52990.82	115	136.67	52993.93	160	24	53004.05
25	58.5	52983.11	70	148	52989.87	115	136.33	52994.36	160	24.33	53002.38
25	58	52983.85	70	148.33	52989.56	115	136	52994.99	160	24.67	53001.33
25	57.5	52984.7	70	148.67	52989.77	115	135.67	52994.67	160	25	53000.91
25	57	52985.13	70	149	52990.61	115	135.33	52992.87	160	25.33	53000.91
25	56.5	52984.92	70	149.33	52992.5	115	135	52989.36	160	25.67	53001.01
25	56	52984.81	70	149.67	52993.34	115	134.67	52987.13	160	26	53000.28

25	55.5	52984.81	70	150	52993.23	115	134.33	52987.23	160	26.33	52999.34
25	55	52984.39	70	150.5	52993.45	115	134	52987.76	160	26.67	52998.61
25	54.5	52984.28	70	151	52993.56	115	133.67	52987.97	160	27	52998.29
25	54	52984.16	70	151.5	52993.24	115	133.33	52988.08	160	27.33	52997.98
25	53.5	52984.16	70	152	52992.4	115	133	52987.97	160	27.67	52997.04
25	53	52984.16	70	152.5	52991.77	115	132.67	52988.08	160	28	52995.56
25	52.5	52984.7	70	153	52991.14	115	132.33	52988.39	160	28.33	52994.3
25	52	52985.23	70	153.5	52990.93	115	132	52989.13	160	28.67	52993.78
25	51.5	52985.77	70	154	52991.77	115	131.67	52989.66	160	29	52995.04
25	51	52985.77	70	154.5	52992.93	115	131.33	52989.98	160	29.33	52997.65
25	50.5	52985.55	70	155	52993.14	115	131	52989.98	160	29.67	52999.64
25	50	52985.33	70	155.5	52993.04	115	130.67	52989.66	160	30	53000.17
25	49.5	52984.8	70	156	52993.14	115	130.33	52989.34	160	30.5	53000.05
25	49	52984.27	70	156.5	52993.25	115	130	52988.8	160	31	53000.05
25	48.5	52983.95	70	157	52992.83	115	129.5	52988.27	160	31.5	52999.95
25	48	52983.74	70	157.5	52991.89	115	129	52988.06	160	32	52999.54
25	47.5	52983.42	70	158	52990.73	115	128.5	52987.63	160	32.5	52998.69
25	47	52983.42	70	158.5	52990	115	128	52987.21	160	33	52997.75
25	46.5	52983.95	70	159	52989.89	115	127.5	52987.32	160	33.5	52997.12
25	46	52984.59	70	159.5	52990.95	115	127	52987.84	160	34	52997.02
25	45.5	52984.91	70	160	52991.89	115	126.5	52988.59	160	34.5	52997.43
25	45	52984.38	70	160.5	52992.1	115	126	52988.91	160	35	52998.89
25	44.5	52983.84	70	161	52992.42	115	125.5	52988.58	160	35.5	52999.63
25	44	52983.31	70	161.5	52992.95	115	125	52988.26	160	36	52999.53
25	43.5	52982.78	70	162	52993.37	115	124.5	52987.94	160	36.5	52999.1
25	43	52982.46	70	162.5	52992.84	115	124	52987.73	160	37	52998.89
25	42.5	52982.45	70	163	52992.11	115	123.5	52987.62	160	37.5	52998.58
25	42	52982.56	70	163.5	52991.69	115	123	52987.51	160	38	52998.05
25	41.5	52982.88	70	164	52991.79	115	122.5	52987.3	160	38.5	52997.63
25	41	52983.63	70	164.5	52992.32	115	122	52986.98	160	39	52997.32
25	40.5	52984.9	70	165	52993.89	115	121.5	52987.51	160	39.5	52997.21
25	40	52985.96	70	165.5	52994.84	115	121	52988.36	160	40	52997.74
25	39.5	52986.61	70	166	52994.64	115	120.5	52989.21	160	40.5	52998.88
25	39	52986.61	70	166.5	52994.64	115	120	52989.52	160	41	52999.72
25	38.5	52986.38	70	167	52995.06	115	119.5	52989.3	160	41.5	52999.61
25	38	52985.75	70	167.5	52995.16	115	119	52989.62	160	42	52999.09
25	37.5	52985.32	70	168	52994.53	115	118.5	52989.83	160	42.5	52998.98
25	37	52985.11	70	168.5	52994.22	115	118	52989.83	160	43	52999.09
25	36.5	52984.9	70	169	52994.22	115	117.5	52989.83	160	43.5	52998.98
25	36	52984.79	70	169.5	52994.43	115	117	52989.83	160	44	52998.25
25	35.5	52984.46	70	170	52995.48	115	116.5	52989.61	160	44.5	52997.52
25	35	52984.57	70	170.5	52996.84	115	116	52989.72	160	45	52996.89
25	34.5	52984.79	70	171	52997.17	115	115.5	52990.14	160	45.5	52996.26
25	34	52985.31	70	171.5	52996.85	115	115	52990.78	160	46	52996.79
25	33.5	52985.52	70	172	52997.06	115	114.5	52991.31	160	46.5	52998.35
25	33	52985.31	70	172.5	52996.54	115	114	52991.3	160	47	52998.87
25	32.5	52985.31	70	173	52995.91	115	113.5	52990.98	160	47.5	52998.77
25	32	52985.1	70	173.5	52995.07	115	113	52990.89	160	48	52998.66
25	31.5	52984.89	70	174	52994.65	115	112.5	52990.56	160	48.5	52999.08
25	31	52984.57	70	174.5	52994.13	115	112	52990.03	160	49	52999.29
25	30.5	52984.46	70	175	52994.23	115	111.5	52989.92	160	49.5	52999.08
25	30	52983.93	70	175.5	52995.07	115	111	52989.71	160	50	52998.24
25	29.67	52983.5	70	176	52996.23	115	110.5	52989.39	160	50.5	52997.18
25	29.33	52983.61	70	176.5	52996.86	115	110	52989.59	160	51	52996.14
25	29	52983.81	70	177	52997.18	115	109.5	52989.8	160	51.5	52995.3
25	28.67	52983.92	70	177.5	52997.49	115	109	52990.55	160	52	52995.61
25	28.33	52983.6	70	178	52997.7	115	108.5	52990.87	160	52.5	52996.66
25	28	52982.86	70	178.5	52997.07	115	108	52991.08	160	53	52996.98
25	27.67	52981.9	70	179	52995.81	115	107.5	52991.18	160	53.5	52996.87
25	27.33	52981.48	70	179.5	52994.55	115	107	52991.61	160	54	52996.35
25	27	52981.48	70	180	52993.82	115	106.5	52991.71	160	54.5	52996.35
25	26.67	52981.9	70	180.5	52993.62	115	106	52990.96	160	55	52996.23
25	26.33	52982.33	70	181	52994.35	115	105.5	52990.22	160	55.5	52995.5
25	26	52982.64	70	181.5	52995.09	115	105	52989.48	160	56	52994.56
25	25.67	52982.74	70	182	52995.09	115	104.5	52989.16	160	56.5	52993.83
25	25.33	52982.42	70	182.5	52994.35	115	104	52989.58	160	57	52993.41
25	25	52982.21	70	183	52993.62	115	103.5	52990	160	57.5	52993.72

25	24.67	52982.11	70	183.5	52992.78	115	103	52990.21	160	58	52994.77
25	24.33	52981.36	70	184	52991.62	115	102.5	52990	160	58.5	52995.5
25	24	52980.3	70	184.5	52989.52	115	102	52989.57	160	59	52995.8
25	23.67	52979.66	70	185	52987.21	115	101.5	52989.47	160	59.5	52995.91
25	23.33	52979.13	70	185.5	52985.11	115	101	52989.68	160	60	52996.54
25	23	52978.8	70	186	52982.5	115	100.5	52989.89	160	60.5	52996.96
25	22.67	52978.59	70	186.5	52979.98	115	100	52990.21	160	61	52996.22
25	22.33	52978.48	70	187	52979.67	115	99.5	52990.41	160	61.5	52995.06
25	22	52978.27	70	187.5	52980.61	115	99	52990.73	160	62	52994.33
25	21.67	52978.38	70	188	52980.61	115	98.5	52991.05	160	62.5	52994.01
25	21.33	52978.8	70	188.5	52979.88	115	98	52991.68	160	63	52994.22
25	21	52979.33	70	189	52978.51	115	97.5	52992.22	160	63.5	52994.96
25	20.67	52979.76	70	189.5	52976.52	115	97	52992.43	160	64	52995.58
25	20.33	52979.76	70	190	52973.06	115	96.5	52992.32	160	64.5	52995.48
25	20	52979.33	70	190.25	52969.07	115	96	52991.78	160	65	52995.48
25	19.5	52978.8	70	190.5	52965.2	115	95.5	52991.57	160	65.5	52995.68
25	19	52978.05	70	190.75	52961.32	115	95	52991.04	160	66	52995.99
25	18.5	52977.31	70	191	52957.96	115	94.5	52990.61	160	66.5	52995.89
25	18	52976.88	70	191.25	52955.14	115	94	52990.19	160	67	52995.05
25	17.5	52976.56	70	191.5	52953.98	115	93.5	52989.98	160	67.5	52994.32
25	17	52976.14	70	191.75	52952.93	115	93	52989.75	160	68	52993.89
25	16.5	52976.24	70	192	52949.37	115	92.5	52989.65	160	68.5	52993.79
25	16	52976.56	70	192.25	52943.08	115	92	52990.07	160	69	52994.52
25	15.5	52976.88	70	192.5	52935.02	115	91.5	52990.5	160	69.5	52995.67
25	15	52976.77	70	192.75	52924.75	115	91	52990.82	160	70	52996.19
25	14.5	52976.23	70	193	52913.34	115	90.5	52990.71	160	70.5	52996.4
25	14	52975.61	70	193.25	52902.05	115	90	52990.18	160	71	52996.51
25	13.5	52975.07	70	193.5	52890.96	115	89.67	52990.06	160	71.5	52996.61
25	13	52974.11	70	193.75	52879.57	115	89.33	52989.53	160	72	52996.18
25	12.5	52973.37	70	194	52866.09	115	89	52989	160	72.5	52995.55
25	12	52972.84	70	194.25	52850.84	115	88.67	52988.79	160	73	52995.24
25	11.5	52971.99	70	194.5	52837.79	115	88.33	52988.68	160	73.5	52995.45
25	11	52971.35	70	194.75	52826.83	115	88	52988.68	160	74	52995.97
25	10.5	52970.93	70	195	52817.55	115	87.67	52988.57	160	74.5	52996.91
25	10	52970.61	70	195.25	52805.36	115	87.33	52988.79	160	75	52998.48
25	9.71	52970.07	70	195.5	52790.55	115	87	52989.2	160	75.5	52999.52
25	9.43	52969.22	70	195.75	52776.71	115	86.67	52989.84	160	76	52999.63
25	9.14	52967.63	70	196	52767.03	115	86.33	52989.73	160	76.5	52999.73
25	8.86	52965.93	70	196.25	52758.99	115	86	52989.3	160	77	53000.15
25	8.57	52963.06	70	196.5	52749.8	115	85.67	52989.1	160	77.5	53000.36
25	8.29	52959.24	70	196.75	52739.46	115	85.33	52988.77	160	78	53000.36
25	8	52955.63	70	197	52726.42	115	85	52988.24	160	78.5	53000.04
25	7.71	52953.19	70	197.25	52716.09	115	84.67	52988.03	160	79	52999.72
25	7.43	52951.6	70	197.5	52717.34	115	84.33	52987.81	160	79.5	52999.51
25	7.14	52951.07	70	197.75	52724.33	115	84	52987.71	160	80	52999.41
25	6.86	52950.86	70	198	52729.87	115	83.67	52988.03	160	80.33	52999.72
25	6.57	52950.11	70	198.25	52732.16	115	83.33	52988.86	160	80.67	53001.07
25	6.29	52950.42	70	198.5	52734.67	115	83	52989.5	160	81	53002.43
25	6	52951.8	70	198.75	52738.53	115	82.67	52989.93	160	81.33	53003.39
25	5.71	52953.71	70	199	52746.15	115	82.33	52989.82	160	81.67	53003.69
25	5.43	52955.73	70	199.25	52756.39	115	82	52989.4	160	82	53004.42
25	5.14	52957.53	70	199.5	52765.16	115	81.67	52989.39	160	82.33	53004.95
25	4.86	52958.59	70	199.75	52768.61	115	81.33	52988.86	160	82.67	53004
25	4.57	52959.23	70	200	52765.38	115	81	52988.32	160	83	53001.91
25	4.29	52959.97	75	200	51703.36	115	80.67	52987.9	160	83.33	52999.18
25	4	52960.71	75	199.71	51677.11	115	80.33	52987.58	160	83.67	52996.25
25	3.71	52961.13	75	199.41	51627.44	115	80	52987.05	160	84	52993.84
25	3.43	52961.34	75	199.12	51569.39	115	79.67	52986.84	160	84.33	52992.17
25	3.14	52961.55	75	198.82	51520.73	115	79.33	52986.84	160	84.67	52992.69
25	2.86	52962.08	75	198.53	51496.5	115	79	52987.04	160	85	52993.84
25	2.57	52962.62	75	198.24	51492.93	115	78.67	52987.36	160	85.33	52994.05
25	2.29	52962.51	75	197.94	51507.08	115	78.33	52987.78	160	85.67	52993.52
25	2	52962.19	75	197.65	51549.38	115	78	52987.57	160	86	52993.1
25	1.71	52961.66	75	197.35	51603.09	115	77.67	52987.15	160	86.33	52992.68
25	1.43	52960.48	75	197.06	51651.69	115	77.33	52987.16	160	86.67	52991.84
25	1.14	52958.89	75	196.76	51693.8	115	77	52987.36	160	87	52990.48
25	.86	52957.3	75	196.47	51743.39	115	76.67	52987.25	160	87.33	52988.91

25	.57	52956.03	75	196.18	51804.51	115	76.33	52986.73	160	87.67	52987.13
25	.29	52955.5	75	195.88	51881.68	115	76	52985.88	160	88	52985.45
25	0	52955.71	75	195.59	51992.89	115	75.67	52985.14	160	88.33	52984.2
30	0	52967.29	75	195.29	52091.55	115	75.33	52984.82	160	88.67	52984.19
30	.42	52968.03	75	195	52171.34	115	75	52985.14	160	89	52984.72
30	.83	52968.35	75	194.71	52232.12	115	74.67	52985.88	160	89.33	52984.82
30	1.25	52968.35	75	194.41	52281.06	115	74.33	52986.52	160	89.67	52983.98
30	1.67	52968.34	75	194.12	52327.25	115	74	52986.94	160	90	52983.14
30	2.08	52968.76	75	193.82	52389.72	115	73.67	52986.73	160	90.5	52983.03
30	2.5	52969.51	75	193.53	52470.87	115	73.33	52986.74	160	91	52983.87
30	2.92	52970.79	75	193.24	52555.13	115	73	52986.74	160	91.5	52984.81
30	3.33	52971.52	75	192.94	52630.66	115	72.67	52986.74	160	92	52985.65
30	3.75	52971.63	75	192.65	52691.5	115	72.33	52986.64	160	92.5	52985.96
30	4.17	52971.1	75	192.35	52741.49	115	72	52986.74	160	93	52986.38
30	4.58	52970.46	75	192.06	52784.16	115	71.67	52986.74	160	93.5	52987.52
30	5	52970.25	75	191.76	52825.1	115	71.33	52986.42	160	94	52989.52
30	5.42	52970.46	75	191.47	52865.46	115	71	52986.85	160	94.5	52990.76
30	5.83	52971.3	75	191.18	52899.37	115	70.67	52987.59	160	95	52991.6
30	6.25	52972.25	75	190.88	52925.82	115	70.33	52988.23	160	95.5	52992.13
30	6.67	52972.78	75	190.59	52948.05	115	70	52988.65	160	96	52992.33
30	7.08	52973.1	75	190.29	52968.08	115	69.5	52988.45	160	96.5	52992.86
30	7.5	52973.63	75	190	52985.79	115	69	52988.34	160	97	52992.64
30	7.92	52974.79	75	189.67	53002.14	115	68.5	52988.34	160	97.5	52992.12
30	8.33	52976.6	75	189.33	53014.67	115	68	52988.03	160	98	52991.7
30	8.75	52979.46	75	189	53024.11	115	67.5	52987.71	160	98.5	52991.49
30	9.17	52983.38	75	188.67	53030.59	115	67	52987.6	160	99	52991.07
30	9.58	52987.2	75	188.33	53036.02	115	66.5	52987.49	160	99.5	52991.07
30	10	52990.27	75	188	53041.12	115	66	52987.49	160	100	52991.79
30	10.33	52993.34	75	187.67	53044.95	115	65.5	52987.49	160	100.5	52992.43
30	10.67	52994.5	75	187.33	53046.86	115	65	52987.82	160	101	52992.94
30	11	52989.11	75	187	53045.26	115	64.5	52988.25	160	101.5	52993.36
30	11.33	52984.64	75	186.67	53042.93	115	64	52988.66	160	102	52993.36
30	11.67	52981.78	75	186.33	53040.68	115	63.5	52988.66	160	102.5	52993.68
30	12	52980.08	75	186	53039.41	115	63	52988.67	160	103	52993.68
30	12.33	52979.45	75	185.67	53038.02	115	62.5	52988.67	160	103.5	52993.14
30	12.67	52979.23	75	185.33	53036.64	115	62	52988.25	160	104	52992.51
30	13	52979.23	75	185	53034.3	115	61.5	52988.04	160	104.5	52992.1
30	13.33	52978.71	75	184.67	53031.11	115	61	52987.93	160	105	52991.68
30	13.67	52977.95	75	184.33	53027.29	115	60.5	52987.82	160	105.5	52991.57
30	14	52977.32	75	184	53024.09	115	60	52987.82	160	106	52992.82
30	14.33	52977.21	75	183.67	53022.18	115	59.67	52987.82	160	106.5	52993.45
30	14.67	52977.95	75	183.33	53020.8	115	59.33	52988.26	160	107	52993.45
30	15	52979.44	75	183	53018.25	115	59	52989	160	107.5	52993.34
30	15.33	52980.39	75	182.67	53015.06	115	58.67	52989.74	160	108	52993.13
30	15.67	52980.71	75	182.33	53013.04	115	58.33	52990.06	160	108.5	52993.03
30	16	52981.24	75	182	53012.08	115	58	52989.74	160	109	52992.82
30	16.33	52981.88	75	181.67	53011.23	115	57.67	52989.53	160	109.5	52992.19
30	16.67	52982.29	75	181.33	53010.38	115	57.33	52989.43	160	110	52991.55
30	17	52982.09	75	181	53009.32	115	57	52989.12	160	110.33	52991.04
30	17.33	52981.34	75	180.67	53008.04	115	56.67	52988.8	160	110.67	52990.71
30	17.67	52980.59	75	180.33	53006.45	115	56.33	52988.8	160	111	52990.92
30	18	52980.38	75	180	53005.07	115	56	52988.68	160	111.33	52992.28
30	18.33	52980.38	75	179.67	53004.21	115	55.67	52988.37	160	111.67	52993.23
30	18.67	52981.12	75	179.33	53003.57	115	55.33	52988.37	160	112	52993.54
30	19	52981.44	75	179	53002.62	115	55	52988.37	160	112.33	52993.43
30	19.33	52981.44	75	178.67	53001.66	115	54.67	52988.27	160	112.67	52993.22
30	19.67	52982.08	75	178.33	53000.6	115	54.33	52988.06	160	113	52992.69
30	20	52983.77	75	178	53000.07	115	54	52987.63	160	113.33	52991.75
30	20.5	52984.82	75	177.67	52999.74	115	53.67	52987.1	160	113.67	52990.6
30	21	52984.72	75	177.33	52999.11	115	53.33	52986.89	160	114	52989.45
30	21.5	52983.45	75	177	52998.04	115	53	52986.9	160	114.33	52988.61
30	22	52982.39	75	176.67	52996.66	115	52.67	52986.58	160	114.67	52988.08
30	22.5	52981.86	75	176.33	52995.81	115	52.33	52986.79	160	115	52988.08
30	23	52982.39	75	176	52994.86	115	52	52986.9	160	115.33	52988.92
30	23.5	52983.66	75	175.67	52994.21	115	51.67	52986.69	160	115.67	52989.44
30	24	52985.35	75	175.33	52994	115	51.33	52986.26	160	116	52989.32
30	24.5	52985.98	75	175	52993.89	115	51	52985.94	160	116.33	52989.23

30	25	52986.3	75	174.67	52993.79	115	50.67	52985.94	160	116.67	52989.54
30	25.5	52986.73	75	174.33	52993.68	115	50.33	52986.16	160	117	52989.53
30	26	52987.36	75	174	52993.79	115	50	52986.27	160	117.33	52988.91
30	26.5	52987.78	75	173.67	52994.32	115	49.5	52985.84	160	117.67	52988.17
30	27	52987.57	75	173.33	52994.63	115	49	52985.63	160	118	52987.34
30	27.5	52987.46	75	173	52994.52	115	48.5	52985.53	160	118.33	52986.39
30	28	52987.36	75	172.67	52993.99	115	48	52985.21	160	118.67	52985.86
30	28.5	52987.04	75	172.33	52993.67	115	47.5	52984.89	160	119	52986.29
30	29	52987.57	75	172	52993.25	115	47	52984.89	160	119.33	52988.16
30	29.5	52989.27	75	171.67	52992.71	115	46.5	52984.79	160	119.67	52989.31
30	30	52990.54	75	171.33	52992.39	115	46	52984.36	160	120	52989.52
30	30.5	52990.74	75	171	52991.96	115	45.5	52984.15	160	120.5	52989.42
30	31	52991.06	75	170.67	52991.22	115	45	52984.25	160	121	52989.73
30	31.5	52991.59	75	170.33	52990.48	115	44.5	52984.58	160	121.5	52989.94
30	32	52991.06	75	170	52990.58	115	44	52985.11	160	122	52989.51
30	32.5	52990	75	169.5	52991.33	115	43.5	52985.33	160	122.5	52988.26
30	33	52988.62	75	169	52991.96	115	43	52985.11	160	123	52987.21
30	33.5	52987.88	75	168.5	52992.18	115	42.5	52985.01	160	123.5	52986.27
30	34	52987.34	75	168	52991.75	115	42	52984.8	160	124	52985.33
30	34.5	52987.98	75	167.5	52991.42	115	41.5	52984.48	160	124.5	52985
30	35	52989.46	75	167	52990.79	115	41	52984.26	160	125	52985.75
30	35.5	52990.31	75	166.5	52990.04	115	40.5	52984.27	160	125.5	52986.47
30	36	52990.41	75	166	52989.51	115	40	52984.16	160	126	52986.78
30	36.5	52990.63	75	165.5	52989.41	115	39.5	52983.95	160	126.5	52986.47
30	37	52991.05	75	165	52989.41	115	39	52983.63	160	127	52985.95
30	37.5	52991.16	75	164.5	52989.29	115	38.5	52983.43	160	127.5	52985.63
30	38	52990.51	75	164	52989.18	115	38	52983.64	160	128	52985.53
30	38.5	52989.34	75	163.5	52989.08	115	37.5	52983.64	160	128.5	52984.99
30	39	52988.28	75	163	52989.61	115	37	52983.53	160	129	52984.58
30	39.5	52987.65	75	162.5	52990.35	115	36.5	52983.53	160	129.5	52984.47
30	40	52987.75	75	162	52990.45	115	36	52983.64	160	130	52984.05
30	40.5	52988.91	75	161.5	52990.02	115	35.5	52983.21	160	130.5	52983.84
30	41	52989.55	75	161	52989.39	115	35	52982.48	160	131	52984.68
30	41.5	52989.23	75	160.5	52988.86	115	34.5	52982.37	160	131.5	52985.52
30	42	52988.91	75	160	52988.43	115	34	52982.48	160	132	52985.3
30	42.5	52988.7	75	159.67	52988.22	115	33.5	52982.37	160	132.5	52984.88
30	43	52988.91	75	159.33	52988.22	115	33	52982.48	160	133	52984.57
30	43.5	52988.59	75	159	52988.11	115	32.5	52982.06	160	133.5	52984.15
30	44	52987.21	75	158.67	52987.89	115	32	52981.42	160	134	52983.73
30	44.5	52986.25	75	158.33	52987.89	115	31.5	52980.25	160	134.5	52983.1
30	45	52985.4	75	158	52988.32	115	31	52978.98	160	135	52982.57
30	45.5	52985.29	75	157.67	52988.95	115	30.5	52977.71	160	135.5	52982.15
30	46	52986.04	75	157.33	52989.27	115	30	52976.54	160	136	52981.84
30	46.5	52986.99	75	157	52989.16	115	29.75	52975.05	160	136.5	52981.42
30	47	52987.52	75	156.67	52988.53	115	29.5	52972.41	160	137	52981.73
30	47.5	52987.41	75	156.33	52988.52	115	29.25	52970.08	160	137.5	52983.3
30	48	52987.51	75	156	52988.09	115	29	52968.49	160	138	52984.14
30	48.5	52987.94	75	155.67	52987.56	115	28.75	52966.37	160	138.5	52984.75
30	49	52988.25	75	155.33	52987.14	115	28.5	52963.82	160	139	52985.17
30	49.5	52987.83	75	155	52987.14	115	28.25	52961.06	160	139.5	52985.38
30	50	52987.3	75	154.67	52987.03	115	28	52956.29	160	140	52985.28
30	50.5	52986.98	75	154.33	52986.81	115	27.75	52951.73	160	140.33	52985.17
30	51	52987.61	75	154	52987.02	115	27.5	52947.29	160	140.67	52984.75
30	51.5	52989.09	75	153.67	52987.45	115	27.25	52942.95	160	141	52984.13
30	52	52989.94	75	153.33	52988.19	115	27	52938.18	160	141.33	52983.8
30	52.5	52989.83	75	153	52988.51	115	26.75	52932.98	160	141.67	52983.49
30	53	52989.09	75	152.67	52988.3	115	26.5	52925.26	160	142	52983.07
30	53.5	52988.24	75	152.33	52987.77	115	26.25	52913.4	160	142.33	52983.38
30	54	52987.29	75	152	52986.91	115	26	52899.43	160	142.67	52985.16
30	54.5	52986.75	75	151.67	52986.16	115	25.75	52886.42	160	143	52986.31
30	55	52986.43	75	151.33	52985.85	115	25.5	52875.22	160	143.33	52986.73
30	55.5	52986.22	75	151	52985.85	115	25.25	52865.18	160	143.67	52986.84
30	56	52986.11	75	150.67	52985.74	115	25	52852.5	160	144	52987.26
30	56.5	52986.32	75	150.33	52985.53	115	24.75	52831.92	160	144.33	52987.57
30	57	52987.6	75	150	52985.52	115	24.5	52805.25	160	144.67	52987.57
30	57.5	52988.66	75	149.5	52985.95	115	24.25	52772.06	160	145	52987.14
30	58	52988.98	75	149	52986.9	115	24	52735.13	160	145.33	52986.84

30	58.5	52988.75	75	148.5	52987.85	115	23.75	52700.36	160	145.67	52986.52
30	59	52988.65	75	148	52988.17	115	23.5	52668.04	160	146	52986.2
30	59.5	52988.86	75	147.5	52987.85	115	23.25	52629.37	160	146.33	52985.89
30	60	52988.44	75	147	52987.64	115	23	52585.43	160	146.67	52986.2
30	60.5	52988.01	75	146.5	52986.99	115	22.75	52539.47	160	147	52987.46
30	61	52987.26	75	146	52986.46	115	22.5	52486.82	160	147.33	52988.29
30	61.5	52986.94	75	145.5	52985.93	115	22.25	52427.43	160	147.67	52988.4
30	62	52987.47	75	145	52985.72	115	22	52364.63	160	148	52988.4
30	62.5	52989.06	75	144.5	52985.61	115	21.75	52294.34	160	148.33	52987.87
30	63	52990.02	75	144	52985.4	115	21.5	52199.09	160	148.67	52987.46
30	63.5	52989.8	75	143.5	52985.5	115	21.25	52089.09	160	149	52986.93
30	64	52989.8	75	143	52986.04	115	21	51969.24	160	149.33	52986.09
30	64.5	52990.02	75	142.5	52986.98	115	20.75	51847.88	160	149.67	52985.36
30	65	52990.11	75	142	52987.41	115	20.5	51730.56	160	150	52984.94
30	65.5	52989.26	75	141.5	52987.3	115	20.25	51609.02	160	150.5	52984.53
30	66	52988.31	75	141	52986.77	115	20	51460.29	160	151	52984.73
30	66.5	52987.57	75	140.5	52986.24	115	19.5	51292.49	160	151.5	52985.88
30	67	52986.93	75	140	52985.82	115	19	51129.65	160	152	52986.71
30	67.5	52987.34	75	139.5	52985.6	115	18.5	50985.27	160	152.5	52987.04
30	68	52988.41	75	139	52985.49	115	18	50871.04	160	153	52987.04
30	68.5	52989.04	75	138.5	52985.38	115	17.5	50789.53	160	153.5	52986.82
30	69	52989.25	75	138	52985.27	115	17	50745.46	160	154	52986.29
30	69.5	52989.36	75	137.5	52985.17	115	16.5	50778.61	160	154.5	52986.41
30	70	52989.57	75	137	52985.17	115	16	50834.29	160	155	52985.88
30	70.5	52989.68	75	136.5	52985.27	115	15.5	50900.2	160	155.5	52985.56
30	71	52989.36	75	136	52985.06	115	15	50951.68	160	156	52985.46
30	71.5	52988.5	75	135.5	52984.32	115	14.5	51001.75	160	156.5	52985.67
30	72	52987.33	75	135	52983.57	115	14	51087.02	160	157	52986.29
30	72.5	52986.8	75	134.5	52983.14	115	13.5	51215.92	160	157.5	52987.86
30	73	52987.12	75	134	52982.3	115	13	51360.89	160	158	52989.64
30	73.5	52988.71	75	133.5	52981.66	115	12.5	51493.44	160	158.5	52990.69
30	74	52989.77	75	133	52981.45	115	12	51591.38	160	159	52991.53
30	74.5	52989.55	75	132.5	52981.13	115	11.5	51664.8	160	159.5	52992.57
30	75	52989.45	75	132	52980.7	115	11	51721.83	160	160	52993.2
30	75.5	52989.55	75	131.5	52980.7	115	10.5	51761.51	160	160.5	52992.68
30	76	52989.76	75	131	52981.13	115	10	51749.07	160	161	52991.53
30	76.5	52989.45	75	130.5	52981.87	115	9.67	51678.7	160	161.5	52990.05
30	77	52988.8	75	130	52982.51	115	9.33	51558.35	160	162	52988.6
30	77.5	52988.28	75	129.67	52982.4	115	9	51426.49	160	162.5	52987.34
30	78	52988.06	75	129.33	52981.86	115	8.67	51344.42	160	163	52986.92
30	78.5	52988.38	75	129	52981.45	115	8.33	51433.04	160	163.5	52988.17
30	79	52989.33	75	128.67	52980.91	115	8	51649.26	160	164	52989.74
30	79.5	52989.97	75	128.33	52980.48	115	7.67	51846.9	160	164.5	52990.47
30	80	52989.75	75	128	52980.27	115	7.33	51986.1	160	165	52990.57
30	80.5	52989.64	75	127.67	52980.16	115	7	52087.88	160	165.5	52990.68
30	81	52989.64	75	127.33	52980.06	115	6.67	52174.79	160	166	52990.78
30	81.5	52989.21	75	127	52979.95	115	6.33	52273.34	160	166.5	52990.57
30	82	52987.84	75	126.67	52980.37	115	6	52372.5	160	167	52989.95
30	82.5	52986.14	75	126.33	52980.91	115	5.67	52461	160	167.5	52989.42
30	83	52984.87	75	126	52981	115	5.33	52540.16	160	168	52989.11
30	83.5	52984.34	75	125.67	52980.8	115	5	52607.67	160	168.5	52988.8
30	84	52984.76	75	125.33	52980.05	115	4.67	52662.45	160	169	52989.21
30	84.5	52985.6	75	125	52979.83	115	4.33	52708.31	160	169.5	52990.47
30	85	52985.6	75	124.67	52979.41	115	4	52745.87	160	170	52991.2
30	85.5	52985.49	75	124.33	52979.09	115	3.67	52776.94	160	170.33	52991.73
30	86	52985.92	75	124	52978.88	115	3.33	52802.64	160	170.67	52991.82
30	86.5	52986.76	75	123.67	52978.67	115	3	52824.98	160	171	52992.04
30	87	52987.29	75	123.33	52978.46	115	2.67	52847.03	160	171.33	52992.55
30	87.5	52987.07	75	123	52978.24	115	2.33	52876.13	160	171.67	52992.25
30	88	52986.55	75	122.67	52978.45	115	2	52922.14	160	172	52991.3
30	88.5	52986.12	75	122.33	52979.08	115	1.67	52977.49	160	172.33	52990.68
30	89	52986.01	75	122	52979.82	115	1.33	53028.79	160	172.67	52990.04
30	89.5	52987.07	75	121.67	52979.82	115	1	53080.51	160	173	52989.63
30	90	52989.3	75	121.33	52979.19	115	.67	53116.29	160	173.33	52990.67
30	90.5	52990.47	75	121	52978.98	115	.33	53064.05	160	173.67	52991.82
30	91	52990.24	75	120.67	52978.55	115	0	52930.34	160	174	52992.45
30	91.5	52989.18	75	120.33	52978.02	120	0	52938	160	174.33	52992.66

30	92	52988.13	75	120	52977.8	120	.29	52937.79	160	174.67	52992.66
30	92.5	52988.23	75	119.5	52977.8	120	.59	52937.79	160	175	52992.66
30	93	52987.59	75	119	52977.6	120	.88	52937.58	160	175.33	52992.55
30	93.5	52986.84	75	118.5	52977.8	120	1.18	52937.26	160	175.67	52992.03
30	94	52986.21	75	118	52978.22	120	1.47	52937.27	160	176	52991.09
30	94.5	52986.73	75	117.5	52978.65	120	1.76	52937.38	160	176.33	52990.36
30	95	52987.58	75	117	52979.07	120	2.06	52937.27	160	176.67	52989.94
30	95.5	52987.9	75	116.5	52978.86	120	2.35	52937.48	160	177	52989.83
30	96	52987.26	75	116	52978.33	120	2.65	52938.32	160	177.33	52991.09
30	96.5	52986.2	75	115.5	52978.33	120	2.94	52939.69	160	177.67	52992.13
30	97	52985.78	75	115	52978.44	120	3.24	52940.84	160	178	52992.55
30	97.5	52986.3	75	114.5	52978.43	120	3.53	52941.05	160	178.33	52992.75
30	98	52986.52	75	114	52978.75	120	3.82	52940.63	160	178.67	52993.28
30	98.5	52985.77	75	113.5	52978.96	120	4.12	52939.57	160	179	52993.8
30	99	52985.03	75	113	52979.06	120	4.41	52939.04	160	179.33	52993.9
30	99.5	52984.6	75	112.5	52979.59	120	4.71	52939.99	160	179.67	52993.38
30	100	52984.71	75	112	52980.44	120	5	52941.34	160	180	52992.65
30	100.5	52985.77	75	111.5	52981.61	120	5.29	52940.61	160	180.5	52991.81
30	101	52987.68	75	111	52982.46	120	5.59	52937.25	160	181	52991.29
30	101.5	52988.62	75	110.5	52982.67	120	5.88	52934.1	160	181.5	52991.18
30	102	52988.73	75	110	52982.77	120	6.18	52932.11	160	182	52992.23
30	102.5	52988.52	75	109.67	52982.67	120	6.47	52931.16	160	182.5	52993.49
30	103	52988.31	75	109.33	52982.35	120	6.76	52931.78	160	183	52994.32
30	103.5	52987.56	75	109	52982.13	120	7.06	52933.25	160	183.5	52994.32
30	104	52986.29	75	108.67	52982.34	120	7.35	52930.73	160	184	52994.64
30	104.5	52984.91	75	108.33	52982.23	120	7.65	52928.42	160	184.5	52994.64
30	105	52983.84	75	108	52982.45	120	7.94	52924.02	160	185	52994.64
30	105.5	52983.52	75	107.67	52982.76	120	8.24	52914.59	160	185.5	52994.21
30	106	52984.37	75	107.33	52983.72	120	8.53	52905.78	160	186	52994
30	106.5	52985.75	75	107	52984.25	120	8.82	52906.52	160	186.5	52993.59
30	107	52985.96	75	106.67	52984.25	120	9.12	52906.72	160	187	52993.48
30	107.5	52985.86	75	106.33	52983.71	120	9.41	52901.06	160	187.5	52994
30	108	52985.53	75	106	52983.39	120	9.71	52897.71	160	188	52995.57
30	108.5	52985.42	75	105.67	52982.75	120	10	52902.32	160	188.5	52996.63
30	109	52985.21	75	105.33	52982.34	120	10.33	52907.12	160	189	52997.14
30	109.5	52984.79	75	105	52982.33	120	10.67	52897.7	160	189.5	52997.56
30	110	52984.15	75	104.67	52982.44	120	11	52872.59	160	190	52998.29
30	110.5	52983.73	75	104.33	52982.44	120	11.33	52845.62	160	190.22	52998.71
30	111	52983.29	75	104	52982.22	120	11.67	52822.23	160	190.44	52998.4
30	111.5	52983.2	75	103.67	52981.8	120	12	52813.14	160	190.67	52997.56
30	112	52984.03	75	103.33	52981.91	120	12.33	52821.8	160	190.89	52996.72
30	112.5	52985.62	75	103	52982.12	120	12.67	52813.14	160	191.11	52995.78
30	113	52986.26	75	102.67	52981.91	120	13	52779.87	160	191.33	52995.46
30	113.5	52985.94	75	102.33	52980.94	120	13.33	52740.82	160	191.56	52996.51
30	114	52985.94	75	102	52980.09	120	13.67	52706.48	160	191.78	52997.45
30	114.5	52985.72	75	101.67	52979.88	120	14	52705.43	160	192	52998.19
30	115	52984.88	75	101.33	52979.99	120	14.33	52738.41	160	192.22	52998.4
30	115.5	52983.39	75	101	52980.73	120	14.67	52743.43	160	192.44	52998.19
30	116	52982.01	75	100.67	52981.26	120	15	52699.26	160	192.67	52997.66
30	116.5	52980.84	75	100.33	52981.47	120	15.33	52656.54	160	192.89	52996.81
30	117	52980.3	75	100	52983.38	120	15.67	52635.4	160	193.11	52995.56
30	117.5	52980.73	75	99.5	52987.41	120	16	52669.13	160	193.33	52994.63
30	118	52982.32	75	99	52991.13	120	16.33	52762.74	160	193.56	52994.09
30	118.5	52983.06	75	98.5	52993.66	120	16.67	52806.69	160	193.78	52993.67
30	119	52983.06	75	98	52993.98	120	17	52744.02	160	194	52993.79
30	119.5	52983.17	75	97.5	52992.28	120	17.33	52675.69	160	194.22	52994.83
30	120	52983.48	75	97	52990.37	120	17.67	52678.5	160	194.44	52995.77
30	120.5	52983.8	75	96.5	52989.21	120	18	52786.25	160	194.67	52995.98
30	121	52983.16	75	96	52988.25	120	18.33	52945.68	160	194.89	52995.98
30	121.5	52981.88	75	95.5	52987.08	120	18.67	53039.41	160	195.11	52996.19
30	122	52980.61	75	95	52986.13	120	19	53062.35	160	195.33	52996.29
30	122.5	52979.76	75	94.5	52985.17	120	19.33	53053.04	160	195.56	52996.29
30	123	52979.87	75	94	52984.63	120	19.67	53046.59	160	195.78	52995.87
30	123.5	52980.82	75	93.5	52985.16	120	20	53064.98	160	196	52995.24
30	124	52981.35	75	93	52986.23	120	20.33	53090.69	160	196.22	52994.51
30	124.5	52981.35	75	92.5	52986.97	120	20.67	53092.16	160	196.44	52994.5
30	125	52981.34	75	92	52987.07	120	21	53070.47	160	196.67	52994.93

30	125.5	52981.34	75	91.5	52986.44	120	21.33	53052.07	160	196.89	52995.66
30	126	52981.13	75	91	52985.91	120	21.67	53047.52	160	197.11	52996.5
30	126.5	52980.18	75	90.5	52985.48	120	22	53055.87	160	197.33	52997.13
30	127	52979.44	75	90	52985.27	120	22.33	53066.11	160	197.56	52997.55
30	127.5	52978.47	75	89.67	52985.38	120	22.67	53071.2	160	197.78	52998.07
30	128	52978.15	75	89.33	52985.38	120	23	53064.32	160	198	52998.06
30	128.5	52978.47	75	89	52985.16	120	23.33	53054.38	160	198.22	52997.64
30	129	52979.96	75	88.67	52984.94	120	23.67	53045.7	160	198.44	52997.12
30	129.5	52981.23	75	88.33	52984.84	120	24	53042.85	160	198.67	52996.28
30	130	52981.33	75	88	52985.69	120	24.33	53043.59	160	198.89	52995.34
30	130.5	52981.64	75	87.67	52987.38	120	24.67	53043.9	160	199.11	52994.61
30	131	52982.08	75	87.33	52989.29	120	25	53040.41	160	199.33	52993.77
30	131.5	52982.38	75	87	52990.25	120	25.33	53035.96	160	199.56	52993.14
30	132	52981.54	75	86.67	52990.25	120	25.67	53030.79	160	199.78	52992.62
30	132.5	52980.05	75	86.33	52989.51	120	26	53027.94	160	200	52992.2
30	133	52978.67	75	86	52988.22	120	26.33	53027.5	165	200	52989.13
30	133.5	52977.83	75	85.67	52987.59	120	26.67	53027.5	165	199.71	52989.34
30	134	52977.83	75	85.33	52987.16	120	27	53023.6	165	199.41	52989.23
30	134.5	52978.04	75	85	52986.95	120	27.33	53018.94	165	199.12	52989.23
30	135	52977.08	75	84.67	52986.74	120	27.67	53016.2	165	198.82	52989.23
30	135.5	52975.07	75	84.33	52986.21	120	28	53015.14	165	198.53	52989.13
30	136	52973.07	75	84	52986.1	120	28.33	53014.92	165	198.24	52989.01
30	136.5	52977.84	75	83.67	52986.42	120	28.67	53014.5	165	197.94	52988.8
30	137	52992.36	75	83.33	52986.73	120	29	53012.59	165	197.65	52988.8
30	137.5	52995.33	75	83	52986.63	120	29.33	53009	165	197.35	52989.01
30	138	52989.6	75	82.67	52985.98	120	29.67	53006.47	165	197.06	52989.33
30	138.5	52984.09	75	82.33	52985.68	120	30	53005.2	165	196.76	52989.64
30	139	52979.64	75	82	52985.35	120	31	53004.56	165	196.47	52990.06
30	139.5	52977.41	75	81.67	52984.92	120	32	53004.35	165	196.18	52990.36
30	140	52976.79	75	81.33	52984.71	120	33	53004.55	165	195.88	52990.47
30	140.5	52976.46	75	81	52984.71	120	34	53004.23	165	195.59	52990.47
30	141	52975.5	75	80.67	52984.39	120	35	53003.39	165	195.29	52990.57
30	141.5	52974.88	75	80.33	52984.18	120	36	53002.64	165	195	52990.68
30	142	52974.24	75	80	52984.18	120	37	53002.22	165	194.71	52990.78
30	142.5	52973.5	75	79.5	52984.5	120	38	53002.22	165	194.41	52990.78
30	143	52971.81	75	79	52984.7	120	39	53002.43	165	194.12	52990.47
30	143.5	52969.9	75	78.5	52984.38	120	40	53001.89	165	193.82	52990.14
30	144	52968.41	75	78	52983.75	120	40.33	53000.63	165	193.53	52989.94
30	144.5	52967.36	75	77.5	52983.22	120	40.67	52999.25	165	193.24	52989.94
30	145	52966.83	75	77	52983	120	41	52998.19	165	192.94	52990.14
30	145.5	52967.14	75	76.5	52982.47	120	41.33	52997.98	165	192.65	52990.88
30	146	52967.14	75	76	52982.26	120	41.67	52998.18	165	192.35	52991.71
30	146.5	52966.09	75	75.5	52981.94	120	42	52998.71	165	192.06	52992.24
30	147	52964.93	75	75	52981.52	120	42.33	52999.13	165	191.76	52992.45
30	147.5	52963.76	75	74.5	52980.88	120	42.67	52998.91	165	191.47	52992.66
30	148	52962.6	75	74	52980.24	120	43	52998.49	165	191.18	52992.76
30	148.5	52960.9	75	73.5	52979.81	120	43.33	52998.07	165	190.88	52992.76
30	149	52958.78	75	73	52978.75	120	43.67	52998.06	165	190.59	52992.45
30	149.5	52957.09	75	72.5	52976.73	120	44	52997.74	165	190.29	52992.23
30	150	52955.82	75	72	52975.36	120	44.33	52996.46	165	190	52992.23
30	150.5	52954.88	75	71.5	52976.63	120	44.67	52995.41	165	189.67	52991.81
30	151	52954.45	75	71	52978.64	120	45	52994.88	165	189.33	52991.18
30	151.5	52954.13	75	70.5	52979.92	120	45.33	52994.78	165	189	52990.76
30	152	52952.86	75	70	52980.55	120	45.67	52994.98	165	188.67	52990.87
30	152.5	52951.17	75	69.5	52980.86	120	46	52995.29	165	188.33	52991.18
30	153	52949.37	75	69	52980.77	120	46.33	52995.61	165	188	52991.08
30	153.5	52947.46	75	68.5	52980.77	120	46.67	52995.92	165	187.67	52990.66
30	154	52944.71	75	68	52980.86	120	47	52996.02	165	187.33	52990.03
30	154.5	52941.54	75	67.5	52981.18	120	47.33	52996.12	165	187	52989.39
30	155	52938.04	75	67	52981.6	120	47.67	52996.22	165	186.67	52988.88
30	155.5	52934.98	75	66.5	52981.6	120	48	52996.54	165	186.33	52988.45
30	156	52931.7	75	66	52980.76	120	48.33	52995.91	165	186	52988.24
30	156.5	52928.32	75	65.5	52978.85	120	48.67	52994.74	165	185.67	52988.14
30	157	52924.5	75	65	52977.36	120	49	52993.68	165	185.33	52987.93
30	157.5	52921.44	75	64.5	52975.77	120	49.33	52992.93	165	185	52987.82
30	158	52917.85	75	64	52974.18	120	49.67	52992.41	165	184.67	52988.03
30	158.5	52913.3	75	63.5	52972.15	120	50	52992.61	165	184.33	52988.66

30	159	52908.01	75	63	52968.55	120	50.5	52993.56	165	184	52989.08
30	159.5	52902.52	75	62.5	52962.93	120	51	52993.98	165	183.67	52989.18
30	160	52896.92	75	62	52958.16	120	51.5	52993.65	165	183.33	52988.96
30	160.5	52891.11	75	61.5	52958.48	120	52	52993.44	165	183	52988.66
30	161	52884.99	75	61	52961.13	120	52.5	52993.65	165	182.67	52988.54
30	161.5	52878.34	75	60.5	52962.93	120	53	52994.18	165	182.33	52988.44
30	162	52870.63	75	60	52962.61	120	53.5	52993.96	165	182	52988.34
30	162.5	52862.08	75	59.67	52962.29	120	54	52993.22	165	181.67	52988.44
30	163	52853.01	75	59.33	52963.78	120	54.5	52992.58	165	181.33	52988.65
30	163.5	52844.04	75	59	52966.21	120	55	52992.47	165	181	52988.65
30	164	52834.34	75	58.67	52968.55	120	55.5	52992.25	165	180.67	52988.96
30	164.5	52823.38	75	58.33	52970.55	120	56	52992.57	165	180.33	52989.38
30	165	52811.16	75	58	52972.04	120	56.5	52993.31	165	180	52989.89
30	165.5	52797.68	75	57.67	52973.11	120	57	52994.14	165	179.5	52990.21
30	166	52784	75	57.33	52974.28	120	57.5	52994.56	165	179	52990.21
30	166.5	52772.02	75	57	52975.65	120	58	52994.77	165	178.5	52989.79
30	167	52763.18	75	56.67	52977.25	120	58.5	52994.77	165	178	52989.37
30	167.5	52755.72	75	56.33	52978.85	120	59	52994.87	165	177.5	52989.16
30	168	52747.42	75	56	52979.8	120	59.5	52994.66	165	177	52988.95
30	168.5	52737.54	75	55.67	52979.91	120	60	52994.02	165	176.5	52988.85
30	169	52725.68	75	55.33	52979.49	120	60.33	52993.49	165	176	52988.95
30	169.5	52712.98	75	55	52979.07	120	60.67	52993.28	165	175.5	52988.84
30	170	52696.61	75	54.67	52978.44	120	61	52993.16	165	175	52988.64
30	170.5	52679.32	75	54.33	52978.23	120	61.33	52993.79	165	174.5	52988.52
30	171	52664.86	75	54	52978.02	120	61.67	52995.27	165	174	52988.73
30	171.5	52656.59	75	53.67	52978.03	120	62	52996.32	165	173.5	52989.26
30	172	52651.88	75	53.33	52977.82	120	62.33	52996.52	165	173	52989.57
30	172.5	52647.27	75	53	52977.92	120	62.67	52996.52	165	172.5	52989.78
30	173	52642.88	75	52.67	52978.78	120	63	52996.63	165	172	52989.47
30	173.5	52639.21	75	52.33	52979.84	120	63.33	52996.51	165	171.5	52989.78
30	174	52636.49	75	52	52980.59	120	63.67	52995.57	165	171	52991.14
30	174.5	52634.61	75	51.67	52980.7	120	64	52994.5	165	170.5	52992.4
30	175	52633.77	75	51.33	52981.12	120	64.33	52993.87	165	170	52992.91
30	175.5	52634.3	75	51	52981.88	120	64.67	52993.55	165	169.67	52993.54
30	176	52635.88	75	50.67	52982.09	120	65	52993.23	165	169.33	52993.64
30	176.5	52640.17	75	50.33	52981.45	120	65.33	52993.54	165	169	52992.91
30	177	52646.66	75	50	52980.61	120	65.67	52993.96	165	168.67	52991.76
30	177.5	52650.95	75	49.5	52979.87	120	66	52994.38	165	168.33	52990.92
30	178	52653.98	75	49	52979.76	120	66.33	52994.38	165	168	52990.4
30	178.5	52658.7	75	48.5	52980.3	120	66.67	52993.95	165	167.67	52989.98
30	179	52666.13	75	48	52981.05	120	67	52993.63	165	167.33	52989.55
30	179.5	52675.46	75	47.5	52981.58	120	67.33	52993.52	165	167	52988.71
30	180	52687.72	75	47	52981.91	120	67.67	52993.3	165	166.67	52988.2
30	180.33	52700.3	75	46.5	52981.69	120	68	52992.46	165	166.33	52987.78
30	180.67	52713.01	75	46	52981.48	120	68.33	52991.72	165	166	52986.83
30	181	52723.07	75	45.5	52981.07	120	68.67	52991.09	165	165.67	52986.31
30	181.33	52731.38	75	45	52980.75	120	69	52990.76	165	165.33	52985.78
30	181.67	52739.57	75	44.5	52980.64	120	69.33	52990.97	165	165	52985.16
30	182	52747.87	75	44	52980.65	120	69.67	52992.23	165	164.67	52984.53
30	182.33	52756.17	75	43.5	52980.76	120	70	52993.07	165	164.33	52984.32
30	182.67	52764.38	75	43	52981.41	120	70.5	52993.07	165	164	52984.42
30	183	52772.89	75	42.5	52982.36	120	71	52992.85	165	163.67	52985.05
30	183.33	52780.88	75	42	52983.42	120	71.5	52992.95	165	163.33	52985.25
30	183.67	52789.2	75	41.5	52984.28	120	72	52993.06	165	163	52984.63
30	184	52798.15	75	41	52984.6	120	72.5	52992.95	165	162.67	52983.99
30	184.33	52805.73	75	40.5	52984.07	120	73	52992.1	165	162.33	52983.58
30	184.67	52811.42	75	40	52983.64	120	73.5	52991.78	165	162	52982.95
30	185	52816.05	75	39.5	52982.8	120	74	52991.25	165	161.67	52982.53
30	185.33	52818.79	75	39	52981.74	120	74.5	52991.14	165	161.33	52982.32
30	185.67	52826.27	75	38.5	52980.91	120	75	52991.55	165	161	52982.01
30	186	52840.61	75	38	52979.84	120	75.5	52992.29	165	160.67	52981.48
30	186.33	52854.85	75	37.5	52978.68	120	76	52993.14	165	160.33	52980.96
30	186.67	52865.2	75	37	52977.52	120	76.5	52993.45	165	160	52980.86
30	187	52873.32	75	36.5	52977.1	120	77	52993.55	165	159.5	52980.85
30	187.33	52879.87	75	36	52977.41	120	77.5	52993.76	165	159	52980.64
30	187.67	52885.25	75	35.5	52977.41	120	78	52993.96	165	158.5	52979.9
30	188	52890.75	75	35	52977	120	78.5	52994.06	165	158	52978.86

30	188.33	52897.2	75	34.5	52976.36	120	79	52993.54	165	157.5	52978.44
30	188.67	52903.86	75	34	52976.06	120	79.5	52993.21	165	157	52977.81
30	189	52909.67	75	33.5	52975.42	120	80	52992.68	165	156.5	52977.08
30	189.33	52913.79	75	33	52974.89	120	80.5	52992.46	165	156	52976.77
30	189.67	52916.86	75	32.5	52974.48	120	81	52992.68	165	155.5	52976.55
30	190	52917.39	75	32	52974.26	120	81.5	52993.73	165	155	52976.23
30	190.33	52916.33	75	31.5	52973.95	120	82	52994.99	165	154.5	52975.93
30	190.67	52915.39	75	31	52973.95	120	82.5	52995.09	165	154	52975.93
30	191	52915.28	75	30.5	52974.49	120	83	52994.67	165	153.5	52976.44
30	191.33	52914.97	75	30	52974.7	120	83.5	52994.88	165	153	52976.86
30	191.67	52913.91	75	29.67	52974.6	120	84	52994.77	165	152.5	52976.86
30	192	52911.58	75	29.33	52974.28	120	84.5	52994.26	165	152	52976.44
30	192.33	52908.52	75	29	52973.76	120	85	52993.41	165	151.5	52975.8
30	192.67	52907.25	75	28.67	52972.91	120	85.5	52992.46	165	151	52975.19
30	193	52906.84	75	28.33	52972.07	120	86	52991.95	165	150.5	52975.08
30	193.33	52905.14	75	28	52971.76	120	86.5	52991.41	165	150	52974.98
30	193.67	52902.61	75	27.67	52971.86	120	87	52991.31	165	149.67	52974.86
30	194	52899.86	75	27.33	52971.76	120	87.5	52992.26	165	149.33	52974.97
30	194.33	52895.84	75	27	52971.87	120	88	52993.42	165	149	52974.76
30	194.67	52891.83	75	26.67	52972.3	120	88.5	52994.05	165	148.67	52974.34
30	195	52888.13	75	26.33	52972.93	120	89	52994.17	165	148.33	52974.03
30	195.33	52885.39	75	26	52973.79	120	89.5	52994.49	165	148	52974.03
30	195.67	52882.43	75	25.67	52974.22	120	90	52994.7	165	147.67	52974.44
30	196	52877.99	75	25.33	52974.23	120	90.33	52994.5	165	147.33	52974.76
30	196.33	52872.08	75	25	52974.12	120	90.67	52994.07	165	147	52974.64
30	196.67	52869.44	75	24.67	52974.01	120	91	52993.65	165	146.67	52974.13
30	197	52875.26	75	24.33	52973.39	120	91.33	52993.23	165	146.33	52973.91
30	197.33	52883.07	75	24	52972.43	120	91.67	52992.92	165	146	52973.61
30	197.67	52888.88	75	23.67	52971.8	120	92	52993.35	165	145.67	52972.87
30	198	52892.79	75	23.33	52971.27	120	92.33	52994.51	165	145.33	52972.45
30	198.33	52895.33	75	23	52970.75	120	92.67	52995.36	165	145	52972.24
30	198.67	52897.44	75	22.67	52970.11	120	93	52995.68	165	144.67	52971.92
30	199	52900.08	75	22.33	52969.7	120	93.33	52995.68	165	144.33	52971.51
30	199.33	52902.2	75	22	52970.12	120	93.67	52995.68	165	144	52971.3
30	199.67	52903.89	75	21.67	52970.97	120	94	52996	165	143.67	52971.51
30	200	52905.59	75	21.33	52971.3	120	94.33	52996	165	143.33	52972.13
35	200	52936.02	75	21	52970.77	120	94.67	52995.58	165	143	52972.44
35	199.71	52936.44	75	20.67	52970.03	120	95	52995.05	165	142.67	52972.44
35	199.41	52936.54	75	20.33	52969.61	120	95.33	52994.54	165	142.33	52971.91
35	199.12	52936.23	75	20	52969.93	120	95.67	52994.33	165	142	52971.6
35	198.82	52935.81	75	19.67	52970.14	120	96	52994.54	165	141.67	52971.29
35	198.53	52935.39	75	19.33	52970.05	120	96.33	52995.27	165	141.33	52970.97
35	198.24	52935.08	75	19	52969.51	120	96.67	52996.02	165	141	52970.56
35	197.94	52934.76	75	18.67	52968.77	120	97	52996.02	165	140.67	52970.45
35	197.65	52934.45	75	18.33	52967.83	120	97.33	52995.6	165	140.33	52970.35
35	197.35	52934.66	75	18	52966.98	120	97.67	52995.07	165	140	52970.24
35	197.06	52935.6	75	17.67	52966.45	120	98	52994.55	165	139.67	52969.93
35	196.76	52937.07	75	17.33	52966.46	120	98.33	52993.61	165	139.33	52969.94
35	196.47	52937.8	75	17	52966.14	120	98.67	52992.03	165	139	52970.15
35	196.18	52937.8	75	16.67	52965.2	120	99	52990.44	165	138.67	52970.88
35	195.88	52937.17	75	16.33	52964.35	120	99.33	52989.82	165	138.33	52971.72
35	195.59	52936.55	75	16	52963.08	120	99.67	52994.36	165	138	52972.24
35	195.29	52935.71	75	15.67	52961.92	120	100	53002.06	165	137.67	52972.45
35	195	52934.88	75	15.33	52960.97	120	100.5	53002.58	165	137.33	52972.45
35	194.71	52934.98	75	15	52960.66	120	101	53000.58	165	137	52972.34
35	194.41	52935.71	75	14.67	52960.23	120	101.5	52998.69	165	136.67	52972.45
35	194.12	52936.23	75	14.33	52959.92	120	102	52997.32	165	136.33	52972.34
35	193.82	52936.86	75	14	52959.6	120	102.5	52996.47	165	136	52972.45
35	193.53	52937.29	75	13.67	52959.29	120	103	52996.05	165	135.67	52972.66
35	193.24	52937.71	75	13.33	52959.19	120	103.5	52995.54	165	135.33	52972.88
35	192.94	52938.55	75	13	52959.08	120	104	52994.8	165	135	52972.98
35	192.65	52938.96	75	12.67	52958.56	120	104.5	52993.95	165	134.67	52973.09
35	192.35	52937.81	75	12.33	52957.5	120	105	52993.23	165	134.33	52973.19
35	192.06	52934.98	75	12	52956.23	120	105.5	52993.23	165	134	52973.82
35	191.76	52931.21	75	11.67	52955.07	120	106	52993.75	165	133.67	52974.76
35	191.47	52928.49	75	11.33	52953.69	120	106.5	52995.02	165	133.33	52975.39
35	191.18	52926.71	75	11	52952.42	120	107	52995.45	165	133	52975.6

35	190.88	52925.45
35	190.59	52925.03
35	190.29	52924.4
35	190	52923.77
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35	189.33	52922.73
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35	188.67	52925.77
35	188.33	52927.96
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35	181.67	52923.05
35	181.33	52920.22
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35	180.67	52914.88
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35	179.5	52907.15
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80	.83	52944.38
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80	5	52950.54
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80	5.83	52952.35
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80	6.67	52955.32
80	7.08	52956.38
80	7.5	52957.33
80	7.92	52958.71
80	8.33	52960.2
80	8.75	52960.84
80	9.17	52960.52
80	9.58	52960.1
80	10	52959.99
80	10.33	52959.78
80	10.67	52960.11
80	11	52960.95
80	11.33	52962.65
80	11.67	52964.03
80	12	52964.45
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80	12.67	52964.45
80	13	52964.36
80	13.33	52963.51
80	13.67	52961.92
80	14	52960.65
80	14.33	52960.12
80	14.67	52960.33
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120	108	52995.45
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120	109	52995.25
120	109.5	52994.93
120	110	52994.62
120	110.5	52994.3
120	111	52993.88
120	111.5	52994.31
120	112	52995.47
120	112.5	52996.21
120	113	52995.89
120	113.5	52995.27
120	114	52995.27
120	114.5	52995.06
120	115	52994.85
120	115.5	52994.12
120	116	52993.38
120	116.5	52992.75
120	117	52992.22
120	117.5	52992.55
120	118	52993.5
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120	119	52994.34
120	119.5	52994.46
120	120	52994.67
120	120.5	52994.35
120	121	52993.61
120	121.5	52992.78
120	122	52992.15
120	122.5	52991.51
120	123	52991.63
120	123.5	52992.37
120	124	52993.32
120	124.5	52993.63
120	125	52993.63
120	125.5	52993.75
120	126	52993.96
120	126.5	52993.22
120	127	52991.96
120	127.5	52991.02
120	128	52989.86
120	128.5	52989.01
120	129	52989.64
120	129.5	52991.76
120	130	52993.24
120	130.5	52993.77
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120	132	52994.83
120	132.5	52994.2
120	133	52993.25
120	133.5	52992.3
120	134	52991.57
120	134.5	52991.36
120	135	52991.89
120	135.5	52992.85
120	136	52993.48
120	136.5	52993.69
120	137	52993.8
120	137.5	52994.23
120	138	52994.55
120	138.5	52994.86
120	139	52995.18
120	139.5	52995.5
120	140	52996.03
120	140.5	52996.66
165	132.67	52975.61
165	132.33	52975.61
165	132	52975.71
165	131.67	52975.71
165	131.33	52975.81
165	131	52975.81
165	130.67	52976.02
165	130.33	52976.23
165	130	52976.55
165	129.5	52977.91
165	129	52980.11
165	128.5	52982.09
165	128	52983.15
165	127.5	52983.46
165	127	52982.94
165	126.5	52981.47
165	126	52980.22
165	125.5	52979.17
165	125	52978.54
165	124.5	52978.34
165	124	52978.23
165	123.5	52977.82
165	123	52977.93
165	122.5	52978.55
165	122	52979.39
165	121.5	52980.02
165	121	52980.23
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165	118	52980.03
165	117.67	52979.92
165	117.33	52979.92
165	117	52980.13
165	116.67	52981.18
165	116.33	52982.64
165	116	52983.91
165	115.67	52984.84
165	115.33	52986
165	115	52987.05
165	114.67	52987.15
165	114.33	52987.05
165	114	52986.63
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165	113	52986.32
165	112.67	52986.11
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165	111	52988.32
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165	110	52987.69
165	109.5	52987.8
165	109	52987.91
165	108.5	52988.21
165	108	52988.43
165	107.5	52988.64
165	107	52988.85
165	106.5	52988.85
165	106	52989.16

35	163	52892.3	80	15	52961.93	120	141	52997.62	165	105.5	52989.79
35	162.5	52894.71	80	15.33	52964.05	120	141.5	52999.41	165	105	52990.21
35	162	52898.16	80	15.67	52972.85	120	142	53000.68	165	104.5	52990.31
35	161.5	52902.45	80	16	52962.99	120	142.5	53000.68	165	104	52989.79
35	161	52906.74	80	16.33	52961.61	120	143	53000.47	165	103.5	52989.7
35	160.5	52910.52	80	16.67	52961.4	120	143.5	53000.69	165	103	52989.59
35	160	52914.29	80	17	52962.68	120	144	53001.33	165	102.5	52989.49
35	159.67	52917.53	80	17.33	52963.63	120	144.5	53001.43	165	102	52988.96
35	159.33	52920.46	80	17.67	52963.74	120	145	53000.27	165	101.5	52988.54
35	159	52923.61	80	18	52963.32	120	145.5	52999.11	165	101	52988.23
35	158.67	52926.64	80	18.33	52963.1	120	146	52998.17	165	100.5	52987.81
35	158.33	52928.74	80	18.67	52963.1	120	146.5	52997.96	165	100	52987.29
35	158	52930.31	80	19	52963.53	120	147	52998.7	165	99.67	52986.77
35	157.67	52932.51	80	19.33	52965.13	120	147.5	53001.03	165	99.33	52986.77
35	157.33	52934.81	80	19.67	52966.39	120	148	53003.35	165	99	52987.09
35	157	52936.91	80	20	52966.82	120	148.5	53003.56	165	98.67	52987.3
35	156.67	52938.69	80	20.5	52967.14	120	149	53002.09	165	98.33	52986.88
35	156.33	52940.47	80	21	52968.1	120	149.5	53000.83	165	98	52985.52
35	156	52942.46	80	21.5	52968.94	120	150	53000.3	165	97.67	52983.64
35	155.67	52944.66	80	22	52969.26	120	150.33	52999.67	165	97.33	52981.65
35	155.33	52946.46	80	22.5	52968.95	120	150.67	52997.77	165	97	52979.56
35	155	52948.03	80	23	52968.53	120	151	52995.99	165	96.67	52977.57
35	154.67	52949.6	80	23.5	52968.21	120	151.33	52994.72	165	96.33	52976.84
35	154.33	52950.54	80	24	52968.11	120	151.67	52992.93	165	96	52977.26
35	154	52951.28	80	24.5	52968.74	120	152	52991.14	165	95.67	52977.58
35	153.67	52952.54	80	25	52970.23	120	152.33	52990.51	165	95.33	52977.79
35	153.33	52953.69	80	25.5	52970.77	120	152.67	52992.41	165	95	52984.59
35	153	52954.84	80	26	52970.34	120	153	52994.84	165	94.67	53019.98
35	152.67	52955.89	80	26.5	52969.27	120	153.33	52996.64	165	94.33	53096.99
35	152.33	52957.15	80	27	52968.65	120	153.67	52997.59	165	94	53195.64
35	152	52958.83	80	27.5	52969.07	120	154	52997.8	165	93.67	53292.95
35	151.67	52960.09	80	28	52969.92	120	154.33	52996.64	165	93.33	53381.16
35	151.33	52961.13	80	28.5	52970.24	120	154.67	52993.38	165	93	53464.77
35	151	52962.08	80	29	52970.24	120	155	52990.74	165	92.67	53472.02
35	150.67	52963.02	80	29.5	52970.46	120	155.33	52989.58	165	92.33	53362.38
35	150.33	52963.65	80	30	52971.2	120	155.67	52989.06	165	92	53255.09
35	150	52963.76	80	30.5	52972.9	120	156	52988.96	165	91.67	53176.14
35	149.5	52964.07	80	31	52974.49	120	156.33	52988.75	165	91.33	53113.93
35	149	52964.29	80	31.5	52975.55	120	156.67	52989.07	165	91	53064.66
35	148.5	52963.86	80	32	52976.09	120	157	52990.65	165	90.67	53028.58
35	148	52963.34	80	32.5	52976.61	120	157.33	52992.13	165	90.33	53007.1
35	147.5	52963.97	80	33	52977.14	120	157.67	52992.77	165	90	52997.37
35	147	52966.27	80	33.5	52977.47	120	158	52992.87	165	89.67	52992.55
35	146.5	52968.16	80	34	52977.15	120	158.33	52993.4	165	89.33	52990.14
35	146	52969.42	80	34.5	52976.73	120	158.67	52994.14	165	89	52988.38
35	145.5	52970.27	80	35	52976.41	120	159	52994.57	165	88.67	52986.6
35	145	52971.11	80	35.5	52976.62	120	159.33	52994.68	165	88.33	52985.55
35	144.5	52971.32	80	36	52977.69	120	159.67	52994.36	165	88	52986.07
35	144	52971.53	80	36.5	52979.71	120	160	52993.73	165	87.67	52986.91
35	143.5	52971.84	80	37	52980.87	120	160.5	52992.89	165	87.33	52987.54
35	143	52972.26	80	37.5	52981.4	120	161	52992.26	165	87	52987.85
35	142.5	52972.47	80	38	52981.83	120	161.5	52992.79	165	86.67	52988.06
35	142	52973.21	80	38.5	52982.04	120	162	52994.38	165	86.33	52988.27
35	141.5	52974.15	80	39	52982.04	120	162.5	52995.54	165	86	52988.7
35	141	52975.1	80	39.5	52981.2	120	163	52996.17	165	85.67	52989.42
35	140.5	52975.73	80	40	52979.61	120	163.5	52996.59	165	85.33	52990.58
35	140	52975.94	80	40.33	52977.06	120	164	52996.7	165	85	52991.63
35	139.5	52976.25	80	40.67	52973.67	120	164.5	52997.34	165	84.67	52992.05
35	139	52976.04	80	41	52970.91	120	165	52997.98	165	84.33	52992.05
35	138.5	52975.94	80	41.33	52972.19	120	165.5	52997.87	165	84	52991.73
35	138	52975.95	80	41.67	52975.59	120	166	52997.98	165	83.67	52991.73
35	137.5	52975.84	80	42	52978.67	120	166.5	52998.09	165	83.33	52991.73
35	137	52975.84	80	42.33	52981.32	120	167	52998.41	165	83	52991.95
35	136.5	52976.25	80	42.67	52984.08	120	167.5	52999.36	165	82.67	52992.27
35	136	52976.89	80	43	52985.98	120	168	53001.57	165	82.33	52992.68
35	135.5	52977.62	80	43.33	52986.52	120	168.5	53004.11	165	82	52993
35	135	52978.04	80	43.67	52985.68	120	169	53005.91	165	81.67	52993.63

35	134.5	52978.14	80	44	52984.71	120	169.5	53007.61	165	81.33	52994.26
35	134	52977.94	80	44.33	52984.09	120	170	53009.71	165	81	52995.3
35	133.5	52976.89	80	44.67	52983.55	120	170.5	53011.93	165	80.67	52996.45
35	133	52976.37	80	45	52983.87	120	171	53013.83	165	80.33	52997.19
35	132.5	52976.79	80	45.33	52984.93	120	171.5	53014.57	165	80	52997.5
35	132	52977.1	80	45.67	52985.68	120	172	53014.57	165	79.5	52997.5
35	131.5	52977.41	80	46	52985.89	120	172.5	53014.16	165	79	52997.29
35	131	52977.73	80	46.33	52986.11	120	173	53013.84	165	78.5	52996.78
35	130.5	52978.25	80	46.67	52986.21	120	173.5	53013.74	165	78	52995.94
35	130	52979.1	80	47	52985.79	120	174	53013.41	165	77.5	52995.1
35	129.5	52979.52	80	47.33	52985.16	120	174.5	53013.21	165	77	52994.48
35	129	52979.31	80	47.67	52984.52	120	175	53011.84	165	76.5	52994.06
35	128.5	52979.1	80	48	52984.2	120	175.5	53009.2	165	76	52993.22
35	128	52978.79	80	48.33	52983.88	120	176	53005.71	165	75.5	52992.8
35	127.5	52978.26	80	48.67	52984.21	120	176.5	53002.33	165	75	52992.8
35	127	52977.64	80	49	52985.38	120	177	52999.27	165	74.5	52993.23
35	126.5	52977.21	80	49.33	52986.12	120	177.5	52996.74	165	74	52993.43
35	126	52976.28	80	49.67	52986.23	120	178	52994.21	165	73.5	52993.54
35	125.5	52975.23	80	50	52986.55	120	178.5	52992.31	165	73	52993.11
35	125	52976.07	80	50.5	52987.18	120	179	52991.04	165	72.5	52992.29
35	124.5	52978.06	80	51	52987.93	120	179.5	52990.31	165	72	52991.97
35	124	52979.64	80	51.5	52988.14	120	180	52990.72	165	71.5	52991.55
35	123.5	52979.86	80	52	52987.4	120	180.5	52992.41	165	71	52991.03
35	123	52979.33	80	52.5	52986.56	120	181	52993.36	165	70.5	52990.72
35	122.5	52979.12	80	53	52985.81	120	181.5	52993.88	165	70	52990.51
35	122	52978.91	80	53.5	52985.49	120	182	52994.3	165	69.67	52990.19
35	121.5	52978.39	80	54	52986.02	120	182.5	52994.73	165	69.33	52989.88
35	121	52978.28	80	54.5	52987.52	120	183	52995.25	165	69	52989.89
35	120.5	52978.29	80	55	52988.16	120	183.5	52995.15	165	68.67	52990.41
35	120	52978.39	80	55.5	52988.26	120	184	52994.73	165	68.33	52991.25
35	119.5	52978.71	80	56	52988.05	120	184.5	52994.3	165	68	52991.67
35	119	52979.45	80	56.5	52988.05	120	185	52993.98	165	67.67	52991.77
35	118.5	52980.29	80	57	52987.95	120	185.5	52994.09	165	67.33	52991.77
35	118	52980.81	80	57.5	52987.41	120	186	52995.14	165	67	52992.4
35	117.5	52980.92	80	58	52986.57	120	186.5	52997.04	165	66.67	52992.82
35	117	52981.14	80	58.5	52986.26	120	187	52998.41	165	66.33	52992.82
35	116.5	52980.82	80	59	52986.58	120	187.5	52999.15	165	66	52992.41
35	116	52980.3	80	59.5	52988.49	120	188	52999.25	165	65.67	52992.09
35	115.5	52980.4	80	60	52993.37	120	188.5	52999.36	165	65.33	52991.88
35	115	52980.4	80	60.5	53000.05	120	189	52999.67	165	65	52991.78
35	114.5	52980.3	80	61	53009.62	120	189.5	52999.36	165	64.67	52991.78
35	114	52980.4	80	61.5	53026.08	120	190	52998.61	165	64.33	52991.99
35	113.5	52981.04	80	62	53055.11	120	190.29	52997.77	165	64	52992.41
35	113	52981.88	80	62.5	53100.99	120	190.57	52997.04	165	63.67	52992.83
35	112.5	52982.3	80	63	53150.11	120	190.86	52996.71	165	63.33	52992.73
35	112	52982.09	80	63.5	53178.09	120	191.14	52996.92	165	63	52992.31
35	111.5	52981.88	80	64	53173.2	120	191.43	52998.08	165	62.67	52992.41
35	111	52981.57	80	64.5	53140.43	120	191.71	52998.61	165	62.33	52992.52
35	110.5	52981.25	80	65	53095.41	120	192	52998.4	165	62	52992.2
35	110	52981.05	80	65.5	53055	120	192.29	52997.98	165	61.67	52991.99
35	109.5	52981.16	80	66	53030.75	120	192.57	52997.87	165	61.33	52991.99
35	109	52980.95	80	66.5	53022.49	120	192.86	52997.87	165	61	52991.89
35	108.5	52981.05	80	67	53027.47	120	193.14	52997.55	165	60.67	52991.58
35	108	52981.58	80	67.5	53051.94	120	193.43	52996.28	165	60.33	52991.48
35	107.5	52982.1	80	68	53117.07	120	193.71	52995.54	165	60	52991.69
35	107	52982.63	80	68.5	53235.02	120	194	52994.8	165	59.5	52992.11
35	106.5	52983.27	80	69	53280.61	120	194.29	52994.59	165	59	52992
35	106	52985.16	80	69.5	53175.87	120	194.57	52994.8	165	58.5	52991.79
35	105.5	52986.52	80	70	53051.99	120	194.86	52995.64	165	58	52991.58
35	105	52985.16	80	70.33	52981.7	120	195.14	52996.07	165	57.5	52991.69
35	104.5	52984	80	70.67	52956.96	120	195.43	52996.16	165	57	52991.69
35	104	52983.59	80	71	52956.97	120	195.71	52996.07	165	56.5	52991.48
35	103.5	52983.27	80	71.33	52965.81	120	196	52995.75	165	56	52991.48
35	103	52983.07	80	71.67	52972.75	120	196.29	52995.75	165	55.5	52991.38
35	102.5	52983.38	80	72	52977.17	120	196.57	52995	165	55	52991.38
35	102	52984.12	80	72.33	52980.75	120	196.86	52993.42	165	54.5	52991.27
35	101.5	52984.96	80	72.67	52983.49	120	197.14	52991.1	165	54	52992

35	101	52985.27	80	73	52985.49	120	197.43	52988.25	165	53.5	52992.74
35	100.5	52985.06	80	73.33	52986.32	120	197.71	52983.4	165	53	52993.36
35	100	52985.07	80	73.67	52986	120	198	52978.13	165	52.5	52993.47
35	99.5	52984.97	80	74	52985.38	120	198.29	52977.08	165	52	52993.15
35	99	52984.55	80	74.33	52985.16	120	198.57	52980.77	165	51.5	52993.27
35	98.5	52984.34	80	74.67	52985.06	120	198.86	52985.19	165	51	52993.15
35	98	52984.34	80	75	52986.21	120	199.14	52987.72	165	50.5	52992.84
35	97.5	52984.13	80	75.33	52988.41	120	199.43	52988.56	165	50	52992.54
35	97	52984.13	80	75.67	52989.57	120	199.71	52989.72	165	49.5	52992.54
35	96.5	52984.55	80	76	52989.78	120	200	52991.83	165	49	52992.33
35	96	52985.4	80	76.33	52989.78	125	200	52989.76	165	48.5	52992.33
35	95.5	52985.82	80	76.67	52989.68	125	199.71	52989.76	165	48	52992.64
35	95	52985.71	80	77	52989.57	125	199.41	52989.88	165	47.5	52993.27
35	94.5	52985.5	80	77.33	52989.78	125	199.12	52990.29	165	47	52993.69
35	94	52986.24	80	77.67	52989.98	125	198.82	52990.93	165	46.5	52993.9
35	93.5	52985.71	80	78	52989.77	125	198.53	52991.23	165	46	52993.69
35	93	52984.78	80	78.33	52989.68	125	198.24	52991.24	165	45.5	52993.37
35	92.5	52983.94	80	78.67	52989.67	125	197.94	52991.03	165	45	52993.37
35	92	52983.2	80	79	52990.83	125	197.65	52990.82	165	44.5	52993.37
35	91.5	52982.36	80	79.33	52993.04	125	197.35	52990.72	165	44	52993.16
35	91	52982.05	80	79.67	52994.2	125	197.06	52990.51	165	43.5	52992.96
35	90.5	52982.57	80	80	52994.51	125	196.76	52989.77	165	43	52993.06
35	90	52983.63	80	80.5	52994.92	125	196.47	52989.25	165	42.5	52992.85
35	89.67	52985.63	80	81	52995.56	125	196.18	52988.83	165	42	52992.64
35	89.33	52991.72	80	81.5	52995.66	125	195.88	52988.73	165	41.5	52992.96
35	89	53006.84	80	82	52995.24	125	195.59	52988.84	165	41	52993.91
35	88.67	53015.46	80	82.5	52994.29	125	195.29	52989.05	165	40.5	52994.64
35	88.33	53007.05	80	83	52993.66	125	195	52989.57	165	40	52995.05
35	88	52996.45	80	83.5	52993.45	125	194.71	52990.2	165	39.5	52994.95
35	87.67	52987.53	80	84	52993.86	125	194.41	52990.94	165	39	52995.16
35	87.33	52981.75	80	84.5	52995.12	125	194.12	52991.46	165	38.5	52995.37
35	87	52980.7	80	85	52996.07	125	193.82	52991.56	165	38	52994.95
35	86.67	52981.12	80	85.5	52995.76	125	193.53	52991.56	165	37.5	52994.12
35	86.33	52981.96	80	86	52995.23	125	193.24	52991.88	165	37	52993.7
35	86	52982.29	80	86.5	52994.91	125	192.94	52991.98	165	36.5	52993.49
35	85.67	52982.07	80	87	52994.9	125	192.65	52991.88	165	36	52993.17
35	85.33	52981.97	80	87.5	52994.8	125	192.35	52991.78	165	35.5	52993.28
35	85	52981.34	80	88	52993.85	125	192.06	52991.68	165	35	52993.59
35	84.67	52980.4	80	88.5	52992.69	125	191.76	52991.68	165	34.5	52994.22
35	84.33	52979.87	80	89	52991.74	125	191.47	52991.89	165	34	52994.54
35	84	52978.82	80	89.5	52991.32	125	191.18	52993.14	165	33.5	52994.54
35	83.67	52977.36	80	90	52991.95	125	190.88	52995.03	165	33	52993.8
35	83.33	52977.25	80	90.5	52993.52	125	190.59	52996.92	165	32.5	52993.38
35	83	52978.82	80	91	52993.74	125	190.29	52998.17	165	32	52993.17
35	82.67	52980.09	80	91.5	52993.21	125	190	52999.86	165	31.5	52993.07
35	82.33	52980.62	80	92	52992.26	125	189.5	53001.11	165	31	52992.97
35	82	52980.41	80	92.5	52990.79	125	189	53001.95	165	30.5	52993.07
35	81.67	52980.51	80	93	52988.58	125	188.5	53003	165	30	52993.08
35	81.33	52980.3	80	93.5	52985.83	125	188	53004.26	165	29.67	52993.08
35	81	52980.1	80	94	52982.67	125	187.5	53005.41	165	29.33	52993.29
35	80.67	52980.31	80	94.5	52978.99	125	187	53006.77	165	29	52993.81
35	80.33	52980.42	80	95	52973.62	125	186.5	53007.82	165	28.67	52994.65
35	80	52981.05	80	95.5	52967.1	125	186	53008.35	165	28.33	52995.59
35	79	52981.89	80	96	52964.46	125	185.5	53008.14	165	28	52996.12
35	78	52982.63	80	96.5	52964.04	125	185	53006.56	165	27.67	52996.43
35	77	52983.36	80	97	52962.25	125	184.5	53004.26	165	27.33	52997.27
35	76	52983.79	80	97.5	52957.41	125	184	53001.75	165	27	52997.16
35	75	52983.47	80	98	52952.15	125	183.5	52998.3	165	26.67	52995.7
35	74	52983.47	80	98.5	52952.78	125	183	52994.74	165	26.33	52994.23
35	73	52983.37	80	99	52959.09	125	182.5	52991.59	165	26	52992.77
35	72	52983.26	80	99.5	52964.88	125	182	52988.77	165	25.67	52991.41
35	71	52983.16	80	100	52969.18	125	181.5	52985.73	165	25.33	52990.25
35	70	52983.48	80	100.5	52972.02	125	181	52981.65	165	25	52989.64
35	69.5	52983.8	80	101	52974.77	125	180.5	52976.95	165	24.67	52989.73
35	69	52984.32	80	101.5	52978.12	125	180	52971.39	165	24.33	52990.68
35	68.5	52985.27	80	102	52982.12	125	179.67	52963.75	165	24	52991.62
35	68	52986.11	80	102.5	52984.44	125	179.33	52951.63	165	23.67	52992.04

35	67.5	52986.63	80	103	52985.8	125	179	52931.97	165	23.33	52992.04
35	67	52986.54	80	103.5	52987.7	125	178.67	52897.1	165	23	52991.93
35	66.5	52986.75	80	104	52988.54	125	178.33	52841.93	165	22.67	52991.73
35	66	52986.22	80	104.5	52989.17	125	178	52777.4	165	22.33	52991.52
35	65.5	52985.49	80	105	52988.75	125	177.67	52714.49	165	22	52991.52
35	65	52985.49	80	105.5	52987.8	125	177.33	52682.77	165	21.67	52991.42
35	64.5	52985.28	80	106	52987.17	125	177	52783.83	165	21.33	52991.21
35	64	52985.28	80	106.5	52986.75	125	176.67	53119.06	165	21	52990.89
35	63.5	52985.29	80	107	52986.54	125	176.33	53450.09	165	20.67	52990.89
35	63	52985.6	80	107.5	52987.27	125	176	53565.85	165	20.33	52991.1
35	62.5	52985.92	80	108	52988.63	125	175.67	53551.99	165	20	52991.31
35	62	52986.13	80	108.5	52989.37	125	175.33	53475.44	165	19.5	52991.21
35	61.5	52986.02	80	109	52989.79	125	175	53340.78	165	19	52990.68
35	61	52986.02	80	109.5	52990.21	125	174.67	53211.66	165	18.5	52990.26
35	60.5	52986.55	80	110	52990.84	125	174.33	53132.17	165	18	52989.43
35	60	52987.39	80	110.33	52991.25	125	174	53089.08	165	17.5	52988.49
35	59.67	52988.76	80	110.67	52990.73	125	173.67	53062.09	165	17	52987.86
35	59.33	52991.7	80	111	52989.57	125	173.33	53041.86	165	16.5	52987.33
35	59	52996.53	80	111.33	52988.83	125	173	53026.38	165	16	52986.82
35	58.67	52999.16	80	111.67	52988.2	125	172.67	53015.75	165	15.5	52986.4
35	58.33	52996.11	80	112	52988.41	125	172.33	53009.44	165	15	52986.3
35	58	52992.96	80	112.33	52989.66	125	172	53005.75	165	14.5	52986.72
35	57.67	52990.55	80	112.67	52990.73	125	171.67	53003.12	165	14	52987.24
35	57.33	52988.46	80	113	52990.82	125	171.33	53000.6	165	13.5	52987.55
35	57	52987.09	80	113.33	52990.72	125	171	52998.18	165	13	52987.34
35	56.67	52986.46	80	113.67	52990.61	125	170.67	52996.81	165	12.5	52987.13
35	56.33	52985.73	80	114	52990.72	125	170.33	52995.66	165	12	52987.03
35	56	52985.63	80	114.33	52990.3	125	170	52994.71	165	11.5	52986.51
35	55.67	52985.63	80	114.67	52989.23	125	169.5	52994.2	165	11	52986.3
35	55.33	52985.74	80	115	52988.28	125	169	52993.57	165	10.5	52986.3
35	55	52985	80	115.33	52987.76	125	168.5	52992.82	165	10	52986.09
35	54.67	52984.16	80	115.67	52987.65	125	168	52992.09	165	9.67	52985.88
35	54.33	52984.58	80	116	52988.6	125	167.5	52991.88	165	9.33	52985.88
35	54	52985.32	80	116.33	52990.18	125	167	52991.99	165	9	52986.3
35	53.67	52985.54	80	116.67	52990.5	125	166.5	52991.99	165	8.67	52986.82
35	53.33	52985.12	80	117	52988.59	125	166	52991.78	165	8.33	52987.04
35	53	52985.22	80	117.33	52983.22	125	165.5	52991.04	165	8	52986.82
35	52.67	52985.01	80	117.67	52975.64	125	165	52990.63	165	7.67	52986.73
35	52.33	52984.49	80	118	52973.43	125	164.5	52990.41	165	7.33	52986.2
35	52	52984.07	80	118.33	52976.59	125	164	52989.99	165	7	52984.95
35	51.67	52983.75	80	118.67	52980.7	125	163.5	52989.58	165	6.67	52983.59
35	51.33	52983.02	80	119	52983.63	125	163	52989.37	165	6.33	52982.44
35	51	52982.71	80	119.33	52985.74	125	162.5	52989.05	165	6	52981.29
35	50.67	52983.13	80	119.67	52987.53	125	162	52988.53	165	5.67	52980.34
35	50.33	52983.87	80	120	52989.53	125	161.5	52988.21	165	5.33	52979.61
35	50	52984.08	80	120.5	52990.69	125	161	52988.42	165	5	52979.19
35	49.5	52983.76	80	121	52991	125	160.5	52988.53	165	4.67	52979.19
35	49	52983.25	80	121.5	52990.89	125	160	52988.54	165	4.33	52979.09
35	48.5	52982.82	80	122	52991.11	125	159.5	52988.21	165	4	52978.36
35	48	52982.62	80	122.5	52991.1	125	159	52988.21	165	3.67	52976.89
35	47.5	52982.2	80	123	52990.47	125	158.5	52988.21	165	3.33	52975.64
35	47	52981.88	80	123.5	52989.62	125	158	52988.01	165	3	52974.07
35	46.5	52981.88	80	124	52988.68	125	157.5	52987.91	165	2.67	52972.6
35	46	52981.67	80	124.5	52987.94	125	157	52988.01	165	2.33	52971.24
35	45.5	52981.57	80	125	52987.93	125	156.5	52988.22	165	2	52969.78
35	45	52982	80	125.5	52988.88	125	156	52988.13	165	1.67	52968.63
35	44.5	52982.73	80	126	52989.82	125	155.5	52988.01	165	1.33	52966.96
35	44	52983.26	80	126.5	52990.14	125	155	52988.33	165	1	52964.77
35	43.5	52983.15	80	127	52990.03	125	154.5	52988.54	165	.67	52961.74
35	43	52982.94	80	127.5	52990.14	125	154	52988.23	165	.33	52958.29
35	42.5	52982.95	80	128	52990.35	125	153.5	52987.71	165	0	52953.79
35	42	52983.27	80	128.5	52990.14	125	153	52987.71	170	0	52967.65
35	41.5	52983.06	80	129	52989.71	125	152.5	52987.6	170	.42	52967.97
35	41	52983.06	80	129.5	52989.08	125	152	52987.39	170	.83	52968.28
35	40.5	52983.16	80	130	52988.55	125	151.5	52986.97	170	1.25	52968.59
35	40	52983.16	80	130.5	52988.23	125	151	52986.45	170	1.67	52969.22
35	39.5	52983.06	80	131	52988.66	125	150.5	52986.13	170	2.08	52970.17

35	39	52983.27	80	131.5	52990.02	125	150	52985.82	170	2.5	52971.64
35	38.5	52983.8	80	132	52990.66	125	149.67	52985.82	170	2.92	52973.1
35	38	52984.32	80	132.5	52990.54	125	149.33	52986.25	170	3.33	52974.05
35	37.5	52984.43	80	133	52990.23	125	149	52986.25	170	3.75	52974.57
35	37	52984.01	80	133.5	52990.12	125	148.67	52985.72	170	4.17	52974.78
35	36.5	52983.7	80	134	52990.12	125	148.33	52985.41	170	4.58	52975.41
35	36	52983.28	80	134.5	52989.7	125	148	52985.19	170	5	52976.04
35	35.5	52982.32	80	135	52988.86	125	147.67	52985.09	170	5.42	52976.78
35	35	52981.8	80	135.5	52988.21	125	147.33	52984.98	170	5.83	52978.03
35	34.5	52981.59	80	136	52987.9	125	147	52985.19	170	6.25	52978.77
35	34	52981.06	80	136.5	52988.11	125	146.67	52985.41	170	6.67	52979.4
35	33.5	52980.33	80	137	52989.16	125	146.33	52986.35	170	7.08	52980.03
35	33	52979.7	80	137.5	52991.06	125	146	52987.83	170	7.5	52980.55
35	32.5	52979.59	80	138	52992.64	125	145.67	52989.41	170	7.92	52981.39
35	32	52979.48	80	138.5	52993.27	125	145.33	52990.46	170	8.33	52982.65
35	31.5	52978.43	80	139	52993.68	125	145	52990.99	170	8.75	52984.33
35	31	52976.44	80	139.5	52994.31	125	144.67	52991.93	170	9.17	52985.06
35	30.5	52975.49	80	140	52994.84	125	144.33	52992.88	170	9.58	52985.06
35	30	52979.69	80	140.5	52994.52	125	144	52993.93	170	10	52985.17
35	29.5	52984.73	80	141	52993.79	125	143.67	52994.98	170	10.33	52985.69
35	29	52986.41	80	141.5	52993.15	125	143.33	52996.14	170	10.67	52986.22
35	28.5	52986.92	80	142	52992.63	125	143	52997.52	170	11	52986.74
35	28	52986.08	80	142.5	52992.41	125	142.67	52999.29	170	11.33	52986.74
35	27.5	52984.19	80	143	52993.46	125	142.33	53002.55	170	11.67	52986.74
35	27	52982.3	80	143.5	52994.3	125	142	53008.45	170	12	52986.74
35	26.5	52981.67	80	144	52994.51	125	141.67	53018.13	170	12.33	52986.64
35	26	52981.99	80	144.5	52994.3	125	141.33	53033.4	170	12.67	52986.74
35	25.5	52982.09	80	145	52994.09	125	141	53049.83	170	13	52987.69
35	25	52981.25	80	145.5	52994.08	125	140.67	53040.14	170	13.33	52989.05
35	24.5	52980.3	80	146	52993.98	125	140.33	53000.99	170	13.67	52989.79
35	24	52979.67	80	146.5	52993.24	125	140	52982.69	170	14	52990.63
35	23.5	52978.62	80	147	52992.29	125	139.5	52979.64	170	14.33	52992.1
35	23	52977.78	80	147.5	52991.66	125	139	52980.39	170	14.67	52992.62
35	22.5	52977.26	80	148	52991.24	125	138.5	52981.86	170	15	52992.83
35	22	52976.83	80	148.5	52990.91	125	138	52983.75	170	15.33	52992.94
35	21.5	52976.72	80	149	52991.02	125	137.5	52985.44	170	15.67	52992.83
35	21	52976.83	80	149.5	52992.28	125	137	52986.8	170	16	52992.73
35	20.5	52977.45	80	150	52993.44	125	136.5	52987.96	170	16.33	52992.73
35	20	52978.4	80	150.33	52993.76	125	136	52988.59	170	16.67	52993.15
35	19.67	52978.71	80	150.67	52993.64	125	135.5	52988.59	170	17	52994.51
35	19.33	52978.29	80	151	52994.07	125	135	52988.7	170	17.33	52996.19
35	19	52978.39	80	151.33	52994.38	125	134.5	52988.7	170	17.67	52996.82
35	18.67	52977.76	80	151.67	52994.38	125	134	52988.59	170	18	52996.93
35	18.33	52977.03	80	152	52994.06	125	133.5	52988.6	170	18.33	52997.14
35	18	52976.61	80	152.33	52993.22	125	133	52988.6	170	18.67	52997.55
35	17.67	52976.4	80	152.67	52992.48	125	132.5	52988.49	170	19	52997.76
35	17.33	52976.19	80	153	52991.32	125	132	52988.28	170	19.33	52997.55
35	17	52975.97	80	153.33	52990.59	125	131.5	52988.39	170	19.67	52997.14
35	16.67	52976.07	80	153.67	52991	125	131	52988.91	170	20	52996.61
35	16.33	52976.29	80	154	52992.89	125	130.5	52989.54	170	20.33	52996.3
35	16	52976.39	80	154.33	52994.16	125	130	52989.65	170	20.67	52996.4
35	15.67	52976.07	80	154.67	52994.16	125	129.5	52989.13	170	21	52997.14
35	15.33	52975.44	80	155	52994.05	125	129	52988.82	170	21.33	52998.29
35	15	52975.13	80	155.33	52993.63	125	128.5	52988.61	170	21.67	52998.5
35	14.67	52974.5	80	155.67	52993.52	125	128	52988.29	170	22	52998.08
35	14.33	52973.86	80	156	52992.99	125	127.5	52988.08	170	22.33	52997.76
35	14	52973.33	80	156.33	52992.25	125	127	52987.87	170	22.67	52997.76
35	13.67	52973.02	80	156.67	52991.62	125	126.5	52987.77	170	23	52997.76
35	13.33	52972.81	80	157	52991.41	125	126	52987.87	170	23.33	52997.66
35	13	52972.7	80	157.33	52991.2	125	125.5	52988.29	170	23.67	52997.03
35	12.67	52972.9	80	157.67	52991.61	125	125	52988.92	170	24	52996.19
35	12.33	52973.11	80	158	52992.98	125	124.5	52989.45	170	24.33	52995.77
35	12	52973.02	80	158.33	52994.45	125	124	52989.45	170	24.67	52995.04
35	11.67	52972.27	80	158.67	52995.19	125	123.5	52989.67	170	25	52994.83
35	11.33	52971.64	80	159	52995.51	125	123	52989.78	170	25.33	52995.77
35	11	52971.33	80	159.33	52995.93	125	122.5	52989.67	170	25.67	52997.14
35	10.67	52970.59	80	159.67	52996.56	125	122	52989.99	170	26	52997.76

35	10.33	52969.96
35	10	52969.43
35	9.6	52968.91
35	9.2	52968.49
35	8.8	52967.96
35	8.4	52967.65
35	8	52967.54
35	7.6	52967.43
35	7.2	52966.7
35	6.8	52965.85
35	6.4	52965.01
35	6	52963.55
35	5.6	52962.39
35	5.2	52961.66
35	4.8	52960.81
35	4.4	52959.97
35	4	52959.24
35	3.6	52958.71
35	3.2	52957.98
35	2.8	52956.3
35	2.4	52953.77
35	2	52951.05
35	1.6	52949.06
35	1.2	52948.64
35	.8	52948.95
35	.4	52949.16
35	0	52948.95
40	0	52954.93
40	.42	52954.93
40	.83	52955.46
40	1.25	52956.29
40	1.67	52957.77
40	2.08	52959.75
40	2.5	52960.48
40	2.92	52961.01
40	3.33	52962.27
40	3.75	52964.05
40	4.17	52965.52
40	4.58	52966.24
40	5	52965.72
40	5.42	52965.4
40	5.83	52965.4
40	6.25	52965.72
40	6.67	52966.77
40	7.08	52968.66
40	7.5	52970.53
40	7.92	52971.48
40	8.33	52972.21
40	8.75	52973.16
40	9.17	52973.89
40	9.58	52974.1
40	10	52974.09
40	10.5	52974.41
40	11	52975.56
40	11.5	52977.98
40	12	52982.49
40	12.5	52988.16
40	13	52990.57
40	13.5	52988.04
40	14	52981.22
40	14.5	52975.03
40	15	52974.19
40	15.5	52974.82
40	16	52975.13
40	16.5	52975.54
40	17	52976.07
40	17.5	52977.43
80	160	52996.77
80	160.5	52996.35
80	161	52995.5
80	161.5	52994.76
80	162	52994.44
80	162.5	52994.55
80	163	52995.6
80	163.5	52997.39
80	164	52997.92
80	164.5	52998.02
80	165	52998.34
80	165.5	52998.66
80	166	52998.66
80	166.5	52998.34
80	167	52997.7
80	167.5	52997.38
80	168	52997.38
80	168.5	52997.8
80	169	52999.28
80	169.5	53001.07
80	170	53002.33
80	170.5	53003.07
80	171	53003.8
80	171.5	53004.96
80	172	53005.38
80	172.5	53005.27
80	173	53004.75
80	173.5	53004.43
80	174	53004.43
80	174.5	53005.06
80	175	53006.32
80	175.5	53007.91
80	176	53007.7
80	176.5	53005.69
80	177	53002.42
80	177.5	52999.05
80	178	52998.42
80	178.5	53001.47
80	179	53005.89
80	179.5	53010.11
80	180	53014.01
80	180.33	53018.44
80	180.67	53022.86
80	181	53027.61
80	181.33	53031.08
80	181.67	53034.24
80	182	53038.25
80	182.33	53043
80	182.67	53047.22
80	183	53050.7
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80	183.67	53060.09
80	184	53068.32
80	184.33	53079.09
80	184.67	53090.82
80	185	53101.08
80	185.33	53111.65
80	185.67	53125.62
80	186	53143.94
80	186.33	53166.72
80	186.67	53190.79
80	187	53215.63
80	187.33	53239.2
80	187.67	53268.13
80	188	53312.21
80	188.33	53368.44
80	188.67	53418.79
125	121.5	52990.2
125	121	52989.88
125	120.5	52989.56
125	120	52989.67
125	119.5	52990
125	119	52990.3
125	118.5	52990.3
125	118	52990.09
125	117.5	52990.1
125	117	52990.21
125	116.5	52990
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125	115	52989.36
125	114.5	52989.46
125	114	52990.63
125	113.5	52991.98
125	113	52992.73
125	112.5	52992.82
125	112	52992.41
125	111.5	52991.98
125	111	52991.36
125	110.5	52990.83
125	110	52990.41
125	109.5	52990.2
125	109	52990.09
125	108.5	52990.41
125	108	52991.35
125	107.5	52992.09
125	107	52992.51
125	106.5	52992.19
125	106	52992.19
125	105.5	52992.4
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125	99	52993.55
125	98.5	52993.55
125	98	52993.34
125	97.5	52992.92
125	97	52992.5
125	96.5	52992.39
125	96	52992.81
125	95.5	52993.02
125	95	52992.81
125	94.5	52992.8
125	94	52992.91
125	93.5	52992.5
125	93	52992.29
125	92.5	52992.18
125	92	52991.87
125	91.5	52991.75
125	91	52991.87
125	90.5	52992.38
125	90	52992.7
125	89.67	52992.7
125	89.33	52992.38
125	89	52991.65
170	26.33	52997.97
170	26.67	52998.5
170	27	52998.81
170	27.33	52998.6
170	27.67	52997.87
170	28	52996.61
170	28.33	52995.67
170	28.67	52995.04
170	29	52994.72
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170	31	52998.39
170	31.5	52998.81
170	32	52998.6
170	32.5	52998.29
170	33	52997.87
170	33.5	52997.45
170	34	52996.93
170	34.5	52997.14
170	35	52998.39
170	35.5	52999.23
170	36	52999.23
170	36.5	52999.13
170	37	52999.44
170	37.5	52999.55
170	38	52999.13
170	38.5	52998.81
170	39	52998.18
170	39.5	52997.45
170	40	52991.68
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170	41	52999.02
170	41.5	52999.76
170	42	52999.86
170	42.5	52999.97
170	43	53000.81
170	43.5	53001.23
170	44	53000.6
170	44.5	52999.65
170	45	52998.6
170	45.5	52997.76
170	46	52997.34
170	46.5	52997.45
170	47	52998.18
170	47.5	52998.81
170	48	52998.92
170	48.5	52998.5
170	49	52998.29
170	49.5	52998.29
170	50	52998.39
170	50.33	52998.18
170	50.67	52997.55
170	51	52996.72
170	51.33	52996.09
170	51.67	52996.19
170	52	52997.14
170	52.33	52998.08
170	52.67	52998.08
170	53	52997.97
170	53.33	52998.29
170	53.67	52998.81
170	54	52998.92
170	54.33	52998.29
170	54.67	52997.45
170	55	52996.61

40	18	52979.22	80	189	53461.52	125	88.67	52991.02	170	55.33	52996.19
40	18.5	52979.95	80	189.33	53497.13	125	88.33	52990.6	170	55.67	52995.98
40	19	52980.37	80	189.67	53546.9	125	88	52990.39	170	56	52996.51
40	19.5	52981	80	190	53630.36	125	87.67	52990.18	170	56.33	52997.55
40	20	52981.63	80	190.29	53723.13	125	87.33	52990.28	170	56.67	52997.55
40	20.33	52981.93	80	190.57	53784.52	125	87	52990.7	170	57	52997.14
40	20.67	52981.52	80	190.86	53803.14	125	86.67	52991.23	170	57.33	52996.82
40	21	52980.79	80	191.14	53832.56	125	86.33	52991.75	170	57.67	52996.61
40	21.33	52979.95	80	191.43	53909.77	125	86	52991.65	170	58	52996.3
40	21.67	52979.43	80	191.71	54008.77	125	85.67	52991.33	170	58.33	52995.77
40	22	52979.64	80	192	53975.81	125	85.33	52991.32	170	58.67	52995.35
40	22.33	52980.89	80	192.29	53776.68	125	85	52991.11	170	59	52994.83
40	22.67	52981.93	80	192.57	53475.04	125	84.67	52990.9	170	59.33	52994.51
40	23	52982.67	80	192.86	53123.37	125	84.33	52990.9	170	59.67	52994.83
40	23.33	52983.09	80	193.14	52726.43	125	84	52990.7	170	60	52995.88
40	23.67	52984.24	80	193.43	52230.54	125	83.67	52990.27	170	60.5	52996.82
40	24	52985.29	80	193.71	51633.46	125	83.33	52990.06	170	61	52996.82
40	24.33	52984.98	80	194	50974.45	125	83	52990.06	170	61.5	52996.51
40	24.67	52983.82	80	194.29	50309.83	125	82.67	52990.17	170	62	52996.3
40	25	52983.4	80	194.57	49597.3	125	82.33	52990.38	170	62.5	52996.19
40	25.33	52983.19	80	194.86	48672.05	125	82	52989.96	170	63	52996.09
40	25.67	52983.93	80	195.14	47660.85	125	81.67	52989.64	170	63.5	52995.46
40	26	52985.19	80	195.43	47144.56	125	81.33	52989.53	170	64	52994.83
40	26.33	52985.71	80	195.71	46913	125	81	52989.43	170	64.5	52994.2
40	26.67	52985.61	80	196	46806.88	125	80.67	52989.32	170	65	52993.67
40	27	52985.92	80	196.29	46649.34	125	80.33	52989.11	170	65.5	52993.46
40	27.33	52986.45	80	196.57	46196.58	125	80	52988.8	170	66	52994.62
40	27.67	52986.34	80	196.86	45124.18	125	79.5	52988.27	170	66.5	52995.46
40	28	52985.61	80	197.14	44510.55	125	79	52988.59	170	67	52995.77
40	28.33	52985.29	80	197.43	44121.03	125	78.5	52989.85	170	67.5	52995.67
40	28.67	52985.39	80	197.71	43189.54	125	78	52990.8	170	68	52995.77
40	29	52985.39	80	198	41350.91	125	77.5	52991.11	170	68.5	52995.98
40	29.33	52986.02	80	198.29	40168.24	125	77	52990.89	170	69	52996.19
40	29.67	52987.8	80	198.57	41229.43	125	76.5	52990.05	170	69.5	52995.77
40	30	52988.86	80	198.86	43457.91	125	76	52988.89	170	70	52995.35
40	30.5	52989.06	80	199.14	45292.39	125	75.5	52988.05	170	70.33	52995.14
40	31	52989.06	80	199.43	46691.75	125	75	52987.84	170	70.67	52995.04
40	31.5	52989.17	80	199.71	47658.14	125	74.5	52987.63	170	71	52995.35
40	32	52989.17	80	200	48371.09	125	74	52987.42	170	71.33	52996.72
40	32.5	52988.33	85	200	53044.63	125	73.5	52987.11	170	71.67	52998.18
40	33	52987.17	85	199.71	53285.4	125	73	52987.21	170	72	52999.02
40	33.5	52986.54	85	199.41	53770.71	125	72.5	52988.05	170	72.33	52999.65
40	34	52987.07	85	199.12	54402.97	125	72	52988.89	170	72.67	53000.49
40	34.5	52988.54	85	198.82	55060.48	125	71.5	52989.1	170	73	53001.75
40	35	52988.85	85	198.53	55542.17	125	71	52988.79	170	73.33	53002.59
40	35.5	52988.54	85	198.24	55988.84	125	70.5	52988.58	170	73.67	53002.91
40	36	52987.8	85	197.94	56611.03	125	70	52988.47	170	74	53002.59
40	36.5	52987.07	85	197.65	57501.4	125	69.5	52988.37	170	74.33	53001.96
40	37	52987.07	85	197.35	58176.83	125	69	52988.47	170	74.67	53001.65
40	37.5	52987.48	85	197.06	57905.82	125	68.5	52988.47	170	75	53001.65
40	38	52987.7	85	196.76	56581.37	125	68	52988.57	170	75.33	53001.96
40	38.5	52987.16	85	196.47	55206.64	125	67.5	52988.88	170	75.67	53002.38
40	39	52986.02	85	196.18	54500.74	125	67	52989.63	170	76	53001.86
40	39.5	52985.17	85	195.88	54396.04	125	66.5	52990.79	170	76.33	53000.81
40	40	52984.54	85	195.59	54433.42	125	66	52991.84	170	76.67	52999.65
40	41	52984.54	85	195.29	54477.34	125	65.5	52992.25	170	77	52998.29
40	42	52985.48	85	195	55383.2	125	65	52992.25	170	77.33	52997.45
40	43	52986.85	85	194.71	56852.26	125	64.5	52992.36	170	77.67	52996.72
40	44	52987.69	85	194.41	58566.02	125	64	52992.25	170	78	52995.77
40	45	52987.9	85	194.12	60250.29	125	63.5	52992.25	170	78.33	52994.93
40	46	52988.32	85	193.82	61794.97	125	63	52992.25	170	78.67	52994.2
40	47	52988.74	85	193.53	62980.03	125	62.5	52992.46	170	79	52993.46
40	48	52988.32	85	193.24	63636.04	125	62	52992.88	170	79.33	52993.15
40	49	52987.37	85	192.94	63847.22	125	61.5	52993.19	170	79.67	52993.99
40	50	52986.53	85	192.65	63723.44	125	61	52993.3	170	80	52995.14
40	50.33	52986.11	85	192.35	63341.37	125	60.5	52993.62	170	80.5	52995.14
40	50.67	52985.9	85	192.06	62677.98	125	60	52993.83	170	81	52994.72

40	51	52986.95	85	191.76	61552.19	125	59.5	52993.83	170	81.5	52994.51
40	51.33	52988.84	85	191.47	59962.03	125	59	52993.51	170	82	52994.2
40	51.67	52989.88	85	191.18	58369.69	125	58.5	52993.51	170	82.5	52993.88
40	52	52989.88	85	190.88	57064.77	125	58	52993.19	170	83	52992.94
40	52.33	52990.09	85	190.59	56173.53	125	57.5	52992.98	170	83.5	52991.99
40	52.67	52990.52	85	190.29	55591.36	125	57	52993.19	170	84	52991.05
40	53	52990.3	85	190	55107.34	125	56.5	52993.19	170	84.5	52990.31
40	53.33	52989.25	85	189.5	54729.73	125	56	52992.98	170	85	52990.2
40	53.67	52988.31	85	189	54426.88	125	55.5	52992.66	170	85.5	52991.14
40	54	52987.57	85	188.5	54188.69	125	55	52992.45	170	86	52991.88
40	54.33	52987.15	85	188	53996.03	125	54.5	52992.55	170	86.5	52991.56
40	54.67	52987.47	85	187.5	53824.67	125	54	52992.66	170	87	52991.04
40	55	52988.83	85	187	53670.34	125	53.5	52992.55	170	87.5	52993.14
40	55.33	52989.46	85	186.5	53543.89	125	53	52991.92	170	88	52989.66
40	55.67	52989.36	85	186	53447.79	125	52.5	52991.5	170	88.5	52988.82
40	56	52989.46	85	185.5	53381.67	125	52	52990.87	170	89	52987.46
40	56.33	52989.57	85	185	53334.36	125	51.5	52990.56	170	89.5	52985.88
40	56.67	52989.36	85	184.5	53293.96	125	51	52990.45	170	90	52983.89
40	57	52988.83	85	184	53256.22	125	50.5	52990.35	170	90.5	52981.58
40	57.33	52988.73	85	183.5	53227.37	125	50	52990.45	170	91	52978.96
40	57.67	52988.83	85	183	53204.85	125	49.67	52990.56	170	91.5	52977.27
40	58	52989.67	85	182.5	53181.51	125	49.33	52991.5	170	92	52977.7
40	58.33	52991.04	85	182	53157.04	125	49	52992.97	170	92.5	52978
40	58.67	52991.98	85	181.5	53133.85	125	48.67	52994.02	170	93	52978
40	59	52991.98	85	181	53111.62	125	48.33	52994.45	170	93.5	52977.79
40	59.33	52992.3	85	180.5	53094.12	125	48	52995.07	170	94	52977.59
40	59.67	52992.92	85	180	53081.58	125	47.67	52995.5	170	94.5	52978.11
40	60	52992.92	85	179.67	53072.23	125	47.33	52994.96	170	95	52979.68
40	60.5	52992.39	85	179.33	53064.35	125	47	52994.55	170	95.5	52981.14
40	61	52991.45	85	179	53057.73	125	46.67	52994.75	170	96	52982.4
40	61.5	52990.82	85	178.67	53052.27	125	46.33	52995.18	170	96.5	52983.14
40	62	52990.82	85	178.33	53047.86	125	46	52995.49	170	97	52983.77
40	62.5	52991.66	85	178	53043.56	125	45.67	52995.91	170	97.5	52984.6
40	63	52993.23	85	177.67	53039.47	125	45.33	52996.33	170	98	52986.27
40	63.5	52994.29	85	177.33	53035.27	125	45	52997.28	170	98.5	52989
40	64	52994.5	85	177	53031.18	125	44.67	52998.22	170	99	52990.38
40	64.5	52994.92	85	176.67	53027.51	125	44.33	52998.64	170	99.5	52991
40	65	52994.81	85	176.33	53023.73	125	44	52998.54	170	100	52991.31
40	65.5	52992.29	85	176	53020.06	125	43.67	52998.85	170	100.33	52991.63
40	66	52989.14	85	175.67	53017.02	125	43.33	52999.69	170	100.67	52991.94
40	66.5	52987.56	85	175.33	53014.4	125	43	52999.8	170	101	52991.84
40	67	52986.82	85	175	53012.31	125	42.67	52999.48	170	101.33	52991.3
40	67.5	52986.71	85	174.67	53010.42	125	42.33	52999.69	170	101.67	52990.25
40	68	52987.25	85	174.33	53009.16	125	42	53000.11	170	102	52989.41
40	68.5	52988.93	85	174	53008.11	125	41.67	53001.06	170	102.33	52989.62
40	69	52990.18	85	173.67	53006.75	125	41.33	53002.01	170	102.67	52991.3
40	69.5	52990.7	85	173.33	53004.86	125	41	53003.06	170	103	52993.39
40	70	52990.61	85	173	53003.29	125	40.67	53003.8	170	103.33	52994.66
40	70.5	52989.77	85	172.67	53001.72	125	40.33	53004.52	170	103.67	52994.45
40	71	52989.13	85	172.33	53000.36	125	40	53005.36	170	104	52994.23
40	71.5	52988.18	85	172	52999.21	125	39.5	53006.42	170	104.33	52993.92
40	72	52986.5	85	171.67	52998.47	125	39	53007.47	170	104.67	52993.81
40	72.5	52985.03	85	171.33	52997.84	125	38.5	53007.68	170	105	52993.71
40	73	52983.77	85	171	52997.01	125	38	53007.89	170	105.33	52993.5
40	73.5	52983.35	85	170.67	52996.38	125	37.5	53008.31	170	105.67	52992.75
40	74	52982.83	85	170.33	52996.59	125	37	53009.47	170	106	52992.02
40	74.5	52981.78	85	170	52997.32	125	36.5	53011.04	170	106.33	52991.18
40	75	52980.2	85	169.5	52997.21	125	36	53012.94	170	106.67	52990.65
40	75.5	52978	85	169	52996.59	125	35.5	53013.78	170	107	52990.76
40	76	52976.21	85	168.5	52995.85	125	35	53013.99	170	107.33	52991.48
40	76.5	52973.8	85	168	52995.12	125	34.5	53014.83	170	107.67	52992.23
40	77	52971.49	85	167.5	52994.28	125	34	53016.2	170	108	52992.23
40	77.5	52969.71	85	167	52993.86	125	33.5	53017.88	170	108.33	52992.01
40	78	52968.77	85	166.5	52993.86	125	33	53019.98	170	108.67	52991.9
40	78.5	52969.08	85	166	52993.34	125	32.5	53021.14	170	109	52991.8
40	79	52970.96	85	165.5	52992.82	125	32	53022.09	170	109.33	52991.69
40	79.5	52972.74	85	165	52992.71	125	31.5	53023.25	170	109.67	52991.48

40	80	52973.27	85	164.5	52993.34	125	31	53025.25	170	110	52991.05
40	80.5	52974.21	85	164	52993.76	125	30.5	53027.88	170	110.5	52990.63
40	81	52976	85	163.5	52993.76	125	30	53030.93	170	111	52989.7
40	81.5	52978.41	85	163	52993.55	125	29.5	53033.46	170	111.5	52988.64
40	82	52979.67	85	162.5	52993.44	125	29	53035.98	170	112	52988.11
40	82.5	52980.61	85	162	52993.23	125	28.5	53039.14	170	112.5	52987.89
40	83	52981.77	85	161.5	52992.82	125	28	53044.51	170	113	52988.43
40	83.5	52982.82	85	161	52992.71	125	27.5	53050.94	170	113.5	52988.64
40	84	52984.92	85	160.5	52992.5	125	27	53055.26	170	114	52988.1
40	84.5	52987.65	85	160	52992.08	125	26.5	53054.52	170	114.5	52986.84
40	85	52989.33	85	159.67	52991.56	125	26	53054	170	115	52985.9
40	85.5	52989.96	85	159.33	52991.66	125	25.5	53056.09	170	115.5	52985.27
40	86	52989.96	85	159	52992.5	125	25	53061.05	170	116	52983.91
40	86.5	52990.27	85	158.67	52993.13	125	24.5	53067.48	170	116.5	52982.75
40	87	52990.05	85	158.33	52993.13	125	24	53074.86	170	117	52982.11
40	87.5	52989.43	85	158	52992.4	125	23.5	53080.03	170	117.5	52981.7
40	88	52988.7	85	157.67	52991.66	125	23	53083.62	170	118	52981.17
40	88.5	52988.16	85	157.33	52990.92	125	22.5	53086.14	170	118.5	52980.64
40	89	52988.48	85	157	52990.2	125	22	53090.78	170	119	52981.05
40	89.5	52990.16	85	156.67	52989.88	125	21.5	53099.22	170	119.5	52982.11
40	90	52991.64	85	156.33	52989.66	125	21	53110.73	170	120	52982.64
40	90.5	52991.95	85	156	52989.45	125	20.5	53118.13	170	120.33	52982
40	91	52992.05	85	155.67	52989.14	125	20	53119.29	170	120.67	52981.58
40	91.5	52992.05	85	155.33	52989.36	125	19.67	53119.38	170	121	52981.16
40	92	52992.05	85	155	52990.08	125	19.33	53119.91	170	121.33	52980.74
40	92.5	52991.21	85	154.67	52990.61	125	19	53123.82	170	121.67	52979.69
40	93	52989.63	85	154.33	52990.61	125	18.67	53132.38	170	122	52979.05
40	93.5	52988.37	85	154	52990.29	125	18.33	53143.15	170	122.33	52978.11
40	94	52987.43	85	153.67	52990.08	125	18	53147.38	170	122.67	52977.27
40	94.5	52987.64	85	153.33	52989.45	125	17.67	53146.22	170	123	52976.53
40	95	52989.11	85	153	52989.14	125	17.33	53143.26	170	123.33	52976.32
40	95.5	52990.37	85	152.67	52989.03	125	17	53141.66	170	123.67	52977.27
40	96	52990.68	85	152.33	52989.23	125	16.67	53140.71	170	124	52978.31
40	96.5	52990.89	85	152	52989.98	125	16.33	53140.4	170	124.33	52978.63
40	97	52991	85	151.67	52990.5	125	16	53134.79	170	124.67	52978.2
40	97.5	52991.21	85	151.33	52990.91	125	15.67	53120.74	170	125	52977.78
40	98	52991	85	151	52991.64	125	15.33	53104.9	170	125.33	52977.15
40	98.5	52990.58	85	150.67	52991.96	125	15	53096.02	170	125.67	52976.42
40	99	52990.26	85	150.33	52991.86	125	14.67	53094.22	170	126	52975.58
40	99.5	52989.94	85	150	52991.44	125	14.33	53095.6	170	126.33	52974.41
40	100	52989.63	85	149.5	52991.22	125	14	53089.79	170	126.67	52973.16
40	100.5	52990.15	85	149	52990.7	125	13.67	53077.13	170	127	52972
40	101	52990.36	85	148.5	52990.49	125	13.33	53062.15	170	127.33	52970.95
40	101.5	52990.36	85	148	52990.39	125	13	53051.71	170	127.67	52970.11
40	102	52990.67	85	147.5	52990.18	125	12.67	53047.08	170	128	52970.22
40	102.5	52990.79	85	147	52989.97	125	12.33	53046.55	170	128.33	52970.95
40	103	52990.15	85	146.5	52990.18	125	12	53042.22	170	128.67	52970.64
40	103.5	52988.68	85	146	52990.91	125	11.67	53032.22	170	129	52969.68
40	104	52987.52	85	145.5	52991.75	125	11.33	53022.64	170	129.33	52969.05
40	104.5	52986.58	85	145	52992.17	125	11	53015.37	170	129.67	52968.84
40	105	52986.37	85	144.5	52991.85	125	10.67	53010.95	170	130	52968.21
40	105.5	52987.1	85	144	52991.22	125	10.33	53008.11	170	130.33	52967.27
40	106	52987.94	85	143.5	52991.01	125	10	53005.26	170	130.67	52966.12
40	106.5	52988.05	85	143	52990.18	125	9.67	52999.16	170	131	52965.07
40	107	52987.73	85	142.5	52989.97	125	9.33	52991.7	170	131.33	52963.91
40	107.5	52987.52	85	142	52989.97	125	9	52984.65	170	131.67	52962.96
40	108	52988.05	85	141.5	52989.86	125	8.67	52980.34	170	132	52962.02
40	108.5	52987.73	85	141	52989.86	125	8.33	52979.49	170	132.33	52961.07
40	109	52986.46	85	140.5	52990.27	125	8	52980.86	170	132.67	52960.55
40	109.5	52985.11	85	140	52991.11	125	7.67	52979.91	170	133	52961.7
40	110	52984.27	85	139.5	52991.63	125	7.33	52976.45	170	133.33	52962.32
40	110.5	52984.48	85	139	52991.75	125	7	52972.87	170	133.67	52962.32
40	111	52985.73	85	138.5	52990.9	125	6.67	52970.66	170	134	52962.01
40	111.5	52986.78	85	138	52990.27	125	6.33	52969.92	170	134.33	52961.8
40	112	52986.88	85	137.5	52989.33	125	6	52970.03	170	134.67	52961.48
40	112.5	52986.67	85	137	52988.28	125	5.67	52970.76	170	135	52961.69
40	113	52986.57	85	136.5	52987.65	125	5.33	52972.34	170	135.33	52961.69

40	113.5	52986.36	85	136	52987.44	125	5	52973.91	170	135.67	52962.01
40	114	52985.11	85	135.5	52986.82	125	4.67	52975.59	170	136	52962.42
40	114.5	52984.05	85	135	52986.5	125	4.33	52977.9	170	136.33	52962.73
40	115	52983.32	85	134.5	52986.61	125	4	52982.3	170	136.67	52962
40	115.5	52983	85	134	52987.55	125	3.67	52989.78	170	137	52960.32
40	116	52983.85	85	133.5	52988.28	125	3.33	52997.34	170	137.33	52958.54
40	116.5	52985.32	85	133	52988.28	125	3	52995.97	170	137.67	52957.79
40	117	52985.53	85	132.5	52987.86	125	2.67	52987.35	170	138	52957.07
40	117.5	52985.32	85	132	52987.55	125	2.33	52977.36	170	138.33	52956.54
40	118	52985.42	85	131.5	52987.13	125	2	52967.48	170	138.67	52956.54
40	118.5	52985.32	85	131	52986.71	125	1.67	52959.6	170	139	52956.85
40	119	52984.79	85	130.5	52986.5	125	1.33	52955.51	170	139.33	52957.17
40	119.5	52983.54	85	130	52986.28	125	1	52954.46	170	139.67	52957.79
40	120	52982.6	85	129.67	52986.07	125	.67	52954.56	170	140	52957.9
40	121	52981.97	85	129.33	52985.86	125	.33	52955.08	170	140.5	52957.05
40	122	52982.49	85	129	52986.28	125	0	52955.5	170	141	52955.9
40	123	52983.65	85	128.67	52987.22	130	0	52981.93	170	141.5	52954.95
40	124	52984.59	85	128.33	52987.85	130	.42	52983.5	170	142	52954.54
40	125	52985.33	85	128	52987.64	130	.83	52984.86	170	142.5	52955.37
40	126	52986.17	85	127.67	52987.33	130	1.25	52986.11	170	143	52956.95
40	127	52987.64	85	127.33	52987.22	130	1.67	52987.78	170	143.5	52958.3
40	128	52988.38	85	127	52986.81	130	2.08	52990.41	170	144	52959.14
40	129	52987.54	85	126.67	52986.49	130	2.5	52994.28	170	144.5	52959.56
40	130	52986.07	85	126.33	52986.39	130	2.92	52999.74	170	145	52959.98
40	130.5	52984.7	85	126	52986.18	130	3.33	53009.06	170	145.5	52960.61
40	131	52983.87	85	125.67	52985.97	130	3.75	53023.33	170	146	52961.23
40	131.5	52984.08	85	125.33	52986.28	130	4.17	53042.66	170	146.5	52961.02
40	132	52984.71	85	125	52986.7	130	4.58	53069.14	170	147	52960.6
40	132.5	52984.5	85	124.67	52987.63	130	5	53111.97	170	147.5	52960.29
40	133	52984.18	85	124.33	52988.38	130	5.42	53185.9	170	148	52960.07
40	133.5	52984.08	85	124	52988.38	130	5.83	53251.25	170	148.5	52960.39
40	134	52984.29	85	123.67	52988.05	130	6.25	53172.28	170	149	52961.96
40	134.5	52983.76	85	123.33	52988.16	130	6.67	52998.79	170	149.5	52964.16
40	135	52982.2	85	123	52988.27	130	7.08	52840.29	170	150	52965.52
40	135.5	52981.15	85	122.67	52987.75	130	7.5	52741.97	170	150.5	52966.04
40	136	52980.41	85	122.33	52987.42	130	7.92	52752.19	170	151	52966.98
40	136.5	52980.83	85	122	52987.21	130	8.33	52835.35	170	151.5	52967.82
40	137	52981.99	85	121.67	52987.11	130	8.75	52905.54	170	152	52968.45
40	137.5	52982.62	85	121.33	52987.21	130	9.17	52945.65	170	152.5	52969.08
40	138	52982.41	85	121	52987.42	130	9.58	52968.35	170	153	52969.5
40	138.5	52981.99	85	120.67	52987.74	130	10	52982.86	170	153.5	52969.7
40	139	52982	85	120.33	52987.84	130	10.33	52994.86	170	154	52970.33
40	139.5	52981.68	85	120	52987.63	130	10.67	53005.71	170	154.5	52971.17
40	140	52980.52	85	119.5	52987.11	130	11	53012.55	170	155	52972.84
40	140.5	52979.59	85	119	52987.11	130	11.33	53016.99	170	155.5	52974.94
40	141	52978.96	85	118.5	52986.8	130	11.67	53019.51	170	156	52976.3
40	141.5	52978.75	85	118	52986.59	130	12	53022.25	170	156.5	52977.25
40	142	52979.48	85	117.5	52986.27	130	12.33	53026.15	170	157	52978.29
40	142.5	52980.84	85	117	52986.06	130	12.67	53031.53	170	157.5	52979.55
40	143	52981.05	85	116.5	52985.85	130	13	53037.75	170	158	52980.07
40	143.5	52980.74	85	116	52985.95	130	13.33	53040.91	170	158.5	52980.28
40	144	52980.53	85	115.5	52986.47	130	13.67	53041.54	170	159	52980.6
40	144.5	52980.43	85	115	52986.89	130	14	53043.03	170	159.5	52980.7
40	145	52979.91	85	114.5	52986.99	130	14.33	53045.88	170	160	52980.9
40	145.5	52978.34	85	114	52986.58	130	14.67	53049.67	170	160.5	52981.75
40	146	52977.18	85	113.5	52986.16	130	15	53054.42	170	161	52983.32
40	146.5	52976.45	85	113	52985.74	130	15.33	53059.7	170	161.5	52984.57
40	147	52976.24	85	112.5	52985.42	130	15.67	53063.71	170	162	52985.1
40	147.5	52976.66	85	112	52985.21	130	16	53064.44	170	162.5	52985.41
40	148	52977.5	85	111.5	52985.21	130	16.33	53065.08	170	163	52985.83
40	148.5	52977.71	85	111	52985	130	16.67	53067.93	170	163.5	52986.24
40	149	52977.39	85	110.5	52985.11	130	17	53071.84	170	164	52986.45
40	149.5	52977.18	85	110	52985.63	130	17.33	53073.63	170	164.5	52986.45
40	150	52977.29	85	109.67	52986.68	130	17.67	53072.36	170	165	52986.14
40	150.5	52976.98	85	109.33	52987.52	130	18	53068.99	170	165.5	52986.03
40	151	52975.72	85	109	52987.61	130	18.33	53067.41	170	166	52986.03
40	151.5	52974.25	85	108.67	52987.3	130	18.67	53068.89	170	166.5	52986.34

40	152	52973.62	85	108.33	52987.41	130	19	53072.69	170	167	52987.5
40	152.5	52973.2	85	108	52987.3	130	19.33	53076.17	170	167.5	52988.96
40	153	52973.62	85	107.67	52986.79	130	19.67	53078.81	170	168	52989.59
40	153.5	52974.25	85	107.33	52986.57	130	20	53079.34	170	168.5	52990.01
40	154	52973.73	85	107	52986.36	130	20.33	53079.87	170	169	52990.33
40	154.5	52973	85	106.67	52986.05	130	20.67	53080.82	170	169.5	52990.85
40	155	52972.48	85	106.33	52986.25	130	21	53081.36	170	170	52991.38
40	155.5	52972.16	85	106	52986.88	130	21.33	53078.93	170	170.33	52991.27
40	156	52971.43	85	105.67	52987.51	130	21.67	53074.6	170	170.67	52991.17
40	156.5	52969.43	85	105.33	52987.72	130	22	53070.27	170	171	52991.27
40	157	52967.86	85	105	52987.4	130	22.33	53067.31	170	171.33	52991.48
40	157.5	52967.13	85	104.67	52986.98	130	22.67	53065.41	170	171.67	52992.22
40	158	52967.13	85	104.33	52986.36	130	23	53064.57	170	172	52993.9
40	158.5	52968.07	85	104	52985.73	130	23.33	53063.09	170	172.33	52995.79
40	159	52968.7	85	103.67	52985.2	130	23.67	53059.52	170	172.67	52996.52
40	159.5	52967.55	85	103.33	52984.89	130	24	53055.07	170	173	52997.04
40	160	52965.88	85	103	52984.26	130	24.33	53052.45	170	173.33	52997.67
40	160.5	52964.93	85	102.67	52983.74	130	24.67	53050.86	170	173.67	52998.51
40	161	52964.41	85	102.33	52983.74	130	25	53050.23	170	174	52998.83
40	161.5	52963.25	85	102	52984.16	130	25.33	53048.33	170	174.33	52998.2
40	162	52962	85	101.67	52984.68	130	25.67	53045.59	170	174.67	52997.36
40	162.5	52960.74	85	101.33	52984.98	130	26	53042.32	170	175	52996.84
40	163	52959.48	85	101	52984.67	130	26:33	53039.47	170	175.33	52996.73
40	163.5	52958.22	85	100.67	52984.46	130	26.67	53036.31	170	175.67	52997.04
40	164	52957.07	85	100.33	52984.25	130	27	53032.09	170	176	52997.99
40	164.5	52956.55	85	100	52984.04	130	27.33	53028.09	170	176.33	52998.93
40	165	52955.91	85	99.5	52983.95	130	27.67	53032.53	170	176.67	52999.04
40	165.5	52955.91	85	99	52983.95	130	28	53044.64	170	177	52998.51
40	166	52956.55	85	98.5	52983.83	130	28.33	53055.83	170	177.33	52997.67
40	166.5	52956.97	85	98	52983.83	130	28.67	53061.11	170	177.67	52996.31
40	167	52955.82	85	97.5	52983.94	130	29	53056.25	170	178	52995.37
40	167.5	52953.93	85	97	52984.67	130	29.33	53044.12	170	178.33	52994.21
40	168	52952.57	85	96.5	52985.51	130	29.67	53034.95	170	178.67	52993.48
40	168.5	52952.15	85	96	52985.82	130	30	53029.05	170	179	52992.85
40	169	52952.25	85	95.5	52985.72	130	30.5	53025.36	170	179.33	52992.43
40	169.5	52952.46	85	95	52985.82	130	31	53022.73	170	179.67	52992.01
40	170	52952.79	85	94.5	52985.82	130	31.5	53020.84	170	180	52992.53
40	170.33	52952.26	85	94	52985.5	130	32	53019.36	170	180.5	52993.79
40	170.67	52951.84	85	93.5	52985.5	130	32.5	53018.63	170	181	52994
40	171	52951.84	85	93	52985.71	130	33	53017.89	170	181.5	52993.79
40	171.33	52951.84	85	92.5	52985.82	130	33.5	53017.36	170	182	52993.79
40	171.67	52950.27	85	92	52986.14	130	34	53016.62	170	182.5	52994.32
40	172	52947.02	85	91.5	52987.07	130	34.5	53015.99	170	183	52994.63
40	172.33	52943.35	85	91	52987.91	130	35	53014.62	170	183.5	52994.63
40	172.67	52938.75	85	90.5	52988.13	130	35.5	53012.52	170	184	52993.58
40	173	52931.41	85	90	52987.91	130	36	53010.21	170	184.5	52991.9
40	173.33	52919.77	85	89.5	52987.8	130	36.5	53008.52	170	185	52990.75
40	173.67	52912.77	85	89	52987.8	130	37	53007.36	170	185.5	52989.8
40	174	52917.48	85	88.5	52987.91	130	37.5	53006.52	170	186	52989.7
40	174.33	52927.22	85	88	52988.01	130	38	53005.47	170	186.5	52990.75
40	174.67	52938.96	85	87.5	52988.43	130	38.5	53005.36	170	187	52991.48
40	175	52947.45	85	87	52988.95	130	39	53005.36	170	187.5	52991.27
40	175.33	52950.07	85	86.5	52989.48	130	39.5	53005.36	170	188	52990.75
40	175.67	52950.91	85	86	52989.79	130	40	53005.36	170	188.5	52989.8
40	176	52953.01	85	85.5	52990.73	130	40.5	53005.47	170	189	52987.91
40	176.33	52956.68	85	85	52991.78	130	41	53006	170	189.5	52986.55
40	176.67	52958.99	85	84.5	52992.2	130	41.5	53006.43	170	190	52985.92
40	177	52956.37	85	84	52992.1	130	42	53005.69	170	190.25	52986.34
40	177.33	52953.85	85	83.5	52991.99	130	42.5	53004.64	170	190.5	52986.34
40	177.67	52952.39	85	83	52991.26	130	43	53003.9	170	190.75	52986.97
40	178	52951.13	85	82.5	52990.31	130	43.5	53003.58	170	191	52990.22
40	178.33	52950.29	85	82	52989.36	130	44	53003.37	170	191.25	52993.79
40	178.67	52950.39	85	81.5	52988.43	130	44.5	53003.58	170	191.5	52996
40	179	52950.92	85	81	52987.48	130	45	53003.8	170	191.75	52996.94
40	179.33	52950.5	85	80.5	52986.43	130	45.5	53003.38	170	192	52997.25
40	179.67	52949.25	85	80	52986.02	130	46	53002.75	170	192.25	52997.67
40	180	52947.88	85	79.5	52986.33	130	46.5	53002.23	170	192.5	52998.2

40	180.5	52946.31	85	79	52986.54	130	47	53001.8	170	192.75	52998.62
40	181	52945.37	85	78.5	52985.8	130	47.5	53001.17	170	193	52998.09
40	181.5	52947.26	85	78	52984.65	130	48	52999.8	170	193.25	52996.21
40	182	52950.3	85	77.5	52987.37	130	48.5	52998.23	170	193.5	52993.9
40	182.5	52951.87	85	77	52998.06	130	49	52996.96	170	193.75	52992.22
40	183	52952.5	85	76.5	53008.01	130	49.5	52995.59	170	194	52990.85
40	183.5	52953.24	85	76	53008.33	130	50	52994.96	170	194.25	52989.91
40	184	52952.92	85	75.5	53001.41	130	50.5	52995.59	170	194.5	52990.22
40	184.5	52951.56	85	75	52992.72	130	51	52996.13	170	194.75	52991.69
40	185	52949.16	85	74.5	52987.9	130	51.5	52996.34	170	195	52992.95
40	185.5	52946.01	85	74	52986.43	130	52	52996.34	170	195.25	52993.16
40	186	52941.39	85	73.5	52986.01	130	52.5	52996.34	170	195.5	52993.48
40	186.5	52935.32	85	73	52985.49	130	53	52996.76	170	195.75	52993.69
40	187	52927.46	85	72.5	52984.34	130	53.5	52996.66	170	196	52993.48
40	187.5	52917.72	85	72	52983.29	130	54	52995.92	170	196.25	52993.27
40	188	52904.21	85	71.5	52982.56	130	54.5	52995.5	170	196.5	52992.32
40	188.5	52884.45	85	71	52981.82	130	55	52994.88	170	196.75	52991.69
40	189	52865.72	85	70.5	52980.99	130	55.5	52994.55	170	197	52991.38
40	189.5	52875.65	85	70	52980.46	130	56	52994.66	170	197.25	52991.17
40	190	52919.93	85	69.67	52980.57	130	56.5	52995.5	170	197.5	52990.96
40	190.29	52965.84	85	69.33	52980.99	130	57	52995.93	170	197.75	52990.85
40	190.57	52998.91	85	69	52980.36	130	57.5	52996.03	170	198	52991.69
40	190.86	53015.62	85	68.67	52979.52	130	58	52995.93	170	198.25	52992.85
40	191.14	53006.27	85	68.33	52978.79	130	58.5	52996.03	170	198.5	52993.58
40	191.43	52990.19	85	68	52977.32	130	59	52995.93	170	198.75	52993.79
40	191.71	52980.74	85	67.67	52975.65	130	59.5	52995.51	170	199	52993.9
40	192	52974.55	85	67.33	52973.76	130	60	52994.98	170	199.25	52994
40	192.29	52969.72	85	67	52970.73	130	60.33	52994.67	170	199.5	52994
40	192.57	52965.84	85	66.67	52967.38	130	60.67	52994.68	170	199.75	52993.9
40	192.86	52962.5	85	66.33	52963.3	130	61	52994.89	170	200	52993.27
40	193.14	52959.77	85	66	52957.65	130	61.33	52995.94	175	200	52986.55
40	193.43	52957.88	85	65.67	52950.33	130	61.67	52997.2	175	199.77	52986.76
40	193.71	52956.52	85	65.33	52940.39	130	62	52997.83	175	199.55	52986.87
40	194	52955.15	85	65	52928.69	130	62.33	52998.04	175	199.32	52986.87
40	194.29	52954.52	85	64.67	52916.88	130	62.67	52998.04	175	199.09	52986.87
40	194.57	52955.15	85	64.33	52906.75	130	63	52998.26	175	198.86	52986.97
40	194.86	52956.1	85	64	52900.28	130	63.33	52998.36	175	198.64	52986.98
40	195.14	52955.89	85	63.67	52899.97	130	63.67	52997.83	175	198.41	52986.77
40	195.43	52955.26	85	63.33	52908.74	130	64	52996.89	175	198.18	52986.88
40	195.71	52955.26	85	63	52923.57	130	64.33	52995.95	175	197.95	52986.77
40	196	52954.95	85	62.67	52937.78	130	64.67	52995	175	197.73	52986.46
40	196.29	52953.8	85	62.33	52948.65	130	65	52994.58	175	197.5	52986.04
40	196.57	52952.96	85	62	52956.6	130	65.33	52994.9	175	197.27	52985.52
40	196.86	52952.54	85	61.67	52962.46	130	65.67	52995.53	175	197.05	52985.63
40	197.14	52952.44	85	61.33	52967.06	130	66	52995.53	175	196.82	52986.37
40	197.43	52952.23	85	61	52970.52	130	66.33	52995.32	175	196.59	52987.31
40	197.71	52951.7	85	60.67	52973.66	130	66.67	52995.11	175	196.36	52987.83
40	198	52951.18	85	60.33	52976.27	130	67	52995.21	175	196.14	52987.94
40	198.29	52952.23	85	60	52977.95	130	67.33	52995.54	175	195.91	52987.62
40	198.57	52953.91	85	59.5	52979	130	67.67	52995.43	175	195.68	52987.53
40	198.86	52954.96	85	59	52979.83	130	68	52994.91	175	195.45	52987.42
40	199.14	52955.7	85	58.5	52979.94	130	68.33	52994.06	175	195.23	52987.42
40	199.43	52956.75	85	58	52980.15	130	68.67	52993.64	175	195	52987.21
40	199.71	52958.42	85	57.5	52980.67	130	69	52993.33	175	194.77	52987.11
40	200	52960.21	85	57	52981.3	130	69.33	52993.33	175	194.55	52987.11
45	200	52955.57	85	56.5	52981.51	130	69.67	52994.06	175	194.32	52986.79
45	199.71	52955.46	85	56	52982.03	130	70	52994.59	175	194.09	52986.59
45	199.41	52955.36	85	55.5	52982.87	130	70.5	52994.7	175	193.86	52986.8
45	199.12	52955.25	85	55	52983.71	130	71	52994.06	175	193.64	52987.33
45	198.82	52955.56	85	54.5	52984.02	130	71.5	52993.76	175	193.41	52987.75
45	198.53	52955.87	85	54	52983.6	130	72	52993.86	175	193.18	52988.06
45	198.24	52955.98	85	53.5	52982.87	130	72.5	52994.07	175	192.95	52988.16
45	197.94	52956.29	85	53	52982.03	130	73	52994.07	175	192.73	52988.38
45	197.65	52957.12	85	52.5	52981.09	130	73.5	52993.65	175	192.5	52988.48
45	197.35	52957.96	85	52	52980.25	130	74	52993.02	175	192.27	52988.48
45	197.06	52958.59	85	51.5	52979.73	130	74.5	52992.5	175	192.05	52988.59
45	196.76	52958.9	85	51	52979.31	130	75	52992.29	175	191.82	52988.8

45	196.47	52958.89	85	50.5	52978.68	130	75.5	52992.82	175	191.59	52988.8
45	196.18	52958.89	85	50	52978.58	130	76	52994.18	175	191.36	52988.7
45	195.88	52958.89	85	49.67	52979.31	130	76.5	52994.82	175	191.14	52988.8
45	195.59	52958.47	85	49.33	52980.46	130	77	52994.61	175	190.91	52989.02
45	195.29	52958.68	85	49	52981.3	130	77.5	52994.3	175	190.68	52989.23
45	195	52958.58	85	48.67	52981.51	130	78	52994.3	175	190.45	52989.13
45	194.71	52958.67	85	48.33	52981.3	130	78.5	52994.4	175	190.23	52988.71
45	194.41	52958.99	85	48	52979.73	130	79	52994.19			
45	194.12	52959.51	85	47.67	52978.68	130	79.5	52993.56			
			85	47.33	52978.37	130	80	52992.61			

APPENDIX C

DATA TABLES, CERTIFICATES OF ANALYSIS, AND CHAIN OF CUSTODY

ANALYTICAL RESULTS

SOIL

Analytical Results at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-010			SB-010			SB-010			SB-011			SB-011		
Sample ID:	A1134			A1135			A1136			A1142			A1143		
Depth:	1.5 - 2			7.5 - 8			11 - 11.5			1 - 1.5			8 - 9		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	11000	N	mg/kg	5100	N	mg/kg	4500	N	mg/kg	11000	N	mg/kg	18000	N	mg/kg
Arsenic - Graphite Furnace	2.8	N	mg/kg	1.4	N	mg/kg	1.2	N	mg/kg	2.2	N	mg/kg	<2.2	UN	mg/kg
Barium	220		mg/kg	21		mg/kg	390		mg/kg	200	N	mg/kg	1900	N	mg/kg
Beryllium	0.95		mg/kg	0.51		mg/kg	<0.54	U	mg/kg	0.62		mg/kg	1.2		mg/kg
Cadmium	0.60		mg/kg	<0.43	U	mg/kg	<0.54	U	mg/kg	1.0		mg/kg	<0.50	U	mg/kg
Chromium	17		mg/kg	12		mg/kg	7.8		mg/kg	16		mg/kg	22		mg/kg
Chromium VI	<0.10	U	mg/kg	<0.10	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg
Copper	6.7		mg/kg	2.3		mg/kg	5.7		mg/kg	5.9		mg/kg	19		mg/kg
Iron	13000	N	mg/kg	8200	N	mg/kg	6500	N	mg/kg	11000	N	mg/kg	14000	N	mg/kg
Lead - Graphite Furnace	8.1	N	mg/kg	1.8	N	mg/kg	6.0	N	mg/kg	5.4	N	mg/kg	6.3	N	mg/kg
Mercury	<0.021	U	mg/kg	<0.024	U	mg/kg	<0.024	U	mg/kg	<0.031	U	mg/kg	<0.026	U	mg/kg
Nickel	8.1		mg/kg	10		mg/kg	7.5		mg/kg	8.9		mg/kg	27		mg/kg
Silver	<0.94	U	mg/kg	<0.85	U	mg/kg	<1.1	U	mg/kg	<0.99	U	mg/kg	<1.0	U	mg/kg
Zinc	15		mg/kg	12		mg/kg	10		mg/kg	15		mg/kg	29		mg/kg
1,2,4-Trichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,2-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,3-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,4-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4,5-Trichlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4,6-Trichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dimethylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dinitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,6-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chloronaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylnaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2-Nitrophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical Results at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-010			SB-010			SB-010			SB-011			SB-011		
Sample ID:	A1134			A1135			A1136			A1142			A1143		
Depth:	1.5 - 2			7.5 - 8			11 - 11.5			1 - 1.5			8 - 9		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
3,3'-Dichlorobenzidine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
3-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4,6-Dinitro-2-methylphenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Bromophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloro-3-methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloroaniline	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chlorophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Nitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Acenaphthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Acenaphthylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(b)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(g,h,i)perylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(k)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzoic Acid	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzyl alcohol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Butylbenzylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Chrysene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-butylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-octylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzo(a,h)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzofuran	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Diethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dimethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluorene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical results at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-010			SB-010			SB-010			SB-011			SB-011		
Sample ID:	A1134			A1135			A1136			A1142			A1143		
Depth:	1.5 - 2			7.5 - 8			11 - 11.5			1 - 1.5			8 - 9		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Hexachlorobutadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorocyclopentadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachloroethane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Indeno(1,2,3-cd)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Isophorone	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitroso-di-n-propylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitrosodiphenylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Naphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Nitrobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pentachlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Phenanthrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Phenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethoxy)methane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethyl)ether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroisopropyl)ethe	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Ethylhexyl)phthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,1,1-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2,2-Tetrachloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloropropane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
2-Butanone	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg
2-Chloroethylvinyl ether	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
2-Hexanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
4-Methyl-2-Pentanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
Acetone	6.1	JB	ug/kg	6.4	JB	ug/kg	<100	U	ug/kg	5.8	J	ug/kg	6.3	J	ug/kg
Benzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Bromoform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical ..sults at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-010			SB-010			SB-010			SB-011			SB-011		
Sample ID:	A1134			A1135			A1136			A1142			A1143		
Depth:	1.5 - 2			7.5 - 8			11 - 11.5			1 - 1.5			8 - 9		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromomethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Carbon Disulfide	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Carbon Tetrachloride	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorobenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorodibromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloroethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Chloroform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloromethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Dichlorobromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Ethylbenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Methylene Chloride	4.7	J	ug/kg	3.1	J	ug/kg	3.1	J	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Styrene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Tetrachloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Toluene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Trichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Vinyl Acetate	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Vinyl Chloride	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Xylenes (total)	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis 1,3 Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans 1,3-Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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Analytical ..esults at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-011			SB-012			SB-012			SB-012			SB-012		
Sample ID:	A1144			A1138			A1139			A1140			A1141		
Depth:	13 - 13.3			2.5 - 3			2.5 - 3			7.5 - 8			12 - 12.5		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	6500	N	mg/kg	15000	N	mg/kg	16000	N	mg/kg	11000	N	mg/kg	3900	N	mg/kg
Arsenic - Graphite Furnace	<1.7	UN	mg/kg	3.9	N	mg/kg	2.9	N	mg/kg	4.6	N	mg/kg	<1.0	UN	mg/kg
Barium	4000	N	mg/kg	130	N	mg/kg	160	N	mg/kg	79	N	mg/kg	76	N	mg/kg
Beryllium	<0.49	U	mg/kg	0.77		mg/kg	0.72		mg/kg	0.76		mg/kg	<0.48	U	mg/kg
Cadmium	<0.49	U	mg/kg	0.87		mg/kg	1.3		mg/kg	0.92		mg/kg	<0.48	U	mg/kg
Chromium	17		mg/kg	18		mg/kg	21		mg/kg	27		mg/kg	8.4		mg/kg
Chromium VI	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg
Copper	4.8		mg/kg	5.5		mg/kg	5.7		mg/kg	6.4		mg/kg	3.6		mg/kg
Iron	8900	N	mg/kg	14000	N	mg/kg	16000	N	mg/kg	15000	N	mg/kg	8200	N	mg/kg
Lead - Graphite Furnace	2.3	N	mg/kg	9.9	N	mg/kg	7.3	N	mg/kg	3.7	N	mg/kg	2.7	N	mg/kg
Mercury	<0.028	U	mg/kg	<0.030	U	mg/kg	<0.030	U	mg/kg	<0.029	U	mg/kg	<0.030	U	mg/kg
Nickel	12		mg/kg	8.2		mg/kg	9.4		mg/kg	19		mg/kg	9.2		mg/kg
Silver	<0.98	U	mg/kg	<0.97	U	mg/kg	<1.1	U	mg/kg	<0.99	U	mg/kg	<0.96	U	mg/kg
Zinc	13		mg/kg	16		mg/kg	17		mg/kg	22		mg/kg	9.9		mg/kg
1,2,4-Trichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,2-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,3-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,4-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4,5-Trichlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4,6-Trichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dimethylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dinitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,6-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chloronaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylnaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2-Nitrophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

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Analytical Results at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-011			SB-012			SB-012			SB-012			SB-012		
Sample ID:	A1144			A1138			A1139			A1140			A1141		
Depth:	13 - 13.3			2.5 - 3			2.5 - 3			7.5 - 8			12 - 12.5		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
3,3'-Dichlorobenzidine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
3-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4,6-Dinitro-2-methylphenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Bromophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloro-3-methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloroaniline	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chlorophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Nitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Acenaphthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Acenaphthylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(b)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(g,h,i)perylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(k)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzoic Acid	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzyl alcohol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Butylbenzylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Chrysene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-butylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-octylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzo(a,h)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzofuran	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Diethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dimethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluorene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

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Analytical ..sults at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-011			SB-012			SB-012			SB-012			SB-012		
Sample ID:	A1144			A1138			A1139			A1140			A1141		
Depth:	13 - 13.3			2.5 - 3			2.5 - 3			7.5 - 8			12 - 12.5		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Hexachlorobutadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorocyclopentadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachloroethane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Indeno(1,2,3-cd)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Isophorone	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitroso-di-n-propylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitrosodiphenylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Naphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Nitrobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pentachlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Phenanthrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Phenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethoxy)methane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethyl)ether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroisopropyl)ethe	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Ethylhexyl)phthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,1,1-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2,2-Tetrachloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloropropane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
2-Butanone	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg
2-Chloroethylvinyl ether	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
2-Hexanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
4-Methyl-2-Pentanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
Acetone	<100	U	ug/kg	<100	U	ug/kg	8.2	J	ug/kg	<100	U	ug/kg	<100	U	ug/kg
Benzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Bromoform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical results at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-011			SB-012			SB-012			SB-012			SB-012		
Sample ID:	A1144			A1138			A1139			A1140			A1141		
Depth:	13 - 13.3			2.5 - 3			2.5 - 3			7.5 - 8			12 - 12.5		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromomethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Carbon Disulfide	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Carbon Tetrachloride	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorobenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorodibromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloroethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Chloroform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloromethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Dichlorobromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Ethylbenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Methylene Chloride	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Styrene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Tetrachloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Toluene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Trichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Vinyl Acetate	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Vinyl Chloride	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Xylenes (total)	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis 1,3 Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans 1,3-Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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Analytical ..esults at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-013			SB-013			SB-013			SB-014			SB-014		
Sample ID:	A1145			A1146			A1147			A1161			A1162		
Depth:	1 - 1.5			5 - 5.5			10.5 - 11			2.5 - 3			5.5 - 6		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	16000	N	mg/kg	6000	N	mg/kg	10000	N	mg/kg	9200	N	mg/kg	3200	N	mg/kg
Arsenic - Graphite Furnace	4.3	N	mg/kg	<2.0	UN	mg/kg	1.8	N	mg/kg	4.5	N	mg/kg	1.6	N	mg/kg
Barium	350	N	mg/kg	530	N	mg/kg	50	N	mg/kg	170	N	mg/kg	28	N	mg/kg
Beryllium	0.94		mg/kg	<0.49	U	mg/kg	0.67		mg/kg	1.8		mg/kg	0.72		mg/kg
Cadmium	1.4		mg/kg	<0.49	U	mg/kg	<0.50	U	mg/kg	0.59		mg/kg	<0.48	U	mg/kg
Chromium	35		mg/kg	9.2		mg/kg	15		mg/kg	20		mg/kg	16		mg/kg
Chromium VI	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.10	U	mg/kg	<0.10	U	mg/kg
Copper	4.7		mg/kg	3.2		mg/kg	7.2		mg/kg	3.0		mg/kg	<2.4	U	mg/kg
Iron	21000	N	mg/kg	7000	N	mg/kg	14000	N	mg/kg	13000	N	mg/kg	6300	N	mg/kg
Lead - Graphite Furnace	6.6	N	mg/kg	2.0	N	mg/kg	2.2	N	mg/kg	3.9	N	mg/kg	1.2	N	mg/kg
Mercury	<0.030	U	mg/kg	<0.028	U	mg/kg	<0.027	U	mg/kg	<0.023	U	mg/kg	<0.021	U	mg/kg
Nickel	14		mg/kg	10		mg/kg	14		mg/kg	14		mg/kg	7.5		mg/kg
Silver	<1.0	U	mg/kg	<0.98	U	mg/kg	<0.99	U	mg/kg	<1.1	U	mg/kg	<0.95	U	mg/kg
Zinc	19		mg/kg	12		mg/kg	18		mg/kg	14		mg/kg	9.0		mg/kg
1,2,4-Trichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,2-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,3-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,4-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4,5-Trichlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4,6-Trichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dimethylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dinitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,6-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chloronaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylnaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2-Nitrophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

B = Analyte was also found in sample blank
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N = Sample is outside of Matrix Spike QC limit
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Analytical Results at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-013			SB-013			SB-013			SB-014			SB-014		
Sample ID:	A1145			A1146			A1147			A1161			A1162		
Depth:	1 - 1.5			5 - 5.5			10.5 - 11			2.5 - 3			5.5 - 6		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
3,3'-Dichlorobenzidine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
3-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4,6-Dinitro-2-methylphenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Bromophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloro-3-methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloroaniline	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chlorophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Nitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Acenaphthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Acenaphthylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(b)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(g,h,i)perylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(k)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzoic Acid	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzyl alcohol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Butylbenzylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Chrysene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-butylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-octylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzo(a,h)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzofuran	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Diethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dimethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluorene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

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E = Concentration exceeds instrument calibration range for that specific analysis
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Analytical Results at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-013			SB-013			SB-013			SB-014			SB-014		
Sample ID:	A1145			A1146			A1147			A1161			A1162		
Depth:	1 - 1.5			5 - 5.5			10.5 - 11			2.5 - 3			5.5 - 6		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Hexachlorobutadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorocyclopentadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachloroethane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Indeno(1,2,3-cd)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Isophorone	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitroso-di-n-propylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitrosodiphenylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Naphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Nitrobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pentachlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Phenanthrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Phenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethoxy)methane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethyl)ether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroisopropyl)ethe	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Ethylhexyl)phthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,1,1-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2,2-Tetrachloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloropropane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
2-Butanone	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg
2-Chloroethylvinyl ether	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
2-Hexanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
4-Methyl-2-Pentanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
Acetone	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg
Benzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Bromoform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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Analytical ..esults at the OD
for SO
Tinker Air Force Base

Well/Boring:	SB-013			SB-013			SB-013			SB-014			SB-014		
Sample ID:	A1145			A1146			A1147			A1161			A1162		
Depth:	1 - 1.5			5 - 5.5			10.5 - 11			2.5 - 3			5.5 - 6		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromomethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Carbon Disulfide	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Carbon Tetrachloride	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorobenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorodibromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloroethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Chloroform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloromethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Dichlorobromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Ethylbenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Methylene Chloride	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Styrene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Tetrachloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Toluene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Trichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Vinyl Acetate	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Vinyl Chloride	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Xylenes (total)	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis 1,3 Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans 1,3-Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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Analytical ..sults at the OD
for SO
Tinker Air Force Base

Parameters	Result	QFR	Units
Well/Boring:	SB-014		
Sample ID:	A1163		
Depth:	11 - 11.3		
Aluminum	6400	N	mg/kg
Arsenic - Graphite Furnace	1.2	N	mg/kg
Barium	1700	N	mg/kg
Beryllium	0.88		mg/kg
Cadmium	<0.45	U	mg/kg
Chromium	12		mg/kg
Chromium VI	<0.50	U	mg/kg
Copper	3.9		mg/kg
Iron	8300	N	mg/kg
Lead - Graphite Furnace	2.2	N	mg/kg
Mercury	<0.022	U	mg/kg
Nickel	12		mg/kg
Silver	<0.89	U	mg/kg
Zinc	15		mg/kg
1,2,4-Trichlorobenzene	<0.330	U	mg/kg
1,2-Dichlorobenzene	<0.330	U	mg/kg
1,3-Dichlorobenzene	<0.330	U	mg/kg
1,4-Dichlorobenzene	<0.330	U	mg/kg
2,4,5-Trichlorophenol	<0.825	U	mg/kg
2,4,6-Trichlorophenol	<0.330	U	mg/kg
2,4-Dichlorophenol	<0.330	U	mg/kg
2,4-Dimethylphenol	<0.330	U	mg/kg
2,4-Dinitrophenol	<0.825	U	mg/kg
2,4-Dinitrotoluene	<0.330	U	mg/kg
2,6-Dinitrotoluene	<0.330	U	mg/kg
2-Chloronaphthalene	<0.330	U	mg/kg
2-Chlorophenol	<0.330	U	mg/kg
2-Methylnaphthalene	<0.330	U	mg/kg
2-Methylphenol	<0.330	U	mg/kg
2-Nitroaniline	<0.825	U	mg/kg
2-Nitrophenol	<0.330	U	mg/kg

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Analytical Results at the OD
for SO
Tinker Air Force Base

Parameters	Result	QFR	Units
Well/Boring:	SB-014		
Sample ID:	A1163		
Depth:	11 - 11.3		
3,3'-Dichlorobenzidine	<0.330	U	mg/kg
3-Nitroaniline	<0.825	U	mg/kg
4,6-Dinitro-2-methylphenol	<0.825	U	mg/kg
4-Bromophenyl-phenylether	<0.330	U	mg/kg
4-Chloro-3-methylphenol	<0.330	U	mg/kg
4-Chloroaniline	<0.330	U	mg/kg
4-Chlorophenyl-phenylether	<0.330	U	mg/kg
4-Methylphenol	<0.330	U	mg/kg
4-Nitroaniline	<0.825	U	mg/kg
4-Nitrophenol	<0.825	U	mg/kg
Acenaphthene	<0.330	U	mg/kg
Acenaphthylene	<0.330	U	mg/kg
Anthracene	<0.330	U	mg/kg
Benzo(a)anthracene	<0.330	U	mg/kg
Benzo(a)pyrene	<0.330	U	mg/kg
Benzo(b)fluoranthene	<0.330	U	mg/kg
Benzo(g,h,i)perylene	<0.330	U	mg/kg
Benzo(k)fluoranthene	<0.330	U	mg/kg
Benzoic Acid	<0.330	U	mg/kg
Benzyl alcohol	<0.330	U	mg/kg
Butylbenzylphthalate	<0.330	U	mg/kg
Chrysene	<0.330	U	mg/kg
Di-n-butylphthalate	<0.330	U	mg/kg
Di-n-octylphthalate	<0.330	U	mg/kg
Dibenzo(a,h)anthracene	<0.330	U	mg/kg
Dibenzofuran	<0.330	U	mg/kg
Diethylphthalate	<0.330	U	mg/kg
Dimethylphthalate	<0.330	U	mg/kg
Fluoranthene	<0.330	U	mg/kg
Fluorene	<0.330	U	mg/kg
Hexachlorobenzene	<0.330	U	mg/kg

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Analytical ..sults at the OD
for SO
Tinker Air Force Base

Parameters	Result	QFR	Units
Well/Boring:	SB-014		
Sample ID:	A1163		
Depth:	11 - 11.3		
Hexachlorobutadiene	<0.330	U	mg/kg
Hexachlorocyclopentadiene	<0.330	U	mg/kg
Hexachloroethane	<0.330	U	mg/kg
Indeno(1,2,3-cd)pyrene	<0.330	U	mg/kg
Isophorone	<0.330	U	mg/kg
N-Nitroso-di-n-propylamine	<0.330	U	mg/kg
N-Nitrosodiphenylamine	<0.330	U	mg/kg
Naphthalene	<0.330	U	mg/kg
Nitrobenzene	<0.330	U	mg/kg
Pentachlorophenol	<0.825	U	mg/kg
Phenanthrene	<0.330	U	mg/kg
Phenol	<0.330	U	mg/kg
Pyrene	<0.330	U	mg/kg
bis(2-Chloroethoxy)methane	<0.330	U	mg/kg
bis(2-Chloroethyl)ether	<0.330	U	mg/kg
bis(2-Chloroisopropyl)ethe	<0.330	U	mg/kg
bis(2-Ethylhexyl)phthalate	<0.330	U	mg/kg
1,1,1-Trichloroethane	<5	U	ug/kg
1,1,2,2-Tetrachloroethane	<5	U	ug/kg
1,1,2-Trichloroethane	<5	U	ug/kg
1,1-Dichloroethane	<5	U	ug/kg
1,1-Dichloroethene	<5	U	ug/kg
1,2-Dichloroethane	<5	U	ug/kg
1,2-Dichloropropane	<5	U	ug/kg
2-Butanone	<100	U	ug/kg
2-Chloroethylvinyl ether	<10	U	ug/kg
2-Hexanone	<50	U	ug/kg
4-Methyl-2-Pentanone	<50	U	ug/kg
Acetone	<100	U	ug/kg
Benzene	<5	U	ug/kg
Bromoform	<5	U	ug/kg

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Analytical results at the OD
for SO
Tinker Air Force Base

Parameters	Result	QFR	Units
Well/Boring:	SB-014		
Sample ID:	A1163		
Depth:	11 - 11.3		
Bromomethane	<10	U	ug/kg
Carbon Disulfide	<5	U	ug/kg
Carbon Tetrachloride	<5	U	ug/kg
Chlorobenzene	<5	U	ug/kg
Chlorodibromomethane	<5	U	ug/kg
Chloroethane	<10	U	ug/kg
Chloroform	<5	U	ug/kg
Chloromethane	<10	U	ug/kg
Dichlorobromomethane	<5	U	ug/kg
Ethylbenzene	<5	U	ug/kg
Methylene Chloride	<10	U	ug/kg
Styrene	<5	U	ug/kg
Tetrachloroethene	<5	U	ug/kg
Toluene	<5	U	ug/kg
Trichloroethene	<5	U	ug/kg
Vinyl Acetate	<10	U	ug/kg
Vinyl Chloride	<10	U	ug/kg
Xylenes (total)	<5	U	ug/kg
cis 1,3 Dichloropropene	<5	U	ug/kg
cis-1,2-Dichloroethene	<5	U	ug/kg
trans 1,3-Dichloropropene	<5	U	ug/kg
trans-1,2-Dichloroethene	<5	U	ug/kg

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ANALYTICAL RESULTS

QUALITY CONTROL - SOIL

Analytical QC results at the OD
for SQ
Tinker Air Force Base

Well/Boring:	SB-010			SB-010			SB-013			SB-013			SB-014		
Sample ID:	A1135-MS			A1135-MSD			A1145-MS			A1145-MSD			A1163-MS		
Depth:	7.5 - 8			7.5 - 8			1 - 1.5			1 - 1.5			11 - 11.3		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	805		%rec	639		%rec	1107		%rec	1088		%rec	618		%rec
Arsenic - Graphite Furnace	69.9		%rec	64.2		%rec	113		%rec	135		%rec	74		%rec
Barium	107		%rec	94		%rec	56		%rec	94		%rec	0		%rec
Beryllium	89		%rec	90		%rec	95		%rec	93		%rec	88		%rec
Cadmium	83		%rec	83		%rec	92		%rec	90		%rec	83		%rec
Chromium	90		%rec	92		%rec	101		%rec	96		%rec	85		%rec
Chromium VI	100		%rec	100		%rec	97		%rec	99		%rec	98		%rec
Copper	88		%rec	87		%rec	95		%rec	94		%rec	88		%rec
Iron	132		%rec	203		%rec	214		%rec	212		%rec	302		%rec
Lead - Graphite Furnace	74.3		%rec	80.6		%rec	143		%rec	207		%rec	64		%rec
Mercury	110		%rec	120		%rec	110		%rec	110		%rec	108		%rec
Nickel	83		%rec	84		%rec	94		%rec	92		%rec	78		%rec
Silver	86		%rec	86		%rec	92		%rec	89		%rec	83		%rec
Zinc	86		%rec	87		%rec	96		%rec	94		%rec	82		%rec
1,2,4-Trichlorobenzene	68		%rec	29		%rec	76		%rec	73		%rec	70		%rec
1,4-Dichlorobenzene	68		%rec	27		%rec	72		%rec	72		%rec	75		%rec
2,4,6-TRIBROMOPHENOL	88		%rec	60		%rec									
2,4,6-Tribromophenol							93		%rec	94		%rec	79		%rec
2,4-Dinitrotoluene	68		%rec	48		%rec	72		%rec	74		%rec	69		%rec
2-Chlorophenol	75		%rec	30		%rec	79		%rec	79		%rec	82		%rec
2-FLUOROBIPHENYL	72		%rec	41		%rec									
2-FLUOROPHENOL	66		%rec	29		%rec									
2-Fluorobiphenyl							75		%rec	76		%rec	71		%rec
2-Fluorophenol							69		%rec	70		%rec	74		%rec
4-Chloro-3-methylphenol	84		%rec	51		%rec	84		%rec	89		%rec	78		%rec
4-Nitrophenol	76		%rec	50		%rec	76		%rec	74		%rec	57		%rec
Acenaphthene	81		%rec	51		%rec	82		%rec	84		%rec	86		%rec
N-Nitroso-di-n-propylamine	73		%rec	38		%rec	77		%rec	79		%rec	81		%rec
NITROBENZENE-D5	69		%rec	33		%rec									
Nitrobenzene-D5							72		%rec	74		%rec	73		%rec
PHENOL-D5	71		%rec	35		%rec									

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Analytical QC results at the OD
for SQ
Tinker Air Force Base

Well/Boring:	SB-010			SB-010			SB-013			SB-013			SB-014		
Sample ID:	A1135-MS			A1135-MSD			A1145-MS			A1145-MSD			A1163-MS		
Depth:	7.5 - 8			7.5 - 8			1 - 1.5			1 - 1.5			11 - 11.3		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Pentachlorophenol	85		%rec	59		%rec	84		%rec	69		%rec	51		%rec
Phenol	75		%rec	36		%rec	73		%rec	77		%rec	80		%rec
Phenol-D5							70		%rec	72		%rec	80		%rec
Pyrene	98		%rec	77		%rec	98		%rec	101		%rec	98		%rec
TERPHENYL-D14	98		%rec	74		%rec									
Terphenyl-D14							96		%rec	100		%rec	97		%rec
1,1-Dichloroethene	95		%rec	99		%rec	122		%rec	113		%rec	112		%rec
1,2-Dichloroethane-D4	102		%rec	103		%rec	105		%rec	104		%rec	107		%rec
Benzene	93		%rec	94		%rec	112		%rec	103		%rec	103		%rec
Bromofluorobenzene	97		%rec	97		%rec	98		%rec	96		%rec	102		%rec
Chlorobenzene	94		%rec	98		%rec	113		%rec	103		%rec	101		%rec
Toluene	95		%rec	97		%rec	117		%rec	104		%rec	101		%rec
Toluene-D8	105		%rec	105		%rec	104		%rec	105		%rec	101		%rec
Trichloroethene	81		%rec	81		%rec	99		%rec	90		%rec	89		%rec

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Analytical QC results at the OD
for SQ
Tinker Air Force Base

Parameters	Result	QFR	Units
Well/Boring:	SB-014		
Sample ID:	A1163-MSD		
Depth:	11 - 11.3		
Aluminum	700		%rec
Arsenic - Graphite Furnace	84		%rec
Barium	0		%rec
Beryllium	87		%rec
Cadmium	82		%rec
Chromium	89		%rec
Chromium VI	99		%rec
Copper	88		%rec
Iron	423		%rec
Lead - Graphite Furnace	64		%rec
Mercury	110		%rec
Nickel	82		%rec
Silver	83		%rec
Zinc	83		%rec
1,2,4-Trichlorobenzene	70		%rec
1,4-Dichlorobenzene	72		%rec
2,4,6-TRIBROMOPHENOL			
2,4,6-Tribromophenol	89		%rec
2,4-Dinitrotoluene	68		%rec
2-Chlorophenol	77		%rec
2-FLUOROBIPHENYL			
2-FLUOROPHENOL			
2-Fluorobiphenyl	71		%rec
2-Fluorophenol	69		%rec
4-Chloro-3-methylphenol	78		%rec
4-Nitrophenol	66		%rec
Acenaphthene	80		%rec
N-Nitroso-di-n-propylamine	71		%rec
NITROBENZENE-D5			
Nitrobenzene-D5	70		%rec
PHENOL-D5			

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Analytical Qu results at the OD
for SQ
Tinker Air Force Base

Well/Boring:	SB-014
Sample ID:	A1163-MSD
Depth:	11 - 11.3

Parameters	Result	QFR	Units
Pentachlorophenol	59		%rec
Phenol	75		%rec
Phenol-D5	74		%rec
Pyrene	89		%rec
TERPHENYL-D14			
Terphenyl-D14	90		%rec
1,1-Dichloroethene	115		%rec
1,2-Dichloroethane-D4	107		%rec
Benzene	106		%rec
Bromofluorobenzene	101		%rec
Chlorobenzene	105		%rec
Toluene	104		%rec
Toluene-D8	101		%rec
Trichloroethene	92		%rec

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

ANALYTICAL RESULTS

QUALITY CONTROL - WATER

Analytical QC results at the OD
for WQ
Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1132			A1133			A1137			A1160		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum				<0.20	U	mg/l						
Arsenic - Graphite Furnace				<0.010	U	mg/l						
Barium				<0.20	U	mg/l						
Beryllium				<0.0050	U	mg/l						
Cadmium				<0.0050	U	mg/l						
Chromium				<0.010	U	mg/l						
Chromium VI				<0.010	U	mg/l						
Copper				<0.0250	U	mg/l						
Iron				<0.10	U	mg/l						
Lead - Graphite Furnace				<0.0030	U	mg/l						
Mercury				<0.00020	U	mg/l						
Nickel				<0.040	U	mg/l						
Silver				<0.010	U	mg/l						
Zinc				<0.020	U	mg/l						
1,2,4-Trichlorobenzene				<10	U	ug/l						
1,2-Dichlorobenzene				<10	U	ug/l						
1,3-Dichlorobenzene				<10	U	ug/l						
1,4-Dichlorobenzene				<10	U	ug/l						
2,4,5-Trichlorophenol				<10	U	ug/l						
2,4,6-TRIBROMOPHENOL				108		%rec						
2,4,6-Trichlorophenol				<10	U	ug/l						
2,4-Dichlorophenol				<10	U	ug/l						
2,4-Dimethylphenol				<10	U	ug/l						
2,4-Dinitrophenol				<25	U	ug/l						
2,4-Dinitrotoluene				<10	U	ug/l						
2,6-Dinitrotoluene				<10	U	ug/l						
2-Chloronaphthalene				<10	U	ug/l						
2-Chlorophenol				<10	U	ug/l						
2-FLUOROBIPHENYL				83		%rec						
2-FLUOROPHENOL				82		%rec						
2-Methylnaphthalene				<10	U	ug/l						

B = Analyte was also found in sample blank
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Analytical QC results at the OD
for WQ
Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1132			A1133			A1137			A1160		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
2-Methylphenol				<10	U	ug/l						
2-Nitroaniline				<25	U	ug/l						
2-Nitrophenol				<10	U	ug/l						
3,3'-Dichlorobenzidine				<10	U	ug/l						
3-Nitroaniline				<25	U	ug/l						
4,6-Dinitro-2-methylphenol				<25	U	ug/l						
4-Bromophenyl-phenylether				<10	U	ug/l						
4-Chloro-3-methylphenol				<10	U	ug/l						
4-Chloroaniline				<10	U	ug/l						
4-Chlorophenyl-phenylether				<10	U	ug/l						
4-Methylphenol				<10	U	ug/l						
4-Nitroaniline				<10	U	ug/l						
4-Nitrophenol				<25	U	ug/l						
Acenaphthene				<10	U	ug/l						
Acenaphthylene				<10	U	ug/l						
Anthracene				<10	U	ug/l						
Benzo(a)anthracene				<10	U	ug/l						
Benzo(a)pyrene				<10	U	ug/l						
Benzo(b)fluoranthene				<10	U	ug/l						
Benzo(g,h,i)perylene				<10	U	ug/l						
Benzo(k)fluoranthene				<10	U	ug/l						
Benzoic Acid				<10	U	ug/l						
Benzyl alcohol				<10	U	ug/l						
Butylbenzylphthalate				<10	U	ug/l						
Chrysene				<10	U	ug/l						
Di-n-butylphthalate				<10	U	ug/l						
Di-n-octylphthalate				<10	U	ug/l						
Dibenzo(a,h)anthracene				<10	U	ug/l						
Dibenzofuran				<10	U	ug/l						
Diethylphthalate				<10	U	ug/l						
Dimethylphthalate				<10	U	ug/l						

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical QC results at the OD
for WQ
Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1132			A1133			A1137			A1160		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Fluoranthene				<10	U	ug/l						
Fluorene				<10	U	ug/l						
Hexachlorobenzene				<10	U	ug/l						
Hexachlorobutadiene				<10	U	ug/l						
Hexachlorocyclopentadiene				<10	U	ug/l						
Hexachloroethane				<10	U	ug/l						
Indeno(1,2,3-cd)pyrene				<10	U	ug/l						
Isophorone				<10	U	ug/l						
N-Nitroso-di-n-propylamine				<10	U	ug/l						
N-Nitrosodiphenylamine				<10	U	ug/l						
NITROBENZENE-D5				88		%rec						
Naphthalene				<10	U	ug/l						
Nitrobenzene				<10	U	ug/l						
PHENOL-D5				87		%rec						
Pentachlorophenol				<25	U	ug/l						
Phenanthrene				<10	U	ug/l						
Phenol				<10	U	ug/l						
Pyrene				<10	U	ug/l						
TERPHENYL-D14				114		%rec						
bis(2-Chloroethoxy)methane				<10	U	ug/l						
bis(2-Chloroethyl)ether				<10	U	ug/l						
bis(2-Chloroisopropyl)ethe				<10	U	ug/l						
bis(2-Ethylhexyl)phthalate				7.1	J	ug/l						
1,1,1-Trichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	3.2	JB	ug/l
1,1,2,2-Tetrachloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1,2-Trichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,2-Dichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,2-Dichloroethane-D4	106		%rec	106		%rec	109		%rec	111		%rec
1,2-Dichloropropane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

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QFR = Qualifier
Analytical data has not been validated.

Analytical QC results at the OD
for WQ
Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1132			A1133			A1137			A1160		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
2-Butanone	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l
2-Chloroethylvinyl ether	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2-Hexanone	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l
4-Methyl-2-Pentanone	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l
Acetone	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l
Benzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Bromofluorobenzene	100		%rec	97		%rec	98		%rec	105		%rec
Bromoform	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Bromomethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Carbon Disulfide	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Carbon Tetrachloride	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chlorobenzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chlorodibromomethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chloroethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Chloroform	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chloromethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Dichlorobromomethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Ethylbenzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Methylene Chloride	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Styrene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Tetrachloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Toluene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Toluene-D8	98		%rec	98		%rec	95		%rec	91		%rec
Trichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Vinyl Acetate	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Vinyl Chloride	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Xylenes (total)	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
cis 1,3 Dichloropropene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
cis-1,2-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
trans 1,3-Dichloropropene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
trans-1,2-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

CERTIFICATES OF ANALYSIS

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

Routed to KK, LF, TL 12/28/93

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 12/23/93

Work Order: B3-11-333

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O.5001 409832-003-01
Date Received: 11/30/93
Number of Samples: 9
Sample Type: SOIL/WATER

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1132	B3-11-333-01
A1133	B3-11-333-02
A1134	B3-11-333-03
A1135	B3-11-333-04
A1135-MS	B3-11-333-05
A1135-MSD	B3-11-333-06
A1136	B3-11-333-07
LAB BLANK	B3-11-333-08
LAB BLANK	B3-11-333-09

Reviewed and Approved:

Karmen Deane for

Jon Bartell
Laboratory Director

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-333

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1132**
SAMPLE DATE: **11/16/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	98	88 - 110
BROMOFLUOROBENZENE	100	86 - 115
1,2-DICHLOROETHANE-D4	106	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

SAMPLE ID: **A1133**
SAMPLE DATE: **11/29/93 17:30:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/L	11/30/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1133**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	98	88 - 110
BROMOFLUOROBENZENE	97	86 - 115
1,2-DICHLOROETHANE-D4	106	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1133**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/02/93**
ANALYSIS DATE: **12/11/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reportir Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	7.1	J	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1133**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	88	35 - 114
2-Fluorobiphenyl	83	43 - 116
Terphenyl-D14	114	33 - 141
Phenol-D5	87	10 - 94
2-Fluorophenol	82	21 - 100
2,4,6-Tribromophenol	108	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

Sample originally extracted 12/02/93 and analyzed 12/11/93. Sample was re-extracted 12/16/93 due to spiking error in LCS. Original data is reported.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1133**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/19/93
Aluminum	0.20	U	0.20	6010	12/17/93
Barium	0.20	U	0.20	6010	12/17/93
Beryllium	0.0050	U	0.0050	6010	12/17/93
Cadmium	0.0050	U	0.0050	6010	12/17/93
Chromium	0.010	U	0.010	6010	12/17/93
Copper	0.0250	U	0.0250	6010	12/17/93
Iron	0.10	U	0.10	6010	12/17/93
Nickel	0.040	U	0.040	6010	12/17/93
Lead	0.0030	U	0.0030	7421	12/19/93
Mercury	0.00020	U	0.00020	7471	12/08/93
Silver	0.010	U	0.010	6010	12/17/93
Zinc	0.020	U	0.020	6010	12/17/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

SAMPLE ID: **A1134**
SAMPLE DATE: **11/29/93 16:30:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	12/09/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1134**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/07/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	4.7	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.1	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	109	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	104	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1134**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1134**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	62	23 - 120
2-Fluorobiphenyl	69	30 - 115
Terphenyl-D14	100	18 - 137
Phenol-D5	68	24 - 113
2-Fluorophenol	58	25 - 121
2,4,6-Tribromophenol	97	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-333

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1134**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **94.3396**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.8	N	1.1	7060	12/16/93
Aluminum	11000	N	19	6010	12/19/93
Barium	220		19	6010	12/19/93
Beryllium	0.95		0.47	6010	12/19/93
Cadmium	0.60		0.47	6010	12/19/93
Chromium	17		0.94	6010	12/19/93
Copper	6.7	*	2.4	6010	12/19/93
Iron	13000	N	9.4	6010	12/19/93
Nickel	8.1		3.8	6010	12/19/93
Lead	8.1	N	0.330	7421	12/16/93
Mercury	0.021	U	0.021	7471	12/07/93
Silver	0.94	U	0.94	6010	12/19/93
Zinc	15		1.9	6010	12/19/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

SAMPLE ID: A1135
SAMPLE DATE: 11/29/93 16:40:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	12/09/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1135**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/07/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	3.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.4	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1135**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1135**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	67	23 - 120
2-Fluorobiphenyl	71	30 - 115
Terphenyl-D14	99	18 - 137
Phenol-D5	69	24 - 113
2-Fluorophenol	61	25 - 121
2,4,6-Tribromophenol	82	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-333

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1135**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **85.4700**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.4	N	1.1	7060	12/16/93
Aluminum	5100	N	17	6010	12/19/93
Barium	21		17	6010	12/19/93
Beryllium	0.51		0.43	6010	12/19/93
Cadmium	0.43	U	0.43	6010	12/19/93
Chromium	12		0.85	6010	12/19/93
Copper	2.3	*	2.1	6010	12/19/93
Iron	8200	N	8.5	6010	12/19/93
Nickel	10		3.4	6010	12/19/93
Lead	1.8	N	0.316	7421	12/16/93
Mercury	0.024	U	0.024	7471	12/07/93
Silver	0.85	U	0.85	6010	12/19/93
Zinc	12		1.7	6010	12/19/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Duplicate analysis outside control limits due to matrix interference on copper analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable. Applies to all soil samples in batch.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-333

SAMPLE ID: A1135-MS
SAMPLE DATE: 11/29/93 16:40:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		100		% REC	12/09/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1135-MS**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/07/93
DILUTION FACTOR: 1.0
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	95	Trichloroethene	81
		Benzene	93
		Toluene	95
		Chlorobenzene	94

Surrogates	% Recovery	Limits
TOLUENE-D8	105	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	102	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1135-MS**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 12/13/93
ANALYSIS DATE: 12/18/93
DILUTION FACTOR: 0.033
UNITS: **% REC**

	Result		Result
Phenol	75	Acenaphthene	81
2-Chlorophenol	75	4-Nitrophenol	76
1,4-Dichlorobenzene	68	2,4-Dinitrotoluene	68
N-Nitroso-di-n-propylamine	73	Pentachlorophenol	85
1,2,4-Trichlorobenzene	68	Pyrene	98
4-Chloro-3-methylphenol	84		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	69	23 - 120
2-Fluorobiphenyl	72	30 - 115
Terphenyl-D14	98	18 - 137
Phenol-D5	71	24 - 113
2-Fluorophenol	66	25 - 121
2,4,6-Tribromophenol	88	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample
'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/22/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-333

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1135-MS**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **94.3396**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	69.9	7060	12/16/93
Aluminum	805	6010	12/19/93
Barium	107	6010	12/19/93
Beryllium	89	6010	12/19/93
Cadmium	83	6010	12/19/93
Chromium	90	6010	12/19/93
Copper	88	6010	12/19/93
Iron	132	6010	12/19/93
Nickel	83	6010	12/19/93
Lead	74.3	7421	12/16/93
Mercury	110	7471	12/07/93
Silver	86	6010	12/19/93
Zinc	86	6010	12/19/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike outside control limits due to matrix interference on aluminum and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable. Applies to all soil samples in batch.

% RPD for matrix spikes outside control limits due to matrix interference on aluminum and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable. Applies to all soil samples in batch.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

SAMPLE ID: **A1135-MSD**
SAMPLE DATE: **11/29/93 16:40:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		100		% REC	12/09/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1135-MSD**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/07/93
DILUTION FACTOR: 1.0
UNITS: % REC

	Result		Result
1,1-Dichloroethene	99	Trichloroethene	81
		Benzene	94
		Toluene	97
		Chlorobenzene	98

Surrogates	% Recovery	Limits
TOLUENE-D8	105	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	103	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample
'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1135-MSD**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 12/13/93
ANALYSIS DATE: 12/18/93
DILUTION FACTOR: 0.033
UNITS: **% REC**

	Result		Result
henol			
-Chlorophenol	36	Acenaphthene	51
4-Dichlorobenzene	30	4-Nitrophenol	50
Nitroso-di-n-propylamine	27#	2,4-Dinitrotoluene	48
2,4-Trichlorobenzene	38#	Pentachlorophenol	59
hloro-3-methylphenol	29#	Pyrene	77
	51		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	33	23 - 120
2-Fluorobiphenyl	41	30 - 115
Terphenyl-D14	74	18 - 137
Phenol-D5	35	24 - 113
2-Fluorophenol	29	25 - 121
2,4,6-Tribromophenol	60	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample
'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

enced notes for these results:

MSD recoveries for some compounds were outside the
ggested CLP limits due to matrix interference. LCS was
thin the acceptable limits.

Company: IT CORPORATION
Date: 12/22/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1135-MSD**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **113.636**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	64.2	7060	12/16/93
Aluminum	639	6010	12/19/93
Barium	94	6010	12/19/93
Beryllium	90	6010	12/19/93
Cadmium	83	6010	12/19/93
Chromium	92	6010	12/19/93
Copper	87	6010	12/19/93
Iron	203	6010	12/19/93
Nickel	84	6010	12/19/93
Lead	80.6	7421	12/16/93
Mercury	120	7471	12/07/93
Silver	86	6010	12/19/93
Zinc	87	6010	12/19/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike duplicate outside control limits due to matrix interference on aluminum and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable. Applies to all soil samples in batch.

% RPD for matrix spikes outside control limits due to matrix interference on aluminum and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable. Applies to all soil samples in batch.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-333

SAMPLE ID: A1136
SAMPLE DATE: 11/29/93 16:55:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/09/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1136**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/07/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	3.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	106	81 - 117
BROMOFLUOROBENZENE	98	74 - 121
1,2-DICHLOROETHANE-D4	104	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1136**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1136**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	63	23 - 120
2-Fluorobiphenyl	64	30 - 115
Terphenyl-D14	87	18 - 137
Phenol-D5	63	24 - 113
2-Fluorophenol	57	25 - 121
2,4,6-Tribromophenol	77	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01

Work Order: B3-11-333

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1136**
SAMPLE DATE: **11/29/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **107.526**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.2	N	0.90	7060	12/16/93
Aluminum	4500	N	22	6010	12/19/93
Barium	390		22	6010	12/19/93
Beryllium	0.54	U	0.54	6010	12/19/93
Cadmium	0.54	U	0.54	6010	12/19/93
Chromium	7.8		1.1	6010	12/19/93
Copper	5.7	*	2.7	6010	12/19/93
Iron	6500	N	11	6010	12/19/93
Nickel	7.5		4.3	6010	12/19/93
Lead	6.0	N	0.270	7421	12/16/93
Mercury	0.024	U	0.024	7471	12/07/93
Silver	1.1	U	1.1	6010	12/19/93
Zinc	10		2.2	6010	12/19/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

SAMPLE ID: **LAB BLANK**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/KG	12/09/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-333

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/07/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	3.1	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
,1-Dichloroethane	5	U	5	Bromoform	5	U	5
crans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	104	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	101	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample
'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit
Phenol	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330
2-Chlorophenol	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330
1,4-Dichlorobenzene	0.330	U	0.330
Benzyl alcohol	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330
Hexachloroethane	0.330	U	0.330
Nitrobenzene	0.330	U	0.330
Isophorone	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330
Benzoic Acid	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330
Naphthalene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825
2-Chloronaphthalene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825
Dimethylphthalate	0.330	U	0.330
Acenaphthylene	0.330	U	0.330
2,6-Dinitrotoluene	0.330	U	0.330
3-Nitroaniline	0.825	U	0.825
Acenaphthene	0.330	U	0.330
2,4-Dinitrophenol	0.825	U	0.825
4-Nitrophenol	0.825	U	0.825
Dibenzofuran	0.330	U	0.330
2,4-Dinitrotoluene	0.330	U	0.330
Diethylphthalate	0.330	U	0.330
4-Chlorophenyl-phenylether	0.330	U	0.330
Fluorene	0.330	U	0.330
4-Nitroaniline	0.825	U	0.825
4,6-Dinitro-2-methylphenol	0.825	U	0.825
N-Nitrosodiphenylamine (1)	0.330	U	0.330
4-Bromophenyl-phenylether	0.330	U	0.330
Hexachlorobenzene	0.330	U	0.330
Pentachlorophenol	0.825	U	0.825
Phenanthrene	0.330	U	0.330
Anthracene	0.330	U	0.330
Di-n-butylphthalate	0.330	U	0.330
Fluoranthene	0.330	U	0.330
Pyrene	0.330	U	0.330
Butylbenzylphthalate	0.330	U	0.330
3,3'-Dichlorobenzidine	0.330	U	0.330
Benzo(a)anthracene	0.330	U	0.330
Chrysene	0.330	U	0.330
bis(2-Ethylhexyl)phthalate	0.330	U	0.330
Di-n-octylphthalate	0.330	U	0.330
Benzo(b)fluoranthene	0.330	U	0.330
Benzo(k)fluoranthene	0.330	U	0.330
Benzo(a)pyrene	0.330	U	0.330
Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Dibenzo(a,h)anthracene	0.330	U	0.330
Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	52	23 - 120
2-Fluorobiphenyl	53	30 - 115
Terphenyl-D14	76	18 - 137
Phenol-D5	61	24 - 113
2-Fluorophenol	52	25 - 121
2,4,6-Tribromophenol	63	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **1.0**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/16/93
Aluminum	0.20	U	0.20	6010	12/21/93
Barium	0.20	U	0.20	6010	12/21/93
Beryllium	0.0050	U	0.0050	6010	12/21/93
Cadmium	0.0050	U	0.0050	6010	12/21/93
Chromium	0.010	U	0.010	6010	12/21/93
Copper	0.025	U	0.025	6010	12/21/93
Iron	0.10	U	0.10	6010	12/21/93
Nickel	0.040	U	0.040	6010	12/21/93
Lead	0.0030	U	0.0030	7421	12/16/93
Mercury	0.00020	U	0.00020	7471	12/07/93
Silver	0.010	U	0.010	6010	12/21/93
Zinc	0.020	U	0.020	6010	12/21/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01

Work Order: B3-11-333

SAMPLE ID: **LAB BLANK**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/L	11/30/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	96	88 - 110
BROMOFLUOROBENZENE	98	86 - 115
1,2-DICHLOROETHANE-D4	102	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: 12/02/93
ANALYSIS DATE: 12/11/93
DILUTION FACTOR: 1.0
UNITS: UG/L

	Result	Qual	Reporting Limit
Phenol	10	U	10
bis(2-Chloroethyl)ether	10	U	10
2-Chlorophenol	10	U	10
1,3-Dichlorobenzene	10	U	10
1,4-Dichlorobenzene	10	U	10
Benzyl alcohol	10	U	10
1,2-Dichlorobenzene	10	U	10
2-Methylphenol	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10
4-Methylphenol	10	U	10
N-Nitroso-di-n-propylamine	10	U	10
Hexachloroethane	10	U	10
Nitrobenzene	10	U	10
Isophorone	10	U	10
2-Nitrophenol	10	U	10
2,4-Dimethylphenol	10	U	10
Benzoic Acid	10	U	10
bis(2-Chloroethoxy)methane	10	U	10
2,4-Dichlorophenol	10	U	10
1,2,4-Trichlorobenzene	10	U	10
Naphthalene	10	U	10
4-Chloroaniline	10	U	10
Hexachlorobutadiene	10	U	10
4-Chloro-3-methylphenol	10	U	10
2-Methylnaphthalene	10	U	10
Hexachlorocyclopentadiene	10	U	10
2,4,6-Trichlorophenol	10	U	10
2,4,5-Trichlorophenol	10	U	10
2-Chloronaphthalene	10	U	10
2-Nitroaniline	.25	U	25
Dimethylphthalate	10	U	10
Acenaphthylene	10	U	10

	Result	Qual	Reporting Limit
2,6-Dinitrotoluene	10	U	10
3-Nitroaniline	25	U	25
Acenaphthene	10	U	10
2,4-Dinitrophenol	25	U	25
4-Nitrophenol	25	U	25
Dibenzofuran	10	U	10
2,4-Dinitrotoluene	10	U	10
Diethylphthalate	10	U	10
4-Chlorophenyl-phenylether	10	U	10
Fluorene	10	U	10
4-Nitroaniline	10	U	10
4,6-Dinitro-2-methylphenol	25	U	25
N-Nitrosodiphenylamine (1)	10	U	10
4-Bromophenyl-phenylether	10	U	10
Hexachlorobenzene	10	U	10
Pentachlorophenol	25	U	25
Phenanthrene	10	U	10
Anthracene	10	U	10
Di-n-butylphthalate	1.1	J	10
Fluoranthene	10	U	10
Pyrene	10	U	10
Butylbenzylphthalate	10	U	10
3,3'-Dichlorobenzidine	10	U	10
Benzo(a)anthracene	10	U	10
Chrysene	10	U	10
bis(2-Ethylhexyl)phthalate	8.6	J	10
Di-n-octylphthalate	10	U	10
Benzo(b)fluoranthene	10	U	10
Benzo(k)fluoranthene	10	U	10
Benzo(a)pyrene	10	U	10
Indeno(1,2,3-cd)pyrene	10	U	10
Dibenzo(a,h)anthracene	10	U	10
Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	88	35 - 114
2-Fluorobiphenyl	80	43 - 116
Terphenyl-D14	113	33 - 141
Phenol-D5	74	10 - 94
2-Fluorophenol	77	21 - 100
2,4,6-Tribromophenol	101	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/19/93
Aluminum	0.20	U	0.20	6010	12/17/93
Barium	0.20	U	0.20	6010	12/17/93
Beryllium	0.0050	U	0.0050	6010	12/17/93
Cadmium	0.0050	U	0.0050	6010	12/17/93
Chromium	0.010	U	0.010	6010	12/17/93
Copper	0.0250	U	0.0250	6010	12/17/93
Iron	0.10	U	0.10	6010	12/17/93
Nickel	0.040	U	0.040	6010	12/17/93
Lead	0.0030	U	0.0030	7421	12/19/93
Mercury	0.00020	U	0.00020	7471	12/08/93
Silver	0.010	U	0.010	6010	12/17/93
Zinc	0.046		0.020	6010	12/17/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

Referenced notes for this work order:

B311333

Prep blank for ICP analysis had zinc level greater than 20ppb PQL. All samples with concentration levels greater than 20ppb were repreped and reanalyzed, except for sample #02B which was non-detect. No blank correction was performed.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **ICP Metals**

Metals by ICP — TEST CODE **6010**

Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles — Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables — Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace — Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Chromium VI**

Chromium VI — TEST CODE **CR_VI**

Method 7196, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

TEST NAME **Mercury**

Mercury — TEST CODE **HG_AA**

Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-333

TEST NAME **Mercury** TEST CODE **HG_AA**

Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK2**

Method not available.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **ICPES Digestion - Water** TEST CODE **Z3005**

Water Digestion	Method 3005A, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Digestion procedure for the preparation of surface and ground water samples for analysis by flame atomic absorption spectroscopy and inductively coupled plasma spectroscopy. The procedure determines total recoverable or dissolved metals.

TEST NAME **GFAA Digestion - Water** TEST CODE **Z3020**

Water Digestion	Method 3020, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace.

TEST NAME **GFAA Digestion - Soil** TEST CODE **Z3050F**

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-333

TEST NAME **GFAA Digestion - Soil** TEST CODE **Z3050F**

Soil Digestion — Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace/Flame AA analysis.

TEST NAME **ICPES Digestion - Soil** TEST CODE **Z3050P**

Soil Digestion — Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for ICPES analysis. Equivalent to Method 3050A, SW-846 Update I, July 1992.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 314082
Page 1 of 2

Project Name/No. 1 Tinker AFB 409832.03.01
Sample Team Members 2 Kyle Kirschenmann, Andrew Gordon
Profit Center No. 3 3527
Project Manager 4 Jimmy Taylor
Purchase Order No. 6 409832.03.01 -
Required Report Date 11 15 Days

Samples Shipment Date 7 11-29-93
Lab Destination 8 ITAS-Austin
Lab Contact 9 Karmen Deane
Project Contact/Phone 12 Dan McGregor 405-736-2260
Carrier/Waybill No. 13 8460755612 Fed EX

Bill to: 5 409.832.03.01 D.O. 5001
Report to: 10 Tim Jennings IT-Austin-ES

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
A1132	Trip Blank	11-16-93 1700	Clear glass	40ml	HCl COOL	8240	Good, 4°C 11-30-93 [illegible]	33244100C
A1133	Water	11-29-93 1730	"	"	"	8240		
A1133	↓	11-29-93 1730	poly	125ml	COOL	Cr^{6+}		
↓	↓	↓	poly	500ml	HNO_3 COOL	Metals		
↓	↓	↓	Amber glass	2.5l	COOL	8270		3146032
A1134	Soil	11-29-93 1630	clear glass	125ml	COOL	8240		
A1134	↓	↓	↓	500ml	↓	8270, 6010	↓	

Special Instructions: 23

Possible Hazard Identification: 24
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal: 25
Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

Turnaround Time Required: 26
Normal ☒ Rush ☐

QC Level: 27
I. ☒ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by 28 (Signature/Affiliation) [signature] (IT)	Date: 11-29-93 Time: 1800	1. Received by 28 (Signature/Affiliation) [signature] 25	Date: 11-30-93 Time: 0903
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

MCA 3/15/91

*See back of form for special instructions.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

D511333

Reference Document No.[30] 314082

Page 2 of 2

Project Name Tinker AFB

Project No. 409832.03.01

Samples Shipment Date 11-29-93

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Pre-servative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
A1135	Soil	11-29-93 1640	clear glass	125ml	COOL	8240	[illegible] 11-30-93 [illegible]	
A1135	↓	↓	↓	500ml	↓	8270, 6010	↓	
A1136	↓	11-29-93 1655	↓	125ml	↓	8240	↓	
A1136	↓	↓	↓	500ml	↓	8270, 6010	↓	

Write: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3 15 91

Auxiliary Data Summary 12/21/93

Work order : B311333 Sample ID : A1133

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B						
	Arsenic	B311333-09B	121530202	12/15/93	12/19/93	1.0
	Chromium VI	B311333-09B	1130CR_VI1	11/30/93	11/30/93	1.0
	Mercury	B311333-09B	1208HGAA	12/08/93	12/08/93	1.0
	Lead	B311333-09B	121530202	12/15/93	12/19/93	1.0

Auxiliary Data Summary 12/21/93

Work order : B311333

Sample ID : A1134

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	Arsenic	B311333-09B	12083050F1	12/08/93	12/16/93	110
	Chromium VI	B311333-08B	1209CR_VI1	12/09/93	12/09/93	10.0
	Mercury	B311333-09B	1204HGAA	12/07/93	12/07/93	105
	Lead	B311333-09B	12083050F1	12/08/93	12/16/93	110

Auxiliary Data Summary 12/21/93

Work order : B311333 Sample ID : A1135

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	Arsenic	B311333-09B	12083050F1	12/18/93	12/16/93	105
	Chromium VI	B311333-08B	1209CR_VI1	12/09/93	12/09/93	10.0
	Mercury	B311333-09B	1207HGAA	12/07/93	12/07/93	122
	Lead	B311333-09B	12083050F1	12/18/93	12/16/93	105

Auxiliary Data Summary 12/21/93

Work order : B311333 Sample ID : A1135-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
05B						
	Arsenic	B311333-09B	12083050F1	12/18/93	12/16/93	91
	Chromium VI	B311333-08B	1209CR_VI1	12/09/93	12/09/93	10.0
	Mercury	B311333-09B	1207HGAA	12/07/93	12/07/93	111
	Lead	B311333-09B	12083050F1	12/18/93	12/16/93	91

Auxiliary Data Summary 12/21/93

Work order : B311333 Sample ID : A1135-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06B						
	Arsenic	B311333-09B	12083050F1	12/18/93	12/16/93	94.3
	Chromium VI	B311333-08B	1209CR_VI1	12/09/93	12/09/93	10.0
	Mercury	B311333-09B	1207HGAA	12/07/93	12/07/93	116
	Lead	B311333-09B	12083050F1	12/18/93	12/16/93	94.3

Auxiliary Data Summary 12/21/93

Work order : B311333 Sample ID : A1136

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07B						
	Arsenic	B311333-09B	12083050F1	12/18/93	12/16/93	90
	Chromium VI	B311333-08B	1209CR_VI1	12/09/93	12/09/93	50.0
	Mercury	B311333-09B	1207HGAA	12/07/93	12/07/93	122
	Lead	B311333-09B	12083050F1	12/18/93	12/16/93	90

Auxiliary Data Summary 12/21/93

Work order : B311333 Sample ID : LAB BLANK

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
08B						
	Arsenic	B311333-09B	12083050F1	12/08/93	12/16/93	1.0
	Chromium VI	B311333-08B	1209CR_VI1	12/09/93	12/09/93	1.0
	Mercury	B311333-09B	1207HGAA	12/07/93	12/07/93	1.0
	Lead	B311333-09B	12083050F1	12/08/93	12/16/93	1.0

Auxiliary Data Summary

Work order : B311333 12/21/93

Sample ID : LAB BLANK

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
09B						
	Arsenic	B311333-09B	12153050F1	12/15/93	12/19/93	1.0
	Chromium VI	B311333-09B	1130CR_VI1	11/30/93	11/30/93	1.0
	Mercury	B311333-09B	1208HGAA	12/08/93	12/08/93	1.0
	Lead	B311333-09B	12153050F1	12/15/93	12/19/93	1.0

Auxiliary Data Summary 12/30/93

Work order : B312029 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07B						
	AS_GF	B312029-07B	12143050F1	12/14/93	12/23/93	1.0
	CR_VI	B312029-07B	1210CR_VI1	12/10/93	12/10/93	1.0
	HG_AA	B312029-07B	1217HGAA1	12/17/93	12/17/93	1.0
	PB_GF	B312029-07B	12143050F1	12/14/93	12/23/93	1.0

Auxiliary Data Summary 12/30/93

Work order : B312029 Sample ID : A1163-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06B						
	AS_GF	B312029-07B	12143050F1	12/14/93	12/23/93	112
	CR_VI	B312029-07B	1210CR_VI1	12/10/93	12/10/93	50.0
	HG_AA	B312029-07B	1217HGAA1	12/17/93	12/17/93	111
	PB_GF	B312029-07B	12143050F1	12/14/93	12/23/93	112

Auxiliary Data Summary 12/30/93

Work order : B312029 Sample ID : A1163-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
05B						
	AS_GF	B312029-07B	12143050F1	12/14/93	12/23/93	90.9
	CR_VI	B312029-07B	1210CR_VI1	12/10/93	12/10/93	50.0
	HG_AA	B312029-07B	1217HGAA1	12/17/93	12/17/93	114
	PB_GF	B312029-07B	12143050F1	12/14/93	12/23/93	90.9

Auxiliary Data Summary 12/30/93

Work order : B312029 Sample ID : A1163

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	AS_GF	B312029-07B	12143050F1	12/14/93	12/23/93	95.2
	CR_VI	B312029-07B	1210CR_VI1	12/10/93	12/10/93	50.0
	HG_AA	B312029-07B	1217HGAA1	12/17/93	12/17/93	112
	PB_GF	B312029-07B	12143050F1	12/14/93	12/23/93	95.2

Auxiliary Data Summary 12/30/93

Work order : B312029 Sample ID : A1162

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	AS_GF	B312029-07B	12143050F1	12/14/93	12/23/93	105
	CR_VI	B312029-07B	1210CR_VI1	12/10/93	12/10/93	10.0
	HG_AA	B312029-07B	1217HGAA1	12/17/93	12/17/93	103
	PB_GF	B312029-07B	12143050F1	12/14/93	12/23/93	105

Auxiliary Data Summary 12/30/93

Work order : B312029 Sample ID : A1161

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B						
	AS_GF	B312029-07B	12143050F1	12/14/93	12/23/93	106
	CR_VI	B312029-07B	1210CR_VI1	12/10/93	12/10/93	10.0
	HG_AA	B312029-07B	1217HGAA1	12/17/93	12/17/93	116
	PB_GF	B312029-07B	12143050F1	12/14/93	12/23/93	106

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

Routed to CF, TL, C — 1/5/94

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 12/28/93

Work Order: B3-12-012

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O.5001 409832-003-01
Date Received: 12/01/93
Number of Samples: 15
Sample Type: SOIL

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1137	B3-12-012-01
A1138	B3-12-012-02
A1139	B3-12-012-03
A1140	B3-12-012-04
A1141	B3-12-012-05
A1142	B3-12-012-06
A1143	B3-12-012-07
A1144	B3-12-012-08
A1145	B3-12-012-09
A1145-MS	B3-12-012-10
A1145-MSD	B3-12-012-11
A1146	B3-12-012-12
A1147	B3-12-012-13

Reviewed and Approved:

Jon Bartell
Laboratory Director

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-012

Samples, continued from above:

SAMPLE IDENTIFICATION	LABORATORY #
LAB BLANK #1	B3-12-012-14
LAB BLANK #1	B3-12-012-15

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1137**
SAMPLE DATE: **11/16/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: 12/02/93
DILUTION FACTOR: 1.0
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	95	88 - 110
BROMOFLUOROBENZENE	98	86 - 115
1,2-DICHLOROETHANE-D4	109	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

SAMPLE ID: A1138
SAMPLE DATE: 11/30/93 08:45:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1138**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/07/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	105	81 - 117
BROMOFLUOROBENZENE	101	74 - 121
1,2-DICHLOROETHANE-D4	106	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1138**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1138**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	65	23 - 120
2-Fluorobiphenyl	66	30 - 115
Terphenyl-D14	92	18 - 137
Phenol-D5	65	24 - 113
2-Fluorophenol	60	25 - 121
2,4,6-Tribromophenol	84	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1138**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **97.0873**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	3.9	N	0.97	7060	12/20/93
Aluminum	15000	N	19	6010	12/16/93
Barium	130	N	19	6010	12/16/93
Beryllium	0.77		0.49	6010	12/16/93
Cadmium	0.87		0.49	6010	12/16/93
Chromium	18		0.97	6010	12/16/93
Copper	5.5		2.4	6010	12/16/93
Iron	14000	N	9.7	6010	12/16/93
Nickel	8.2		3.9	6010	12/16/93
Lead	9.9	N	1.2	7421	12/20/93
Mercury	0.030	U	0.030	7471	12/09/93
Silver	0.97	U	0.97	6010	12/16/93
Zinc	16		1.9	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

SAMPLE ID: **A1139**
SAMPLE DATE: **11/30/93 08:45:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1139**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/07/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	8.2	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	105	81 - 117
BROMOFLUOROBENZENE	102	74 - 121
1,2-DICHLOROETHANE-D4	104	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1139**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/20/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1139**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	58	23 - 120
2-Fluorobiphenyl	69	30 - 115
Terphenyl-D14	91	18 - 137
Phenol-D5	62	24 - 113
2-Fluorophenol	54	25 - 121
2,4,6-Tribromophenol	89	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1139**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **105.263**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.9	N	0.94	7060	12/20/93
Aluminum	16000	N	21	6010	12/16/93
Barium	160	N	21	6010	12/16/93
Beryllium	0.72		0.53	6010	12/16/93
Cadmium	1.3		0.53	6010	12/16/93
Chromium	21		1.1	6010	12/16/93
Copper	5.7		2.6	6010	12/16/93
Iron	16000	N	11	6010	12/16/93
Nickel	9.4		4.2	6010	12/16/93
Lead	7.3	N	0.28	7421	12/20/93
Mercury	0.030	U	0.030	7471	12/09/93
Silver	1.1	U	1.1	6010	12/16/93
Zinc	17		2.1	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

SAMPLE ID: **A1140**
SAMPLE DATE: **11/30/93 08:55:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1140**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/07/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	103	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1140**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 12/13/93
ANALYSIS DATE: 12/19/93
DILUTION FACTOR: 0.033
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1140**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	74	23 - 120
2-Fluorobiphenyl	78	30 - 115
Terphenyl-D14	108	18 - 137
Phenol-D5	82	24 - 113
2-Fluorophenol	76	25 - 121
2,4,6-Tribromophenol	102	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample
'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1140**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **99.0099**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	4.6	N	0.96	7060	12/20/93
Aluminum	11000	N	20	6010	12/16/93
Barium	79	N	20	6010	12/16/93
Beryllium	0.76		0.50	6010	12/16/93
Cadmium	0.92		0.50	6010	12/16/93
Chromium	27		0.99	6010	12/16/93
Copper	6.4		2.5	6010	12/16/93
Iron	15000	N	9.9	6010	12/16/93
Nickel	19		4.0	6010	12/16/93
Lead	3.7	N	0.29	7421	12/20/93
Mercury	0.029	U	0.029	7471	12/09/93
Silver	0.99	U	0.99	6010	12/16/93
Zinc	22		2.0	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

SAMPLE ID: **A1141**
SAMPLE DATE: **11/30/93 09:10:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1141**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/07/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	103	74 - 121
1,2-DICHLOROETHANE-D4	104	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1141**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 12/13/93
ANALYSIS DATE: 12/19/93
DILUTION FACTOR: 0.033
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1141**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	72	23 - 120
2-Fluorobiphenyl	82	30 - 115
Terphenyl-D14	106	18 - 137
Phenol-D5	77	24 - 113
2-Fluorophenol	71	25 - 121
2,4,6-Tribromophenol	100	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1141**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **96.1538**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.0	UN	1.0	7060	12/20/93
Aluminum	3900	N	19	6010	12/16/93
Barium	76	N	19	6010	12/16/93
Beryllium	0.48	U	0.48	6010	12/16/93
Cadmium	0.48	U	0.48	6010	12/16/93
Chromium	8.4		0.96	6010	12/16/93
Copper	3.6		2.4	6010	12/16/93
Iron	8200	N	9.6	6010	12/16/93
Nickel	9.2		3.8	6010	12/16/93
Lead	2.7	N	0.30	7421	12/20/93
Mercury	0.030	U	0.030	7471	12/09/93
Silver	0.96	U	0.96	6010	12/16/93
Zinc	9.9		1.9	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

SAMPLE ID: **A1142**
SAMPLE DATE: **11/30/93 10:35:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1142**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/07/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	5.8	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	105	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	104	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1142**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 12/13/93
ANALYSIS DATE: 12/19/93
DILUTION FACTOR: 0.033
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1142**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	63	23 - 120
2-Fluorobiphenyl	70	30 - 115
Terphenyl-D14	97	18 - 137
Phenol-D5	70	24 - 113
2-Fluorophenol	63	25 - 121
2,4,6-Tribromophenol	101	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1142**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **99.0099**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.2	N	1.1	7060	12/20/93
Aluminum	11000	N	20	6010	12/16/93
Barium	200	N	20	6010	12/16/93
Beryllium	0.62		0.50	6010	12/16/93
Cadmium	1.0		0.50	6010	12/16/93
Chromium	16		0.99	6010	12/16/93
Copper	5.9		2.5	6010	12/16/93
Iron	11000	N	9.9	6010	12/16/93
Nickel	8.9		4.0	6010	12/16/93
Lead	5.4	N	0.33	7421	12/20/93
Mercury	0.031	U	0.031	7471	12/09/93
Silver	0.99	U	0.99	6010	12/16/93
Zinc	15		2.0	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

SAMPLE ID: **A1143**
SAMPLE DATE: **11/30/93 11:30:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1143**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/07/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.3	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	102	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1143**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/19/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
AUSTIN, TX
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Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1143**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	71	23 - 120
2-Fluorobiphenyl	78	30 - 115
Terphenyl-D14	109	18 - 137
Phenol-D5	74	24 - 113
2-Fluorophenol	65	25 - 121
2,4,6-Tribromophenol	106	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1143**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **100.000**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.2	UN	2.2	7060	12/20/93
Aluminum	18000	N	20	6010	12/16/93
Barium	1900	N	20	6010	12/16/93
Beryllium	1.2		0.50	6010	12/16/93
Cadmium	0.50	U	0.50	6010	12/16/93
Chromium	22		1.0	6010	12/16/93
Copper	19		2.5	6010	12/16/93
Iron	14000	N	10	6010	12/16/93
Nickel	27		4.0	6010	12/16/93
Lead	6.3	N	0.33	7421	12/20/93
Mercury	0.026	U	0.026	7471	12/09/93
Silver	1.0	U	1.0	6010	12/16/93
Zinc	29		2.0	6010	12/16/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-012

SAMPLE ID: A1144
SAMPLE DATE: 11/30/93 12:15:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1144**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/08/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	103	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1144**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/19/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1144**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	77	23 - 120
2-Fluorobiphenyl	80	30 - 115
Terphenyl-D14	106	18 - 137
Phenol-D5	78	24 - 113
2-Fluorophenol	70	25 - 121
2,4,6-Tribromophenol	98	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1144**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **98.0392**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.7	UN	1.7	7060	12/20/93
Aluminum	6500	N	20	6010	12/16/93
Barium	4000	N	20	6010	12/16/93
Beryllium	0.49	U	0.49	6010	12/16/93
Cadmium	0.49	U	0.49	6010	12/16/93
Chromium	17		0.98	6010	12/16/93
Copper	4.8		2.5	6010	12/16/93
Iron	8900	N	9.8	6010	12/16/93
Nickel	12		3.9	6010	12/16/93
Lead	2.3	N	0.26	7421	12/20/93
Mercury	0.028	U	0.028	7471	12/09/93
Silver	0.98	U	0.98	6010	12/16/93
Zinc	13		2.0	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

SAMPLE ID: **A1145**
SAMPLE DATE: **11/30/93 16:15:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1145**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/08/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	104	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1145**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1145**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	75	23 - 120
2-Fluorobiphenyl	78	30 - 115
Terphenyl-D14	102	18 - 137
Phenol-D5	73	24 - 113
2-Fluorophenol	66	25 - 121
2,4,6-Tribromophenol	91	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1145**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **101.010**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	4.3	N	1.1	7060	12/20/93
Aluminum	16000	N	20	6010	12/16/93
Barium	350	N	20	6010	12/16/93
Beryllium	0.94		0.51	6010	12/16/93
Cadmium	1.4		0.51	6010	12/16/93
Chromium	35		1.0	6010	12/16/93
Copper	4.7		2.5	6010	12/16/93
Iron	21000	N	10	6010	12/16/93
Nickel	14		4.0	6010	12/16/93
Lead	6.6	N	0.33	7421	12/20/93
Mercury	0.030	U	0.030	7471	12/09/93
Silver	1.0	U	1.0	6010	12/16/93
Zinc	19		2.0	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

SAMPLE ID: **A1145-MS**
SAMPLE DATE: **11/30/93 16:15:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		97		% REC	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1145-MS**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/08/93
DILUTION FACTOR: 1.0
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	122	Trichloroethene	99
		Benzene	112
		Toluene	117
		Chlorobenzene	113

Surrogates	% Recovery	Limits
TOLUENE-D8	104	81 - 117
BROMOFLUOROBENZENE	98	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1145-MS**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 12/13/93
ANALYSIS DATE: 12/18/93
DILUTION FACTOR: 0.033
UNITS: **% REC**

	Result		Result
Phenol	73	Acenaphthene	82
2-Chlorophenol	79	4-Nitrophenol	76
1,4-Dichlorobenzene	72	2,4-Dinitrotoluene	72
N-Nitroso-di-n-propylamine	77	Pentachlorophenol	84
1,2,4-Trichlorobenzene	76	Pyrene	98
4-Chloro-3-methylphenol	84		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	72	23 - 120
2-Fluorobiphenyl	75	30 - 115
Terphenyl-D14	96	18 - 137
Phenol-D5	70	24 - 113
2-Fluorophenol	69	25 - 121
2,4,6-Tribromophenol	93	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1145-MS**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **102.040**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	113	7060	12/20/93
Aluminum	1107	6010	12/16/93
Barium	56	6010	12/16/93
Beryllium	95	6010	12/16/93
Cadmium	92	6010	12/16/93
Chromium	101	6010	12/16/93
Copper	95	6010	12/16/93
Iron	214	6010	12/16/93
Nickel	94	6010	12/16/93
Lead	143	7421	12/20/93
Mercury	110	7471	12/09/93
Silver	92	6010	12/16/93
Zinc	96	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike outside control limits due to matrix interference on aluminum analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Matrix spike and % RPD for matrix spikes outside control limits due to matrix interference on barium and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

SAMPLE ID: **A1145-MSD**
SAMPLE DATE: **11/30/93 16:15:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		99		% REC	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1145-MSD**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/08/93
DILUTION FACTOR: 1.0
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	113	Trichloroethene	90
		Benzene	103
		Toluene	104
		Chlorobenzene	103

Surrogates	% Recovery	Limits
TOLUENE-D8	105	81 - 117
BROMOFLUOROBENZENE	96	74 - 121
1,2-DICHLOROETHANE-D4	104	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1145-MSD**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **0.033**
UNITS: **% REC**

	Result		Result
Phenol	77	Acenaphthene	84
2-Chlorophenol	79	4-Nitrophenol	74
1,4-Dichlorobenzene	72	2,4-Dinitrotoluene	74
N-Nitroso-di-n-propylamine	79	Pentachlorophenol	69
1,2,4-Trichlorobenzene	73	Pyrene	101
4-Chloro-3-methylphenol	89		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	74	23 - 120
2-Fluorobiphenyl	76	30 - 115
Terphenyl-D14	100	18 - 137
Phenol-D5	72	24 - 113
2-Fluorophenol	70	25 - 121
2,4,6-Tribromophenol	94	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1145-MSD**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **98.0392**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	135	7060	12/20/93
Aluminum	1088	6010	12/16/93
Barium	94	6010	12/16/93
Beryllium	93	6010	12/16/93
Cadmium	90	6010	12/16/93
Chromium	96	6010	12/16/93
Copper	94	6010	12/16/93
Iron	212	6010	12/16/93
Nickel	92	6010	12/16/93
Lead	207	7421	12/20/93
Mercury	110	7471	12/09/93
Silver	89	6010	12/16/93
Zinc	94	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike duplicate outside control limits due to matrix interference on aluminum analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Matrix spike duplicate and % RPD for matrix spikes outside control limits due to matrix interference on iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

SAMPLE ID: A1146
SAMPLE DATE: 11/30/93 16:15:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1146**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/08/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	101	74 - 121
1,2-DICHLOROETHANE-D4	107	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1146**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/19/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1146**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	67	23 - 120
2-Fluorobiphenyl	71	30 - 115
Terphenyl-D14	94	18 - 137
Phenol-D5	68	24 - 113
2-Fluorophenol	61	25 - 121
2,4,6-Tribromophenol	85	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1146**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **98.0392**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.0	UN	2.0	7060	12/20/93
Aluminum	6000	N	20	6010	12/16/93
Barium	530	N	20	6010	12/16/93
Beryllium	0.49	U	0.49	6010	12/16/93
Cadmium	0.49	U	0.49	6010	12/16/93
Chromium	9.2		0.98	6010	12/16/93
Copper	3.2		2.5	6010	12/16/93
Iron	7000	N	9.8	6010	12/16/93
Nickel	10		3.9	6010	12/16/93
Lead	2.0	N	0.31	7421	12/20/93
Mercury	0.028	U	0.028	7471	12/09/93
Silver	0.98	U	0.98	6010	12/16/93
Zinc	12		2.0	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

SAMPLE ID: **A1147**
SAMPLE DATE: **11/30/93 17:25:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1147**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/08/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	109	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1147**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/13/93**
ANALYSIS DATE: **12/19/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1147**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	71	23 - 120
2-Fluorobiphenyl	75	30 - 115
Terphenyl-D14	97	18 - 137
Phenol-D5	71	24 - 113
2-Fluorophenol	66	25 - 121
2,4,6-Tribromophenol	89	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1147**
SAMPLE DATE: **11/30/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **99.0099**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.8	N	1.1	7060	12/20/93
Aluminum	10000	N	20	6010	12/16/93
Barium	50	N	20	6010	12/16/93
Beryllium	0.67		0.50	6010	12/16/93
Cadmium	0.50	U	0.50	6010	12/16/93
Chromium	15		0.99	6010	12/16/93
Copper	7.2		2.5	6010	12/16/93
Iron	14000	N	9.9	6010	12/16/93
Nickel	14		4.0	6010	12/16/93
Lead	2.2	N	0.33	7421	12/20/93
Mercury	0.027	U	0.027	7471	12/09/93
Silver	0.99	U	0.99	6010	12/16/93
Zinc	18		2.0	6010	12/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/07/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	102	74 - 121
1,2-DICHLOROETHANE-D4	99	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: ABN HSL GC/MS Extractables
METHOD REFERENCE: EPA8270

SAMPLE ID: LAB BLANK #1
SAMPLE DATE: not spec
SAMPLE MATRIX: SOIL
EXTRACTION DATE: 12/13/93
ANALYSIS DATE: 12/18/93
DILUTION FACTOR: 0.033
UNITS: MG/KG

	Result	Qual	Reporting Limit		Result	Qual	Reportir Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	78	23 - 120
2-Fluorobiphenyl	74	30 - 115
Terphenyl-D14	99	18 - 137
Phenol-D5	75	24 - 113
2-Fluorophenol	68	25 - 121
2,4,6-Tribromophenol	85	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **1.00000**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/20/93
Aluminum	0.20	U	0.20	6010	12/16/93
Barium	0.20	U	0.20	6010	12/16/93
Beryllium	0.0050	U	0.0050	6010	12/16/93
Cadmium	0.0050	U	0.0050	6010	12/16/93
Chromium	0.010	U	0.010	6010	12/16/93
Copper	0.025	U	0.025	6010	12/16/93
Iron	0.10	U	0.10	6010	12/16/93
Nickel	0.040	U	0.040	6010	12/16/93
Lead	0.0030	U	0.0030	7421	12/20/93
Mercury	0.00020	U	0.00020	7471	12/09/93
Silver	0.010	U	0.010	6010	12/16/93
Zinc	0.020	U	0.020	6010	12/16/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: 12/02/93
DILUTION FACTOR: 1.0
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	96	88 - 110
BROMOFLUOROBENZENE	98	86 - 115
1,2-DICHLOROETHANE-D4	102	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-12-012

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Chromium VI** TEST CODE **CR_VI**

Chromium VI	Method 7196, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water.

Company: IT CORPORATION
Date: 12/28/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-012

TEST NAME **Mercury** TEST CODE **HG_AA**

Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK2**

Method not available.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **GFAA Digestion - Soil** TEST CODE **Z3050F**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace/Flame AA analysis.

TEST NAME **ICPES Digestion - Soil** TEST CODE **Z3050P**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for ICPES analysis. Equivalent to Method 3050A, SW-846 Update I, July 1992.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 314083
Page 1 of 2

Project Name/No. [1] Tinker AFB-5001 409832.03.01
Sample Team Members [2] Kyle Kirschenmann, Andrew Gordon
Profit Center No. [3] 3527
Project Manager [4] Jimmy Taylor
Purchase Order No. [6] 409832.03.01
Required Report Date [11] 15 Days

Samples Shipment Date [7] 11-30-93
Lab Destination [8] ITAS Austin
Lab Contact [9] Karmen Deane
Project Contact/Phone [12] Dan McGregor 405-736-2260
Carrier/Waybill No. [13] 8460755634 FedEX

Bill to: [5] 409832.03.01 D.O. -5001
Report to: [10] Tim Jennings IT-Austin-ES

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Pre-servative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
A1137	Trip Blank	11-16-93 1700	clear glass	40ml	HCl COOL	8240	Good 4°C 12-1-93	B3244100C
A1138	Soil	11-30-93 0845		125ml	COOL	8240		
A1138				500ml		8270, 6010		
A1139				125ml		8240		
A1139				500ml		8270, 6010		
A1140		11-30-93 0855		125ml		8240		
A1140				500ml		8270, 6010		

Special Instructions: [23]

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

Turnaround Time Required: [26]
Normal ☒ Rush ☐

QC Level: [27]
I. ☒ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) [signature] (IT)	Date: 11-30-93 Time: 1900	1. Received by [28] (Signature/Affiliation) [signature] IT	Date: 12-1-93 Time: 0926
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29]

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 314083

Project Name Tinker AFB-5001 Project No. 409832.03.01 Samples Shipment Date 11-30-93

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Pre-servative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
A1141	Soil	11-30-93 0910	clear glass	125ml	COOL	8240	R-1-93 4°C Good	
A1141		↓		500ml		8270, 6010		
A1142		11-30-93 1035		125ml		8240		
A1142		↓		500ml		8270, 6010		
A1143		11-30-93 1130		125ml		8240		
A1143		↓		500ml		8270, 6010		
A1144		11-30-93 1215		125ml		8240		
A1144		↓		500ml		8270, 6010		
A1145		11-30-93 1615		125ml		8240		
A1145				2x500ml		8270, 6010		
A1146				125ml		8240		
A1146		↓		500ml		8270, 6010		
A1147		11-30-93 1725		125ml		8240		
A1147		↓		500ml		8270, 6010		

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1138

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	97.1
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	149
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	388

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1139

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	93.5
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	152
	Lead	B312012-14B	1213050F2	12/13/93	12/20/93	93.5

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1140

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	96.2
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	147
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	96.2

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1141

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
05B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	101
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	149
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	101

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1142

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	111
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	154
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	111

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1143

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	220
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	132
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	110

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1144

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
08B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	172
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	139
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	86.2

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1145

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
09B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	109
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	149
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	109

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1145-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
10B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	370
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	143
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	370

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1145-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
11B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	426
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	154
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	426

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1146

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
12B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	204
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	141
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	102

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : A1147

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
13B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	111
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	50.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	133
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	111

Auxiliary Data Summary 12/30/93

Work order : B312012 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
14B						
	Arsenic	B312012-14B	12133050F2	12/13/93	12/20/93	1.0
	Chromium VI	B312012-14B	1208CR_VI1	12/08/93	12/08/93	1.0
	Mercury	B312012-14B	1209HGAA2	12/09/93	12/09/93	1.0
	Lead	B312012-14B	12133050F2	12/13/93	12/20/93	1.0

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

Routed to CF.TL.C
1/6/94

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 12/29/93

Work Order: B3-12-029

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O.5001 409832-003-03
Date Received: 12/02/93
Number of Samples: 8
Sample Type: SOIL

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1160	B3-12-029-01
A1161	B3-12-029-02
A1162	B3-12-029-03
A1163	B3-12-029-04
A1163-MS	B3-12-029-05
A1163-MSD	B3-12-029-06
LAB BLANK #1	B3-12-029-07
LAB BLANK #1	B3-12-029-08

Reviewed and Approved:

Jon Bartell
Laboratory Director

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

409832-003-03 Work Order: B3-12-029

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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409832-003-03 Work Order: B3-12-029

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1160**
SAMPLE DATE: **11/16/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	3.2	JB	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	91	88 - 110
BROMOFLUOROBENZENE	105	86 - 115
1,2-DICHLOROETHANE-D4	111	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-03 Work Order: B3-12-029

SAMPLE ID: **A1161**
SAMPLE DATE: **12/01/93 17:00:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	12/10/93	EPA7196

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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409832-003-03 Work Order: B3-12-029

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1161**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/08/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	110	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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AUSTIN, TX
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409832-003-03 Work Order: B3-12-029

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1161**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 12/15/93
ANALYSIS DATE: 12/17/93
DILUTION FACTOR: 0.033
UNITS: MG/KG

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
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(512) 892-6684

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

409832-003-03 Work Order: B3-12-029

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1161**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	75	23 - 120
2-Fluorobiphenyl	76	30 - 115
Terphenyl-D14	102	18 - 137
Phenol-D5	81	24 - 113
2-Fluorophenol	72	25 - 121
2,4,6-Tribromophenol	93	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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AUSTIN, TX
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409832-003-03 Work Order: B3-12-029

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1161**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **112.359**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	4.5		1.1	7060	12/23/93
Aluminum	9200	N	22	6010	12/21/93
Barium	170	*N	22	6010	12/21/93
Beryllium	1.8		0.56	6010	12/21/93
Cadmium	0.59		0.56	6010	12/21/93
Chromium	20		1.1	6010	12/21/93
Copper	3.0		2.8	6010	12/21/93
Iron	13000	N	11	6010	12/21/93
Nickel	14		4.5	6010	12/21/93
Lead	3.9		0.32	7421	12/23/93
Mercury	0.023	U	0.023	7471	12/17/93
Silver	1.1	U	1.1	6010	12/21/93
Zinc	14		2.2	6010	12/21/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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409832-003-03 Work Order: B3-12-029

SAMPLE ID: **A1162**
SAMPLE DATE: **12/01/93 17:05:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	12/10/93	EPA7196

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-03 Work Order: B3-12-029

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1162**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/08/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	109	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-03 Work Order: B3-12-029

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1162**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/17/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-03 Work Order: B3-12-029

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1162**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	73	23 - 120
2-Fluorobiphenyl	77	30 - 115
Terphenyl-D14	103	18 - 137
Phenol-D5	79	24 - 113
2-Fluorophenol	71	25 - 121
2,4,6-Tribromophenol	91	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-03 Work Order: B3-12-029

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1162**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **95.2380**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.6		1.1	7060	12/23/93
Aluminum	3200	N	19	6010	12/21/93
Barium	28	*N	19	6010	12/21/93
Beryllium	0.72		0.48	6010	12/21/93
Cadmium	0.48	U	0.48	6010	12/21/93
Chromium	16		0.95	6010	12/21/93
Copper	2.4	U	2.4	6010	12/21/93
Iron	6300	N	9.5	6010	12/21/93
Nickel	7.5		3.8	6010	12/21/93
Lead	1.2		0.32	7421	12/23/93
Mercury	0.021	U	0.021	7471	12/17/93
Silver	0.95	U	0.95	6010	12/21/93
Zinc	9.0		1.9	6010	12/21/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-03 Work Order: B3-12-029

SAMPLE ID: **A1163**
SAMPLE DATE: **12/01/93 17:30:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/10/93	EPA7196

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-03 Work Order: B3-12-029

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1163**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/08/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	101	74 - 121
1,2-DICHLOROETHANE-D4	109	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-03 Work Order: B3-12-029

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1163**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/17/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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AUSTIN, TX
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409832-003-03 Work Order: B3-12-029

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1163**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	72	23 - 120
2-Fluorobiphenyl	74	30 - 115
Terphenyl-D14	100	18 - 137
Phenol-D5	80	24 - 113
2-Fluorophenol	69	25 - 121
2,4,6-Tribromophenol	84	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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409832-003-03 Work Order: B3-12-029

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1163**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **89.2857**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.2		0.95	7060	12/23/93
Aluminum	6400	N	18	6010	12/21/93
Barium	1700	*N	18	6010	12/21/93
Beryllium	0.88		0.45	6010	12/21/93
Cadmium	0.45	U	0.45	6010	12/21/93
Chromium	12		0.89	6010	12/21/93
Copper	3.9		2.2	6010	12/21/93
Iron	8300	N	8.9	6010	12/21/93
Nickel	12		3.6	6010	12/21/93
Lead	2.2		0.29	7421	12/23/93
Mercury	0.022	U	0.022	7471	12/17/93
Silver	0.89	U	0.89	6010	12/21/93
Zinc	15		1.8	6010	12/21/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Duplicate analysis outside control limits due to matrix interference on barium analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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409832-003-03 Work Order: B3-12-029

SAMPLE ID: **A1163-MS**
SAMPLE DATE: **12/01/93 17:30:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		98		% REC	12/10/93	EPA7196

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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409832-003-03 Work Order: B3-12-029

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1163-MS**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/08/93
DILUTION FACTOR: 1.0
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	112	Trichloroethene	89
		Benzene	103
		Toluene	101
		Chlorobenzene	101

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	102	74 - 121
1,2-DICHLOROETHANE-D4	107	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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409832-003-03 Work Order: B3-12-029

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1163-MS**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 12/15/93
ANALYSIS DATE: 12/17/93
DILUTION FACTOR: 0.033
UNITS: **% REC**

	Result		Result
Phenol	80	Acenaphthene	86
2-Chlorophenol	82	4-Nitrophenol	57
1,4-Dichlorobenzene	75	2,4-Dinitrotoluene	69
N-Nitroso-di-n-propylamine	81	Pentachlorophenol	51
1,2,4-Trichlorobenzene	70	Pyrene	98
4-Chloro-3-methylphenol	78		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	73	23 - 120
2-Fluorobiphenyl	71	30 - 115
Terphenyl-D14	97	18 - 137
Phenol-D5	80	24 - 113
2-Fluorophenol	74	25 - 121
2,4,6-Tribromophenol	79	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample
'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

409832-003-03 Work Order: B3-12-029

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1163-MS**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **114.942**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	73.7	7060	12/23/93
Aluminum	618	6010	12/21/93
Barium	0	6010	12/21/93
Beryllium	88	6010	12/21/93
Cadmium	83	6010	12/21/93
Chromium	85	6010	12/21/93
Copper	88	6010	12/21/93
Iron	302	6010	12/21/93
Nickel	78	6010	12/21/93
Lead	64	7421	12/23/93
Mercury	108	7471	12/17/93
Silver	83	6010	12/21/93
Zinc	82	6010	12/21/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike outside control limits due to matrix interference on aluminum and nickle analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Matrix spike and % RPD for matrix spikes outside control limits due to matrix interference on barium and iron. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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409832-003-03 Work Order: B3-12-029

SAMPLE ID: **A1163-MSD**
SAMPLE DATE: **12/01/93 17:30:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		99		% REC	12/10/93	EPA7196

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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409832-003-03 Work Order: B3-12-029

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1163-MSD**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/08/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	115	Trichloroethene	92
		Benzene	106
		Toluene	104
		Chlorobenzene	105

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	101	74 - 121
1,2-DICHLOROETHANE-D4	107	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

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409832-003-03 Work Order: B3-12-029

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1163-MSD**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 12/15/93
ANALYSIS DATE: 12/17/93
DILUTION FACTOR: 0.033
UNITS: **% REC**

	Result		Result
Phenol	75	Acenaphthene	80
2-Chlorophenol	77	4-Nitrophenol	66
1,4-Dichlorobenzene	72	2,4-Dinitrotoluene	68
N-Nitroso-di-n-propylamine	71	Pentachlorophenol	59
1,2,4-Trichlorobenzene	70	Pyrene	89
4-Chloro-3-methylphenol	78		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	70	23 - 120
2-Fluorobiphenyl	71	30 - 115
Terphenyl-D14	90	18 - 137
Phenol-D5	74	24 - 113
2-Fluorophenol	69	25 - 121
2,4,6-Tribromophenol	89	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-03 Work Order: B3-12-029

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1163-MSD**
SAMPLE DATE: **12/01/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **109.890**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	83.7	7060	12/23/93
Aluminum	700	6010	12/21/93
Barium	0	6010	12/21/93
Beryllium	87	6010	12/21/93
Cadmium	82	6010	12/21/93
Chromium	89	6010	12/21/93
Copper	88	6010	12/21/93
Iron	423	6010	12/21/93
Nickel	82	6010	12/21/93
Lead	64	7421	12/23/93
Mercury	110	7471	12/17/93
Silver	83	6010	12/21/93
Zinc	83	6010	12/21/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike duplicate outside control limits due to matrix interference on aluminum analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Matrix spike duplicate and % RPD for matrix spikes outside control limits due to matrix interference on barium and iron. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-03 Work Order: B3-12-029

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/KG	12/10/93	EPA7196

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-03 Work Order: B3-12-029

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 12/07/93
DILUTION FACTOR: 1.0
UNITS: UG/KG

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	102	74 - 121
1,2-DICHLOROETHANE-D4	99	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-03 Work Order: B3-12-029

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 12/15/93
ANALYSIS DATE: 12/17/93
DILUTION FACTOR: 0.033
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-03 Work Order: B3-12-029

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	50	23 - 120
2-Fluorobiphenyl	56	30 - 115
Terphenyl-D14	66	18 - 137
Phenol-D5	61	24 - 113
2-Fluorophenol	53	25 - 121
2,4,6-Tribromophenol	58	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-03 Work Order: B3-12-029

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **1.0**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/23/93
Aluminum	0.20	U	0.20	6010	12/21/93
Barium	0.20	U	0.20	6010	12/21/93
Beryllium	0.0050	U	0.0050	6010	12/21/93
Cadmium	0.0050	U	0.0050	6010	12/21/93
Chromium	0.010	U	0.010	6010	12/21/93
Copper	0.0250	U	0.0250	6010	12/21/93
Iron	0.10	U	0.10	6010	12/21/93
Nickel	0.040	U	0.040	6010	12/21/93
Lead	0.0030	U	0.0030	7421	12/23/93
Mercury	0.00020	U	0.00020	7471	12/17/93
Silver	0.010	U	0.010	6010	12/21/93
Zinc	0.020	U	0.020	6010	12/21/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-03 Work Order: B3-12-029

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: 12/03/93
DILUTION FACTOR: 1.0
UNITS: UG/L

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	3.2	J	5
1,1,1-Trichloroethane	3.4	J	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	95	88 - 110
BROMOFLUOROBENZENE	98	86 - 115
1,2-DICHLOROETHANE-D4	103	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684
409832-003-03 Work Order: B3-12-029

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Chromium VI** TEST CODE **CR_VI**

Chromium VI	Method 7196, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water.

Company: IT CORPORATION
Date: 12/29/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-03 Work Order: B3-12-029

TEST NAME **Mercury** TEST CODE **HG_AA**

Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK2**

Method not available.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **GFAA Digestion - Soil** TEST CODE **Z3050F**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace/Flame AA analysis.

TEST NAME **ICPES Digestion - Soil** TEST CODE **Z3050P**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for ICPES analysis. Equivalent to Method 3050A, SW-846 Update I, July 1992.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 314100
Page 1 of 1

Project Name/No. [1] Tinker 5001 409832.03.01
Sample Team Members [2] A. Gordon K. Kirschenmann
Profit Center No. [3] 3527
Project Manager [4] Jimmy Taylor
Purchase Order No. [6] 409832.03
Required Report Date [11] 15 Days

Samples Shipment Date [7] 12-1-93
Lab Destination [8] ITAS-Austin
Lab Contact [9] Karmen Deane
Project Contact/Phone [12] Dan McGregor 405-736-2260
Carrier/Waybill No. [13] FedEx 8460755671

Bill to: [5] 409832.03.01 D.O. 5001
Report to: [10] Tim Jennings IT-Austin-ES

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Pre-servative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
A1160	Trip	11-16-93 1700	Clear glass	40ml	HCL COOL	8240	Good 1°C 30 hours HRC 12-2-93	
A1161	Soil	12-1-93 1700		125ml	COOL	8240		
A1161				500ml		8270, 6010		
A1162		12-1-93 1705		125ml		8240		
A1162				500ml		8270, 6010		
A1163		12-1-93 1736		125ml		8240		
A1163				500ml		8270, 6010		

Special Instructions: [23]

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

Turnaround Time Required: [26]
Normal ☒ Rush ☐

QC Level: [27]
I. ☐ II. ☒ III. ☐ Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation)	Date: 12-1-93 Time: 1900	1. Received by [28] (Signature/Affiliation) Lori Church IT	Date: 12-2-93 Time: 0859
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29]

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

MCA 3/15/91

APPENDIX D

SITE SURVEY REPORT

Phone: (405) 843-4847
WATS: (800) 654-3219
FAX: (405) 843-0975

TOPOGRAPHIC
LAND SURVEYORS
OF OKLAHOMA

Surveying and Mapping for Oklahoma's Energy Industry

6709 N. Classen Blvd. Oklahoma City, Oklahoma 73116

International Technology Corporation
Attn.: Joe Pacelli
312 Directors Drive
Knoxville, Tn 37923
Reference: IT Subcontract No. **547295**
IDO-5001
Bid 93116
(*Survey Contract*)
4.4 Documentation of Surveying Activities

Survey Contractor:

Topographic Land Surveyors of Oklahoma
6709 N. Classen Blvd.
Oklahoma City, Oklahoma 73116
Edward D. (Deral) Paulk, PLS
President
Harry McClintick, PLS
Party Chief
(405) 843-4847

Instrumentation:

Work done was completed with a Topcon/Sokkisha Model C3E. Last calibration by the factory was done 10/10/1993 and was checked daily by standard survey methods to determine that the tolerance was within factory limits. The unique serial number for the instrument is # 153047. The data collector was a Hewlett-Packard 48SX using the TDS Survey card.

Methods:

Standard mil-spec survey methods were employed during the survey and included.
Double sets of repetitive angles, both in horizontal and vertical.
Distance in Meters and Feet for double redundancy.

Control Points:

All control points used were set by the Corps of Engineers and the coordinates were supplied to us in NAD-83 Meters, Oklahoma North Zone (3501) based upon the Lambert projection. Typical numbers were;

BM SE (secondary control points)
BM PR (Primary control points)

These points were established by Trimble 4000SE GPS receivers and are capable of obtaining accuracy in the centimeter range. During our survey we confirmed this accuracy and due to the nature of GPS usage, we did not balance our traverse of the monumentation. See explanation beginning on page three, this document.

Tabulation of Vertical and Horizontal Coordinates:

In sheet form broken into per site information in three formats.
NAD-83 Meters
NAD-27 Feet
NAD-83 Feet

Field Notes, Calculations and Reduction Techniques:

All field work was performed using Total Station and no reduction was necessary. Grid and Sea level factors used in the calculations are attached as part of this report. No paper field notes were kept, except diagrams explaining shot points. These are included as drawings and are part of the digital information supplied.
Actual closure of each particular site is disclosed within this document beginning on page 4.

This survey is true and accurate based upon monumentation supplied by Tinker Air Force Base.

Edward D. Paulk, PLS #1279
Topographic Land Surveyors of Oklahoma
6709 N. Classen Blvd.
Oklahoma City, Oklahoma 73116

REGISTERED LAND SURVEYOR
Edward Deral Paulk, Jr.
L. S. 1279
OKLAHOMA

USAGE OF GPS MONUMENTATION

Qualifications:
We are a Trimble Navigation dealer for the Midwest and have had crews surveying using GPS for over two years. Edward D. Paulk, has attended training and seminars continually to maintain a level of experience and technical knowledge of GPS that exceeds specs of GPS surveys.

During the course of our preliminary survey, we had closures that exceeded specs and we were forced to continue surveys back to our point of beginning to check our accuracy. We continually proved our surveys by closures exceeding 1 in 10,000, but we could not achieve this using the provided GPS monumentation and closing on a third monument.

We contacted the base mapping department and learned that the monuments were set using 4000SE receivers (GPS) by the Corps of Engineers. The 4000SE is capable of accuracy on any point of +/- 1-3 Centimeters. After this determination, we were well within specs of their given coordinates.

Their survey closure was probably quite good given the distances that they monumented, however when you use relatively close monuments as our survey dictated and very few traverse points, the error looks poor. Had we shot a mile away, then back to add some footage to our survey, the closure would have been much better. Since this technique is only used to comply with a pure mathematical closure, not a better survey, and would not actually improve positional accuracy, we did not do this.

Site by Site Report

File HM-A
HCL Tank
4 Soil Borings
IT Drawing #409832 Fig. 5.5
Horizontal and Vertical Control was establish for (4) four Soil Borings.
BM SE-33, SE-05 and PR-07 were used for control.

Upon first completion of traverse, we closed on PR-07 with 3.041' of error, but our vertical was with 0.05'. We made a closure back to SE-05 and closed within 0.4'. This site had the only apparent large discrepancy in their control. Since SE-33 and SE-05 agreed within limits we used these to determine closure.

Horizontal Accuracy 1 in 10,000
Vertical Accuracy 1 in 95,800

File HM-B
SPILL POND
2 Soil Borings
IT Drawing #409832 Fig. 5.6
Horizontal and Vertical Control was establish for (2) Soil Borings.
BM SE-33, SE-37 and SE-42 were used for control.

Horizontal Accuracy 1 in 5902
Vertical Accuracy 1 in 12,000

We closed back upon our first monument horizontally 1 in 25,000 as a check.

File HM-C
Sludge Drying Beds and Old Pesticide Area
13 Soil Borings
6 Monitor Wells
7 SG Points
IT Drawing # 409832 Fig. 5.3 and 5.7
Horizontal and Vertical Control was established for (13) Soil Borings, (6) Six Monitor wells and (7) SG Points.
BM SE-41, SE-45 and SE-47 were used for control.
Horizontal Accuracy 1 in 8725
Vertical Accuracy 1 in 390,000

We closed back upon BM SE-45 as a check and closed 1 in 14,000 Horizontally.

FileHM-D
Fuel Truck
(8) Soil Borings
(3) Monitor Wells
(3) SG Points
IT Drawing #409832 Fig. 5.4
Horizontal and Vertical Control was established for (8) Soil Borings, (3) Monitor wells and (3) SG Points.
BM PR-02, SE-16 and PR-03 were used for control.

Horizontal Accuracy 1 in 22,586
Vertical Accuracy 1 in 20,000

File HM-E
Ordnance Disposal Area
(5) Soil Borings
(4) Corners of area as per staked and Dan McGregor's instructions.
IT Drawing #409832 Fig. 5.1
Horizontal and Vertical Control was established for (5) Soil Borings, (4) Corners of area.
BM SE-19, PR-02 and SE-016 were used for control.

Horizontal Accuracy 1 in 10,000
Vertical Accuracy 1 in 20,000

File HM-F
Fire Training Area 2
(8) Monitor Wells
IT Drawing #409832 Fig. 5.8
Horizontal and Vertical Control was established for (8) Monitor Wells.
BM SE-37, SE-33 and BM32 were used for control.

Horizontal Accuracy 1 in 34,800
Vertical Accuracy 1 in 95,000

File HM-G
AFFF Fire Control Pond
(4) Soil Borings
IT Drawing #409832 Fig. 5.2
Horizontal and Vertical Control was established for (4) Soil Borings.
BM SE-31, SE-22 and PR-01 were used for control.

Horizontal Accuracy 1 in 6500
Vertical Accuracy 1 in 58,000

Shots Typical

Soil Borings- One X,Y,Z placed center of drill hole, typically on top of concrete fill-in area.
(36) Total Soil Borings

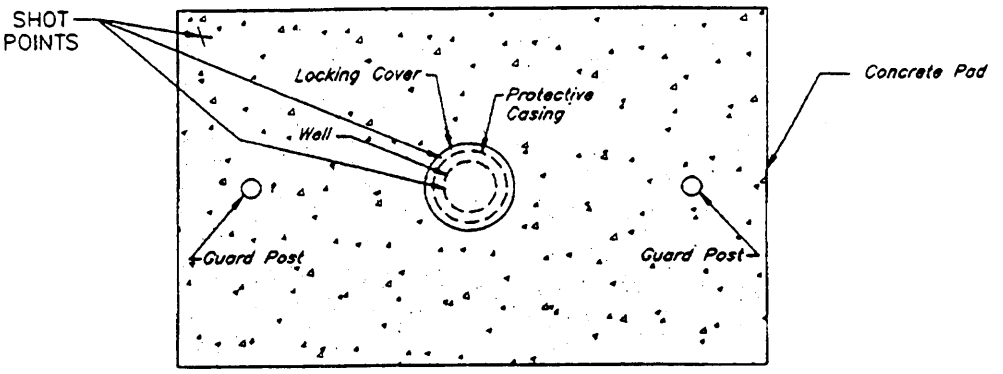
Monitor Well- (*Flush mount*) Three X,Y,Z,s were placed upon each well.
1: NW Corner of concrete pad.
2: Top of retaining casing, where well number was stamped into a milled area.
3: Top of well, under seal, (X,Y determined for center, and Z determined at north lip of well.

(*Tower Mount*) Three X,Y,Z,s were placed upon each well.
1: NW Corner of concrete pad.
2: Top of square guard, center
3: Screw cap removed, X and Y in Center and Z on the North lip of well.
(17) Total Monitoring wells. 51 points.

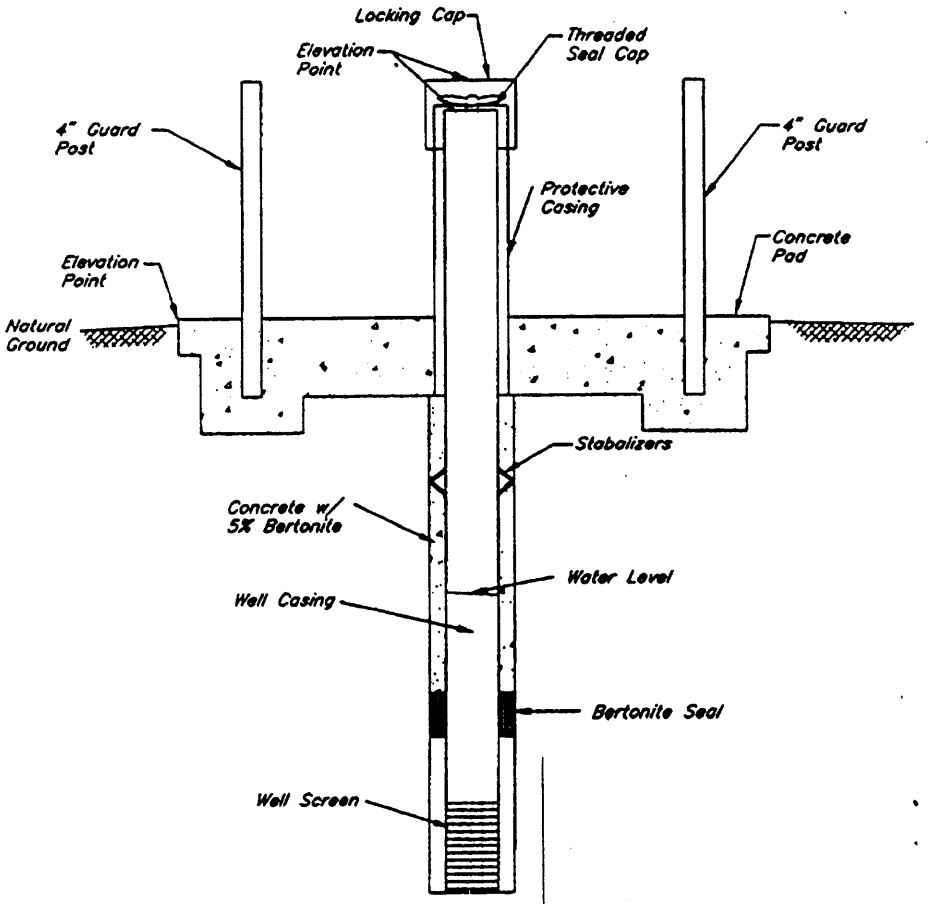
In addition; we determined X,Y and Z for a number of SG points. These were determined at center of dig point.

In addition; we determined X,Y and Z for four corners of an area in the **Ordnance Disposal area** as per Dan McGregor's instructions. These points were stakes set by previous contractor.

Included in this report are two drawings showing typical well layouts.
Drawing Flush.Dwg
Tower.Dwg



TOP VIEW



SIDE VIEW

NO.	REVISION	DATE	BY

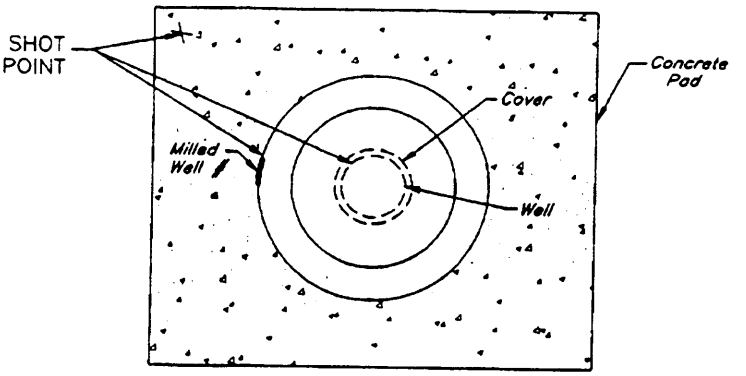
TYPICAL STICK-UP MONITORING WELLS

TOPOGRAPHIC LAND SURVEYORS
OKLAHOMA CITY, OKLAHOMA

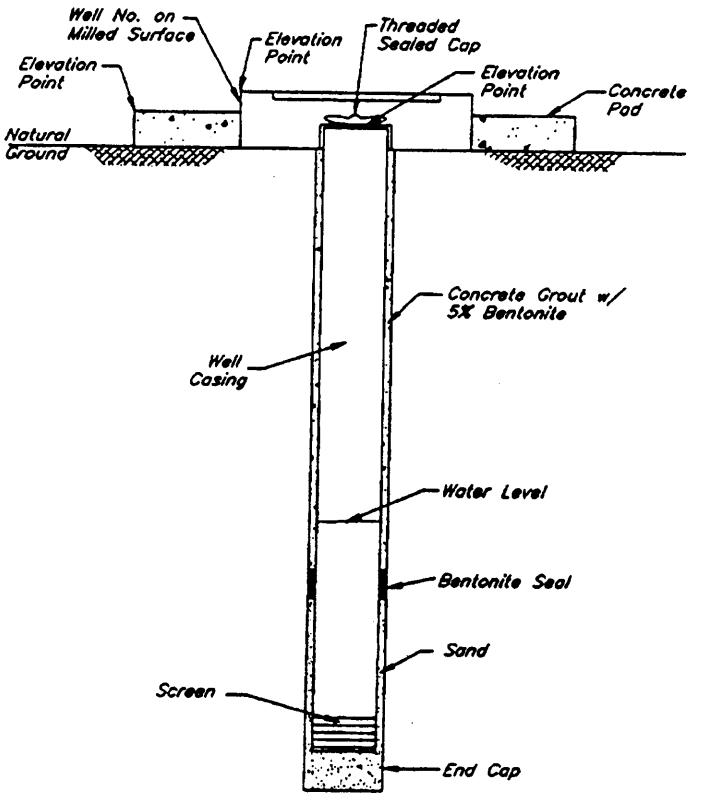
DATE: 1-19-94

DRAWING: STICK-UP.DWG

SHEET OF



TOP VIEW



SIDE VIEW

NO.	REVISION	DATE	BY

TYPICAL FLUSH MOUNT MONITORING WELLS

TOPOGRAPHIC LAND SURVEYORS
OKLAHOMA CITY, OKLAHOMA

DATE: 1-18-94

DRAWING: FLUSH.DWG

SHEET OF

Tinker AFB		**Factors**	
		Factors.txt	
Calculations for Grid Distance			
Formula Used	1-(1250)/(20,906,000)	0.9999402086	Elevation Factor
Elevation average is 1250			
Grid Factor from USGS Tables			
Average Latitude is 35-25		1.0000306000	Grid Factor
Combination Factor is multiple of these		0.9999708067	Combo Factor

Diskette Files

Disk Labeled *IDO-5001*
#547295
Text Files and Final Reports

FILE NAME	DESCRIPTION
Report.WPS	Microsoft Works file of final report
Report.TXT	ASCII file of final report.
Finals.WB1	Quattro Pro for Windows data base All areas, control and Factors NAD-83, NAD-27
Finals.WK3	1-2-3 V.3.x database All areas, control and Factors
Hcl.TXT	ASCII of HCL Area
Spill.TXT	ASCII of Spill Pond
Sludge.TXT	ASCII of Sludge and Pesticide
Fuel.TXT	ASCII of Fuel Truck
Ordance.TXT	ASCII of Ordnance area
Fire.TXT	ASCII of Fire Training
FireC.TXT	ASCII of Fire Control
NAD83.TXT	ASCII of X,Y,Z and Description
NAD27.TXT	ASCII of X,Y,Z and Description
Control.TXT	ASCII of X,Y,Z and Description of control monuments.
Factor.TXT	ASCII of grid/elevation factors used in calculations.

Nad 83 Datum

State Plane Lambert Coordinate System

Oklahoma North Zone

Values in Feet

Format given was in meters

Conversion used was

Meters X 3.280833337

Nad 1927

Control Coordinates from GPS

	GPS Marker	Meters	Feet	Meters Northing	Meters Easting	[redacted]	[redacted]	Feet Northing	Feet Easting
Fire Training Center	SE24	[redacted]	1,269.18	45950.816	655952.839	[redacted]	2150271.943	150730.564	2183669.404
	SE28	[redacted]	1,239.53	45604.798	655531.584	[redacted]	2150089.874	149595.353	2182287.332
	SE32	[redacted]	1,248.88	45431.969	655045.990	[redacted]	2149086.721	149026.353	2180694.179
	SE43	[redacted]	1,240.39	46303.717	654817.311	[redacted]	2148346.462	151888.413	2179943.944
Bldg 1030 Spill Pond	SE37	[redacted]	1,240.00	45788.902	654625.746	[redacted]	2147717.970	150199.400	2179315.440
	SE42	[redacted]	1,229.29	46296.627	654526.676	[redacted]	2147392.938	151865.163	2178990.423
Bldg 978-AFFF	SE22	[redacted]	1,267.20	44861.607	655589.130	[redacted]	2150879.873	147157.075	2182476.110
	SE31	[redacted]	1,273.22	44877.485	654833.045	[redacted]	2148399.095	147209.198	2179995.530
	PR01	[redacted]	1,288.40	44381.814	655603.420	[redacted]	2150926.555	145582.956	2182522.978
Sludge Drying Beds	SE45	[redacted]	1,229.49	46693.176	654086.696	[redacted]	2145949.437	153186.188	2177546.973
	SE47	[redacted]	1,522.80	47117.173	654049.981	[redacted]	2146028.993	154557.245	2177426.496
	SE41	[redacted]	1,240.10	46360.622	653942.053	[redacted]	2145674.886	152075.142	2177072.383
HCL Tank	SE05	[redacted]	1,270.85	46999.293	656307.763	[redacted]	2153298.387	154170.415	2184833.870
	SE08	[redacted]	1,296.84	46012.200	656807.677	[redacted]	2154976.523	150931.917	2186473.977
	PR07	[redacted]	1,281.13	47640.475	656374.729	[redacted]	2153456.002	156274.017	2185053.591
Ordinance Disposal	SE16	[redacted]	1,298.13	44935.219	656910.278	[redacted]	2155219.140	147398.529	2186810.565
	PR02	[redacted]	1,303.94	44519.766	656757.523	[redacted]	2154711.978	146035.506	2186309.389
	SE15	[redacted]	1,297.22	44874.549	656322.201	[redacted]	2153263.757	147199.504	2184881.187
Fuel Truck Maint.	SE10	[redacted]	1,285.81	45464.255	656655.015	[redacted]	2154375.662	149134.216	2185973.103
	PR03	[redacted]	1,306.73	45229.480	657014.725	[redacted]	2155555.811	148363.946	2187153.241
Others	SE03	[redacted]	1,259.28	47481.646	656307.338	[redacted]	2153294.994	155752.933	2184832.489
	SE19	[redacted]	1,287.80	44134.062	656649.276	[redacted]	2154356.837	144770.084	2185954.242
	SE33	[redacted]	1,260.97	45572.014	654847.132	[redacted]	2148444.301	149487.624	2180041.762
	SE38	[redacted]	1,260.99	45560.105	653975.745	[redacted]	2145585.425	149448.783	2177182.896
	[redacted]	[redacted]	1,255.01	45726.546	654009.317	[redacted]	2145695.571	149994.849	2177293.048

Tinker AFB			
Calculations for Grid Distance			
Formula Used	1-(1250)/(20,906,000)	0.9999402086	Elevation Factor
Elevation average is 1250			
Grid Factor from USGS Tables			
Average Latitude is 35-25		1.0000306000	Grid Factor
Combination Factor is multiple of these		0.9999708067	Combo Factor

Topographic	HM-A File	HCL Tank								
	NAD-83 Feet			NAD-83 Meters			NAD-27			
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
SB-045	153284.190	2153636.064	1275.110	46721.114	656,429.578	388.654	153257.757	2,185,233.520	1275.110
SB-044	153838.492	2153621.494	1275.980	46890.066	656,425.137	388.919	153812.059	2,185,218.954	1275.980
SB-042	154150.008	2153620.517	1276.230	46985.016	656,424.839	388.996	154123.573	2,185,217.979	1276.230
SB-043	154445.476	2153604.478	1275.830	47075.075	656,419.950	388.874	154419.041	2,185,201.941	1275.830
				Conversion Factor			NAD-27 Derived with		
				Meters X 3.28083337			Corpscon Program		
				3.28083337					

Topographic	*HM-B File*	Spill Pond							
	NAD-83 Feet			NAD-83 Meters			NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
SB-019	150763.571	2148028.472	1227.435	45952.828	654,720.380	374.123	150737.212	2,179,625.925	1227.435
SB-020	150782.180	2148011.904	1226.202	45958.500	654,715.330	373.747	150755.821	2,179,609.357	1226.202

Conversion Factor
Meters X 3.28083337

3.28083337

NAD-27 Derived with
Corpscon Program

Topographic	HM-C	Sludge and Pesticide		Conversion	3.28083337				
	NAD-83 Feet			NAD-83 Meters			NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
SB-029	153312.251	2145687.276	1226.929	46729.667	654006.782	373.969	153285.911	2177284.758	1226.929
SB-030	153346.842	2145683.882	1225.960	46740.210	654005.748	373.673	153320.501	2177281.365	1225.960
SB-031	153365.289	2145684.283	1226.145	46745.833	654005.870	373.730	153338.949	2177281.766	1226.145
SB-032	153366.845	2145704.893	1226.026	46746.307	654012.152	373.693	153340.504	2177302.376	1226.026
SB-033	153369.982	2145725.373	1226.205	46747.263	654018.394	373.748	153343.640	2177322.855	1226.205
SB-034	153367.428	2145750.652	1225.884	46746.485	654026.099	373.650	153341.088	2177348.133	1225.884
NWCorPad	153327.504	2145660.862	1227.987	46734.316	653998.731	374.291	153301.164	2177258.344	1227.987
BrassTag	153325.646	2145662.395	1228.252	46733.750	653999.199	374.372	153299.307	2177259.879	1228.252
MW2-67A	153325.656	2145662.944	1227.880	46733.753	653999.366	374.259	153299.317	2177260.427	1227.880
NWCorPad	153334.792	2145660.365	1227.942	46736.538	653998.580	374.277	153308.454	2177257.848	1227.942
BrassTag	153332.586	2145662.743	1228.136	46735.865	653999.305	374.337	153306.246	2177260.227	1228.136
MW2-67B	153333.109	2145662.460	1227.749	46736.025	653999.218	374.219	153306.771	2177259.941	1227.749
SG-021	153294.259	2145661.494	1227.875	46724.183	653998.924	374.257	153267.920	2177258.977	1227.875
SG-027	153504.913	2145656.153	1227.450	46788.391	653997.296	374.128	153478.575	2177253.637	1227.450
NWCorPad	153485.156	2145668.540	1227.773	46782.369	654001.072	374.226	153458.818	2177266.025	1227.773
BrassTag	153482.661	2145670.729	1227.992	46781.608	654001.739	374.293	153456.321	2177268.214	1227.992
MW2-68A	153483.317	2145670.331	1227.639	46781.808	654001.618	374.185	153456.977	2177267.817	1227.639
NWCorPad	153498.329	2145667.974	1227.737	46786.384	654000.899	374.215	153471.990	2177265.458	1227.737
BrassTag	153497.345	2145669.894	1227.801	46786.084	654001.484	374.234	153471.006	2177267.377	1227.801
MW2-68B	153496.783	2145670.021	1227.501	46785.913	654001.523	374.143	153470.445	2177267.505	1227.501
SB-035	153513.044	2145686.160	1225.832	46790.869	654006.442	373.634	153486.704	2177283.644	1225.832
SB-041	153461.953	2145572.501	1226.184	46775.296	653971.799	373.742	153435.613	2177169.986	1226.184
SG-045	153403.851	2145548.281	1227.352	46757.587	653964.417	374.098	153377.514	2177145.766	1227.352
SG-043	153478.151	2145547.779	1227.388	46780.233	653964.264	374.109	153451.811	2177145.265	1227.388
SB-039	153436.514	2145600.936	1225.186	46767.542	653980.466	373.437	153410.174	2177198.420	1225.186
SB-040	153422.287	2145576.593	1225.367	46763.206	653973.046	373.493	153395.948	2177174.077	1225.367
SB-036	153520.297	2145709.088	1225.408	46793.080	654013.431	373.505	153493.958	2177306.573	1225.408
SB-037	153515.849	2145723.059	1225.822	46791.724	654017.689	373.631	153489.509	2177320.543	1225.822
SB-038	153515.734	2145749.026	1225.397	46791.689	654025.604	373.502	153489.394	2177346.511	1225.397
SG-030	153587.989	2145651.621	1228.246	46813.712	653995.915	374.370	153561.649	2177249.107	1228.246
SG-034	153561.346	2145780.604	1228.528	46805.591	654035.229	374.456	153535.004	2177378.089	1228.528
SG-035	153529.622	2145780.692	1228.755	46795.922	654035.256	374.525	153503.281	2177378.177	1228.755
NWCorPad	153503.822	2145892.455	1228.566	46788.058	654069.321	374.468	153477.479	2177489.938	1228.566
BrassTag	153501.522	2145894.847	1228.786	46787.357	654070.050	374.535	153475.180	2177492.330	1228.786
MW2-66B	153501.835	2145894.243	1228.424	46787.452	654069.866	374.424	153475.491	2177491.726	1228.424
NWCorPad	153512.675	2145892.637	1228.458	46790.756	654069.377	374.435	153486.331	2177490.122	1228.458
BrassTag	153511.424	2145894.290	1228.601	46790.375	654069.880	374.478	153485.081	2177491.772	1228.601
MW2-66A	153510.700	2145894.300	1228.209	46790.154	654069.883	374.359	153484.356	2177491.782	1228.209

Topographic	HM-D	Fuel Truck								
	NAD-83 Feet			NAD-83 Meters			NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
NWCorPad	148775.507	2155282.108	1295.444	45346.865	656931.293	394.852	148749.069	2186879.522	1295.444
TopCap	148773.603	2155283.795	1298.011	45346.284	656931.807	395.635	148747.163	2186881.208	1298.011
MW2-59	148773.597	2155283.829	1297.780	45346.283	656931.818	395.564	148747.160	2186881.244	1297.780
NWCorPad	148680.914	2155133.601	1295.503	45318.033	656886.028	394.870	148654.478	2186731.015	1295.503
TopCap	148679.362	2155135.280	1297.910	45317.560	656886.540	395.604	148652.926	2186732.695	1297.910
MW2-61	148679.399	2155135.301	1297.669	45317.571	656886.546	395.530	148652.962	2186732.714	1297.669
SG-011	148684.532	2155080.720	1293.606	45319.135	656869.910	394.292	148658.094	2186678.134	1293.606
SG-007	148683.636	2155169.969	1294.398	45318.862	656897.113	394.533	148657.198	2186767.383	1294.398
SB-028	148708.492	2155153.422	1295.649	45326.439	656892.069	394.915	148682.056	2186750.834	1295.649
SB-026	148715.397	2155133.878	1295.280	45328.543	656886.112	394.802	148688.959	2186731.291	1295.280
SB-025	148744.572	2155125.634	1295.337	45337.436	656883.600	394.820	148718.136	2186723.049	1295.337
SB-024	148770.840	2155121.237	1295.452	45345.442	656882.259	394.855	148744.402	2186718.650	1295.452
SB-023	148773.567	2155152.471	1295.640	45346.273	656891.780	394.912	148747.128	2186749.887	1295.640
SG-003	148792.311	2155168.857	1295.340	45351.987	656896.774	394.820	148765.875	2186766.271	1295.340
SB-021	148790.269	2155106.589	1295.427	45351.364	656877.795	394.847	148763.832	2186704.005	1295.427
SB-022	148767.379	2155095.618	1295.804	45344.387	656874.451	394.962	148740.941	2186693.033	1295.804
SB-027	148708.128	2155095.209	1295.822	45326.328	656874.326	394.967	148681.693	2186692.623	1295.822
NWCorPad	148744.809	2155092.856	1295.791	45337.508	656873.609	394.958	148718.373	2186690.271	1295.791
Brasstag	148743.943	2155093.661	1295.890	45337.244	656873.854	394.988	148717.506	2186691.074	1295.890
MW2-60	148743.299	2155093.599	1295.587	45337.048	656873.835	394.896	148716.863	2186691.012	1295.587
		Conversion	3.28083337						
		Factor							

Topographic										
Topographic	*HM-E File*	Ordnance								
	NAD-83 Feet			NAD-83 Meters				NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation		Northing	Easting	Elevation
SB-014	146445.086	2154383.435	1311.061	44636.551	656657.377	399.612		146418.665	2185980.834	1311.061
SB-013	146413.073	2154355.429	1310.171	44626.793	656648.841	399.341		146386.651	2185952.828	1310.171
SB-011	146447.893	2154329.998	1310.433	44637.407	656641.089	399.421		146421.474	2185927.396	1310.433
SB-012	146465.811	2154321.959	1310.473	44642.868	656638.639	399.433		146439.390	2185919.358	1310.473
SB-010	146542.271	2154343.810	1311.318	44666.173	656645.299	399.691		146515.850	2185941.209	1311.318
NWCorSite	146721.400	2154322.520	1309.813	44720.772	656638.810	399.232		146694.980	2185919.921	1309.813
SWCorSite	146451.388	2154188.076	1308.511	44638.472	656597.831	398.835		146424.969	2185785.474	1308.511
SECorSite	146305.859	2154478.943	1308.422	44594.115	656686.488	398.808		146279.439	2186076.341	1308.422
NECorSite	146573.205	2154611.871	1306.203	44675.602	656727.004	398.131		146546.781	2186209.268	1306.203
		Conversion Factor	3.28083337							

Topographic	HM-F	Fire Training		NAD-83 Meters			NAD-27		
	NAD-83 Feet								
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
NWCorPad	150499.212	2150362.314	1246.117	45872.251	655431.737	379.817	150472.826	2181959.759	1246.117
Brasstag	150496.710	2150361.243	1246.334	45871.488	655431.410	379.883	150470.323	2181958.686	1246.334
MW2-64A	150496.592	2150361.920	1246.052	45871.452	655431.617	379.797	150470.205	2181959.365	1246.052
NWCorPad	150496.378	2150370.497	1245.748	45871.387	655434.231	379.705	150469.991	2181967.941	1245.748
BrassTag	150494.048	2150369.766	1245.897	45870.677	655434.008	379.750	150467.662	2181967.209	1245.897
MW2-64B	150493.787	2150370.314	1245.586	45870.598	655434.175	379.655	150467.403	2181967.757	1245.586
NWCORPAD	150413.765	2150435.848	1243.361	45846.207	655454.150	378.977	150387.380	2182033.291	1243.361
BRASSTAG	150412.971	2150437.446	1243.561	45845.965	655454.637	379.038	150386.585	2182034.889	1243.561
MW2-63B	150412.498	2150437.914	1243.284	45845.821	655454.780	378.954	150386.113	2182035.358	1243.284
NWCORPAD	150417.479	2150443.373	1243.630	45847.339	655456.444	379.059	150391.093	2182040.817	1243.630
BRASSTAG	150416.999	2150445.608	1243.790	45847.192	655457.125	379.108	150390.611	2182043.052	1243.790
MW2-63A	150416.351	2150445.576	1243.387	45846.995	655457.115	378.985	150389.964	2182043.019	1243.387
NWCORPAD	150472.247	2150540.674	1246.052	45864.032	655486.101	379.797	150445.859	2182138.117	1246.052
BRASSTAG	150471.088	2150542.460	1246.266	45863.679	655486.645	379.863	150444.701	2182139.902	1246.266
MW2-62B	150470.906	2150543.115	1245.940	45863.623	655486.845	379.763	150444.517	2182140.558	1245.940
NWCORPAD	150475.671	2150552.586	1246.409	45865.076	655489.732	379.906	150449.284	2182150.03	1246.409
BRASSTAG	150474.251	2150554.084	1246.531	45864.643	655490.188	379.943	150447.863	2182151.526	1246.531
MW2-62A	150474.276	2150554.721	1246.213	45864.651	655490.383	379.846	150447.890	2182152.166	1246.213
NWCORPAD	150726.091	2150590.145	1251.120	45941.404	655501.180	381.342	150699.702	2182187.591	1251.120
BRASSTAG	150724.666	2150593.078	1251.270	45940.970	655502.074	381.388	150698.278	2182190.524	1251.270
MW2-65A	150724.671	2150592.440	1250.976	45940.971	655501.879	381.298	150698.281	2182189.884	1250.976
NWCORPAD	150740.546	2150583.419	1250.939	45945.810	655499.130	381.287	150714.157	2182180.865	1250.939
BRASSTAG	150739.181	2150585.126	1251.089	45945.394	655499.650	381.333	150712.792	2182182.571	1251.089
MW2-65B	150739.263	2150585.757	1250.812	45945.419	655499.842	381.248	150712.875	2182183.201	1250.812
		Conversion Factor	3.28083337						

Topographic	*HMA-G File*	Fire Control								
	NAD-83 Feet			NAD-83 Meters				NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation		Northing	Easting	Elevation
SB-018	147211.133	2150886.702	1268.631	44870.043	655,591.571	386.679		147184.752	2,182,484.119	1268.631
SB-017	147032.432	2150889.734	1270.361	44815.574	655,592.495	387.207		147006.049	2,182,487.149	1270.361
SB-016	146809.976	2150890.028	1273.784	44747.770	655,592.584	388.250		146783.596	2,182,487.440	1273.784
SB-015	146611.995	2150890.336	1275.957	44687.425	655,592.678	388.912		146585.615	2,182,487.746	1275.957
				Conversion Factor				NAD-27 Derived		
				Meters X 3.28083337				Corpscon Prog		
				3.28083337						

Coordinates in NAD 27 (Feet)

SB-045	153257.757	2185233.520	1275.110
SB-044	153812.059	2185218.954	1275.980
SB-042	154123.573	2185217.979	1276.230
SB-043	154419.041	2185201.941	1275.830
SB-019	150737.212	2179625.925	1227.435
SB-020	150755.821	2179609.357	1226.202
SB-029	153285.911	2177284.758	1226.929
SB-030	153320.501	2177281.365	1225.960
SB-031	153338.949	2177281.766	1226.145
SB-032	153340.504	2177302.376	1226.026
SB-033	153343.640	2177322.855	1226.205
SB-034	153341.088	2177348.133	1225.884
NWCorPad	153301.164	2177258.344	1227.987
BrassTag	153299.307	2177259.879	1228.252
MW2-67A	153299.317	2177260.427	1227.880
NWCorPad	153308.454	2177257.848	1227.942
BrassTag	153306.246	2177260.227	1228.136
MW2-67B	153306.771	2177259.941	1227.749
SG-021	153267.920	2177258.977	1227.875
SG-027	153478.575	2177253.637	1227.450
NWCorPad	153458.818	2177266.025	1227.773
BrassTag	153456.321	2177268.214	1227.992
MW2-68A	153456.977	2177267.817	1227.639
NWCorPad	153471.990	2177265.458	1227.737
BrassTag	153471.006	2177267.377	1227.801
MW2-68B	153470.445	2177267.505	1227.501
SB-035	153486.704	2177283.644	1225.832
SB-041	153435.613	2177169.986	1226.184
SG-045	153377.514	2177145.766	1227.352
SG-043	153451.811	2177145.265	1227.388
SB-039	153410.174	2177198.420	1225.186
SB-040	153395.948	2177174.077	1225.367
SB-036	153493.958	2177306.573	1225.408
SB-037	153489.509	2177320.543	1225.822
SB-038	153489.394	2177346.511	1225.397
SG-030	153561.649	2177249.107	1228.246
SG-034	153535.004	2177378.089	1228.528
SG-035	153503.281	2177378.177	1228.755
NWCorPad	153477.479	2177489.938	1228.566
BrassTag	153475.180	2177492.330	1228.786
MW2-66B	153475.491	2177491.726	1228.424
NWCorPad	153486.331	2177490.122	1228.458
BrassTag	153485.081	2177491.772	1228.601
MW2-66A	153484.356	2177491.782	1228.209
NWCorPad	148749.069	2186879.522	1295.444
TopCap	148747.163	2186881.208	1298.011
MW2-59	148747.160	2186881.244	1297.780
NWCorPad	148654.478	2186731.015	1295.503
TopCap	148652.926	2186732.695	1297.910
MW2-61	148652.962	2186732.714	1297.669
SG-011	148658.094	2186678.134	1293.606
SG-007	148657.198	2186767.383	1294.398
SB-025	148682.056	2186750.834	1295.649
SB-026	148688.959	2186731.291	1295.280
SB-025	148718.136	2186723.049	1295.337
SB-024	148744.402	2186718.650	1295.452
SB-023	148747.128	2186749.887	1295.640
SG-003	148765.875	2186766.271	1295.340
SB-021	148763.832	2186704.005	1295.427
SB-022	148740.941	2186693.033	1295.804
SB-027	148681.693	2186692.623	1295.822
NWCorPad	148718.373	2186690.271	1295.791
Brasstag	148717.506	2186691.074	1295.890
MW2-60	148716.863	2186691.012	1295.587
SB-014	146418.665	2185980.834	1311.061
SB-013	146386.651	2185952.828	1310.171
SB-011	146421.474	2185927.396	1310.433
SB-012	146439.390	2185919.358	1310.473
SB-010	146515.850	2185941.209	1311.318
NWCorSite	146894.980	2185919.921	1309.813
SWCorSite	146424.969	2185785.474	1308.511
SECorSite	146279.439	2186076.341	1308.422
NECorSite	146546.781	2186209.268	1306.203
NWCorPad	150472.826	2181959.759	1246.117

Brasstag	150470.323	2181958.686	1246.334
MW2-64A	150470.205	2181959.365	1246.052
NWCorPad	150469.991	2181967.941	1245.748
BrassTag	150467.662	2181967.209	1245.897
MW2-64B	150467.403	2181967.757	1245.586
NWCORPAD	150387.380	2182033.291	1243.361
BRASSTAG	150386.585	2182034.889	1243.561
MW2-63B	150386.113	2182035.358	1243.284
NWCORPAD	150391.093	2182040.817	1243.630
BRASSTAG	150390.611	2182043.052	1243.790
MW2-63A	150389.964	2182043.019	1243.387
NWCORPAD	150445.859	2182138.117	1246.052
BRASSTAG	150444.701	2182139.902	1246.266
MW2-62B	150444.517	2182140.558	1245.940
NWCORPAD	150449.284	2182150.03	1246.409
BRASSTAG	150447.863	2182151.526	1246.531
MW2-62A	150447.890	2182152.166	1246.213
NWCORPAD	150699.702	2182187.591	1251.120
BRASSTAG	150698.278	2182190.524	1251.270
MW2-65A	150698.281	2182189.884	1250.976
NWCORPAD	150714.157	2182180.865	1250.939
BRASSTAG	150712.792	2182182.571	1251.089
MW2-65B	150712.875	2182183.201	1250.812
SB-018	147184.752	2,182,484.119	1268.831
SB-017	147006.049	2,182,487.149	1270.361
SB-016	146783.596	2,182,487.440	1273.784
SB-015	146585.615	2,182,487.746	1276.957

NRO-27

Coordinates in NAD 83 (Meters)

46721.114	656429.578	388.654	SB-045
46890.066	656425.137	388.919	SB-044
46985.016	656424.839	388.996	SB-042
47075.075	656419.950	388.874	SB-043
45952.828	654720.380	374.123	SB-019
45958.500	654715.330	373.747	SB-020
46729.667	654006.782	373.969	SB-029
46740.210	654005.748	373.673	SB-030
46745.833	654005.870	373.730	SB-031
46746.307	654012.152	373.693	SB-032
46747.263	654018.394	373.748	SB-033
46746.485	654026.099	373.650	SB-034
46734.318	653998.731	374.291	NWCorPad
46733.750	653999.199	374.372	BrassTag
46733.753	653999.366	374.259	MW2-67A
46736.538	653998.580	374.277	NWCorPad
46735.865	653999.305	374.337	BrassTag
46736.025	653999.218	374.219	MW2-67B
46724.183	653998.924	374.257	SG-021
46788.391	653997.296	374.128	SG-027
46782.369	654001.072	374.226	NWCorPad
46781.608	654001.739	374.293	BrassTag
46781.808	654001.618	374.185	MW2-68A
46786.384	654000.899	374.215	NWCorPad
46786.084	654001.484	374.234	BrassTag
46788.913	654001.523	374.143	MW2-68B
46790.869	654006.442	373.634	SB-035
46775.296	653971.799	373.742	SB-041
46767.587	653964.417	374.098	SG-045
46780.233	653964.264	374.109	SG-043
46767.542	653980.466	373.437	SB-039
46763.206	653973.046	373.493	SB-040
46793.080	654013.431	373.505	SB-036
46791.724	654017.689	373.631	SB-037
46791.689	654025.604	373.502	SB-038
46813.712	653995.915	374.370	SG-030
46805.591	654035.229	374.456	SG-034
46795.922	654035.256	374.525	SG-035
46785.058	654069.321	374.468	NWCorPad
46787.357	654070.050	374.535	BrassTag
46787.452	654069.866	374.424	MW2-66B
46790.786	654069.377	374.435	NWCorPad
46790.375	654069.880	374.478	BrassTag
46790.154	654069.883	374.359	MW2-66A
45346.885	656931.293	394.852	NWCorPad
45346.284	656931.807	395.635	TopCap
45346.283	656931.818	395.564	MW2-59
45318.033	656886.028	394.870	NWCorPad
45317.580	656886.540	395.604	TopCap
45317.571	656886.546	395.530	MW2-61
45319.135	656869.910	394.292	SG-011
45318.862	656897.113	394.533	SG-007
45328.439	656892.069	394.915	SB-028
45328.543	656886.112	394.802	SB-026
45337.436	656883.600	394.820	SB-025
45345.442	656882.259	394.855	SB-024
45346.273	656891.780	394.912	SB-023
45351.987	656896.774	394.820	SG-003
45351.364	656877.795	394.847	SB-021
45344.387	656874.451	394.962	SB-022
45328.328	656874.326	394.967	SB-027
45337.508	656873.609	394.958	NWCorPad
45337.244	656873.854	394.988	Brasstag
45337.048	656873.835	394.896	MW2-60
44636.551	656657.377	399.612	SB-014
44626.793	656648.841	399.341	SB-013
44637.407	656641.089	399.421	SB-011
44642.868	656638.639	399.433	SB-012
44666.173	656645.299	399.691	SB-010
44720.772	656638.810	399.232	NWCorSite
44638.472	656597.831	398.835	SWCorSite
44594.115	656686.488	398.808	SECorSite
44676.602	656727.004	398.131	NECorSite
45872.251	655431.737	379.817	NWCorPad

45871.488	655431.410	379.883	Brasstag
45871.452	655431.617	379.797	MW2-64A
45871.387	655434.231	379.705	NWCorPad
45870.677	655434.008	379.750	BrassTag
45870.598	655434.175	379.655	MW2-64B
45846.207	655454.150	378.977	NWCORPAD
45845.965	655454.637	379.038	BRASSTAG
45845.821	655454.780	378.954	MW2-63B
45847.339	655456.444	379.059	NWCORPAD
45847.192	655457.125	379.108	BRASSTAG
45846.995	655457.115	378.985	MW2-63A
45864.032	655486.101	379.797	NWCORPAD
45863.679	655486.645	379.863	BRASSTAG
45863.623	655486.845	379.763	MW2-62B
45865.076	655489.732	379.906	NWCORPAD
45864.643	655490.188	379.943	BRASSTAG
45864.651	655490.383	379.846	MW2-62A
45941.404	655501.180	381.342	NWCORPAD
45940.970	655502.074	381.388	BRASSTAG
45940.971	655501.879	381.298	MW2-65A
45945.810	655499.130	381.287	NWCORPAD
45945.394	655499.650	381.333	BRASSTAG
45945.419	655499.842	381.248	MW2-65B
44870.043	655591.571	386.679	SB-018
44815.674	655592.495	387.207	SB-017
44747.770	655592.584	388.250	SB-016
44687.425	655592.678	388.912	SB-015

NAD-83

END

Final Report
Phase I RCRA Facility Investigation for Appendix I Sites

VOLUME IV

SWMU-40, AFFF Fire Control Pond

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

September 1994

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List of Acronyms

AFB	Air Force Base
AFFF	Aqueous Film Forming Foam
AOC	area of concern
AWAC	Airborne Warning and Control
CAA	Clean Air Act
CAL	Corrective Action Levels
CDM	CDM Federal Programs Corporation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm/s	centimeters per second
COE	U.S. Army Corp of Engineers
CMS	Corrective Measures Study
DCQAP	Data Collection Quality Assurance Plan
DERP	Defense Environmental Restoration Program
DOD	U.S. Department of Defense
DQO	Data Quality Objective
DWS	drinking water standards
EC	electric conductivity
EID	Engineering Installation Division
EMO	Environmental Management Operations
EPA	U.S. Environmental Protection Agency
ES	Engineering Science
FID	flame ionization detector
ft/ft	foot per foot
GC/MS	gas chromatography/mass spectrometry
HCl	hydrochloric acid
HRS	Hazardous Ranking System
HSWA	Hazardous and Solid Waste Amendments
IRP	Installation Restoration Program
IT	IT Corporation
IWP	Industrial Waste Pit 2
IWTP	industrial wastewater treatment plant
LSZ	lower saturated zone
µg/kg	micrograms per kilogram

List of Acronyms *(Continued)*

µg/L	micrograms per liter
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
m^3	cubic meters
MS	matrix spike
MSD	matrix spike duplicate
msl	mean sea level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
OU	operable unit
PA/SI	preliminary assessment/site investigation
PCE	tetrachloroethene
PID	photoionization detector
PRC	PRC Environmental Management, Inc.
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
RPD	relative percent difference
SARA	Superfund Amendments and Reauthorization Act
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TCE	trichloroethene
TCL	Target Compound List
TDS	total dissolved solids
TPH	total petroleum hydrocarbons
TSD	treatment, storage, and disposal (facility)
TOC	total organic carbon
USACE	U.S. Army Corps of Engineers

List of Acronyms *(Continued)*

USC	U.S. Code
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USZ	upper saturated zone
UWBZ	upper water bearing zone
VOA	volatile organic analysis
VOC	volatile organic compounds
WQS	Water Quality Standards
yd^3	cubic yards

Executive Summary

This report provides a summary of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) conducted at solid waste management unit (SWMU)-40, Aqueous Film Forming Foam (AFFF) Fire Control Pond (AFFF Pond), Tinker Air Force Base (AFB), Oklahoma. The report has been prepared to determine whether hazardous constituents as defined by federal regulations have been released into the environment from the AFFF Pond. The RFI for this unit has been conducted in accordance with the Work Plan prepared by CDM Federal Programs Corporation (CDM) (1992). This RFI Report presents the following information:

- Site characterization (Environmental Setting)
- Source term definition (Source Characterization), if any
- Degree of contamination (Contamination Characterization)
- Identification of actual or potential receptors
- Analytical results and analysis (Data Analysis)
- Identification of groundwater protection standards and action levels for the protection of human health and the environment (Protection Standards)
- Conclusions and recommendations for future work.

Tinker AFB is located in central Oklahoma, in the southeast portion of the Oklahoma City metropolitan area, in Oklahoma County. The Base is bounded by Sooner Road to the west, Douglas Boulevard to the east, Interstate 40 to the north, and Southeast 74th Street to the south. The Base encompasses approximately 5,000 acres.

Background. Tinker AFB began operations in 1942 and serves as a worldwide repair depot for a variety of aircraft, weapons, and engines. These activities require the use of hazardous materials and result in the generation of hazardous wastes. These wastes have included spent organic solvents, waste oils, waste paint strippers and sludges, electroplating wastewaters and sludges, alkaline cleaners, acids, Freon™, jet fuels, and radium paints.

In 1984, Congress amended the RCRA with the Hazardous and Solid Waste Amendments (HSWA), which allow U.S. Environmental Protection Agency (EPA) to require, as a permit

condition, a facility to undertake corrective action for any release of hazardous waste or constituents from any SWMU at a treatment, storage, and disposal (TSD) facility. On January 12, 1989, Tinker AFB submitted its Part B permit application for renewal of its operating RCRA Hazardous Waste Storage facility permit. The final RCRA HSWA permit issued on July 1, 1991, requires Tinker AFB to investigate all SWMUs and areas of concern (AOC) and to perform corrective action at those identified as posing a threat to human health or the environment. The permit specifies that an RFI be conducted for 43 identified SWMUs and two AOCs on the Base. This document has been prepared to determine whether sufficient investigations have been conducted to meet the permit requirements for the AFFF Pond.

Source Description. The AFFF Pond is located 30 feet from the south corner of Building 976 in the 552nd Airborne Warning and Control (AWAC) Alert Facility. The pond measures 40 feet by 50 feet and was constructed with sloping concrete sides and a bottom that was originally lined only with clay. The pond was constructed in 1988 to temporarily contain fire suppression foam (AFFF) released within Building 976. Wash rack drains located in Building 976 transport the biodegradable foam to the holding pond where it remains until degraded. Once degraded, the material is pumped into a lift station where it enters the industrial wastewater sewage system. Records indicate that in April 1989, prior to the pond being used for AFFF storage, an overflow of rack wash water from Building 976 drained to the retention pond PRC, 1989). The rack wash water, containing grease, oil, and mild alkaline soaps, spilled over the sides of the pond and into Crutcho Creek where the water was quickly contained by constructing a temporary dam in the creek. The water was pumped from the creek and removed by a contractor for disposal. Under normal aircraft washing operations, the wash water should have drained into the industrial wastewater sewage system.

On May 30, 1991, a water sample was collected and analyzed from the AFFF Detention Pond. Five soil samples were collected and analyzed on July 2, 1991 from the inside of the detention pond. One soil sample was taken from each of the four corners and one soil sample was collected from the center of the AFFF Detention Pond.

In January 1992, a flexible membrane liner was installed in the pond to minimize the possibility of organic contamination in the soils underlying the pond. Since then, the pond has been used to hold AFFF that was generated at other places on Tinker AFB. There have been no incidents of releases from the pond since the installation of the flexible membrane liner.

Site Investigations. The soil and water in the detention pond were sampled prior to placing the flexible membrane liner in the pond. The soil samples and the water sample were analyzed and no contamination was found.

A sample of wash rack wastewater was collected from sample location WS-13, the sump located near the southeast corner of Building 976. The water was sampled using a disposable polyvinyl chloride (PVC) bailer and was analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), total petroleum hydrocarbons (TPH), priority pollutant metals, and total organic carbon (TOC). No organic compounds were found above the method reporting limit. TOC was found at 18 milligrams per liter (mg/L). Barium, chromium, copper, iron, and zinc were also found in the source sample at concentrations of 0.35 mg/L, 0.013 mg/L, 0.16 mg/L, 0.16 mg/L, and 0.049 mg/L, respectively.

Four surface soil borings (SB-015, SB-016, SB-017, and SB-018) were drilled in the drainage ditch that runs from the overflow area of the Fire Control Pond and drains into Crutcho Creek. A total of five soil samples were collected from these borings. The analysis included VOCs and SVOCs and metals (aluminum, arsenic, barium, beryllium, cadmium, chromium, chromium VI, copper, iron, lead, mercury, nickel, silver, and zinc). No organic compounds were found above the method reporting limit. Although the levels of aluminum and beryllium in the soil exceeded the SWMU corrective action levels (CAL) for these analytes, concentrations of all metals found in the soil samples were within the background ranges reported in the United States Geological Survey (USGS) Report titled "Elemental Composition of Surficial Materials in Central Oklahoma" (1991). No contaminants of concern were found in the soil samples.

Conclusions. The Phase I RFI conducted at the AFFF Pond revealed no organic or metal contamination in the drainage ditch leading to Crutcho Creek. The release of rack washwater from Building 976 has not impacted the soils of the AFFF Pond drainage ditch.

Recommendations for Additional Work. Based on the conclusions of the RFI performed at the AFFF Pond, no further actions are recommended for the site.

1.0 Introduction

The U.S. Department of the Air Force is conducting an Installation Restoration Program (IRP) at Tinker Air Force Base (AFB), Oklahoma (Figure 1-1). This program intends to identify sites through initial assessments, characterize each solid waste management unit (SWMU) or area of concern (AOC), study and select cleanup methods, if required, and implement a cleanup. In support of this effort, a Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) was conducted at Aqueous Film Forming Foam (AFFF) Fire Control Pond (AFFF Pond), SWMU-40, at Tinker AFB, Oklahoma (Figure 1-2). This Phase I investigation focuses its efforts on determining if there have been any releases of contamination to the soil resulting from the release of an overflow of rack wash water from Building 976.

Adequate information must be gathered in a Phase I RFI to support a Phase II investigation, a Corrective Measures Study (CMS), or interim measures, if necessary. A phased approach has been taken by Tinker AFB for the AFFF Pond site investigation. This phasing of the RFI is in accordance with U.S. Environmental Protection Agency (EPA) RFI guidance documents and is also the most practical approach for this site where little or no information is available on past practices.

Outlined below are the minimum tasks generally required by the EPA for a RCRA investigation of a SWMU or AOC:

- Task I - Description of Current Conditions
- Task II - Work Plan
- Task III - Facility Investigation
- Task IV - Investigative Analysis
- Task V - Report.

The Task I requirements for AFFF Pond have been addressed in the *Description of Current Conditions* (Tinker, 1992), which outlines the geology, hydrogeology, and current conditions of the site. Task II requirements have been addressed in the *Final RFI Work Plan* (CDM Federal Programs Corporation [CDM], 1992), and the Final RFI Work Plan - Amendments (IT Corporation [IT], 1993a). The *Final RFI Work Plan* and the Final RFI Work Plan - Amendments include a Data Management Plan, Project Management Plan, Data Collection Quality Assurance Plan, Health and Safety Plan, and amendments as necessary to perform a

STARTING DATE: 03/17/94	DATE LAST REV.:	DRAFT. CHCK. BY:G. PACHECO	INITIATOR: C. WALLACE	DWG. NO.:
DRAWN BY:P.O. TERRY	DRAWN BY:	ENGR. CHCK. BY: C. WALLACE	PROJ. MGR.:J. TAYLOR	PROJ. NO.:

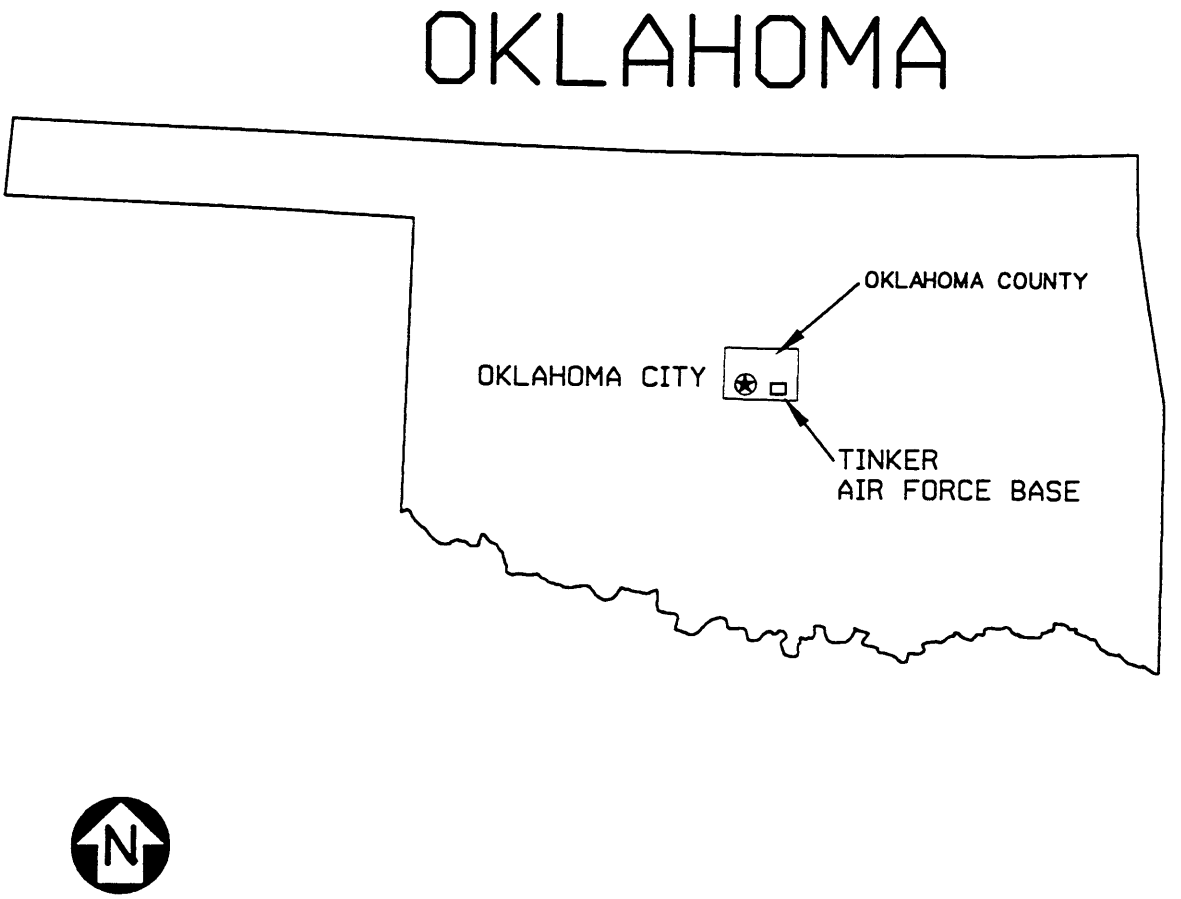


FIGURE 1-1
TINKER AIR FORCE BASE
OKLAHOMA
STATE INDEX MAP

PREPARED FOR
TINKER AFB
OKLAHOMA

3/23/94 POT
FILENAME: G:\TINKER\40983202.075

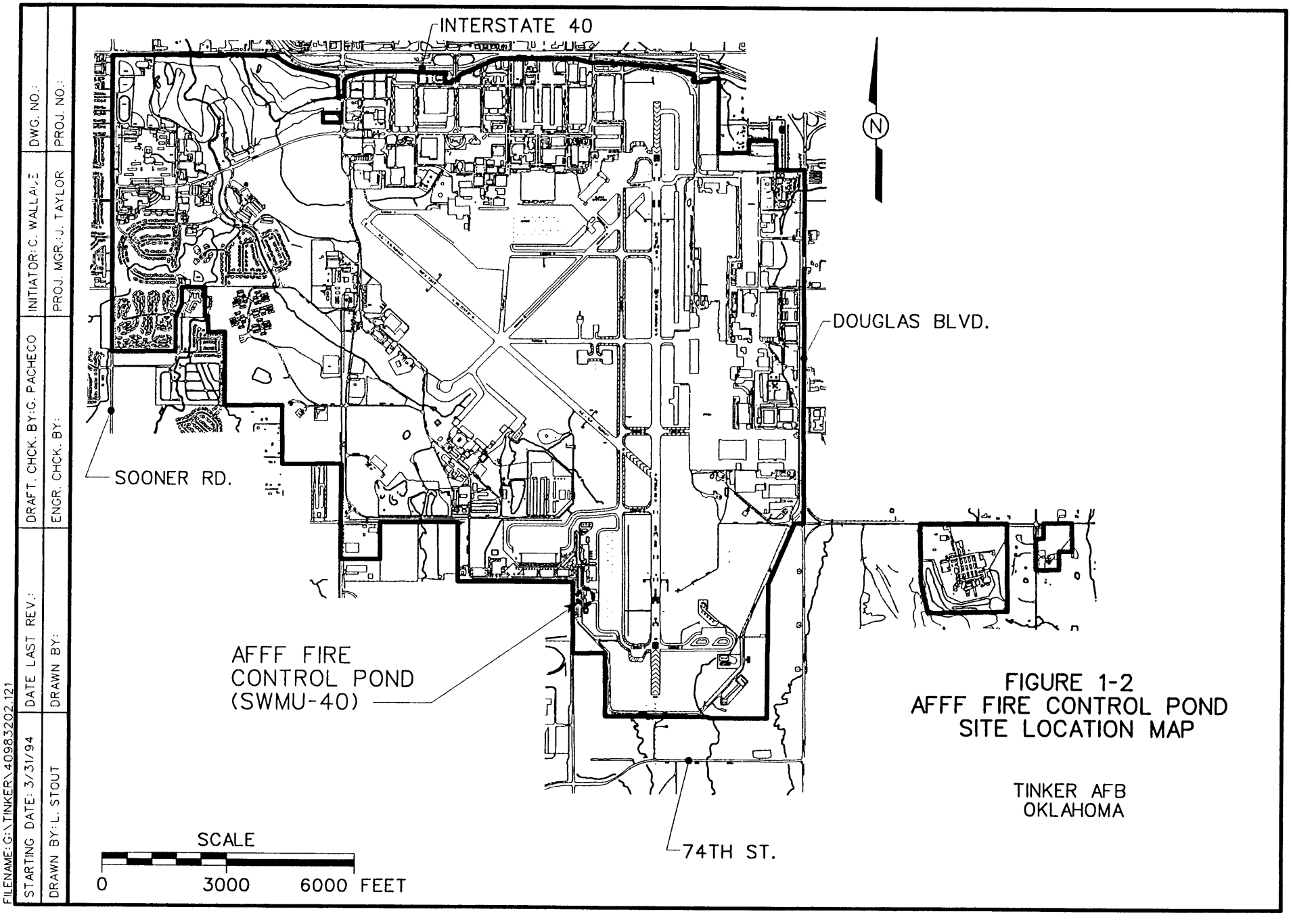


FIGURE 1-2
AFFF FIRE CONTROL POND
SITE LOCATION MAP

TINKER AFB
OKLAHOMA

Phase I RFI. Tasks III and IV requirements, which characterize the site, determine the presence of contamination, and identify actual and potential receptors have been addressed in this report. This report also satisfies the requirements of Task V.

1.1 Purpose

This report has been prepared in response to the U.S. Department of the Air Force, Tinker AFB, Oklahoma request for a Phase I RFI and report for the AFFF Pond.

The purpose of this report is to document and present the findings of the RFI conducted at the AFFF Pond. The primary objective of the RFI was to determine if contaminant releases to the environment have occurred at the site and to determine if a more comprehensive Phase II RFI or a CMS is required. This RFI Report presents the following information:

- Site characterization (Environmental Setting)
- Source term definition (Source Characterization)
- Degree of contamination (Contamination Characterization)
- Identification of actual or potential receptors
- Analytical results and analysis (Data Analysis)
- Identification of action levels for the protection of human health and the environment (Protection Standards)
- Conclusions and recommendations for future work.

This document will also describe the procedures and methods of field sampling and cite any previous investigations conducted at the site.

1.2 Scope of Investigation

The soils associated with the drainage ditch from the AFFF Pond were investigated. Soil samples were taken at various depths within the confines of the drainage ditch to determine the presence of subsurface soil contamination.

2.0 Background

2.1 Tinker AFB Facility Description and History

Tinker AFB is located in central Oklahoma, in the southeast portion of the Oklahoma City metropolitan area, in Oklahoma County (Figure 1-1) with its approximate geographic center located at 35° 25' latitude and 97° 24' longitude (U.S. Geological Survey [USGS], 1978). The Base is bounded by Sooner Road to the west, Douglas Boulevard to the east, Interstate 40 to the north, and Southeast 74th Street to the south. An additional area east of the main Base is used by the Engineering Installation Division (EID) and is known as Area D. The Base encompasses approximately 5,000 acres.

Tinker AFB was originally known as the Midwest Air Depot and began operations in July 1941. The site was activated March 1942 and during World War II the depot was responsible for reconditioning, modifying, and modernizing aircraft, vehicles, and equipment. Tinker AFB now serves as a worldwide repair depot for a variety of aircraft, weapons, and engines. These activities require the use of hazardous materials and result in the generation of hazardous wastes. These wastes have included spent organic solvents, waste oils, waste paint strippers and sludges, electroplating wastewaters and sludges, alkaline cleaners, acids, Freon™, jet fuels, and radium paints. Wastes that are currently generated are managed at two permitted hazardous waste storage facilities. Prior to enactment of RCRA, however, industrial wastes were discharged into unlined landfills and waste pits, streams, sewers, and ponds. Releases from these areas as well as from underground tanks have occurred. As a result, there are numerous sites of soil, groundwater, and surface water contamination on Base.

2.2 Site Description

The AFFF Pond is located 30 feet from the south corner of Building 976 in the 552nd Airborne Warning and Controls (ACW) Alert Facility (Figure 1-2). The pond was constructed in 1988 to temporarily contain fire suppression foam (AFFF) released within Building 976 (Figure 1-2). The pond measures 40 feet by 50 feet and was constructed with sloping concrete sides and a bottom that was originally lined only with clay. Wash rack drains located in Building 976 transport the biodegradable foam to the pond where it remains until degraded. Once degraded, the material is pumped into a lift station where it enters the industrial wastewater sewage system.

Records indicate, that in April 1989, prior to the pond ever being used for AFFF storage, an overflow of aircraft wash water drained through Building 976 wash rack drains into the pond (PRC Environmental Management, Inc. [PRC], 1989). The rack wash water, containing grease, oil, and mildly alkaline soaps, spilled over the sides of the pond and into Crutcho Creek where the water was quickly contained by constructing a temporary dam in the creek. The water was pumped from the creek and removed by a contractor for disposal. Under normal aircraft washing operations the washwater should have drained into the industrial wastewater sewage system.

On May 30, 1991, a water sample was collected from the AFFF Detention Pond and analyzed. Five soil samples were collected on July 2, 1991, one from each of the four corners and one from the center of the AFFF Detention Pond and analyzed before the installation of the existing liner. In January 1992, a flexible membrane liner was installed in the pond to minimize the possibility of organic contamination in the soils underlying the pond. Since then, the pond has been used to hold AFFF that was generated at other places on Tinker AFB. There have been no incidents of release from the pond since the installation of the flexible membrane liner.

2.3 Regulatory History and Status

In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to address the cleanup of hazardous waste disposal sites across the country. CERCLA gave the president authority to require responsible parties to remediate the sites or to undertake response actions through use of a fund (the Superfund). The president, through Executive Order 12580, delegated the EPA with the responsibility to investigate and remediate private party hazardous waste disposal sites that created a threat to human health and the environment. The president delegated responsibility for investigation and cleanup of federal facility disposal sites to the various federal agency heads. The Defense Environmental Restoration Program (DERP) was formally established by Congress in Title 10 U.S. Code (USC) 2701-2707 and 2810. DERP provides centralized management for the cleanup of U.S. Department of Defense (DOD) hazardous waste sites consistent with the provisions of CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] 300), and Executive Order 12580. To support the goals of the DERP, the IRP was developed to identify, investigate, and clean up contamination at installations.

Under the Air Force IRP, Tinker AFB began a Phase I study similar to a preliminary assessment/site investigation (PA/SI) in 1981 (Engineering Science ([ES], 1982). This study helped locate 14 sites that needed further investigation. Phase II studies were performed in 1983 (Radian Corporation [Radian], 1985a,b).

In 1986, Congress amended CERCLA through the SARA, which waived sovereign immunity for federal facilities. SARA gave EPA authority to oversee the clean up of federal facilities and to have the final authority for selecting the remedial action at federal facilities placed on the National Priorities List (NPL) if the EPA and the relevant federal agency cannot concur in the selection. Congress also codified the DERP (SARA Section 211), setting up a fund for the DOD to remediate its sites because the Superfund is not available for the cleanup of federal facilities. DERP specifies the type of clean up responses that the fund can be used to address.

In response to SARA, the DOD realigned its IRP to follow the investigation and clean up stages of the EPA:

- PA/SI
- Remedial investigation/feasibility study (RI/FS)
- Record of Decision (ROD) for selection of a remedial action
- Remedial design/remedial action.

In 1984, Congress amended the RCRA with the Hazardous and Solid Waste Amendments (HSWA) which allow the EPA to require, as a permit condition, a facility to undertake corrective action for any release of hazardous waste or constituents from any SWMU at a treatment, storage, and disposal (TSD) facility. On January 12, 1989 Tinker AFB submitted its Part B permit application for renewal of its operating RCRA hazardous waste storage facility permit.

EPA, in the Hazardous Waste Management Permit for Tinker AFB dated July 1, 1991, identified 43 SWMUs and two AOCs on Tinker AFB that need to be addressed. This permit requires Tinker AFB to investigate all SWMUs and AOCs and to perform corrective action at those identified as posing a threat to human health or the environment. Since receiving the Hazardous Waste Management Permit, many of the IRP sites have come under the RCRA permits branch of the EPA.

2.4 Summary of Previous Investigations

In May and July 1991, the AFFF Detention Pond was sampled prior to placing the flexible membrane liner in the pond. The five surface soil samples and one water sample were analyzed and no contamination was found.

3.0 Environmental Setting

3.1 Topography and Drainage

3.1.1 Topography

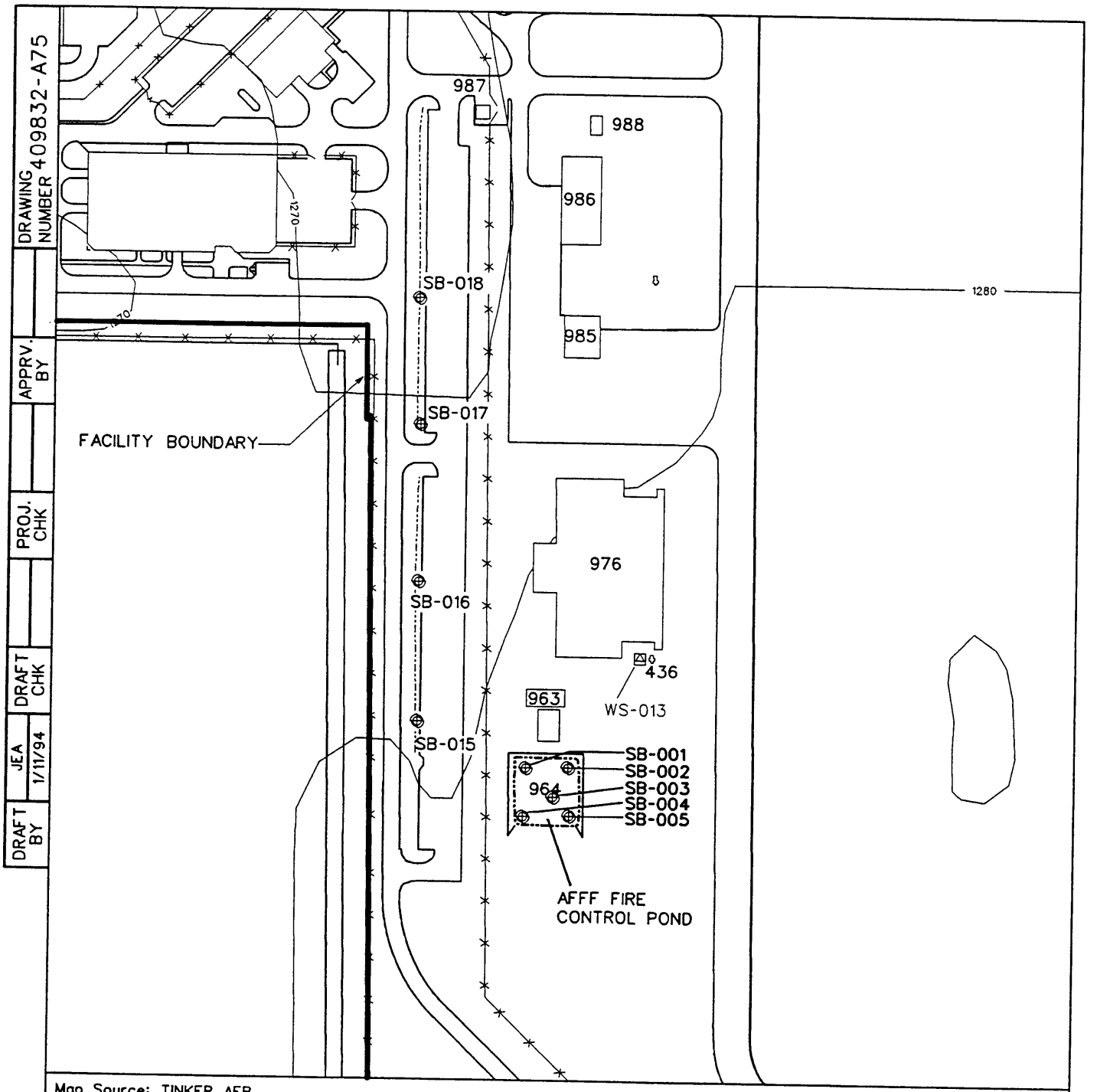
Regional/Tinker AFB. The topography of Oklahoma City and surrounding area varies from generally level to gently rolling in appearance. Local relief is primarily the result of dissection by erosional activity or stream channel development. At Oklahoma City, surface elevations are typically in the range of 1,070 to 1,400 feet mean sea level (msl). At Tinker AFB ground surface elevations vary from 1,190 feet msl near the northwest corner where Crutcho Creek intersects the Base boundary to approximately 1,320 feet msl at Area D (EID), located on 59th Street, east of the main installation.

Site. The topography within the vicinity of the AFFF Pond is relatively flat with elevations ranging from 1,280 feet msl at the south to 1,270 msl at the north (Figure 3-1).

3.1.2 Drainage

Regional/Tinker AFB. Drainage of Tinker AFB land areas is accomplished by overland flow of runoff to diversion structures and thence to area surface streams, which flow intermittently. The northeast portion of the Base is drained primarily by tributaries of Soldier Creek. The north and west sections of the Base including the main instrument runway, drain to Crutcho Creek, a tributary of the North Canadian River. Two small unnamed intermittent streams crossing installation boundaries south of the main instrument runway generally do not receive significant quantities of Base runoff due to site grading designed to preclude such drainage. These streams, when flowing, extend to Stanley Draper Lake, approximately one-half mile south of the Base.

Site. Drainage within the vicinity of the AFFF Pond occurs in a north-northeasterly direction and follows the drainage ditch north to Crutcho Creek.



Map Source: TINKER AFB

LEGEND

SB-015	SOIL BORING LOCATION AND IDENTIFICATION NUMBER
WS-013	SOURCE SAMPLE LOCATION AND IDENTIFICATION NUMBER
	FENCE
	DRAINAGE
1280	CONTOUR INTERVAL
964	STRUCTURE NUMBER

0 100 200
FEET

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FIGURE 3-1
TOPOGRAPHICAL MAP OF
AFFF FIRE CONTROL POND
WITH LOCATIONS OF
SOIL BORINGS AND SOURCE SAMPLES

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3.2 Geology

3.2.1 Regional/Tinker AFB Geology

Tinker AFB is located within the Central Redbed Plain Section of the Central Lowland physiographic province, which is tectonically stable. No major fault or fracture zones have been mapped near Tinker AFB. The major lithologic units in the area of the Base are relatively flat-lying and have a regional westward dip of about 0.0076 foot per foot (ft/ft) (Bingham and Moore, 1975).

Geologic formations that underlie Tinker AFB include, from oldest to youngest, the Wellington Formation, Garber Sandstone, and the Hennessey Group; all are Permian in age. All geologic units immediately underlying Tinker AFB are sedimentary in origin. The Garber Sandstone and Wellington Formation are commonly referred to as the Garber-Wellington Formation due to strong lithologic similarities. These formations are characterized by fine-grained, calcareously-cemented sandstones interbedded with shale. The Hennessey Group consists of the Fairmont Shale and the Kingman Siltstone. It overlies the Garber-Wellington Formation along the eastern portion of Cleveland and Oklahoma counties. Quaternary alluvium is found in many undisturbed streambeds and channels located within the area.

Stratigraphy. Tinker AFB lies atop a sedimentary rock column composed of strata that ranges in age from Cambrian to Permian above a Precambrian igneous basement. Quaternary alluvium and terrace deposits can be found overlying bedrock in and near present-day stream valleys. At Tinker AFB, Quaternary deposits consist of unconsolidated weathered bedrock, fill material, windblown sand, and interfingering lenses of sand, silt, clay, and gravel of fluvial origin. The terrace deposits are exposed where stream valleys have downcut through older strata and have left them topographically above present-day deposits. Alluvial sediments range in thickness from less than a foot to nearly 20 feet.

Subsurface (bedrock) geologic units that outcrop at Tinker AFB and that are important to understanding groundwater and contaminant concerns at the Base consist of, in descending order: the Hennessey Group, the Garber Sandstone, and the Wellington Formation (Table 3-1). These bedrock units were deposited during the Permian age (230 to 280 million years ago) and are typical of redbed deposits formed during that period. The units are composed of a conformable sequence of sandstones, siltstones, and shales. Individual beds are lenticular and vary in thickness over short horizontal distances. Because lithologies are similar and because of a lack of fossils or key beds, the Garber Sandstone and the Wellington Formation

Table 3-1

Major Geologic Units in the Vicinity of Tinker AFB (Modified from Wood and Burton, 1968) Tinker AFB

(Page 1 of 2)

System	Series	Stratigraphic Unit	Thickness (feet)	Description and Distribution	Water-Bearing Properties
QUATERNARY	PLEISTOCENE AND RECENT	Alluvium	0-70	Unconsolidated and interfingering lenses of sand, silt, clay, and gravel in the flood plains and channels of stream	Moderately permeable. Yields small to moderate quantities of water in valleys of larger streams. Water is very hard, but suitable for most uses, unless contaminated by industrial wastes or oil field brines.
		Terrace deposits	0-100	Unconsolidated and interfingering lenses of sand, silt, gravel, and clay that occur at one or more levels above the flood plains of the principal streams.	Moderately permeable. Locally above the water table and not saturated. Where deposits have sufficient saturated thickness, they are capable of yielding moderate quantities of water to wells. Water is moderately hard to very hard, but less mineralized than water in other aquifers. Suitable for most uses unless contaminated by oil field brines.

Table 3-1

(Page 2 of 2)

System	Series	Stratigraphic Unit	Thickness (feet)	Description and Distribution	Water-Bearing Properties
PERMIAN	LOWER PERMIAN	Hennessey Group (includes Kingman Siltstone and Fairmont Shale)	700	Deep-red clay shale containing thin beds of red sandstone and white or greenish bands of sandy or limey shale. Forms relatively flat to gently rolling grass-covered prairie.	Poorly permeable. Yields meager quantities or very hard, moderately to highly mineralized water to shallow domestic and stock wells. In places water contains large amounts of sulfate.
		Garber Sandstone	500±	Deep-red clay to reddish-orange, massive and cross-bedded fine-grained sandstone interbedded and interfingered with red shale and siltstone	Poorly to moderately permeable. Important source of groundwater in Cleveland and Oklahoma counties. Yields small to moderate quantities of water to deep wells; heavily pumped for industrial and municipal uses in the Norman and Midwest City areas. Water from shallow wells hard to very hard; water from deep wells moderately hard to soft. Lower part contains water too salty for domestic and most industrial uses.
		Wellington Formation	500±	Deep-red to reddish-orange massive and cross-bedded fine-grained sandstone interbedded with red, purple, maroon, and gray shale. Base of formation not exposed in the area.	

are difficult to distinguish and are often informally lumped together as the Garber-Wellington Formation. Together, these units are about 900 feet thick at Tinker AFB. The interconnected, lenticular nature of sandstones within the sequence forms complex pathways for groundwater movement.

The surficial geology of the north section of the Base is dominated by the Garber Sandstone, which outcrops across a broad area of Oklahoma County. Generally, the Garber outcrop is covered by a thin veneer of soil and/or alluvium up to 20 feet thick. To the south the Garber Sandstone is overlain by outcropping strata of the Hennessey Group including the Kingman Siltstone and the Fairmont Shale (Bingham and Moore, 1975). Drilling information obtained as a result of geotechnical investigations and monitoring well installation confirms the presence of these units.

Depositional Environment. The Permian-age strata presently exposed at the surface in central Oklahoma were deposited along a low-lying north-south oriented coastline. Land features included meandering to braided sediment-loaded streams that flowed generally westward from highlands to the east (ancestral Ozarks). Sand dunes were common as were cut-off stream segments that rapidly evaporated. The climate was arid and vegetation sparse. Offshore the sea was shallow and deepened very gradually to the west. The shoreline position varied over a wide range. Isolated evaporitic basins frequently formed as the shoreline shifted.

Across Oklahoma, this depositional environment resulted in an interfingering collage of fluviatile and windblown sands, clays, shallow marine shales, and evaporite deposits. The overloaded streams and evaporitic basins acted as sumps for heavy metals such as barium, chromium, iron, and lead. Oxidation of iron in the arid climate resulted in the reddish color of many of the sediments. Erosion and chemical breakdown of granitic rocks from the highlands result in extensive clay deposits. Evaporite minerals such as anhydrite ($CaSO_4$), barite ($BaSO_4$), and gypsum ($CaSO_4 \cdot 2H_2O$) are common.

Around Tinker AFB, the Hennessey Group represents deposition in a tidal flat environment cut by shallow, narrow channels. The Hennessey Group comprises predominantly red shales that contain thin beds of sandstone (less than 10 feet thick) and siltstone. In outcrops, "mudball" conglomerates, burrow surfaces, and desiccation cracks are recognized. These

units outcrop over roughly the southern half of the Base, thickening to approximately 70 feet in the southwest from their erosional edge (zero thickness) across the central part of Tinker AFB.

In contrast, the Garber Sandstone and Wellington Formation around Tinker AFB consist of an irregularly interbedded system of lenticular sandstones, siltstones, and shales deposited either in meandering streams in the upper reaches of a delta or in a braided stream environment. Outcrop units north of Tinker AFB exhibit many small to medium channels with cut-and-fill geometries consistent with a stream setting. Sandstones are typically cross-bedded. Individual beds range in thickness from a few inches to about 50 feet and appear massive but thicker units are often formed from a series of "stacked" thinner beds. Geophysical and lithologic well logs indicate that from 65 to 75 percent of the Garber Sandstone and the Wellington Formation are composed of sandstone at Tinker AFB. The percentage of sandstone in the section decreases to the north, south, and west of the Base. These sandstones are typically fine to very fine grained, friable, and poorly cemented. However, where sandstone is cemented by red muds or by secondary carbonate or iron cements, local thin "hard" intervals exist along disconformities at the Base of sandstone beds. Shales are described as ranging from clayey to sandy, are generally discontinuous, and range in thickness from a few inches to about 40 feet.

Stratigraphic Correlation. Correlation of geologic units is difficult due to the discontinuous nature of the sandstone and shale beds. However, cross sections demonstrate that two stratigraphic intervals can be correlated over most of the Base in the conceptual model. The location of these cross sections is shown in Figure 3-2. These intervals are represented on geologic cross-sections A-A' and B-B' in Figures 3-3 and 3-4, respectively. Section A-A' is roughly a dip section and B-B' is approximately a strike section. The first correlatable interval is marked by the base of the Hennessey Group and the first sandstone at the top of the Garber Sandstone. This interval is mappable over the southern half of Tinker AFB. The second interval consists of a shale zone within the Garber Sandstone, which in places is composed of a single shale layer and in other places multiple shale layers. This interval is more continuous than other shale intervals and in cross sections appears mappable over a large part of the Base. It is extrapolated under the central portion of Tinker AFB where little well control exists.

Structure. Tinker AFB lies within a tectonically stable area; no major near-surface faults or fracture zones have been mapped near the Base. Most of the consolidated rock units of the

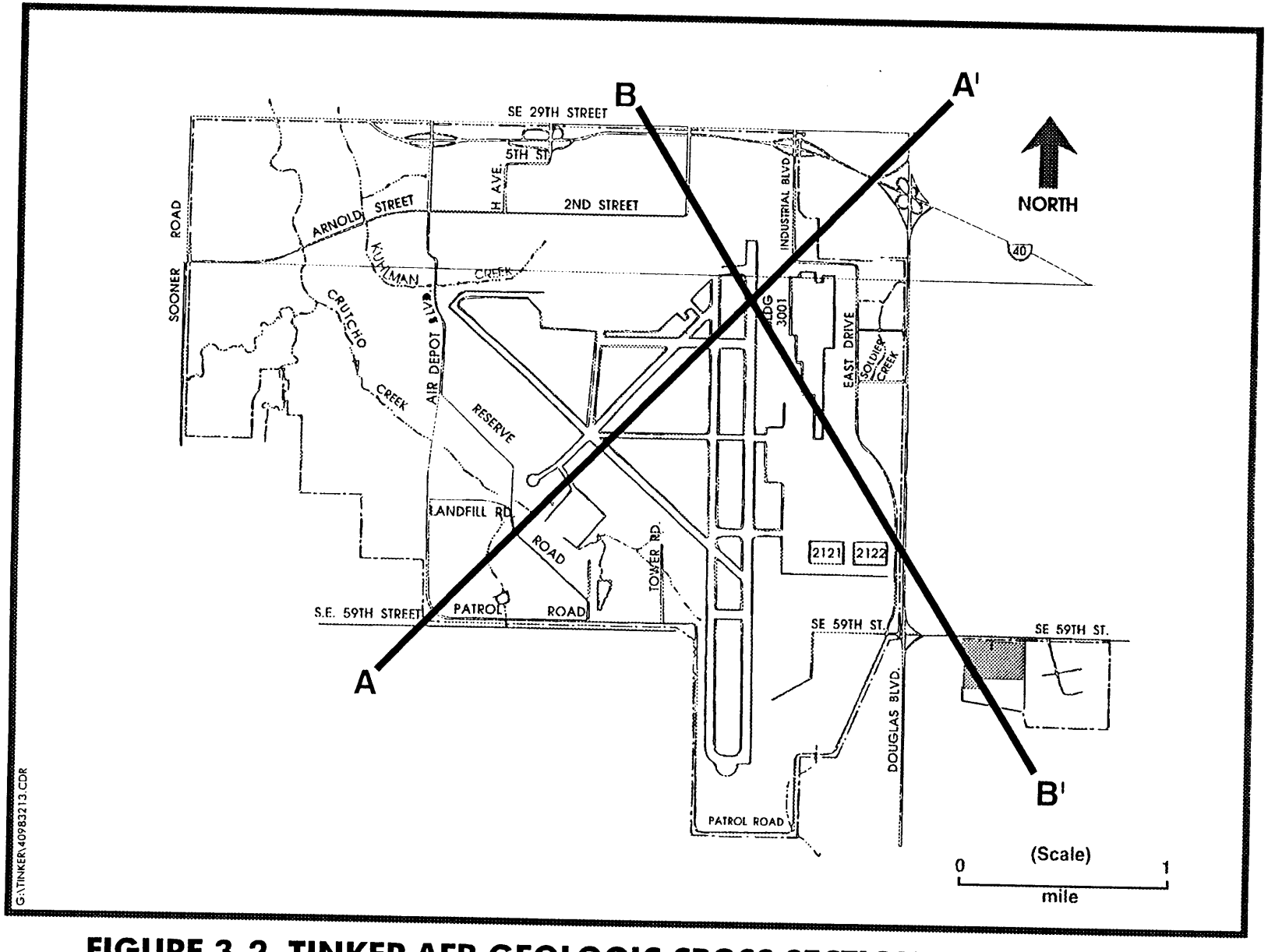

FIGURE 3-2 TINKER AFB GEOLOGIC CROSS SECTION LOCATION MAP

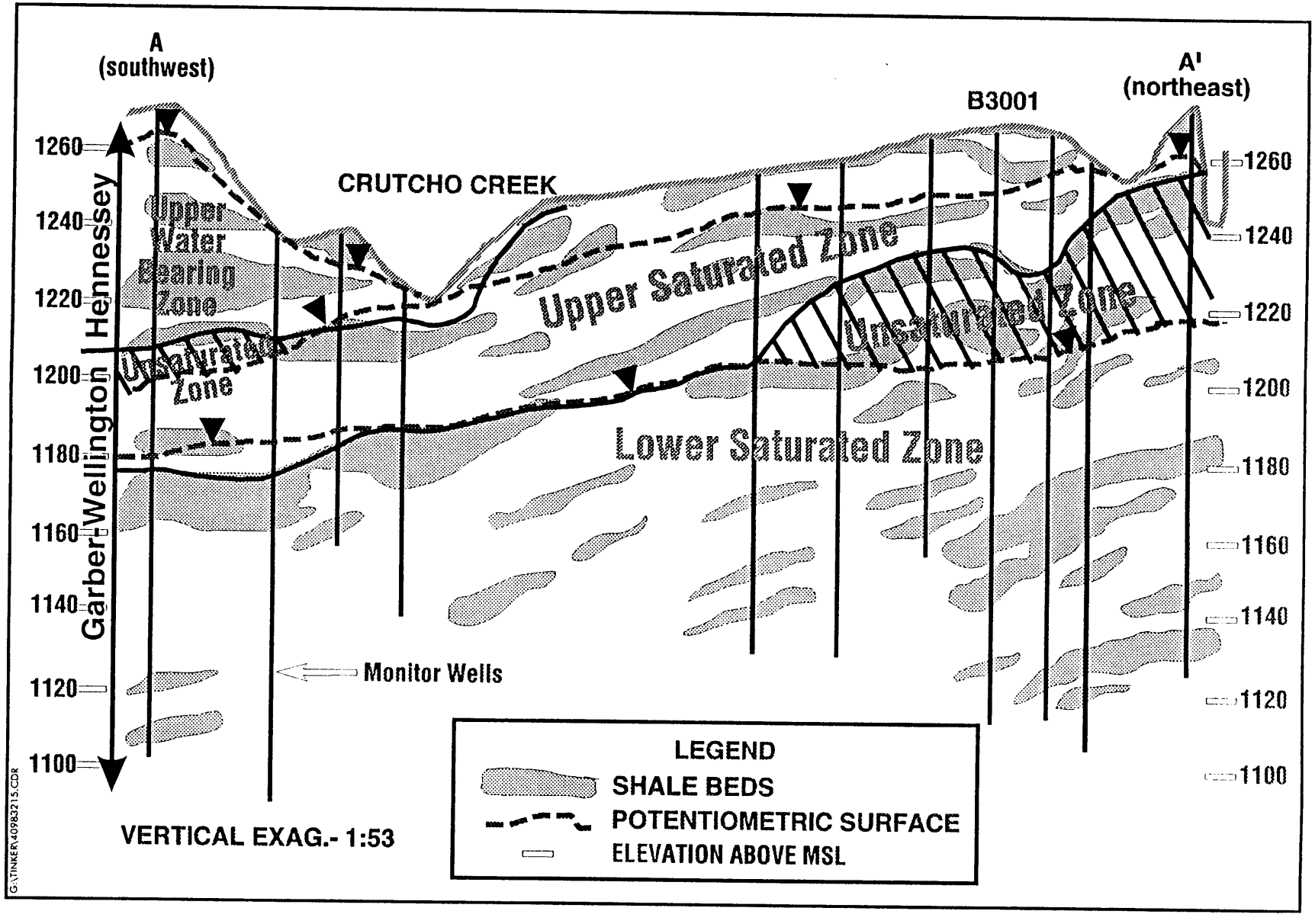

FIGURE 3-3 TINKER AFB GEOLOGIC CROSS SECTION A-A'

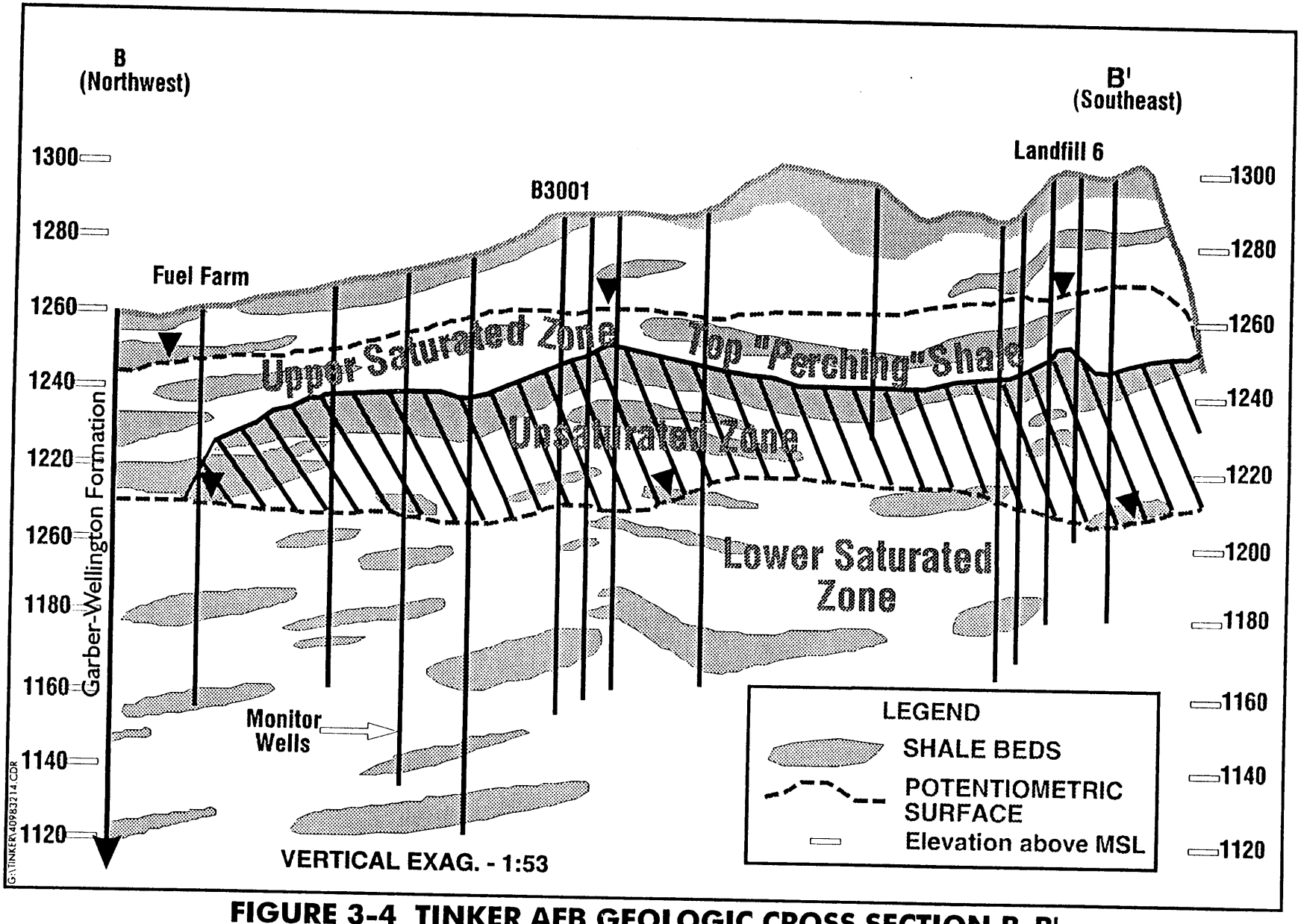

FIGURE 3-4 TINKER AFB GEOLOGIC CROSS SECTION B-B'

Oklahoma City area dip westward at a low angle. A regional dip of 0.0057 to 0.0076 ft/ft in a generally westward direction is supported by stratigraphic correlation on geologic cross sections at Tinker AFB. Bedrock units strike slightly west of north.

Although Tinker AFB lies in a tectonically stable area, regional dips are interrupted by buried structural features located west of the Base. A published east to west generalized geologic cross section that includes Tinker AFB supports the existence of a northwest trending structural trough or syncline located near the western margin of the Base. The syncline is mapped adjacent to and just east of a faulted anticlinal structure located beneath the Oklahoma City Oil Field. The fault does not appear to offset Permian-age strata. There are indications that the syncline may act as a "sink" for some regional groundwater (southwest flow) at Tinker AFB before it continues to more distant discharge points.

3.2.2 Site Geology

The AFFF Pond and associated drainage ditch are situated in the outcrop area of the Hennessey Group. The Hennessey Group in this area consists of clay and siltstone and is approximately 40 feet thick at the site.

The Phase I RFI conducted at the AFFF Pond focused on evaluating impacts, if any, to surface sediments and, did not include any investigation into subsurface geology conditions at the site. As such, the soils investigation at the site was limited to the sampling of four borings that were hand augered to 18-inch depth in the drainage ditch adjacent to the AFFF Pond. These drainage ditch sediments varied widely from sandy, gravelly clay to moderately plastic, organic clay.

3.3 Hydrology

3.3.1 Regional/Tinker AFB Hydrology

The most important source of potable groundwater in the Oklahoma City metropolitan area is the Central Oklahoma aquifer system. This aquifer extends under much of central Oklahoma and includes water in the Garber Sandstone and Wellington Formation, the overlying alluvium and terrace deposits, and the underlying Chase, Council Grove, and Admire Groups. The Garber Sandstone and the Wellington Formation portion of the Central Oklahoma aquifer system is commonly referred to as the "Garber-Wellington aquifer" and is considered to be a single aquifer because these units were deposited under similar conditions and because many of the best producing wells are completed in this zone. On a regional scale, the aquifer is

confined above by the less permeable Hennessey Group and below by the Late Pennsylvanian Vanoss Group.

Tinker AFB lies within the limits of the Garber-Wellington groundwater basin. Presently, Tinker AFB derives most of its water supply from this aquifer and supplements the supply by purchasing from the Oklahoma City Water Department. The nearby communities of Midwest City and the Del City derive water supplies from both surface sources and wells tapping the aquifer. Industrial operations, individual homes, farm irrigation, and small communities not served by a municipal distribution system also depend on the Garber-Wellington aquifer. Communities presently depending upon surface supplies such as Oklahoma City also maintain a well system drilled into the Garber-Wellington aquifer as a standby source of water in the event of drought.

Recharge of the Garber-Wellington aquifer is accomplished principally by percolation of surface waters crossing the area of outcrop and by rainfall infiltration in this same area. Because most of Tinker AFB is located in an aquifer outcrop area, the Base is considered to be situated in a recharge zone.

According to Wood and Burton (1968) and Wickersham (1979), the quality of groundwater derived from the Garber-Wellington aquifer is generally good, although wide variations in the concentrations of some constituents are known to occur. Wells drilled to excessive depths may encounter a saline zone, generally greater than 900 feet below ground surface. Wells drilled to such depths or those accidentally encountering the saline zone are either grouted over the lowest screens or may be abandoned.

Tinker AFB presently obtains its water supplies from a distribution system that is composed of 29 water wells constructed along the east and west Base boundaries and by purchase from the Oklahoma City Water Department. All Base wells are finished into the Garber-Wellington aquifer. Base wells range from 700 to 900 feet in finished depth, with yields ranging from 205 to 250 gallons per minute. The wells incorporate multiple screens, deriving water supplies from sand zones with a combined thickness from 103 to 184 feet (Wickersham, 1979).

Conceptual Hydrologic Model. The conceptual hydrologic model of Tinker AFB involves a comprehensive review of available data, including those from direct measurement sources (borings, water level measurements, pump/slug tests, stream studies) as well as

indirect sources (aerial photographs, topographic maps, published reports). The hydrologic system at Tinker AFB is complex, but the model provides both an approximation of depth to water and an estimated direction of groundwater movement and is therefore useful as a basis for designing field investigations. As information is derived from investigations, the model is continually updated and refined.

Groundwater. As a result of ongoing environmental investigations and the approximately 450 groundwater monitoring wells installed on the Base during various investigations, a better understanding of the specific hydrological framework has emerged. The current conceptual model developed by Tinker AFB (Tinker, 1993), based on the increased understanding of the hydrological framework, has been revised from a previous model adopted by the U.S. Army Corps of Engineers (USACE). Previous studies reported that groundwater was divided into four water bearing zones: the perched aquifer, the top of regional aquifer, the regional aquifer, and the producing zone. In the current model, two principal water table aquifer zones and a third less extensive zone have been identified. The third is limited to the southwest quadrant. The third aquifer zone consisted of saturated siltstone and thin sandstone beds in the Hennessey Shale and equates to the upper water bearing zone (UWBZ) described by the USACE at Landfills 1 through 4 (SWMUs-3 through -6). In addition, numerous shallow, thin saturated beds of siltstone and sandstone exist throughout the Base. These beds are of limited areal extent and are often perched.

In the current conceptual hydrologic model by Tinker AFB, an upper saturated zone (USZ) and a lower saturated zone (LSZ) are recognized in the interval from ground surface to approximately 200 feet. Below this depth is found the producing zone from which the Base draws much of its water supply. Figure 3-5 shows the potentiometric surface for the USZ and Figure 3-6 shows the potentiometric surface for the LSZ. The USZ exists under water table (unconfined) conditions, but may be partially confined locally. Conditions in the LSZ are difficult to determine due to screen placement and overlie long sand packs below the screen interval.

The USZ is found at a depth of 5 to 70 feet below ground surface and has a saturated thickness ranging from less than 1 foot at its eastern boundary to more than 20 feet in places west of Building 3001. The USZ is erosionally truncated by Soldier Creek along the northeastern margin of Tinker AFB (Figure 3-5). This aquifer zone is considered to be a perched aquifer over the eastern one-third of Tinker AFB, where it is separated from the LSZ by an underlying confining shale layer and a vadose zone. The confining interval extends

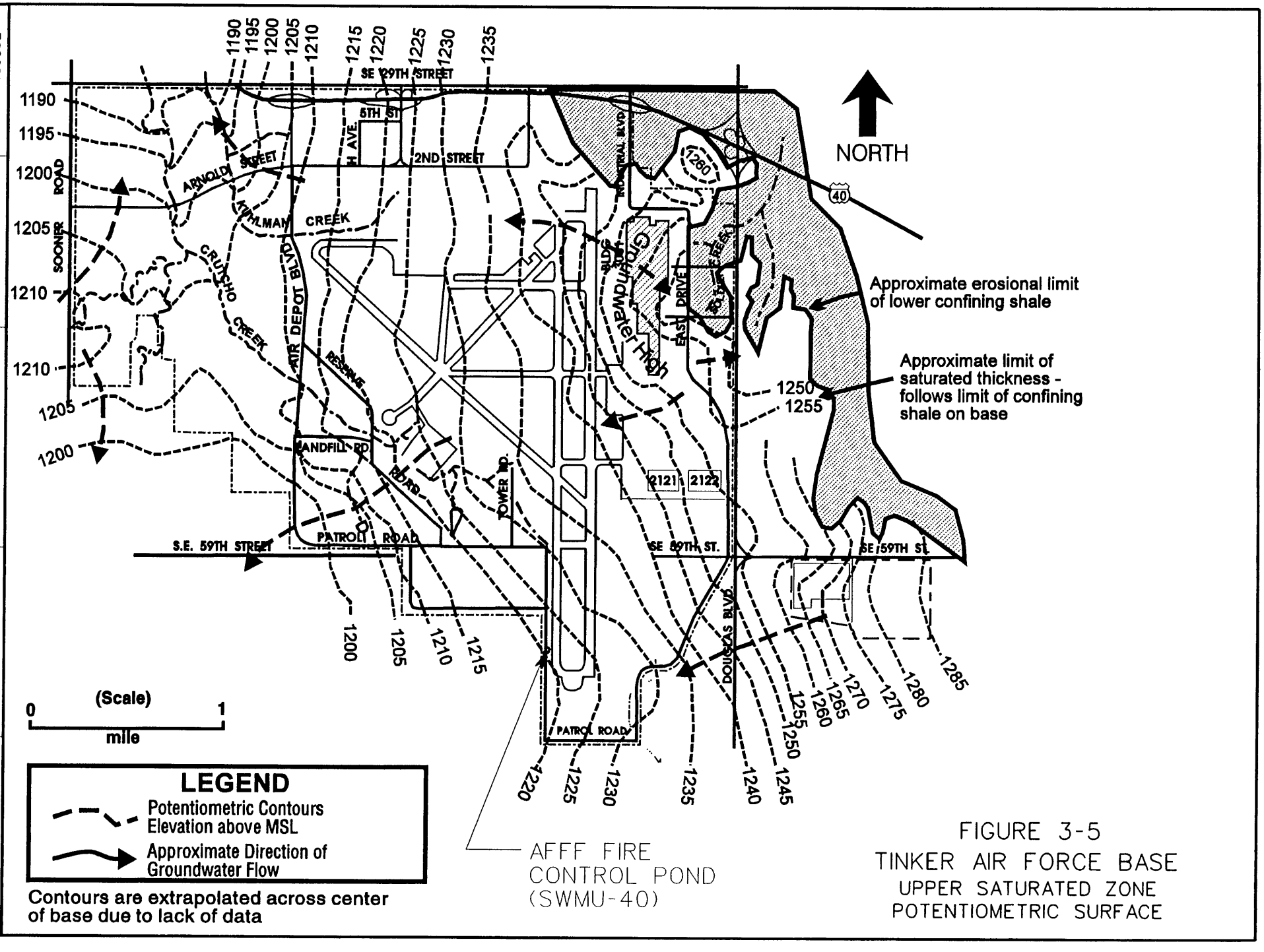

FIGURE 3-5
TINKER AIR FORCE BASE
UPPER SATURATED ZONE
POTENTIOMETRIC SURFACE

STARTING DATE: 01APRIL94	DATE LAST REV.:	DRAFT. CHCK. BY:	INITIATOR: C. WALLACE
DRAWN BY: L. STOUT	DRAWN BY:	ENGR. CHCK. BY:	PROJ. MGR.: J. TAYLOR
			DWG. NO.: 40983209C
			PROJ. NO.: 409832

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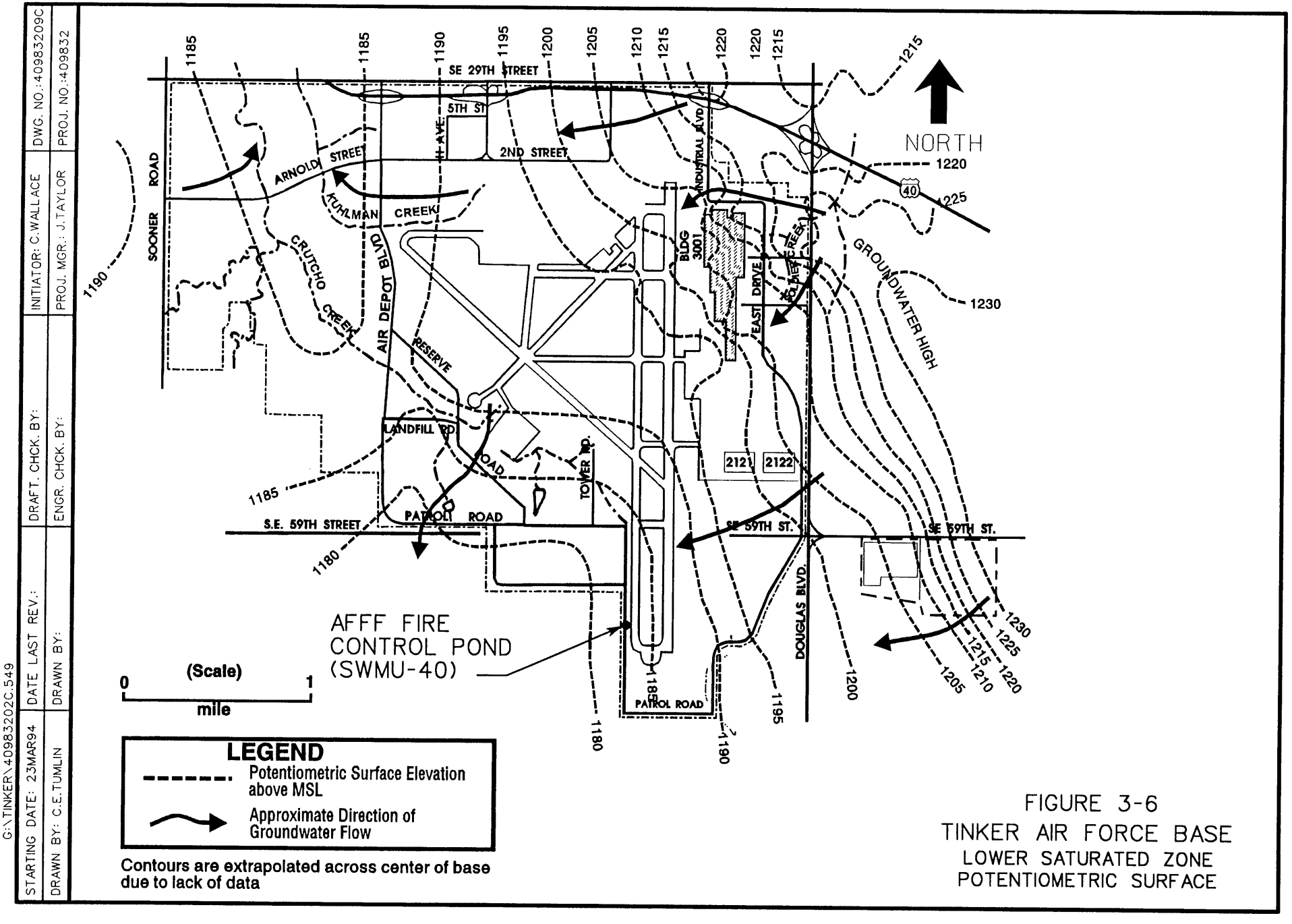


FIGURE 3-6
TINKER AIR FORCE BASE
LOWER SATURATED ZONE
POTENTIOMETRIC SURFACE

across the entire Base, but the vadose zone exists over the eastern one-third of this area. The available hydrologic data indicate that the vadose zone does not exist west of a north-south line located approximately 500 to 1,000 feet west of the main runway; consequently, the USZ is not perched west of this line. However, based on potentiometric head data from wells screened above and below the confining shale layer, the USZ remains a discrete aquifer zone distinct from the LSZ even over the western part of the Base. In areas where several shales interfinger to form the lower confining interval rather than a single shale bed, "gaps" may occur. In general, these gaps are not holes in the shale but are places where multiple shales exist that are separated by slightly more permeable strata. Hydrologic data from monitoring wells indicate that these zones allow increased downward flow of groundwater above what normally leaks through the confining layer.

The LSZ is hydraulically interconnected and can be considered one aquifer zone down to approximately 200 feet. This area includes what was referred to by the USACE as the top of regional and regional zones. Hydrologic data from wells screened at different depths at the same location within this zone, however, provide evidence that locally a significant vertical (downward) component of groundwater flow exists in conjunction with lateral flow. The magnitude of the vertical component is highly variable over the Base. Preliminary evidence suggests that the LSZ is hydraulically discrete from the producing zone. Due to variations in topography the top of the lower zone is found at depths ranging from 50 to 100 feet below ground surface under the eastern parts of the Base and as shallow as 30 feet to the west. Differences in potentiometric head values found at successive depths are due to a vertical (downward) component of groundwater flow in addition to lateral flow and the presence or absence of shale layers that locally confine the aquifer system. The LSZ extends east of the Base (east of Soldier Creek) beyond the limits of the USZ where it becomes the first groundwater zone encountered in off-Base wells. Because of the regional dip of bedding, groundwater gradient, and topography, the LSZ just east of the Base is generally encountered at depths of less than 20 feet.

Across the central portion of Tinker AFB, the unsaturated zone separating the USZ and LSZ disappears where the intervening shale layer dips below the surface of the LSZ (Figure 3-6). The disappearance of the unsaturated zone is supported by data from recently completed wells just west of the north-south runway and near Base Operations and by data from wells in the southwest portion of the Base. Measured water levels in two of the new wells show that the LSZ is confined at these locations by the shale separating the USZ and LSZ. No unsaturated interval is present.

To the southwest, measured water levels from wells screened in the Garber Sandstone at Landfills 2 and 4, SWMUs-4 and -6, which correspond in the conceptual model to the USZ under the east part of the Base, show that the USZ remains unconfined or is partially confined. This zone is essentially the first water level encountered in the Garber Sandstone on the Base. Potentiometric data from wells in the southwest screened in deeper intervals, that correspond roughly to the LSZ to the east indicate that the LSZ is confined in this area. Data from wells screened at various intervals to a depth of about 90 feet in this area also show that no vadose (unsaturated) zone separates the USZ from the rest of the aquifer. The upper and lower zones cannot be distinguished in this area except by correlating geologic units across Base.

Farther to the southwest of the landfills, near the edge of the Base, another unsaturated zone is found separating groundwater in the Hennessey Group from the Garber-Wellington aquifer. This unsaturated zone is not continuous with that encountered on the east side of the Base. The groundwater in the overlying Hennessey water bearing zone represents the third groundwater zone of more limited areal extent mentioned previously. This shallow unconfined aquifer system is located on a topographic high (groundwater divide) in the strata of the Hennessey Group. Radial flow of groundwater off the divide toward nearby tributaries of Crutcho Creek is suggested from limited water level measurements. Additional shallow perched saturated zones of limited areal extent are thought to exist in other sandstone and siltstone beds within the Hennessey water bearing zone. Along the western margin of Tinker AFB west of Crutcho Creek, the shallow groundwater in the Hennessey water bearing zone and probably groundwater in the most shallow saturated zones in the Garber-Wellington aquifer appears to flow toward stream tributaries, and therefore, does not follow regional flow patterns to the west/southwest.

The aquifer zones in the conceptual model are hydraulically connected, although sometimes only to a very local extent, either directly as in the west part of the Base or indirectly through leakage and/or recharge patterns related to local streams. Because Tinker AFB is located in a recharge zone for the Central Oklahoma aquifer both horizontal and vertical (downward) components of groundwater flow exist. Measured potentiometric levels from well clusters with screens and filter packs placed at varying depths within the LSZ show that hydraulic heads decrease with depth and that the magnitude of the vertical component of flow varies with location. This finding is particularly important to recognize where data from these wells are being used to generate potentiometric contour maps.

Although the variability in the geology and the recharge system at Tinker AFB makes it difficult to predict local flow paths, Central Oklahoma aquifer system water table data taken from the 1992 USGS Hydrologic Atlas show that regional groundwater flow under Tinker AFB varies from west/northwest to southwest depending on location. This finding is supported by contoured potentiometric data from Base monitoring wells, which show groundwater movement in the upper aquifer zones to generally follow regional dip. Measured normal to potentiometric contours, groundwater flow gradients range from 0.0019 to 0.0057 ft/ft. However, because flow in the near surface portions of the aquifer at Tinker AFB is strongly influenced by topography, local stream-based levels, complex subsurface geology and location in a recharge area, both direction and magnitude of groundwater movement is highly variable. The interaction of these factors not only influences regional flow, but also gives rise to complicated local, often transient, flow patterns at individual sites.

Several examples demonstrate this variability. Historical water level data around Crutcho Creek indicate that groundwater flow in that area is predominantly to the southwest. However, during high flow conditions bank recharge occurs and shallow local flow patterns near the creek may be reversed. This pattern is probably in effect at other streams as well. In the northeast quadrant of the Base, several factors contribute to groundwater "mounding" in the USZ and to formation of a groundwater high in the LSZ. This mounding leads to radial or semiradial groundwater flow at shallow depths. Finally, in the northeast part of the Base where sufficient data exist, comparison of potentiometric contours from successively deeper levels in the LSZ suggests that groundwater flow directions change with depth, gradually turning from west/southwest to northwest. This change in regional flow is attributed either to effects of pumping from deep water supply wells in the area and/or to the presence of the Deep Fork River located to the north. This river, along with the Canadian River south of Tinker AFB, has been demonstrated by the USGS to act as a major discharge point for regional groundwater in Central Oklahoma.

Surface Water. The interaction of surface water with groundwater is an important factor in predicting local groundwater flow patterns at Tinker AFB. Although no technical stream study data are presently available to determine what degree of interaction occurs between streams and groundwater, some qualitative observations provide clues to the importance of this system. The direction of stream flow on Tinker AFB appears to be controlled largely by a topographic divide that extends from southwest to northeast across the south part of the Base. Streams that originate on the north side of the divide flow to the north. These streams include Soldier Creek, Crutcho Creek, and Kuhlman Creek. Elm Creek, which has its origin

on the southeast side, flows to the south. Streams that flow northward become perennial before leaving the Base and with no other constant source of water available are considered to be recharged by the aquifer (gaining streams). Some data indicate, however, that these streams become dry north of the Base during periods of lower precipitation and lose water to the aquifer (losing streams). Information from wells and piezometers near the ponded section of Soldier Creek at the industrial wastewater treatment plant also suggests that the pond contributes to the groundwater (a losing stream) in the LSZ at that location. Portions of Soldier Creek tributaries (near their headwaters off-Base) flow only intermittently and probably recharge the aquifer through infiltration during periods of higher precipitation. Finally, where groundwater and stream elevations are the same, the observed direction of groundwater flow may be affected by transient factors such as bank storage from periods of increased precipitation.

Man-Made Structures. In the conceptual model of Tinker AFB it is recognized that man-made features such as buried utilities (storm drains, waste lines) may further complicate the shallow groundwater picture. An additional problem encountered in generating the model involves improper monitoring well construction practices that not only may contribute preferred pathways for groundwater (and contaminant) movement where wells have multiple screens or overlie long filter packs, but also often provide nonrepresentative, biased groundwater, and sample data.

The complex groundwater system at Tinker AFB makes correct placement and construction of monitoring and extraction wells critical. A good understanding of the conceptual hydrologic framework is essential to obtain representative data and to minimize errors. An integrated hydrologic conceptual model provides an overview of the groundwater system and leads in turn to more effective site project management.

3.3.2 Site Hydrology

The Phase I RFI conducted at the AFFF Pond did not investigate hydrologic conditions at the site. It is known, however, that the drainage ditch adjacent to the AFFF Pond feeds into Crutcho Creek. At Tinker AFB, Crutcho Creek is believed to be a gaining stream recharged by the uppermost aquifer. Therefore, it is unlikely that any constituents carried by the creek would migrate into the aquifer.

3.4 Soils

The surface soils of Tinker AFB have been studied by the U.S. Department of Agriculture (USDA), Soil Conservation Service (1969) and by several soil boring projects conducted for geotechnical (foundation construction) investigations. Surface soils of the installation area are predominantly of two basic types: residual and alluvial. The three major soil associations (Table 3-2) mapped within installation limits are Darrell-Stephenville, Renfrow-Vernon-Bethany, and Dale-Canadian-Port. The residual soils associations, Darrell-Stephenville and Renfrow-Vernon-Bethany are the products of the weathering of underlying bedrock. The alluvial materials of the Dale-Canadian-Port association are stream-deposited silts and sands, which are typically restricted to floodplains of area streams.

Table 3-2

Tinker AFB Soil Associations
(Source: USDA, 1969)

Association	Description	Thickness (in.)	Unified Classification[a]	Permeability (in./hr)
Darrell-Stephenville: loamy soils of wooded uplands	Sandy loam Sandy clay loam Soft sandstone (Garber Sandstone)	12-54	SM,ML,SC	2.0-6.30
Renfrow-Vernon-Bethany: loamy and clayey soils on prairie uplands	Silt loam - clay Clay loam Shale (Fairmont Shale)	12-60	ML,CL,MH,CH	<0.60-0.20
Dale-Canadian-Port: loamy soil on low benches near large streams	Fine sandy loam Silty clay loam Loam Clay loam	12-60	SM,ML,CL	0.05-6.30

[a]Unified classifications defined in U.S. Bureau of Reclamation, 5005-86.

4.0 Description of Investigative Methods

The Phase I investigation of the AFFF Pond focused on determining the nature of the release to the pond and the nature of possible surface soil contamination resulting from the overflow of the pond into an adjacent drainage ditch. All activities conducted during the field investigation program were performed in accordance with the Work Plan, the Data Management Plan, the Data Collection Quality Assurance Plan, the Health and Safety Plan, and their Amendments (IT, 1993a). Field investigation activities described in the following sections included sampling of possible waste sources and soil borings of surface soils in the overflow drainage ditch (Table 4-1).

4.1 Source/Wastewater Samples

A sample of wash rack wastewater was collected from sample location WS-13, the sump located near the southeast corner of Building 976. The water was sampled using a disposable polypropylene bailer and was analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), total petroleum hydrocarbons (TPH), priority pollutant metals, and total organic carbon (TOC).

4.2 Soil Borings

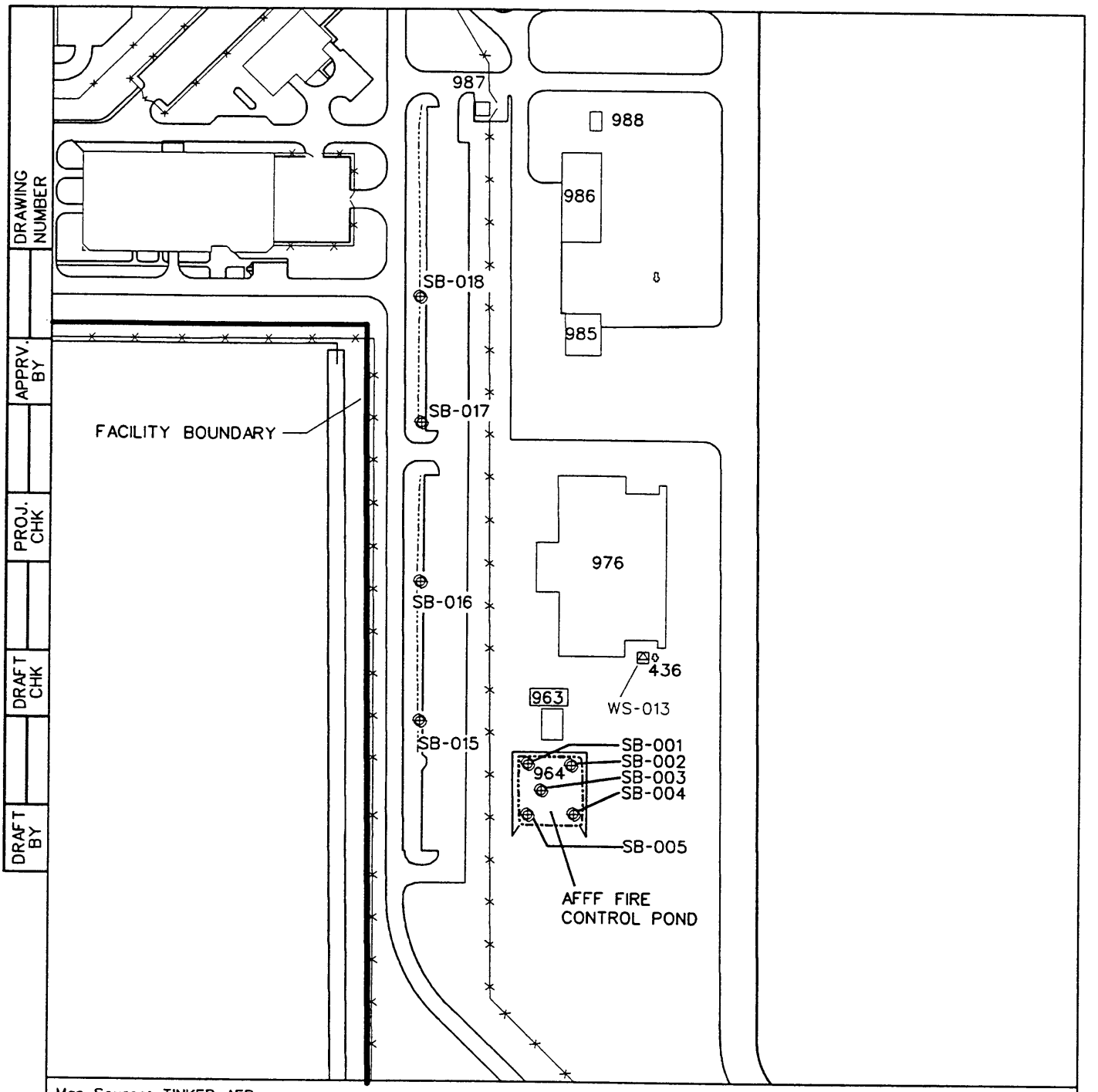
As a follow up to the July 2, 1991 soil borings (SB-001, SB-002, SB-003, SB-004 and SB-005), four soil borings (SB-015, SB-016, SB-017, and SB-018) were drilled in the drainage ditch that runs from the overflow area of the AFFF Pond and drains into Crutcho Creek (Figure 4-1). The borings were drilled with a hand auger to a depth of 18 inches. An analytical soil sample was collected from the portion of the boring that indicated the highest level of contamination based on odor, photoionization detector/flame ionization detector (PID/FID) readings, and visual observation. If there was no apparent contamination, the sample was collected at the bottom of the boring. The samples were analyzed for VOCs, SVOCs, and priority pollutant metals.

Table 4-1

Summary of RFI Field Activities
SWMU-40, AFFF Pond, Tinker AFB

Type of Activity	Number of Locations	Cumulative Footage of Borings/Wells	Average Footage per Boring/Well	Number of Samples Collected for Chemical Analysis					Analyses Performed
				Normal Samples	Duplicates	Rinsates	Field Blanks	Totals	
Soil Borings	4	6	1.5	4	1	1	0	6	VOC, SVOCs, Metals
Source Characterization Washwater Samples	1	n/a	n/a	1	1	0	1	3	VOCs, SVOCs, TPH, TOC, Metals

Notes:
VOCs - Volatile organic compounds - EPA Method 8240
SVOCs - Semivolatile organic compounds - EPA Method 8270
Metals - EPA Method 6010: Al, Ag, As (EPA Method 7060); Ba, Be, Cd, Cr, hexavalent Cr (EPA Method 7196); Cu, Fe, Pb (EPA Method 7421); Ni, Zn, and Hg (EPA Method 7471)
TPH - Total petroleum hydrocarbon - EPA Method 418.1/9071
TOCs - Total organic carbon - EPA Method 415.1



Map Source: TINKER AFB

LEGEND

SB-015	SOIL BORING LOCATION AND IDENTIFICATION NUMBER
WS-013	SOURCE SAMPLE LOCATION AND IDENTIFICATION NUMBER
	FENCE
	DRAINAGE
964	STRUCTURE NUMBER

N

0 100 200
FEET

G:\TINKER\40983202.140
Do Not Scale This Drawing

FIGURE 4-1
AFFF FIRE CONTROL POND
SITE MAP WITH LOCATIONS OF
SOIL BORINGS AND SOURCE SAMPLES

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5.0 Investigation Results

The following sections provide an evaluation of the data quality and the results of the RFI performed at the AFFF Pond. Section 5.1 reviews the procedures and methods used to ensure data quality and useability. Section 5.2 provides a discussion of the source characterization sample collected from the sump located near the southeast corner of Building 976 and the potential of the AFFF Fire Pond as a contributing source for contamination. Section 5.3 provides details regarding the contaminant characterization via analysis of the results of the soils investigation. Groundwater was not encountered, nor investigated at the AFFF Pond and therefore will not be discussed.

5.1 Data Quality Evaluation

The quality of the analytical data used for the RFI must be sufficient to support the associated risk management decisions. Data quality is ensured through adherence to Data Quality Objectives (DQO) and the sampling and analysis program outlined in the Data Collection Quality Assurance Plan (DCQAP) (IT, 1993b). The DCQAP identifies sampling locations, sampling methods, DQOs, field and laboratory quality control testing, analytical methods and reporting, and data evaluation and verification. The quality control of field and laboratory activities; the assessment of precision, accuracy, and comparability of the data; and the verification of the data are the most significant activities designed to ensure compliance with the DQOs.

5.1.1 Field Quality Control

Field quality control testing involved the collection of control samples to aid in evaluating inaccuracies which may be induced by field activities. These control samples include:

- ***Field Blanks.*** A field blank is an amount of water, gas, or solid that is provided to demonstrate the absence of contamination during sampling. Field blanks were only collected for groundwater and waste samples.

- ***Trip Blanks.*** Volatile organics samples are susceptible to contamination by diffusion of organic contaminants into the sample container. Therefore, trip blanks were analyzed to monitor for sample contamination during shipment and storage. No trip blanks were obtained for soil samples, due to the dissimilarity in matrix between the blanks and the actual samples.

- ***Rinsate Blanks.*** A rinsate blank is a volume of rinse solution (e.g., deionized distilled laboratory water or organic solvent) used to rinse a sampling tool which

contacts more than one sample. The rinse solution was collected after the sampling tool was used and cleaned, to demonstrate that no residual contamination remained on the tool to carry over to the next sample.

- ***Field Duplicates.*** Duplicate analyses were performed to evaluate the precision of analysis. Both field and laboratory duplicates were taken and analyzed. Results of these analyses were used to determine the relative percent difference (RPD) between replicate samples.

5.1.2 Laboratory Quality Control

Laboratory quality control testing involved the use of control samples to aid in evaluating quality control errors which may be induced by laboratory activities. The control samples include:

- ***Method Blanks.*** A method blank is a volume of deionized and distilled laboratory water for liquid samples, or a purified solid matrix for soil/sediment samples, carried through the entire analytical procedure to identify contaminants introduced during the procedure.

- ***Bottle Blanks.*** At a frequency of 1 percent or greater, laboratory-prepared sample containers were tested to verify that the container cleaning procedure is performed acceptable. Parameters of concern for the particular container were tested (e.g., metals for plastic containers).

- ***Laboratory Blanks.*** Distilled water-filled volatile organic analysis (VOA) vials were stored in the laboratory using the same method of storage used for field samples. If the field and trip blanks contained high concentrations of contaminants, the laboratory blank was analyzed to identify the source of contamination.

- ***Matrix Spikes.*** To evaluate the effect of sample matrix on analytical methodology accuracy, a separate sample aliquot was spiked with the analyte of interest and analyzed with approximately ten samples or, if a smaller number of samples are associated with a test series, for each group of samples.

- ***Surrogate Standards.*** Surrogate standards are compounds added to gas chromatography/mass spectrometry (GC/MS) standards, blanks, and samples prior to extraction or purging to monitor the recovery efficiencies of the sample preparation and analytical procedures on a sample-by-sample basis.

5.1.3 Evaluation of Precision and Accuracy

As part of the analytical quality control testing program, quality control sample results were used to apply precision and accuracy criteria for each parameter that was analyzed. When the

analysis of a sample set was completed, the quality control data generated were evaluated based on the following criteria:

- ***Method Blank Evaluation.*** The method blank results were evaluated for high readings characteristic of background contamination. If high blank values were observed, laboratory glassware and reagents were checked for contamination and the analysis of future samples halted until the system could be evaluated.

- ***Trip, Field, Laboratory, and Rinsate Blank Evaluation.*** Trip, field, laboratory, and rinsate blank results were evaluated for high readings similar to the method blanks described above. If high blank readings were encountered, the procedure for sample collection, shipment, and laboratory analysis would be reviewed.

- ***Duplicate Sample Evaluation.*** Duplicate sample analysis was used to determine the precision of the analytical method for the sample matrix. The duplicate results will be used to calculate the precision as defined by the RPD.

- ***Matrix Spike Evaluation.*** The observed recovery of the spike versus the theoretical spike recovery was used to calculate accuracy as defined by the percent recovery (%R).

- ***Surrogate Standard Evaluation.*** The results of surrogate standard determinations were compared with the true values spiked into the sample matrix prior to purging or extraction and analysis, and the percent recoveries of the surrogate standards were determined.

- ***Comparability Between Data Sets.*** Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Comparability for sampling and analysis was achieved by specifying and using only well-recognized techniques and accepted standard EPA methods and procedures for sampling and analysis reporting of representative samples.

5.1.4 Data Verification

Data packages and parameters were evaluated against the following criteria to ensure data validity prior to use:

- Sampling documentation (e.g., sample collection log, Chain-of-Custody Form, and Request for Analysis Form) matches samples submitted to samples analyzed.

- Chain-of-Custody Forms are complete.

- Sample identification summary for each sample is present.

- Analytical results for each sample include correct units, detection limits, method used, date sampled, date extracted, date analyzed, dilutions noted.

- Holding times were met.
- Data on field and laboratory duplicate samples for RPDs were within QC limits.
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries were within QC limits.
- Method blanks were within control limits.

5.1.5 Data Useability

The data verification did not identify any reoccurring problems with analytical procedures or analytical reporting. Precision and accuracy for each analytical method as demonstrated by the evaluation or surrogate recoveries, laboratory control samples, MS, and MSD recoveries were satisfactory. The sample identification summaries for all samples and methods were present and complete. No data were found to be invalid. All deficiencies encountered were minor and did not affect the overall quality of the data, since other DQOs were met. Deficiencies were generally the result of matrix interference.

The analytical data generated from the RFI are of sufficient quality to make evaluations and support recommendations.

5.2 Source Characterization

This RFI was to include sampling of sediments from the pond bottom to support the water sample and five soil samples collected from the pond in 1991; however, the January 1992 installation of a flexible membrane liner in the pond rendered that strategy impracticable. As an alternative, based on the assumption that current wash rack wastewaters would be representative of past wash rack wastewaters, a source characterization sample of wash rack wastewater was collected under this RFI from a sump located near the southeast corner of Building 976.

The wash rack wastewater sample and an accompanying duplicate sample collected for quality assurance/quality control (QA/QC) purposes were analyzed for VOCs and SVOCs, metals, TPH, and TOC. No organic compounds were found above the method reporting limit. TOC was detected in the source and duplicate samples at 17 to 18 mg/L. Metals found in the source sample were barium at 0.35 mg/L, chromium at 0.013 mg/L, copper at 0.16 mg/L, iron at 0.16 mg/L, and zinc at 0.049 mg/L. Table 5-1 presents the analytical results for detected analytes for the source sample and the May 30, 1991 water sample from the detention pond.

Table 5-1

Analytical Results
for Source Sample and Detention Pond Water Sample
SWMU-40, AFFF Pond, Tinker AFB

Well/Boring: Sample ID: Depth in Feet:	Source Sample				Detention Pond Sample	
	WS-013 A1590 0-0		WS-013 A1510 0-0		Pond Sample 188082 Water	
	Result	QFR	Result	QFR	Result	QFR
Parameters (mg/L)						
Metals						
Aluminum					0.05	
Barium	0.34		0.35			
Cadmium					<0.01	
Chromium	0.013				<0.02	
Copper	0.16		0.16		0.02	
Iron	0.16		0.14			
Lead					<0.1	
Nickle					<0.05	
Zinc	0.039		0.049		0.01	
Total Organic Carbon						
TOC	17		18			

< = Not detected.
QFR = Qualifier
Analytical data have not been validated.

No other results from the detention pond water sample were above the detection limit of method used. A complete listing of analytical results is contained in Appendix A.

5.3 Contaminant Characterization Results

5.3.1 Establishment of Surficial Soil Background Concentrations

Background soil concentrations for trace metals were determined based on a study performed by the United States Geological Survey (USGS) titled "Elemental Composition of Surficial Materials from Central Oklahoma" (1991). The study area was confined to approximately four counties in central Oklahoma. Tinker AFB lies at the approximate center of this area. A total of 293 B-horizon soil samples were collected throughout this area. Soil samples were collected at the top of the B-horizon, which was usually 20 to 30 centimeters below the surface but ranged from 3 to 50 centimeters below the surface. For site-specific analytes for which the USGS offered no background value, a site-specific background value was selected for comparison. This site-specific background sampling location was typically from an upgradient monitoring well boring.

The use of B-horizon soil as selected by the USGS for metals background concentrations in soil is conservative in that the soil sampled does not reflect all possible anthropogenic influences. Most of the samples were obtained from hill crests and well drained areas in pasture and forested land, well away from roadways to minimize contamination from vehicular emissions (i.e., nearly "pristine" areas). Trace metal inputs to the study site soils on Base, however, will come from anthropogenic sources outside of the study area, in addition to those sources related to disposal activities or operations within the confines of the study site. Responsibility may therefore be taken for more trace metal impacts than are actually attributable to a given site.

An additional level of conservatism was added in the manner in which the site-specific metals concentrations were compared to the background levels. Typically, the environmental concentrations of trace metals at study sites are represented by the arithmetic upper 95th confidence interval on the mean of a normal distribution. This upper 95th confidence interval value is then compared to the background values. The intent of this typical approach is to estimate a Reasonable Maximum Exposure case (i.e., well above the average case) that is still within the range of possible exposures.

To expedite this comparison and establish greater conservatism, the maximum concentration found at the site of concern, rather than the upper 95th confidence interval value, was compared to the USGS background values. If the environmental concentration of a particular analyte was below or within the minimum-maximum range of the USGS background concentrations, that analyte was considered to be naturally occurring and of no further concern to this investigation. Given the conservative approach of the comparisons, site-specific metals concentrations would have to significantly exceed the USGS background levels and be attributable to operations at the site before they would be considered a contaminant of concern.

The numerical comparison of site-specific metals concentrations to the USGS background concentrations is presented in the following section.

5.3.2 Soil Characterization

A total of five soil samples were collected from the four surface soil borings drilled at the AFFF Pond for chemical analysis. One of the five samples was a duplicate sample. The analysis included VOCs and SVOCs, metals (aluminum, arsenic, barium, beryllium, cadmium, chromium, chromium VI, copper, iron, lead, mercury, nickel, silver, and zinc). The samples were selected for analysis based on field screening techniques. The analytical results for detected analytes for soils are presented in Table 5-2. Appendix A contains a complete listing of the analytical results.

The analytical results for the July 2, 1991 surface soil sampling are presented in Table 5-3.

No organic compounds were detected above the method reporting limit in the soils. All of the metals found in the soil samples were within the background ranges reported by the USGS. The comparison of the metals concentrations to the USGS data is presented in Table 5-4.

A soil boring summary is provided in Table 5-5.

Table 5-2

Analytical Results for Soil (1993) SWMU-40, AFFF Pond, Tinker AFB

Well/Boring: Sample ID: Depth in Feet:	SB-015 A1500 1-1.5 Result QFR	SB-016 A1501 0-0.5 Result QFR	SB-017 A1502 0.75-1.5 Result QFR	SB-017 A1503 0.75-1.5 Result QFR	SB-018 A1505 0-0.5 Result QFR
Parameters (mg/L)					
Metals					
Aluminum	15000 N	9900 N	10000 N	13000 N	8300 N
Arsenic - Graphite Furnance		2.9 N	3.1 N	2.6 N	2.8 N
Barium	1100 N	550 N	330 N	470 N	370 N
Beryllium		1.1	0.91	1.1	0.87
Chromium	13	11	12	14	11
Copper		5.9	5.7	16	5.5
Iron	13000 N	11000 N	11000 N	13000 N	9500 N
Lead - Graphite Furnance	4 N	8.5 N	8.4 N	6.6 N	6.4 N
Nickle	23 N	7.3 N	8.9 N	11 N	9.1 N
Zinc	30	13	21	20	18

N = Sample is utside of matrix spike QC limit.
< = Not detected.
QFR = Qualifier
Analytical data have not been validated.

Table 5-3

Analytical Results for Surface Soil (1991) SWMU-40, AFFF Pond, Tinker AFB

Well/Boring: Sample ID:	SB-001 190426	SB-002 190424	SB-003 190423	SB-004 190425	SB-005 190427
Parameters					
Hydrocarbons (mg/kg)	<5	14	<5	<5	7
Cadmium (mg/kg)	1.2	1	1	1.2	0.99
Chromium (mg/kg)	22	20	20	20	20
Copper (mg/kg)	12	9.9	10	10	9.1
Nickel (mg/kg)	18	18	17	20	17
Lead (mg/kg)	10	10	11	10	11
Zinc (mg/kg)	34	29	30	28	29
Benzene (µg/kg)	<5	<5	<5	<5	<5
Ethyl Benzene (µg/kg)	<5	<5	<5	<5	<5
Toluene (µg/kg)	<5	<5	<5	<5	<5
Xylenes (µg/kg)	<5	<5	<5	<5	<5

Table 5-4

Soil Metals Background Comparison
SWMU-40, AFFF Pond, Tinker AFB

Analyte	Site	USGS Background Concentration	
	Maximum Value (ppm)	Detection Limit (ppm)	Range (ppm)
Aluminum	15,000	50	3,800-8,900
Arsenic	3.1	0.1	0.6-21
Barium	1,100	1	47-6,400
Beryllium	1.1	1	<1-3
Chromium	14	1	5-110
Copper	16	1	<1-59
Iron	13,000	50	1,800-58,000
Lead	8.5	4	<4-27
Nickel	23	2	<2-61
Zinc	30	2	3-79

Table 5-5

RFI Soil Borings Summary
SWMU-40, AFFF Pond, Tinker AFB

Boring ID	Date Completed	Boring Coordinates		Surface Elevation (msl)	Total Depth Drilled (fbgs)	Soil Samples[a] Collected for Analysis
		Northing	Easting			
SB-001	07/02/91	----	----	----	Surface	1
SB-002	07/02/91	----	----	----	Surface	1
SB-003	07/02/91	----	----	----	Surface	1
SB-004	07/02/91	----	----	----	Surface	1
SB-005	07/02/91	----	----	----	Surface	1
SB-015	10/21/93	146585.615	2182487.746	1275.957	1.5	1
SB-016	10/21/93	146783.596	2182487.440	1273.784	1.5	1
SB-017	10/21/93	147006.049	2182487.149	1270.361	1.5	2
SB-018	10/21/93	147184.752	2182484.119	1268.631	1.5	1
Totals					6.0	10

[a]Number of soil samples collected includes field duplicates.

msl - mean sea level
fbgs - feet below ground surface

6.0 Potential Receptors

A specific potential human and ecological receptor search has not been performed for the AFFF Pond. Data are available in the form of chemical analysis of soils and sump water; current and future uses of these media; and ecologic and demographic information necessary to initiate a potential receptors search. The following sections describe the data available to begin identification of potential receptors.

6.1 Human Receptors

Tinker AFB is situated on a relatively flat expanse of grassland. Prior to the development of the Base, the area was characterized by large tracts of agricultural land. The Base currently occupies approximately 5,000 acres of semi-improved and unimproved grounds that are used for the airfield, golf course, housing area, offices, shops, and other uses characteristic of military installations.

The Garber-Wellington aquifer, which underlies Tinker AFB, is the single most important source of potable groundwater in the Oklahoma City area. The recharge area for the Garber-Wellington aquifer covers the eastern half of Oklahoma County, including Tinker AFB. Approximately 75 percent of the Base's water supply is obtained from production wells pumping from this aquifer. Industrial operations, individual homes, farm irrigation, and small communities not served by municipal distribution systems also depend on the Garber-Wellington aquifer. Communities, such as Oklahoma City, presently depending upon surface water supplies also maintain a well system drilled into this aquifer as a standby source of water in the event of drought. Lake Stanley Draper, a local surface water supply reservoir with a small portion of its drainage basin within the boundaries of Tinker AFB, serves a significant recreational function as well.

In 1989, approximately 26,000 military and civilian personnel worked at Tinker AFB. Of these, approximately 2,722 personnel occupied on-Base housing, which consisted of 530 family housing units and seven dormitories. At that time, 1,262 of these residents were children. Military personnel and their families who reside on Base represent the nearest receptors to releases from Tinker AFB.

The current land use at and near the Base is not expected to change because the facilities have decades of useful life remaining and the Base has an important and continuing mission.

However, other future land use scenarios and any human receptors associated with those scenarios may need to be considered.

6.2 Ecological Receptors

Tinker AFB lies within a grassland ecosystem, which is typically composed of grasses, forbes, and riparian (i.e., trees, shrubs, and vines associated with water courses) vegetation. This ecosystem has generally experienced fragmentation and disturbances as result of urbanization and industrialization at and near the Base. While no threatened or endangered plant species occur on the Base, the Oklahoma penstemon (*Penstemon oklahomensis*), identified as a rare plant under the Oklahoma Natural Heritage Inventory Program, thrives in several locations on Base. Tinker AFB policy considers rare species as if they were threatened or endangered and provides the same level of protection for these species.

In general, Wildlife on the Base is typically tolerant of human activities and urban environments. No federal threatened or endangered species have been reported at the Base. However, one specie found on the Base, the Texas horned lizard (*Phrynosoma cornutum*), is a Federal Category 2 candidate specie and under review for consideration to be listed as threatened or endangered. Air Force policy (AFR 126-1) considers candidate species as threatened or endangered and provides the same level of protection.

The Oklahoma Department of Wildlife Conservation also lists several species within the state as Species of Special Concern. Information on these species suggests declining populations but information is inadequate to support listing, and additional monitoring of populations is needed to determine the species status. These species also receive protection by Tinker AFB as threatened or endangered species. Of these species, the Swainson's hawk (*Buteo swainsoni*) and the burrowing owl (*Athene cunicularia*) have been sighted on Tinker AFB. The Swainson hawk, a summer visitor and prairie/meadow inhabitant, has been encountered Basewide. The burrowing owl has been known to inhabit the Air Field at the Base.

7.0 Action Levels

An "action level" is defined by EPA in proposed rule 40 CFR 264.521 (55 FR 30798; 7/27/90), "Corrective Action for Solid Waste Management Units (SWMU) at Hazardous Waste Management Facilities," as a health- and environment-based level, determined by EPA to be an indicator for protection of human health and the environment. In the preamble to this proposed rule, the focus of the RFI phase is defined as "characterizing the actual environmental problems at the facilities." As part of this characterization, a comparison of the contaminant concentrations to certain action levels should be made to determine if a significant release of hazardous constituents has occurred. This comparison is then used to determine if further action or corrective measures are required for a SWMU or an AOC. The preamble to the proposed rule states that the concept of action levels was introduced because of the need for "a trigger that will indicate the need for a Corrective Measures Study (CMS) and below which a CMS would not ordinarily be required" (55 FR 30798; 7/27/90). If constituent concentrations exceed certain action levels at a SWMU or an AOC, further action or a CMS may be warranted; if constituent concentrations are below action levels, a finding of no further action may be warranted. This chapter of the report presents the initial analytical data as compared to certain potential action levels.

Action levels are concentrations of contaminants at or below which exposure to humans or the environment should not produce acute or chronic effects.

The action level information is presented in this chapter so that a constituent concentration at a sample location can be compared with its potential action level. Only constituents identified in the analysis are listed in the SWMU-40, AFFF Pond table. Table 7-1 shows the action levels for soil, water, and air as published in federal or state regulations, policies, guidance documents, or proposed rules.

The action levels listed in Table 7-1 are:

- ***SWMU Corrective Action Levels (CAL)*** - The first set of action levels provided in the table are those taken from the proposed rule (40 CFR 264.521) and provided as Appendix A to the rule as "Examples of Concentrations Meeting Criteria for Action Levels." These levels are health-risk based and are provided

Table 7-1

Action Levels
SWMU 40, AFFF Pond, Tinker AFB

Parameters	SWMU CAL[a] Soil (mg/kg)	USGS[c] Background Soil (mg/kg)	SB-001 (Surface) Range (mg/kg)	SB-002 (Surface) Range (mg/kg)	SB-003 (Surface) Range (mg/kg)	SB-004 (Surface) Range (mg/kg)	SB-005 (Surface) Range (mg/kg)	SB-015 1 ft - 1.5 ft Range (mg/kg)	SB-016 0 - 0.5 ft Range (mg/kg)	SB-017 0.75 ft - 1.5 ft Range (mg/kg)	SB-018 0 - 0.5 ft Range (mg/kg)
Inorganics											
Aluminum		89,000						15,000	9,900	10,000-13,000	8,300
Arsenic	80	21							2.9	2.6-3.1	2.8
Barium	4,000	6,400						1,100	550	330-470	370
Beryllium	0.2	3							1.1	0.91-1.1	0.87
Cadmium			1.2	1.0	1.0	1.2	0.99				
Chromium		110	22	20	20	20	20	13	11	12-14	11
Chromium VI	400							13	11	12-14	11
Copper		59	12	9.9	10	10	9.1		5.9	5.7-16	5.5
Iron		58,000						13,000	11,000	11,000-13,000	9,500
Lead		27	10	10	11	10	11	4	8.5	6.6-8.4	6.4
Nickel	2,000	61	18	18	17	20	17	23	7.3	8.9-11	9.1
Zinc		79	34	29	30	28	29	30	13	20-21	18

[a]CAL - Corrective Action Levels.
[b]MCL - Maximum Contaminant Levels.
[c]USGS - United States Geological Survey.
[d]Site Background - Where available, site background concentrations are listed.
[e]NAAQS - National Ambient Air Quality Standards.
[f]WQS - Water Quality Standards.
[g]Action Level at the Tap.
[h]Three Month Average.

as specific examples of levels below which corrective action would not be required.

- ***USGS Background*** - These values are provided from the USGS report titled "Elemental Composition of Surficial Materials from Central Oklahoma" (USGS, 1991). These values represent the levels of metals which naturally occur in Central Oklahoma soils.

Table 7-1 also gives a brief comparative evaluation of the data collected and the related action levels. The data for each detected compound are compared with the appropriate action level in order to identify those constituents (compounds) with concentrations exceeding the action levels. This identification of the compounds above the action levels provides an indication of a potential environmental problem at a specific site. In addition, this information indicates whether there is a need for conducting a CMS so that a corrective action can be implemented/undertaken at the site.

The data included in Table 7-1 are representative of the data presented in Chapter 5.0. For each soil boring, a range was identified and used in the comparison to the action levels.

The only constituents that exceeded the SWMU CALs for soil were aluminum and beryllium. The maximum value detected for aluminum was 15,000 mg/kg and the action level is 4,000 mg/kg. The levels of aluminum found in the soil, however, are far less than those found in background (89,000 mg/kg). The maximum value detected for beryllium was 1.1 mg/kg and the action level is 0.2 mg/kg. The levels of beryllium found in the soil, however, are far less than those found in background (3 mg/kg). Both of these constituents naturally occur in the region at these levels and, therefore, are not considered constituents of concern for the AFFF Pond.

8.0 Summary and Conclusions

8.1 Summary

A Phase I RFI was conducted at the AFFF Pond to determine the presence or absence of contamination that may have resulted from a release of rack wash water from Building 976. During the investigation, a total of five soil samples were collected from four shallow (0 to 18 inches in depth) soil borings along the drainage ditch leading to Crutcho Creek to support the five soil samples collected in 1991. In addition, one source media sample along with a duplicate was collected from the sump located outside of Building 976 to support the water sample collected from the dentention pond in 1991. The soil samples were analyzed for VOCs, SVOCs, and metals. The source characterization samples were analyzed for VOCs, SVOCs, metals, TPH, and TOC.

The analytical results for the AFFF Pond revealed that no organic constituents were detected in either the soil or source media samples collected as part of this RFI. Although the levels of aluminum and beryllium in the soil exceeded the SWMU CAL for soils, concentrations of all metals found in the soil samples were within the regional background ranges as reported by the USGS. No constituents of concern were found in either the source media samples or the soil samples.

8.2 Conclusions

Because no constituents of concern were found in either the water samples or soil samples, the release of rack wash water from Building 976 has not impacted the soils of the AFFF Detention Pond or the drainage ditch.

9.0 Recommendations for Additional Work

Based on the conclusions of the Phase I RFI performed at the AFFF Pond, no further actions are recommended for this site.

10.0 References

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APPENDIX A
DATA TABLES, CERTIFICATES OF ANALYSIS, CHAIN-OF-CUSTODY

ANALYTICAL RESULTS

SOURCE SAMPLES

Analytical Results at the AFF
for WW
Tinker Air Force Base

Well/Boring:	WS-013			WS-013		
Sample ID:	A1509			A1510		
Depth:	0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units
Aluminum	<0.20	U	mg/l	<0.20	U	mg/l
Arsenic - Graphite Furnace	<0.010	U	mg/l	<0.010	U	mg/l
Barium	0.34		mg/l	0.35		mg/l
Beryllium	<0.0050	U	mg/l	<0.0050	U	mg/l
Cadmium	<0.0050	U	mg/l	<0.0050	U	mg/l
Chromium	0.013		mg/l	<0.010	U	mg/l
Copper	0.16		mg/l	0.16		mg/l
Iron	0.16		mg/l	0.14		mg/l
Lead - Graphite Furnace	<0.0030	U	mg/l	<0.0030	U	mg/l
Mercury	<0.00020	U	mg/l	<0.00020	U	mg/l
Nickel	<0.040	U	mg/l	<0.040	U	mg/l
Silver	<0.010	U	mg/l	<0.010	U	mg/l
Zinc	0.039		mg/l	0.049		mg/l
1,2,4-Trichlorobenzene	<10	U	ug/l	<10	U	ug/l
1,2-Dichlorobenzene	<10	U	ug/l	<10	U	ug/l
1,3-Dichlorobenzene	<10	U	ug/l	<10	U	ug/l
1,4-Dichlorobenzene	1.0	JB	ug/l	<10	U	ug/l
2,4,5-Trichlorophenol	<10	U	ug/l	<10	U	ug/l
2,4,6-Trichlorophenol	<10	U	ug/l	<10	U	ug/l
2,4-Dichlorophenol	<10	U	ug/l	<10	U	ug/l
2,4-Dimethylphenol	<10	U	ug/l	<10	U	ug/l
2,4-Dinitrophenol	<25	U	ug/l	<25	U	ug/l
2,4-Dinitrotoluene	<10	U	ug/l	<10	U	ug/l
2,6-Dinitrotoluene	<10	U	ug/l	<10	U	ug/l
2-Chloronaphthalene	<10	U	ug/l	<10	U	ug/l
2-Chlorophenol	<10	U	ug/l	<10	U	ug/l
2-Methylnaphthalene	<10	U	ug/l	<10	U	ug/l
2-Methylphenol	<10	U	ug/l	<10	U	ug/l
2-Nitroaniline	<25	U	ug/l	<25	U	ug/l
2-Nitrophenol	<10	U	ug/l	<10	U	ug/l
3,3'-Dichlorobenzidine	<10	U	ug/l	<10	U	ug/l

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical Results at the AFF
for WW
Tinker Air Force Base

Well/Boring:	WS-013			WS-013		
Sample ID:	A1509			A1510		
Depth:	0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units
3-Nitroaniline	<25	U	ug/l	<25	U	ug/l
4,6-Dinitro-2-methylphenol	<25	U	ug/l	<25	U	ug/l
4-Bromophenyl-phenylether	<10	U	ug/l	<10	U	ug/l
4-Chloro-3-methylphenol	<10	U	ug/l	<10	U	ug/l
4-Chloroaniline	<10	U	ug/l	<10	U	ug/l
4-Chlorophenyl-phenylether	<10	U	ug/l	<10	U	ug/l
4-Methylphenol	<10	U	ug/l	<10	U	ug/l
4-Nitroaniline	<10	U	ug/l	<10	U	ug/l
4-Nitrophenol	<25	U	ug/l	<25	U	ug/l
Acenaphthene	<10	U	ug/l	<10	U	ug/l
Acenaphthylene	<10	U	ug/l	<10	U	ug/l
Anthracene	<10	U	ug/l	<10	U	ug/l
Benzo(a)anthracene	<10	U	ug/l	<10	U	ug/l
Benzo(a)pyrene	<10	U	ug/l	<10	U	ug/l
Benzo(b)fluoranthene	<10	U	ug/l	<10	U	ug/l
Benzo(g,h,i)perylene	<10	U	ug/l	<10	U	ug/l
Benzo(k)fluoranthene	<10	U	ug/l	<10	U	ug/l
Benzoic Acid	<10	U	ug/l	<10	U	ug/l
Benzyl alcohol	<10	U	ug/l	<10	U	ug/l
Butylbenzylphthalate	<10	U	ug/l	<10	U	ug/l
Chrysene	<10	U	ug/l	<10	U	ug/l
Di-n-butylphthalate	<10	U	ug/l	<10	U	ug/l
Di-n-octylphthalate	<10	U	ug/l	<10	U	ug/l
Dibenzo(a,h)anthracene	<10	U	ug/l	<10	U	ug/l
Dibenzofuran	<10	U	ug/l	<10	U	ug/l
Diethylphthalate	<10	U	ug/l	<10	U	ug/l
Dimethylphthalate	<10	U	ug/l	<10	U	ug/l
Fluoranthene	<10	U	ug/l	<10	U	ug/l
Fluorene	<10	U	ug/l	<10	U	ug/l
Hexachlorobenzene	<10	U	ug/l	<10	U	ug/l
Hexachlorobutadiene	<10	U	ug/l	<10	U	ug/l

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical Results at the AFF
for WW
Tinker Air Force Base

Well/Boring:	WS-013			WS-013		
Sample ID:	A1509			A1510		
Depth:	0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units
Hexachlorocyclopentadiene	<10	U	ug/l	<10	U	ug/l
Hexachloroethane	<10	U	ug/l	<10	U	ug/l
Indeno(1,2,3-cd)pyrene	<10	U	ug/l	<10	U	ug/l
Isophorone	<10	U	ug/l	<10	U	ug/l
N-Nitroso-di-n-propylamine	<10	U	ug/l	<10	U	ug/l
N-Nitrosodiphenylamine	<10	U	ug/l	<10	U	ug/l
Naphthalene	<10	U	ug/l	<10	U	ug/l
Nitrobenzene	<10	U	ug/l	<10	U	ug/l
Pentachlorophenol	<25	U	ug/l	<25	U	ug/l
Phenanthrene	<10	U	ug/l	<10	U	ug/l
Phenol	<10	U	ug/l	<10	U	ug/l
Pyrene	<10	U	ug/l	<10	U	ug/l
bis(2-Chloroethoxy)methane	<10	U	ug/l	<10	U	ug/l
bis(2-Chloroethyl)ether	<10	U	ug/l	<10	U	ug/l
bis(2-Chloroisopropyl)ethe	<10	U	ug/l	<10	U	ug/l
bis(2-Ethylhexyl)phthalate	<10	U	ug/l	<10	U	ug/l
Total Organic Carbon	17		mg/l	18		mg/l
TPH - IR	<1.0	U	mg/l	<1.0	U	mg/l
1,1,1-Trichloroethane	<5	U	ug/l	<5	U	ug/l
1,1,2,2-Tetrachloroethane	<5	U	ug/l	<5	U	ug/l
1,1,2-Trichloroethane	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethane	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethene	<5	U	ug/l	<5	U	ug/l
1,2-Dichloroethane	<5	U	ug/l	<5	U	ug/l
1,2-Dichloropropane	<5	U	ug/l	<5	U	ug/l
2-Butanone	<100	U	ug/l	<100	U	ug/l
2-Chloroethylvinyl ether	<10	U	ug/l	<10	U	ug/l
2-Hexanone	<50	U	ug/l	<50	U	ug/l
4-Methyl-2-Pentanone	<50	U	ug/l	<50	U	ug/l
Acetone	<100	U	ug/l	<100	U	ug/l
Benzene	<5	U	ug/l	<5	U	ug/l

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical Results at the AFF
for WW
Tinker Air Force Base

Well/Boring:	WS-013			WS-013		
Sample ID:	A1509			A1510		
Depth:	0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units
Bromoform	<5	U	ug/l	<5	U	ug/l
Bromomethane	<10	U	ug/l	<10	U	ug/l
Carbon Disulfide	<5	U	ug/l	<5	U	ug/l
Carbon Tetrachloride	<5	U	ug/l	<5	U	ug/l
Chlorobenzene	<5	U	ug/l	<5	U	ug/l
Chlorodibromomethane	<5	U	ug/l	<5	U	ug/l
Chloroethane	<10	U	ug/l	<10	U	ug/l
Chloroform	<5	U	ug/l	<5	U	ug/l
Chloromethane	<10	U	ug/l	<10	U	ug/l
Dichlorobromomethane	<5	U	ug/l	<5	U	ug/l
Ethylbenzene	<5	U	ug/l	<5	U	ug/l
Methylene Chloride	6.7	BJ	ug/l	6.9	BJ	ug/l
Styrene	<5	U	ug/l	<5	U	ug/l
Tetrachloroethene	<5	U	ug/l	<5	U	ug/l
Toluene	<5	U	ug/l	<5	U	ug/l
Trichloroethene	<5	U	ug/l	<5	U	ug/l
Vinyl Acetate	<10	U	ug/l	<10	U	ug/l
Vinyl Chloride	<10	U	ug/l	<10	U	ug/l
Xylenes (total)	<5	U	ug/l	<5	U	ug/l
cis 1,3 Dichloropropene	<5	U	ug/l	<5	U	ug/l
cis-1,2-Dichloroethene	<5	U	ug/l	<5	U	ug/l
trans 1,3-Dichloropropene	<5	U	ug/l	<5	U	ug/l
trans-1,2-Dichloroethene	<5	U	ug/l	<5	U	ug/l

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

ANALYTICAL RESULTS

SOIL

Analytical Results at the AFF
for SO
Tinker Air Force Base

Well/Boring:	SB-015			SB-016			SB-017			SB-017			SB-018		
Sample ID:	A1500			A1501			A1502			A1503			A1505		
Depth:	1 - 1.5			0 - .5			.75 - 1.5			.75 - 1.5			0 - .5		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	15000	N	mg/kg	9900	N	mg/kg	10000	N	mg/kg	13000	N	mg/kg	8300	N	mg/kg
Arsenic - Graphite Furnace	<5.4	UN	mg/kg	2.9	N	mg/kg	3.1	N	mg/kg	2.6	N	mg/kg	2.8	N	mg/kg
Barium	1100	N	mg/kg	550	N	mg/kg	330	N	mg/kg	470	N	mg/kg	370	N	mg/kg
Beryllium	<2.8	U	mg/kg	1.1		mg/kg	0.91		mg/kg	1.1		mg/kg	0.87		mg/kg
Cadmium	<2.8	U	mg/kg	<0.52	U	mg/kg	<0.45	U	mg/kg	<0.56	U	mg/kg	<0.50	U	mg/kg
Chromium	13		mg/kg	11		mg/kg	12		mg/kg	14		mg/kg	11		mg/kg
Chromium VI	<0.10	U	mg/kg	<0.10	U	mg/kg	<0.10	U	mg/kg	<0.10	U	mg/kg	<0.10	U	mg/kg
Copper	<14	U	mg/kg	5.9		mg/kg	5.7		mg/kg	16		mg/kg	5.5		mg/kg
Iron	13000	N	mg/kg	11000	N	mg/kg	11000	N	mg/kg	13000	N	mg/kg	9500	N	mg/kg
Lead - Graphite Furnace	4.0	N	mg/kg	8.5	N	mg/kg	8.4	N	mg/kg	6.6	N	mg/kg	6.4	N	mg/kg
Mercury	<0.021	U	mg/kg	<0.024	U	mg/kg	<0.021	U	mg/kg	<0.024	U	mg/kg	<0.023	U	mg/kg
Nickel	23	N	mg/kg	7.3	N	mg/kg	8.9	N	mg/kg	11	N	mg/kg	9.1	N	mg/kg
Silver	<5.7	U	mg/kg	<1.0	U	mg/kg	<0.91	U	mg/kg	<1.1	U	mg/kg	<1.0	U	mg/kg
Zinc	30		mg/kg	13		mg/kg	21		mg/kg	20		mg/kg	18		mg/kg
1,2,4-Trichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,2-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,3-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,4-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4,5-Trichlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4,6-Trichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dimethylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dinitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,6-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chloronaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylnaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2-Nitrophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

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Analytical Results at the AFF
for SO
Tinker Air Force Base

Well/Boring:	SB-015			SB-016			SB-017			SB-017			SB-018		
Sample ID:	A1500			A1501			A1502			A1503			A1505		
Depth:	1 - 1.5			0 - .5			.75 - 1.5			.75 - 1.5			0 - .5		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
3,3'-Dichlorobenzidine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
3-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4,6-Dinitro-2-methylphenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Bromophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloro-3-methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloroaniline	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chlorophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Nitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Acenaphthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Acenaphthylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(b)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(g,h,i)perylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(k)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzoic Acid	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzyl alcohol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Butylbenzylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Chrysene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-butylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-octylphthalate	0.26	JB	mg/kg	0.084	JB	mg/kg	0.18	JB	mg/kg	0.21	JB	mg/kg	0.13	JB	mg/kg
Dibenzo(a,h)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzofuran	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Diethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dimethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluorene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

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Analytical Results at the AFF
for SO
Tinker Air Force Base

Well/Boring:	SB-015			SB-016			SB-017			SB-017			SB-018		
Sample ID:	A1500			A1501			A1502			A1503			A1505		
Depth:	1 - 1.5			0 - .5			.75 - 1.5			.75 - 1.5			0 - .5		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Hexachlorobutadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorocyclopentadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachloroethane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Indeno(1,2,3-cd)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Isophorone	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitroso-di-n-propylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitrosodiphenylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Naphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	0.05	J	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Nitrobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pentachlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Phenanthrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Phenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethoxy)methane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethyl)ether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroisopropyl)ethe	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Ethylhexyl)phthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,1,1-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2,2-Tetrachloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloropropane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
2-Butanone	3.4	JB	ug/kg	4.2	JB	ug/kg	7.0	JB	ug/kg	3.3	JB	ug/kg	2.7	JB	ug/kg
2-Chloroethylvinyl ether	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
2-Hexanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
4-Methyl-2-Pentanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
Acetone	7.3	J	ug/kg	6.1	J	ug/kg	35	J	ug/kg	28	J	ug/kg	3.2	JB	ug/kg
Benzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Bromoform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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Analytical Results at the AFF
for SO
Tinker Air Force Base

Well/Boring:	SB-015			SB-016			SB-017			SB-017			SB-018		
Sample ID:	A1500			A1501			A1502			A1503			A1505		
Depth:	1 - 1.5			0 - .5			.75 - 1.5			.75 - 1.5			0 - .5		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromomethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Carbon Disulfide	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Carbon Tetrachloride	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorobenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorodibromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloroethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Chloroform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloromethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Dichlorobromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Ethylbenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Methylene Chloride	3.1	J	ug/kg	1.7	J	ug/kg	<10	U	ug/kg	0.8	J	ug/kg	<10	U	ug/kg
Styrene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Tetrachloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Toluene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Trichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Vinyl Acetate	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Vinyl Chloride	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Xylenes (total)	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis 1,3 Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans 1,3-Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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ANALYTICAL RESULTS

QUALITY CONTROL

Analytical QC results at the AFF
for WQ
Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1504			A1511			A1516		
Depth:	0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	<0.20	U	mg/l	<0.20	U	mg/l			
Arsenic - Graphite Furnace	<0.010	U	mg/l	<0.010	U	mg/l			
Barium	<0.20	U	mg/l	<0.20	U	mg/l			
Beryllium	<0.0050	U	mg/l	<0.0050	U	mg/l			
Cadmium	<0.0050	U	mg/l	<0.0050	U	mg/l			
Chromium	<0.010	U	mg/l	<0.010	U	mg/l			
Chromium VI	<0.10	U	mg/l						
Copper	<0.025	U	mg/l	<0.025	U	mg/l			
Iron	<0.10	U	mg/l	0.011		mg/l			
Lead - Graphite Furnace	<0.0030	U	mg/l	<0.0030	U	mg/l			
Mercury	<0.00020	U	mg/l	<0.00020	U	mg/l			
Nickel	<0.040	U	mg/l	<0.040	U	mg/l			
Silver	<0.010	U	mg/l	<0.010	U	mg/l			
Zinc	<0.020	U	mg/l	<0.020	U	mg/l			
1,2,4-Trichlorobenzene	<10	U	ug/l						
1,2-Dichlorobenzene	<10	U	ug/l						
1,3-Dichlorobenzene	<10	U	ug/l						
1,4-Dichlorobenzene	<10	U	ug/l						
2,4,5-Trichlorophenol	<10	U	ug/l						
2,4,6-Tribromophenol	78		%rec						
2,4,6-Trichlorophenol	<10	U	ug/l						
2,4-Dichlorophenol	<10	U	ug/l						
2,4-Dimethylphenol	<10	U	ug/l						
2,4-Dinitrophenol	<25	U	ug/l						
2,4-Dinitrotoluene	<10	U	ug/l						
2,6-Dinitrotoluene	<10	U	ug/l						
2-Chloronaphthalene	<10	U	ug/l						
2-Chlorophenol	<10	U	ug/l						
2-Fluorobiphenyl	71		%rec						
2-Fluorophenol	60		%rec						
2-Methylnaphthalene	<10	U	ug/l						

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Analytical QC results at the AFF
for WQ
Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1504			A1511			A1516		
Depth:	0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
2-Methylphenol	<10	U	ug/l						
2-Nitroaniline	<25	U	ug/l						
2-Nitrophenol	<10	U	ug/l						
3,3'-Dichlorobenzidine	<10	U	ug/l						
3-Nitroaniline	<25	U	ug/l						
4,6-Dinitro-2-methylphenol	<25	U	ug/l						
4-Bromophenyl-phenylether	<10	U	ug/l						
4-Chloro-3-methylphenol	<10	U	ug/l						
4-Chloroaniline	<10	U	ug/l						
4-Chlorophenyl-phenylether	<10	U	ug/l						
4-Methylphenol	<10	U	ug/l						
4-Nitroaniline	<10	U	ug/l						
4-Nitrophenol	<25	U	ug/l						
Acenaphthene	<10	U	ug/l						
Acenaphthylene	<10	U	ug/l						
Anthracene	<10	U	ug/l						
Benzo(a)anthracene	<10	U	ug/l						
Benzo(a)pyrene	<10	U	ug/l						
Benzo(b)fluoranthene	<10	U	ug/l						
Benzo(g,h,i)perylene	<10	U	ug/l						
Benzo(k)fluoranthene	<10	U	ug/l						
Benzoic Acid	<10	U	ug/l						
Benzyl alcohol	<10	U	ug/l						
Butylbenzylphthalate	<10	U	ug/l						
Chrysene	<10	U	ug/l						
Di-n-butylphthalate	<10	U	ug/l						
Di-n-octylphthalate	<10	U	ug/l						
Dibenzo(a,h)anthracene	<10	U	ug/l						
Dibenzofuran	<10	U	ug/l						
Diethylphthalate	<10	U	ug/l						
Dimethylphthalate	<10	U	ug/l						

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical QC results at the AFF
for WQ
Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1504			A1511			A1516		
Depth:	0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Fluoranthene	<10	U	ug/l						
Fluorene	<10	U	ug/l						
Hexachlorobenzene	<10	U	ug/l						
Hexachlorobutadiene	<10	U	ug/l						
Hexachlorocyclopentadiene	<10	U	ug/l						
Hexachloroethane	<10	U	ug/l						
Indeno(1,2,3-cd)pyrene	<10	U	ug/l						
Isophorone	<10	U	ug/l						
N-Nitroso-di-n-propylamine	<10	U	ug/l						
N-Nitrosodiphenylamine	<10	U	ug/l						
Naphthalene	<10	U	ug/l						
Nitrobenzene	<10	U	ug/l						
Nitrobenzene-D5	68		%rec						
Pentachlorophenol	<25	U	ug/l						
Phenanthrene	<10	U	ug/l						
Phenol	<10	U	ug/l						
Phenol-D5	40		%rec						
Pyrene	<10	U	ug/l						
Terphenyl-D14	84		%rec						
bis(2-Chloroethoxy)methane	<10	U	ug/l						
bis(2-Chloroethyl)ether	<10	U	ug/l						
bis(2-Chloroisopropyl)ethe	<10	U	ug/l						
bis(2-Ethylhexyl)phthalate	<10	U	ug/l						
Total Organic Carbon				1.2		mg/l			
TPH - IR				<1.0	U	mg/l			
1,1,1-Trichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1,2,2-Tetrachloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1,2-Trichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,2-Dichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical QC results at the AFF
for WQ
Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1504			A1511			A1516		
Depth:	0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
1,2-Dichloroethane-D4	100		%rec	102		%rec	105		%rec
1,2-Dichloropropane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
2-Butanone	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l
2-Chloroethylvinyl ether	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2-Hexanone	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l
4-Methyl-2-Pentanone	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l
Acetone	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l
Benzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Bromofluorobenzene	94		%rec	97		%rec	97		%rec
Bromoform	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Bromomethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Carbon Disulfide	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Carbon Tetrachloride	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chlorobenzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chlorodibromomethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chloroethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Chloroform	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chloromethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Dichlorobromomethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Ethylbenzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Methylene Chloride	7.0	JB	ug/l	5.7	BJ	ug/l	<10	U	ug/l
Styrene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Tetrachloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Toluene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Toluene-D8	91		%rec	94		%rec	93		%rec
Trichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Vinyl Acetate	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Vinyl Chloride	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Xylenes (total)	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
cis 1,3 Dichloropropene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
cis-1,2-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical QC results at the AFF
for WQ
Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1504			A1511			A1516		
Depth:	0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
trans 1,3-Dichloropropene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
trans-1,2-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

CERTIFICATES OF ANALYSIS

TPJ

Routed to KH, CF, TL 12/9/93

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

RECEIVED DEC - 9 1992

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 12/06/93

Work Order: B3-10-300

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O.5001 409832-003-01
Date Received: 10/22/93
Number of Samples: 25
Sample Type: WATER/SOIL

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1013	B3-10-300-01
A1014	B3-10-300-02
A1015	B3-10-300-03
A1016	B3-10-300-04
A1017	B3-10-300-05
A1018	B3-10-300-06
A1019	B3-10-300-07
A1019-MS	B3-10-300-08
A1019-MSD	B3-10-300-09
A1020	B3-10-300-10
A1021	B3-10-300-11
A1500	B3-10-300-12
A1501	B3-10-300-13

Reviewed and Approved:

Jon Bartell
Laboratory Director

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

Samples, continued from above:

SAMPLE IDENTIFICATION	LABORATORY #
A1502	B3-10-300-14
A1503	B3-10-300-15
A1504	B3-10-300-16
A1505	B3-10-300-17
A1506	B3-10-300-18
A1507	B3-10-300-19
A1508	B3-10-300-20
LAB BLANK #1	B3-10-300-21
LAB BLANK #2	B3-10-300-22
LAB BLANK #3	B3-10-300-23
LAB BLANK	B3-10-300-24
LAB BLANK #2	B3-10-300-25

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1013**
SAMPLE DATE: **10/19/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **10/31/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	94	88 - 110
BROMOFLUOROBENZENE	95	86 - 115
1,2-DICHLOROETHANE-D4	102	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

Sample was run by Method 624. A nonconformance was filed.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: **A1014**
SAMPLE DATE: **10/21/93 08:00:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/02/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1014**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/04/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	1.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	7.1	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	111	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1014**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.066	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1014**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	77	23 - 120
2-Fluorobiphenyl	78	30 - 115
Terphenyl-D14	85	18 - 137
Phenol-D5	69	24 - 113
2-Fluorophenol	68	25 - 121
2,4,6-Tribromophenol	74	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1014**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **113.636**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.4	N	1.0	7060	11/09/93
Aluminum	8600	N*	23	6010	11/23/93
Barium	98	N*	23	6010	11/23/93
Beryllium	0.87		0.57	6010	11/23/93
Cadmium	0.57	U	0.57	6010	11/23/93
Chromium	12		1.1	6010	11/23/93
Copper	7.1		2.8	6010	11/23/93
Iron	11000	N*	11	6010	11/23/93
Nickel	12	N	4.5	6010	11/23/93
Lead	5.3	N	0.30	7421	11/09/93
Mercury	0.020	U	0.020	7471	11/06/93
Silver	1.1	U	1.1	6010	11/23/93
Zinc	19		2.3	6010	11/23/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1015
SAMPLE DATE: 10/21/93 08:20:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/02/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1015**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	6.9	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	8.4	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1.1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	4.6	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	103	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1015**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.12	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1015**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	75	23 - 120
2-Fluorobiphenyl	80	30 - 115
Terphenyl-D14	87	18 - 137
Phenol-D5	66	24 - 113
2-Fluorophenol	64	25 - 121
2,4,6-Tribromophenol	73	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1015**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **95.2380**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.97	UN	0.97	7060	11/09/93
Aluminum	9500	N*	19	6010	11/23/93
Barium	430	N*	19	6010	11/23/93
Beryllium	0.87		0.48	6010	11/23/93
Cadmium	0.48	U	0.48	6010	11/23/93
Chromium	13		0.95	6010	11/23/93
Copper	6.7		2.4	6010	11/23/93
Iron	10000	N*	9.5	6010	11/23/93
Nickel	12	N	3.8	6010	11/23/93
Lead	5.9	N	0.29	7421	11/09/93
Mercury	0.023	U	0.023	7471	11/06/93
Silver	0.95	U	0.95	6010	11/23/93
Zinc	18		1.9	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1016
SAMPLE DATE: 10/21/93 08:25:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/02/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1016**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	6.9	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	8.6	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	3.8	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	107	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1016**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/08/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
?-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
s(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.088	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1016**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	71	23 - 120
2-Fluorobiphenyl	80	30 - 115
Terphenyl-D14	84	18 - 137
Phenol-D5	61	24 - 113
2-Fluorophenol	51	25 - 121
2,4,6-Tribromophenol	92	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1016**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **116.279**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.97	UN	0.97	7060	11/09/93
Aluminum	6200	N*	23	6010	11/23/93
Barium	850	N*	23	6010	11/23/93
Beryllium	0.61		0.58	6010	11/23/93
Cadmium	0.58	U	0.58	6010	11/23/93
Chromium	9.8		1.2	6010	11/23/93
Copper	5.3		2.9	6010	11/23/93
Iron	9200	N*	12	6010	11/23/93
Nickel	10	N	4.7	6010	11/23/93
Lead	6.0	N	0.29	7421	11/09/93
Mercury	0.022	U	0.022	7471	11/06/93
Silver	1.2	U	1.2	6010	11/23/93
Zinc	12		2.3	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1017
SAMPLE DATE: 10/21/93 14:10:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/02/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1017**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	7.0	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.9	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	3.7	J	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	13	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	2.3	J	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	104	81 - 117
BROMOFLUOROBENZENE	94	74 - 121
1,2-DICHLOROETHANE-D4	102	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1017**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.27	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1017**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	79	23 - 120
2-Fluorobiphenyl	81	30 - 115
Terphenyl-D14	89	18 - 137
Phenol-D5	69	24 - 113
2-Fluorophenol	68	25 - 121
2,4,6-Tribromophenol	81	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1017**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **116.279**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	3.8	N	1.0	7060	11/09/93
Aluminum	13000	N*	23	6010	11/23/93
Barium	83	N*	23	6010	11/23/93
Beryllium	1.1		0.58	6010	11/23/93
Cadmium	0.58	U	0.58	6010	11/23/93
Chromium	12		1.2	6010	11/23/93
Copper	7.6		2.9	6010	11/23/93
Iron	12000	N*	12	6010	11/23/93
Nickel	10	N	4.7	6010	11/23/93
Lead	9.5	N	1.2	7421	11/09/93
Mercury	0.023	U	0.023	7471	11/06/93
Silver	1.2	U	1.2	6010	11/23/93
Zinc	20		2.3	6010	11/23/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

SAMPLE ID: **A1018**
SAMPLE DATE: **10/21/93 14:15:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
TPH - IR		1.0U	1.0	MG/L	11/05/93	EPA418_1

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1018**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **10/31/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	9.3		5
Methylene chloride	7.7	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	2.6	J	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	3.2	J	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	6.6		5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	93	88 - 110
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	101	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1018**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00000**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/12/93
Aluminum	0.20	U	0.20	6010	11/16/93
Barium	0.20	U	0.20	6010	11/16/93
Beryllium	0.0050	U	0.0050	6010	11/16/93
Cadmium	0.0050	U	0.0050	6010	11/16/93
Chromium	0.091		0.010	6010	11/16/93
Copper	0.025	U	0.025	6010	11/16/93
Iron	2.1		0.10	6010	11/16/93
Nickel	0.040	U	0.040	6010	11/16/93
Lead	0.0077		0.0030	7421	11/11/93
Mercury	0.00020	U	0.00020	7471	11/08/93
Silver	0.010	U	0.010	6010	11/16/93
Zinc	0.020	U	0.020	6010	11/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1019
SAMPLE DATE: 10/21/93 14:20:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/02/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1019**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 11/03/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	4.8	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	8.9	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
l-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	4.0	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	106	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1019**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
3(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.13	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1019**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	75	23 - 120
2-Fluorobiphenyl	79	30 - 115
Terphenyl-D14	83	18 - 137
Phenol-D5	65	24 - 113
2-Fluorophenol	63	25 - 121
2,4,6-Tribromophenol	76	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1019**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **117.647**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	7.8	N	1.2	7060	11/09/93
Aluminum	7400	N*	24	6010	11/23/93
Barium	3400	N*	24	6010	11/23/93
Beryllium	1.1		0.59	6010	11/23/93
Cadmium	0.85		0.59	6010	11/23/93
Chromium	11		1.2	6010	11/23/93
Copper	14		2.9	6010	11/23/93
Iron	16000	N*	12	6010	11/23/93
Nickel	34	N	4.7	6010	11/23/93
Lead	18	N	1.4	7421	11/09/93
Mercury	0.024	U	0.024	7471	11/06/93
Silver	1.2	U	1.2	6010	11/23/93
Zinc	17		2.4	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Duplicate analysis outside control limits due to matrix interference on aluminum, barium and iron analysis by ICPES, affecting all soil samples in batch. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

SAMPLE ID: **A1019-MS**
SAMPLE DATE: **10/21/93 14:20:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		88		% REC	11/02/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1019-MS**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	95	Trichloroethene	81
		Benzene	98
		Toluene	99
		Chlorobenzene	101

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	96	74 - 121
1,2-DICHLOROETHANE-D4	108	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1019-MS**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 10/29/93
ANALYSIS DATE: 11/02/93
DILUTION FACTOR: 0.033
UNITS: % REC

	Result		Result
Phenol	70	Acenaphthene	96
2-Chlorophenol	80	4-Nitrophenol	85
1,4-Dichlorobenzene	68	2,4-Dinitrotoluene	80
N-Nitroso-di-n-propylamine	86	Pentachlorophenol	79
1,2,4-Trichlorobenzene	82	Pyrene	92
4-Chloro-3-methylphenol	85		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	77	23 - 120
2-Fluorobiphenyl	79	30 - 115
Terphenyl-D14	82	18 - 137
Phenol-D5	67	24 - 113
2-Fluorophenol	70	25 - 121
2,4,6-Tribromophenol	81	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
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E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1019-MS**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **88.4955**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	139			7060	11/09/93
Aluminum	973		18	6010	11/23/93
Barium	0		18	6010	11/23/93
Beryllium	85		0.44	6010	11/23/93
Cadmium	84		0.44	6010	11/23/93
Chromium	90		0.88	6010	11/23/93
Copper	82		2.2	6010	11/23/93
Iron	0		8.8	6010	11/23/93
Nickel	74		3.5	6010	11/23/93
Lead	0			7421	11/09/93
Mercury	104			7471	11/06/93
Silver	85		0.88	6010	11/23/93
Zinc	86		1.8	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike outside control limits due to matrix interference on aluminum, barium, iron and nickel analysis by ICPES, affecting all soil samples in batch. LCS / LCSD and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: **A1019-MSD**
SAMPLE DATE: **10/21/93 14:20:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		94		% REC	11/02/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1019-MSD**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 11/03/93
DILUTION FACTOR: 1.0
UNITS: % **REC**

	Result		Result
1,1-Dichloroethene	93	Trichloroethene	82
		Benzene	99
		Toluene	100
		Chlorobenzene	103

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	103	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1019-MSD**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: 10/29/93
ANALYSIS DATE: 11/02/93
DILUTION FACTOR: 0.033
UNITS: **% REC**

	Result		Result
Phenol	74	Acenaphthene	95
2-Chlorophenol	84	4-Nitrophenol	77
1,4-Dichlorobenzene	72	2,4-Dinitrotoluene	79
N-Nitroso-di-n-propylamine	85	Pentachlorophenol	73
1,2,4-Trichlorobenzene	83	Pyrene	96
4-Chloro-3-methylphenol	86		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	73	23 - 120
2-Fluorobiphenyl	76	30 - 115
Terphenyl-D14	82	18 - 137
Phenol-D5	68	24 - 113
2-Fluorophenol	70	25 - 121
2,4,6-Tribromophenol	75	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1019-MSD**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **104.166**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	141			7060	11/09/93
Aluminum	808		21	6010	11/23/93
Barium	0		21	6010	11/23/93
Beryllium	85		0.52	6010	11/23/93
Cadmium	83		0.52	6010	11/23/93
Chromium	90		1.0	6010	11/23/93
Copper	82		2.6	6010	11/23/93
Iron	0		10	6010	11/23/93
Nickel	74		4.2	6010	11/23/93
Lead	0			7421	11/09/93
Mercury	107			7471	11/06/93
Silver	85		1.0	6010	11/23/93
Zinc	85		2.1	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike duplicate outside control limits due to matrix interference on aluminum, barium, iron and nickel analysis by ICPES, affecting all soil samples in batch. LCS / LCSD and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1020
SAMPLE DATE: 10/21/93 14:30:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/03/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512)892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1020**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	3.7	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.1	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1-Dichloroethane	3.4	J	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	104	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1020**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
ethylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.20	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1020**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	78	23 - 120
2-Fluorobiphenyl	82	30 - 115
Terphenyl-D14	83	18 - 137
Phenol-D5	70	24 - 113
2-Fluorophenol	71	25 - 121
2,4,6-Tribromophenol	78	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1020**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **87.7192**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.0	N	1.1	7060	11/09/93
Aluminum	5200	N*	18	6010	11/23/93
Barium	80	N*	18	6010	11/23/93
Beryllium	0.58		0.44	6010	11/23/93
Cadmium	0.44	U	0.44	6010	11/23/93
Chromium	6.5		0.88	6010	11/23/93
Copper	4.7		2.2	6010	11/23/93
Iron	4700	N*	8.8	6010	11/23/93
Nickel	9.4	N	3.5	6010	11/23/93
Lead	5.8	N	0.32	7421	11/09/93
Mercury	0.021	U	0.021	7471	11/06/93
Silver	0.88	U	0.88	6010	11/23/93
Zinc	13		1.8	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: **A1021**
SAMPLE DATE: **10/21/93 14:35:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/03/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1021**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	3.0	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	7.2	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	3.4	J	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	4.2	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	98	81 - 117
BROMOFLUOROBENZENE	96	74 - 121
1,2-DICHLOROETHANE-D4	103	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1021**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
ethylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 802-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1021**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	76	23 - 120
2-Fluorobiphenyl	76	30 - 115
Terphenyl-D14	80	18 - 137
Phenol-D5	70	24 - 113
2-Fluorophenol	71	25 - 121
2,4,6-Tribromophenol	76	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1021**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **90.0900**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.0	UN	1.0	7060	11/09/93
Aluminum	6700	N*	18	6010	11/23/93
Barium	630	N*	18	6010	11/23/93
Beryllium	0.72		0.45	6010	11/23/93
Cadmium	0.45	U	0.45	6010	11/23/93
Chromium	10		0.90	6010	11/23/93
Copper	6.2		2.3	6010	11/23/93
Iron	10000	N*	9.0	6010	11/23/93
Nickel	11	N	3.6	6010	11/23/93
Lead	5.4	N	0.31	7421	11/09/93
Mercury	0.022	U	0.022	7471	11/06/93
Silver	0.90	U	0.90	6010	11/23/93
Zinc	14		1.8	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1500
SAMPLE DATE: 10/21/93 11:18:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/02/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1500**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	3.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	7.3	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	3.4	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	109	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1500**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/08/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.26	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1500**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	79	23 - 120
2-Fluorobiphenyl	88	30 - 115
Terphenyl-D14	89	18 - 137
Phenol-D5	65	24 - 113
2-Fluorophenol	56	25 - 121
2,4,6-Tribromophenol	95	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1500**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **568.181**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	5.4	UN	5.4	7060	11/10/93
Aluminum	15000	N*	110	6010	11/23/93
Barium	1100	N*	110	6010	11/23/93
Beryllium	2.8	U	2.8	6010	11/23/93
Cadmium	2.8	U	2.8	6010	11/23/93
Chromium	13		5.7	6010	11/23/93
Copper	14	U	14	6010	11/23/93
Iron	13000	N*	57	6010	11/23/93
Nickel	23	N	23	6010	11/23/93
Lead	4.0	N	0.33	7421	11/09/93
Mercury	0.021	U	0.021	7471	11/06/93
Silver	5.7	U	5.7	6010	11/23/93
Zinc	30		11	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1501
SAMPLE DATE: 10/21/93 12:57:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/02/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1501**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	1.7	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.1	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ns-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	4.2	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	105	81 - 117
BROMOFLUOROBENZENE	94	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1501**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/08/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.084	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1501**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	77	23 - 120
2-Fluorobiphenyl	88	30 - 115
Terphenyl-D14	92	18 - 137
Phenol-D5	64	24 - 113
2-Fluorophenol	55	25 - 121
2,4,6-Tribromophenol	100	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1501**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **104.166**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.9	N	0.93	7060	11/09/93
Aluminum	9900	N*	21	6010	11/23/93
Barium	550	N*	21	6010	11/23/93
Beryllium	1.1		0.52	6010	11/23/93
Cadmium	0.52	U	0.52	6010	11/23/93
Chromium	11		1.0	6010	11/23/93
Copper	5.9		2.6	6010	11/23/93
Iron	11000	N*	10	6010	11/23/93
Nickel	7.3	N	4.2	6010	11/23/93
Lead	8.5	N	1.1	7421	11/09/93
Mercury	0.024	U	0.024	7471	11/06/93
Silver	1.0	U	1.0	6010	11/23/93
Zinc	13		2.1	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1502
SAMPLE DATE: 10/21/93 14:44:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/03/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1502**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	35	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1.1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	7.0	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	105	81 - 117
BROMOFLUOROBENZENE	94	74 - 121
1,2-DICHLOROETHANE-D4	106	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1502**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/08/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.05	J	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.18	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1502**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	71	23 - 120
2-Fluorobiphenyl	82	30 - 115
Terphenyl-D14	90	18 - 137
Phenol-D5	62	24 - 113
2-Fluorophenol	52	25 - 121
2,4,6-Tribromophenol	108	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1502**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **90.9090**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	3.1	N	1.1	7060	11/09/93
Aluminum	10000	N*	18	6010	11/23/93
Barium	330	N*	18	6010	11/23/93
Beryllium	0.91		0.45	6010	11/23/93
Cadmium	0.45	U	0.45	6010	11/23/93
Chromium	12		0.91	6010	11/23/93
Copper	5.7		2.3	6010	11/23/93
Iron	11000	N*	9.1	6010	11/23/93
Nickel	8.9	N	3.6	6010	11/23/93
Lead	8.4	N	0.32	7421	11/09/93
Mercury	0.021	U	0.021	7471	11/06/93
Silver	0.91	U	0.91	6010	11/23/93
Zinc	21		1.8	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

SAMPLE ID: **A1503**
SAMPLE DATE: **10/21/93 14:44:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/03/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1503**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 11/03/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	0.8	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	28	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1.1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	3.3	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	106	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	108	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: ABN HSL GC/MS Extractables
METHOD REFERENCE: EPA8270

SAMPLE ID: A1503
SAMPLE DATE: 10/21/93
SAMPLE MATRIX: SOIL
EXTRACTION DATE: 10/29/93
ANALYSIS DATE: 11/08/93
DILUTION FACTOR: 0.033
UNITS: MG/KG

	Result	Qual	Reporting Limit
Phenol	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330
2-Chlorophenol	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330
1,4-Dichlorobenzene	0.330	U	0.330
Benzyl alcohol	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330
(2-Chloroisopropyl)ether	0.330	U	0.330
Methylphenol	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330
Hexachloroethane	0.330	U	0.330
Nitrobenzene	0.330	U	0.330
Isophorone	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330
Benzoic Acid	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330
Naphthalene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825
2-Chloronaphthalene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825
Dimethylphthalate	0.330	U	0.330
Acenaphthylene	0.330	U	0.330

	Result	Qual	Reporting Limit
2,6-Dinitrotoluene	0.330	U	0.330
3-Nitroaniline	0.825	U	0.825
Acenaphthene	0.330	U	0.330
2,4-Dinitrophenol	0.825	U	0.825
4-Nitrophenol	0.825	U	0.825
Dibenzofuran	0.330	U	0.330
2,4-Dinitrotoluene	0.330	U	0.330
Diethylphthalate	0.330	U	0.330
4-Chlorophenyl-phenylether	0.330	U	0.330
Fluorene	0.330	U	0.330
4-Nitroaniline	0.825	U	0.825
4,6-Dinitro-2-methylphenol	0.825	U	0.825
N-Nitrosodiphenylamine (1)	0.330	U	0.330
4-Bromophenyl-phenylether	0.330	U	0.330
Hexachlorobenzene	0.330	U	0.330
Pentachlorophenol	0.825	U	0.825
Phenanthrene	0.330	U	0.330
Anthracene	0.330	U	0.330
Di-n-butylphthalate	0.330	U	0.330
Fluoranthene	0.330	U	0.330
Pyrene	0.330	U	0.330
Butylbenzylphthalate	0.330	U	0.330
3,3'-Dichlorobenzidine	0.330	U	0.330
Benzo(a)anthracene	0.330	U	0.330
Chrysene	0.330	U	0.330
bis(2-Ethylhexyl)phthalate	0.330	U	0.330
Di-n-octylphthalate	0.21	JB	0.330
Benzo(b)fluoranthene	0.330	U	0.330
Benzo(k)fluoranthene	0.330	U	0.330
Benzo(a)pyrene	0.330	U	0.330
Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Dibenzo(a,h)anthracene	0.330	U	0.330
Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1503**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	68	23 - 120
2-Fluorobiphenyl	82	30 - 115
Terphenyl-D14	85	18 - 137
Phenol-D5	60	24 - 113
2-Fluorophenol	51	25 - 121
2,4,6-Tribromophenol	99	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1503**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **111.111**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.6	N	1.2	7060	11/09/93
Aluminum	13000	N*	22	6010	11/23/93
Barium	470	N*	22	6010	11/23/93
Beryllium	1.1		0.56	6010	11/23/93
Cadmium	0.56	U	0.56	6010	11/23/93
Chromium	14		1.1	6010	11/23/93
Copper	16		2.8	6010	11/23/93
Iron	13000	N*	11	6010	11/23/93
Nickel	11	N	4.4	6010	11/23/93
Lead	6.6	N	0.35	7421	11/09/93
Mercury	0.024	U	0.024	7471	11/06/93
Silver	1.1	U	1.1	6010	11/23/93
Zinc	20		2.2	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1504
SAMPLE DATE: 10/21/93 15:05:00
SAMPLE MATRIX: WATER

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.010	MG/L	10/22/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1504**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **10/31/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	7.0	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	91	88 - 110
BROMOFLUOROBENZENE	94	86 - 115
1,2-DICHLOROETHANE-D4	100	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1504**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: 10/27/93
ANALYSIS DATE: 11/05/93
DILUTION FACTOR: 1.0
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
:(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1504**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	68	35 - 114
2-Fluorobiphenyl	71	43 - 116
Terphenyl-D14	84	33 - 141
Phenol-D5	40	10 - 94
2-Fluorophenol	60	21 - 100
2,4,6-Tribromophenol	78	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1504**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00000**
UNITS: **mg/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/12/93
Aluminum	0.20	U	0.20	6010	11/16/93
Barium	0.20	U	0.20	6010	11/16/93
Beryllium	0.0050	U	0.0050	6010	11/16/93
Cadmium	0.0050	U	0.0050	6010	11/16/93
Chromium	0.010	U	0.010	6010	11/16/93
Copper	0.025	U	0.025	6010	11/16/93
Iron	0.10	U	0.10	6010	11/16/93
Nickel	0.040	U	0.040	6010	11/16/93
Lead	0.0030	U	0.0030	7421	11/11/93
Mercury	0.00020	U	0.00020	7471	11/08/93
Silver	0.010	U	0.010	6010	11/16/93
Zinc	0.020	U	0.020	6010	11/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1505
SAMPLE DATE: 10/21/93 16:00:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/03/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1505**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 11/03/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	3.2	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	2.7	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	93	74 - 121
1,2-DICHLOROETHANE-D4	108	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1505**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/08/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
ɜ(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.13	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1505**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	66	23 - 120
2-Fluorobiphenyl	81	30 - 115
Terphenyl-D14	82	18 - 137
Phenol-D5	60	24 - 113
2-Fluorophenol	50	25 - 121
2,4,6-Tribromophenol	96	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1505**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **100.000**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.8	N	1.0	7060	11/09/93
Aluminum	8300	N*	20	6010	11/23/93
Barium	370	N*	20	6010	11/23/93
Beryllium	0.87		0.50	6010	11/23/93
Cadmium	0.50	U	0.50	6010	11/23/93
Chromium	11		1.0	6010	11/23/93
Copper	5.5		2.5	6010	11/23/93
Iron	9500	N*	10	6010	11/23/93
Nickel	9.1	N	4.0	6010	11/23/93
Lead	6.4	N	0.31	7421	11/09/93
Mercury	0.023	U	0.023	7471	11/06/93
Silver	1.0	U	1.0	6010	11/23/93
Zinc	18		2.0	6010	11/23/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1506
SAMPLE DATE: 10/21/93 16:50:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/03/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1506**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/04/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	4.6	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	2.8	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	104	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1506**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
3(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.082	JB	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1506**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	58	23 - 120
2-Fluorobiphenyl	68	30 - 115
Terphenyl-D14	69	18 - 137
Phenol-D5	52	24 - 113
2-Fluorophenol	65	25 - 121
2,4,6-Tribromophenol	56	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1506**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **104.166**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	4.4	N	0.93	7060	11/09/93
Aluminum	7200	N*	21	6010	11/23/93
Barium	130	N*	21	6010	11/23/93
Beryllium	1.1		0.52	6010	11/23/93
Cadmium	0.52	U	0.52	6010	11/23/93
Chromium	11		1.0	6010	11/23/93
Copper	9.0		2.6	6010	11/23/93
Iron	10000	N*	10	6010	11/23/93
Nickel	17	N	4.2	6010	11/23/93
Lead	8.6	N	1.1	7421	11/09/93
Mercury	0.022	U	0.022	7471	11/06/93
Silver	1.0	U	1.0	6010	11/23/93
Zinc	20		2.1	6010	11/23/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

SAMPLE ID: A1507
SAMPLE DATE: 10/21/93 17:08:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.10U	0.10	MG/KG	11/03/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1507**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 11/04/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	1.5	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	5.0	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1.1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	4.5	JB	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	81 - 117
BROMOFLUOROBENZENE	96	74 - 121
1,2-DICHLOROETHANE-D4	110	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1507**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/03/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit
Phenol	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330
2-Chlorophenol	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330
1,4-Dichlorobenzene	0.330	U	0.330
Benzyl alcohol	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330
(2-Chloroisopropyl)ether	0.330	U	0.330
Methylphenol	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330
Hexachloroethane	0.330	U	0.330
Nitrobenzene	0.330	U	0.330
Isophorone	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330
Benzoic Acid	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330
Naphthalene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825
2-Chloronaphthalene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825
Dimethylphthalate	0.330	U	0.330
Acenaphthylene	0.330	U	0.330

	Result	Qual	Reporting Limit
2,6-Dinitrotoluene	0.330	U	0.330
3-Nitroaniline	0.825	U	0.825
Acenaphthene	0.330	U	0.330
2,4-Dinitrophenol	0.825	U	0.825
4-Nitrophenol	0.825	U	0.825
Dibenzofuran	0.330	U	0.330
2,4-Dinitrotoluene	0.330	U	0.330
Diethylphthalate	0.330	U	0.330
4-Chlorophenyl-phenylether	0.330	U	0.330
Fluorene	0.330	U	0.330
4-Nitroaniline	0.825	U	0.825
4,6-Dinitro-2-methylphenol	0.825	U	0.825
N-Nitrosodiphenylamine (1)	0.330	U	0.330
4-Bromophenyl-phenylether	0.330	U	0.330
Hexachlorobenzene	0.330	U	0.330
Pentachlorophenol	0.825	U	0.825
Phenanthrene	0.330	U	0.330
Anthracene	0.330	U	0.330
Di-n-butylphthalate	0.330	U	0.330
Fluoranthene	0.330	U	0.330
Pyrene	0.330	U	0.330
Butylbenzylphthalate	0.330	U	0.330
3,3'-Dichlorobenzidine	0.330	U	0.330
Benzo(a)anthracene	0.330	U	0.330
Chrysene	0.330	U	0.330
bis(2-Ethylhexyl)phthalate	0.330	U	0.330
Di-n-octylphthalate	0.27	JB	0.330
Benzo(b)fluoranthene	0.330	U	0.330
Benzo(k)fluoranthene	0.330	U	0.330
Benzo(a)pyrene	0.330	U	0.330
Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Dibenzo(a,h)anthracene	0.330	U	0.330
Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1507**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	73	23 - 120
2-Fluorobiphenyl	85	30 - 115
Terphenyl-D14	83	18 - 137
Phenol-D5	64	24 - 113
2-Fluorophenol	84	25 - 121
2,4,6-Tribromophenol	66	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1507**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **116.279**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	4.6	N	1.1	7060	11/09/93
Aluminum	9000	N*	23	6010	11/23/93
Barium	76	N*	23	6010	11/23/93
Beryllium	1.1		0.58	6010	11/23/93
Cadmium	0.58	U	0.58	6010	11/23/93
Chromium	13		1.2	6010	11/23/93
Copper	9.8		2.9	6010	11/23/93
Iron	13000	N*	12	6010	11/23/93
Nickel	20	N	4.7	6010	11/23/93
Lead	8.6	N	0.33	7421	11/09/93
Mercury	0.022	U	0.022	7471	11/06/93
Silver	1.2	U	1.2	6010	11/23/93
Zinc	25		2.3	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1508**
SAMPLE DATE: **10/21/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **10/31/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1.1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	93	88 - 110
BROMOFLUOROBENZENE	98	86 - 115
1,2-DICHLOROETHANE-D4	102	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/KG	11/02/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 11/03/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
'.-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	3.1	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	97	81 - 117
BROMOFLUOROBENZENE	96	74 - 121
1,2-DICHLOROETHANE-D4	102	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **10/29/93**
ANALYSIS DATE: **11/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
3(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.14	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	81	23 - 120
2-Fluorobiphenyl	80	30 - 115
Terphenyl-D14	89	18 - 137
Phenol-D5	66	24 - 113
2-Fluorophenol	66	25 - 121
2,4,6-Tribromophenol	78	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **1.00000**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/09/93
Aluminum	0.20	U	0.20	6010	11/23/93
Barium	0.20	U	0.20	6010	11/23/93
Beryllium	0.0050	U	0.0050	6010	11/23/93
Cadmium	0.0050	U	0.0050	6010	11/23/93
Chromium	0.010	U	0.010	6010	11/23/93
Copper	0.025	U	0.025	6010	11/23/93
Iron	0.10	U	0.10	6010	11/23/93
Nickel	0.040	U	0.040	6010	11/23/93
Lead	0.0030	U	0.0030	7421	11/09/93
Mercury	0.00020	U	0.00020	7471	11/06/93
Silver	0.010	U	0.010	6010	11/23/93
Zinc	0.020	U	0.020	6010	11/23/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #2**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 11/03/93
DILUTION FACTOR: 1.0
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	0.7	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	5.3	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	2.6	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	98	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #3**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: 11/04/93
DILUTION FACTOR: 1.0
UNITS: UG/KG

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	3.2	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	99	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

SAMPLE ID: **LAB BLANK**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
TPH - IR		1.0U	1.0	MG/L	11/05/93	EPA418_1
Chromium VI		0.010U	0.010	MG/L	10/22/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: 10/31/93
DILUTION FACTOR: 1.0
UNITS: UG/L

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	11		10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	97	88 - 110
BROMOFLUOROBENZENE	95	86 - 115
1,2-DICHLOROETHANE-D4	101	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: 10/29/93
ANALYSIS DATE: 11/04/93
DILUTION FACTOR: 1.0
UNITS: UG/L

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	1.4	J	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
;(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	68	35 - 114
2-Fluorobiphenyl	75	43 - 116
Terphenyl-D14	89	33 - 141
Phenol-D5	65	10 - 94
2-Fluorophenol	67	21 - 100
2,4,6-Tribromophenol	67	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): 1.0
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/12/93
Aluminum	0.20	U	0.20	6010	11/16/93
Barium	0.20	U	0.20	6010	11/16/93
Beryllium	0.0050	U	0.0050	6010	11/16/93
Cadmium	0.0050	U	0.0050	6010	11/16/93
Chromium	0.010	U	0.010	6010	11/16/93
Copper	0.025	U	0.025	6010	11/16/93
Iron	0.10	U	0.10	6010	11/16/93
Nickel	0.040	U	0.040	6010	11/16/93
Lead	0.0030	U	0.0030	7421	11/11/93
Mercury	0.00020	U	0.00020	7471	11/08/93
Silver	0.010	U	0.010	6010	11/16/93
Zinc	0.020	U	0.020	6010	11/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-300

SAMPLE ID: LAB BLANK #2
SAMPLE DATE:
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/KG	11/03/93	EPA7196

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **TPH - IR** TEST CODE **418_1**

418_1	Method 418.1: Total Recoverable Petroleum Hydorcarbons, infrared spectrophotmetric method. Methods for the chemical analysis of water and wastes. USEPA.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Chromium VI** TEST CODE **CR_VI**

Chromium VI	Method 7196, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water. Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK2**

Method not available.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **ICPES Digestion - Water** TEST CODE **Z3005**

Water Digestion	Method 3005A, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Digestion procedure for the preparation of surface and ground water samples for analysis by flame atomic absorption spectroscopy and inductively coupled plasma spectroscopy. The procedure determines total recoverable or dissolved metals.

TEST NAME **GFAA Digestion - Water** TEST CODE **Z3020**

Water Digestion	Method 3020, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace.

Company: IT CORPORATION
Date: 12/06/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-300

TEST NAME **GFAA Digestion - Soil** TEST CODE **Z3050F**

Soil Digestion — Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace/Flame AA analysis.

TEST NAME **ICPES Digestion - Soil** TEST CODE **Z3050P**

Soil Digestion — Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for ICPES analysis. Equivalent to Method 3050A, SW-846 Update I, July 1992.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

409832.03-01

Reference Document No. 314070
Page 1 of 2

Project Name/No. [1] TAFB-5001
Sample Team Members [2] Andrew Gordon, Kyle Kirschenmann
Profit Center No. [3] 3527
Project Manager [4] Jimmy Taylor
Purchase Order No. [6] 409832.03 D.O. 5001
Required Report Date [11] 15 Days

Samples Shipment Date [7] 10-21-93
Lab Destination [8] ITAS-Austin
Lab Contact [9] Karmen Deane
Project Contact/Phone [12] Dan McGregor 405-736-2260
Carrier/Waybill No. [13] FX 8460755422

Bill to: [5] 409832.03-01 D.O. 5001
Report to: [10] Tim Jennings IT-Austin-ES

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Pre-servative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
A1013	water	10-19-93 1700	clear glass	40ml	COOL ~~HCl~~	8240	Good 1°C	83244100A
A1014	Soil	10-21-93 0800		125	COOL	8240	[illegible] 10/22/93	
A1014		10-21-93 0800		500		8270/6000		
A1015		10-21-93 0820		125		8240		
A1015		10-21-93 0820		500		8270/6000		
A1016		10-21-93 0825		125		8240		
A1016		10-21-93 0825		500		8270/6000		

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: [23]

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

Turnaround Time Required: [26]
Normal ☒ Rush ☐

QC Level: [27]
I ☒ II ☐ III ☐ Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) [signature] (IT)	Date: 10-21-93 Time: 1800	1. Received by [28] (Signature/Affiliation) [signature] IT	Date: 10/22/93 Time: 0837
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29]

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

MCA 3/15/91

B31050

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 314070

Project Name THFB-5001 Project No. 409832.03.01-5001 Samples Shipment Date 10-21-93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A1017	Soil	10-21-93 1410	clear glass	125ml	COOL	8240	Good 1°C	
A1017	Soil	10-21-93 1410		500ml	COOL	8270/6000	Th. 10/22/93	
A1018	Water	10-21-93 1415	clear glass	40ml	HCl COOL	8240	See Rules	
A1018	Water	10-21-93 1415	Poly	250ml	NO_3 COOL	6000		
A1018	Water	10-21-93 1415	Amber Glass	1 l	H_2SO_4 COOL	8270		
A1019 (MS/MSD)	Soil	10-21-93 1420	clear Glass	125	COOL	8240		
A1019 (MS/MSD)		10-21-93 1420		2x 500		8270/6000		
A1020		10-21-93 1430		125		8240		
A1020		10-21-93 1430		500		8270/6000		
A1021		10-21-93 1435		125		8240		
A1021	X	10-21-93 1435	X	500	X	8270/6000		

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 314065
Page 1 of 2

Project Name/No. [1] TAFD 409832
Sample Team Members [2] L. Rodriguez/M. Wilson
Profit Center No. [3] 3527
Project Manager [4] Jimmy Taylor
Purchase Order No. [6] 409832.003
Required Report Date [11] NTAT

Samples Shipment Date [7] 10/21/93
Lab Destination [8] IT-AUSTIN
Lab Contact [9] Karmen Dean (405)736 2220
Project Contact/Phone [12] Dan McGregor
Carrier/Waybill No. [13] FEDEX 8460755483

Bill to: [5] 409832.03 D.O. 5001
Report to: [10] Tim Jennings IT-Austin

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
A 1500	SB-015 Soil	10/21/93 1118	Clear glass	125ml	cool	8240 VOA	Good 4°C	
A 1500	SB-015 Soil	10/21/93 1118	Clear glass	500ml	cool	8270 6010/7000		
A 1501	SB-016 Soil	10/21/93 1257	Clear glass	125ml	"	8240 VOA		
A 1501	SB-016 Soil	10/21/93 1257	"	500ml	"	8270 6010/7000		
A 1502	SB-017 Soil	10/21/93 1444	"	125ml	"	8240 VOA		
A 1502	SB-017 Soil	10/21/93 1444	"	500ml	"	8270 6010/7000		
A 1503	SB-017 Duplicate	10/21/93 1444	"	125ml	"	8240 VOA		
A 1503	SB-017 Duplicate	10/21/93 1444	"	500ml	"	8270 6010/7000		

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: [23]

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☒ MW 10/21/93

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☑ Archive ____ (mos.)

Turnaround Time Required: [26]
Normal ☑ Rush ☐

QC Level: [27]
I. ☑ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) Matthew S. Wilson ITEBS Austin	Date: 10/21/93 Time: 1921	1. Received by [28] (Signature/Affiliation) IT	Date: 10/22/93 Time: 0837
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29]

MCA 3/15/91

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*See back of form for special instructions.

B510300

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 314065
Page 2 of 2

Project Name Tinker 5001 Project No. 409832 Samples Shipment Date 10/21/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A 1504	Eqpt. Rinsate	1505 10/21/93	Clear glass	40ml	HCl	8240 VOA	Good 1°C	B3244100 A
A 1504	" "	10/21/93 1505	Plastic	250ml	HNO_3	6010/7000 Metals		
A 1504	" "	10/21/93 1505	Amber glass	2.5L	cool	8270 SVOC		
A 1505	SB-018 Soil	10/21/93 1600	clear glass	125ml	Cool	8240 VOC		
A 1505	SB-018 Soil	10/21/93 1600	clear glass	500ml	Cool	6010/7000 8270		
A 1506	SB-019 Soil	10/21/93 1650	clear glass	125ml	"	8240 VOC		
A 1506	SB-019 Soil	10/21/93 1650	"	500ml	"	8270 SVOC 6010/7000 metals		
A 1507	SB-020 Soil	10/21/93 1708	"	125ml	"	8240 VOC		
A 1507	SB-020 Soil	10/21/93 1708	"	500ml	"	8270 SVOC 6010/7000 metals		
A 1508	Trip Blank	10/19/93 1700	clear glass	40ml	HCl	8240 VOC		B3244100 A

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*See back of form for special instructions.

MCA 3/15/91

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1014

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	100
	Chromium VI	B310300-21B	1102CR_VI1	11/02/93	11/02/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	102
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	100

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1015

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	Arsenic	B310300-21B	11053050F1	03/05/94	11/09/93	97
	Chromium VI	B310300-21B	1102CR_VI1	11/02/93	11/02/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	114
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	97

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1016

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	97
	Chromium VI	B310300-21B	1102CR_VI1	11/02/93	11/02/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	109
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	97

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1017

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
05B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	102
	Chromium VI	B310300-21B	1102CR_VI1	11/02/93	11/02/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	116
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	408

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1018

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06B						
	Arsenic	B310300-24B	110930201	11/09/93	11/12/93	1.0
	Mercury	B310300-24B	1108HGAA1	11/08/93	11/08/93	1.0
	418_1	B310300-24B	1103TPHIR1	11/03/93	11/05/93	1.0
	Lead	B310300-24B	110930201	11/09/93	11/11/93	1.0

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1019

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	115
	Chromium VI	B310300-21B	1102CR_VI1	11/02/93	11/02/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	120
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	460

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1019-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
08B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	430
	Chromium VI	B310300-21B	1102CR_VI1	11/02/93	11/02/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	106
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	430

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1019-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
09B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	377
	Chromium VI	B310300-21B	1102CR_VI1	11/02/93	11/02/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	112
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	377

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1020

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
10B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	105
	Chromium VI	B310300-25A	1103CR_VI1	11/03/93	11/03/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	103
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	105

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1021

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
11B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	103
	Chromium VI	B310300-25A	1103CR_VI1	11/03/93	11/03/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	109
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	103

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1500

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
12B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/10/93	543
	Chromium VI	B310300-21B	1102CR_VI1	11/02/93	11/02/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	104
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	109

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1501

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
13B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	92.6
	Chromium VI	B310300-21B	1102CR_VI1	11/02/93	11/02/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	118
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	370

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1502

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
14B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	106
	Chromium VI	B310300-25A	1103CR_VI1	11/03/93	11/03/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	104
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	106

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1503

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
15B						
	Arsenic	B310300-21B	11053050F1	03/25/94	11/09/93	116
	Chromium VI	B310300-25A	1103CR_VI1	11/03/93	11/03/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	119
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	116

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1504

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
16B						
	Arsenic	B310300-24B	110930201	11/09/93	11/12/93	1.0
	Chromium VI	B310300-24B	1022CR_VI1	10/22/93	10/22/93	1.0
	Mercury	B310300-24B	1108HGAA1	11/08/93	11/08/93	1.0
	Lead	B310300-24B	110930201	11/09/93	11/11/93	1.0

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1505

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
17B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	104
	Chromium VI	B310300-25A	1103CR_VI1	11/03/93	11/03/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	116
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	104

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1506

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
18B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	92.6
	Chromium VI	B310300-25A	1103CR_VI1	11/03/93	11/03/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	111
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	370

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : A1507

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
19B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	111
	Chromium VI	B310300-25A	1103CR_VI1	11/03/93	11/03/93	10.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	112
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	111

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
21B						
	Arsenic	B310300-21B	11053050F1	11/05/93	11/09/93	1.0
	Chromium VI	B310300-21B	1102CR_VI1	11/02/93	11/02/93	1.0
	Mercury	B310300-21B	1106HGAA1	11/06/93	11/06/93	1.0
	Lead	B310300-21B	11053050F1	11/05/93	11/09/93	1.0

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : LAB BLANK

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
24B						
	Arsenic	B310300-24B	110930201	11/09/93		1.0
	Chromium VI	B310300-24B	1122CR_VI1	10/22/93	10/22/93	1.0
	Mercury	B310300-21B	1108HGAA1	11/08/93		1.0
	Lead	B310300-24B	110930201	11/09/93		1.0

Auxiliary Data Summary 12/03/93

Work order : B310300 Sample ID : LAB BLANK #2

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
25A	Chromium VI	B310300-25A	1103CR_VI1	11/03/93	11/03/93	1.0

TPJ

Routed to K+ CF. TL 12/9/93

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

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CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 12/04/93

Work Order: B3-10-313

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O.5001 409832-003-01
Date Received: 10/25/93
Number of Samples: 11
Sample Type: WATER

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1509	B3-10-313-01
A1510	B3-10-313-02
A1511	B3-10-313-03
A1512	B3-10-313-04
A1513	B3-10-313-05
A1514	B3-10-313-06
A1515	B3-10-313-07
A1516	B3-10-313-08
LAB BLANK #1	B3-10-313-09
LAB BLANK #2	B3-10-313-10
LAB BLANK #3	B3-10-313-11

Reviewed and Approved:

Jon Bartell
Laboratory Director

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

SAMPLE ID: **A1509**
SAMPLE DATE: **10/22/93 10:17:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
TPH - IR		1.0U	1.0	MG/L	11/10/93	EPA418_1
Total Organic Carbon		17	5.0	MG/L	11/11/93	EPA415_1

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1509**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **10/31/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	6.7	BJ	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	95	88 - 110
BROMOFLUOROBENZENE	96	86 - 115
1,2-DICHLOROETHANE-D4	97	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1509**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **10/27/93**
ANALYSIS DATE: **11/05/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	1.0	JB	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
ethylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1509**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	57	35 - 114
2-Fluorobiphenyl	61	43 - 116
Terphenyl-D14	55	33 - 141
Phenol-D5	60	10 - 94
2-Fluorophenol	45	21 - 100
2,4,6-Tribromophenol	74	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-10-313

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1509**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00000**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/12/93
Aluminum	0.20	U	0.20	6010	11/16/93
Barium	0.34		0.20	6010	11/16/93
Beryllium	0.0050	U	0.0050	6010	11/16/93
Cadmium	0.0050	U	0.0050	6010	11/16/93
Chromium	0.013		0.010	6010	11/16/93
Copper	0.16		0.025	6010	11/16/93
Iron	0.16		0.10	6010	11/16/93
Nickel	0.040	U	0.040	6010	11/16/93
Lead	0.0030	U	0.0030	7421	11/11/93
Mercury	0.00020	U	0.00020	7471	11/11/93
Silver	0.010	U	0.010	6010	11/16/93
Zinc	0.039		0.020	6010	11/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-313

SAMPLE ID: **A1510**
SAMPLE DATE: **10/22/93 10:17:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
TPH - IR		1.0U	1.0	MG/L	11/10/93	EPA418_1
Total Organic Carbon		18	5.0	MG/L	11/11/93	EPA415_1

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1510**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: 10/31/93
DILUTION FACTOR: 1.0
UNITS: UG/L

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	6.9	BJ	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
[illegible] Dichloroethane	5	U	5	Bromoform	5	U	5
t[illegible]s-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	93	88 - 110
BROMOFLUOROBENZENE	95	86 - 115
1,2-DICHLOROETHANE-D4	102	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1510**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **10/27/93**
ANALYSIS DATE: **11/05/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1510**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	47	35 - 114
2-Fluorobiphenyl	56	43 - 116
Terphenyl-D14	81	33 - 141
Phenol-D5	47	10 - 94
2-Fluorophenol	35	21 - 100
2,4,6-Tribromophenol	81	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1510**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00000**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/12/93
Aluminum	0.20	U	0.20	6010	11/16/93
Barium	0.35		0.20	6010	11/16/93
Beryllium	0.0050	U	0.0050	6010	11/16/93
Cadmium	0.0050	U	0.0050	6010	11/16/93
Chromium	0.010	U	0.010	6010	11/16/93
Copper	0.16		0.025	6010	11/16/93
Iron	0.14		0.10	6010	11/16/93
Nickel	0.040	U	0.040	6010	11/16/93
Lead	0.0030	U	0.0030	7421	11/11/93
Mercury	0.00020	U	0.00020	7471	11/11/93
Silver	0.010	U	0.010	6010	11/16/93
Zinc	0.049		0.020	6010	11/16/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

SAMPLE ID: **A1511**
SAMPLE DATE: **10/22/93 11:00:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
TPH - IR		1.0U	1.0	MG/L	11/10/93	EPA418_1
Total Organic Carbon		1.2	1.0	MG/L	11/17/93	EPA415_1

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1511**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **10/31/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	5.7	BJ	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
·Dichloroethane	5	U	5	Bromoform	5	U	5
..ns-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	94	88 - 110
BROMOFLUOROBENZENE	97	86 - 115
1,2-DICHLOROETHANE-D4	102	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1511**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00000**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/12/93
Aluminum	0.20	U	0.20	6010	11/16/93
Barium	0.20	U	0.20	6010	11/16/93
Beryllium	0.0050	U	0.0050	6010	11/16/93
Cadmium	0.0050	U	0.0050	6010	11/16/93
Chromium	0.010	U	0.010	6010	11/16/93
Copper	0.025	U	0.025	6010	11/16/93
Iron	0.011		0.10	6010	11/16/93
Nickel	0.040	U	0.040	6010	11/16/93
Lead	0.0030	U	0.0030	7421	11/11/93
Mercury	0.00020	U	0.00020	7471	11/11/93
Silver	0.010	U	0.010	6010	11/16/93
Zinc	0.020	U	0.020	6010	11/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

SAMPLE ID: **A1512**
SAMPLE DATE: **10/22/93 14:10:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
TPH - IR		1.0U	1.0	MG/L	11/10/93	EPA418_1
Total Organic Carbon		11	5.0	MG/L	11/11/93	EPA415_1

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1512**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: 11/01/93
DILUTION FACTOR: 1.0
UNITS: UG/L

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	11		5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	120		5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	16		5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	93	88 - 110
BROMOFLUOROBENZENE	104	86 - 115
1,2-DICHLOROETHANE-D4	98	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1512**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **10/27/93**
ANALYSIS DATE: **11/05/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	1.2	JB	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1512**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	70	35 - 114
2-Fluorobiphenyl	74	43 - 116
Terphenyl-D14	90	33 - 141
Phenol-D5	71	10 - 94
2-Fluorophenol	47	21 - 100
2,4,6-Tribromophenol	88	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1512**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00000**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/12/93
Aluminum	0.20	U	0.20	6010	11/16/93
Barium	0.20	U	0.20	6010	11/16/93
Beryllium	0.0050	U	0.0050	6010	11/16/93
Cadmium	0.0050	U	0.0050	6010	11/16/93
Chromium	0.010	U	0.010	6010	11/16/93
Copper	0.025	U	0.025	6010	11/16/93
Iron	0.10	U	0.10	6010	11/16/93
Nickel	0.040	U	0.040	6010	11/16/93
Lead	0.012		0.0030	7421	11/11/93
Mercury	0.00080	U	0.00080	7471	11/11/93
Silver	0.010	U	0.010	6010	11/16/93
Zinc	0.027		0.020	6010	11/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

SAMPLE ID: A1513
SAMPLE DATE: 10/22/93 14:10:00
SAMPLE MATRIX: WATER

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
TPH - IR		1.0U	1.0	MG/L	11/10/93	EPA418_1
Total Organic Carbon		8.5	5.0	MG/L	11/11/93	EPA415_1

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1513**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/01/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	11		5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
[illegible]-Dichloroethane	5	U	5	Bromoform	5	U	5
[illegible]ns-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	110		5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	16		5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	93	88 - 110
BROMOFLUOROBENZENE	102	86 - 115
1,2-DICHLOROETHANE-D4	101	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1513**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **10/27/93**
ANALYSIS DATE: **11/05/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1513**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	66	35 - 114
2-Fluorobiphenyl	66	43 - 116
Terphenyl-D14	71	33 - 141
Phenol-D5	61	10 - 94
2-Fluorophenol	54	21 - 100
2,4,6-Tribromophenol	74	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1513**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00000**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/12/93
Aluminum	0.20	U	0.20	6010	11/16/93
Barium	0.20	U	0.20	6010	11/16/93
Beryllium	0.0050	U	0.0050	6010	11/16/93
Cadmium	0.0050	U	0.0050	6010	11/16/93
Chromium	0.010	U	0.010	6010	11/16/93
Copper	0.025	U	0.025	6010	11/16/93
Iron	0.11		0.10	6010	11/16/93
Nickel	0.040	U	0.040	6010	11/16/93
Lead	0.0077		0.0030	7421	11/11/93
Mercury	0.00020	U	0.00020	7471	11/11/93
Silver	0.010	U	0.010	6010	11/16/93
Zinc	0.020	U	0.020	6010	11/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

SAMPLE ID: **A1514**
SAMPLE DATE: **10/22/93 14:49:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
TPH - IR		1.0U	1.0	MG/L	11/10/93	EPA418_1
Total Organic Carbon		1.0U	1.0	MG/L	11/14/93	EPA415_1

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1514**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/01/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	95	88 - 110
BROMOFLUOROBENZENE	101	86 - 115
1,2-DICHLOROETHANE-D4	96	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1514**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **10/27/93**
ANALYSIS DATE: **11/05/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1514**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	66	35 - 114
2-Fluorobiphenyl	68	43 - 116
Terphenyl-D14	99	33 - 141
Phenol-D5	44	10 - 94
2-Fluorophenol	51	21 - 100
2,4,6-Tribromophenol	79	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1514**
SAMPLE DATE: **10/22/93**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00000**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/12/93
Aluminum	0.20	U	0.20	6010	11/16/93
Barium	0.20	U	0.20	6010	11/16/93
Beryllium	0.0050	U	0.0050	6010	11/16/93
Cadmium	0.0050	U	0.0050	6010	11/16/93
Chromium	0.010	U	0.010	6010	11/16/93
Copper	0.025	U	0.025	6010	11/16/93
Iron	0.10	U	0.10	6010	11/16/93
Nickel	0.040	U	0.040	6010	11/16/93
Lead	0.0030	U	0.0030	7421	11/11/93
Mercury	0.00020	U	0.00020	7471	11/11/93
Silver	0.010	U	0.010	6010	11/16/93
Zinc	0.020	U	0.020	6010	11/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1515**
SAMPLE DATE: **10/20/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/01/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	95	88 - 110
BROMOFLUOROBENZENE	102	86 - 115
1,2-DICHLOROETHANE-D4	105	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1516**
SAMPLE DATE: **10/20/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/01/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ıns-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	93	88 - 110
BROMOFLUOROBENZENE	97	86 - 115
1,2-DICHLOROETHANE-D4	105	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample
'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
TPH - IR		1.0U	1.0	MG/L	11/10/93	EPA418_1
Total Organic Carbon		1.0U	1.0	MG/L	11/11/93	EPA415_1

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-10-313

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: 10/31/93
DILUTION FACTOR: 1.0
UNITS: UG/L

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	11		10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1.1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
-Dichloroethane	5	U	5	Bromoform	5	U	5
ans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	97	88 - 110
BROMOFLUOROBENZENE	95	86 - 115
1,2-DICHLOROETHANE-D4	101	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **10/27/93**
ANALYSIS DATE: **11/04/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	1.4	J	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	68	35 - 114
2-Fluorobiphenyl	75	43 - 116
Terphenyl-D14	89	33 - 141
Phenol-D5	65	10 - 94
2-Fluorophenol	67	21 - 100
2,4,6-Tribromophenol	67	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00000**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	11/12/93
Aluminum	0.20	U	0.20	6010	11/16/93
Barium	0.20	U	0.20	6010	11/16/93
Beryllium	0.0050	U	0.0050	6010	11/16/93
Cadmium	0.0050	U	0.0050	6010	11/16/93
Chromium	0.010	U	0.010	6010	11/16/93
Copper	0.025	U	0.025	6010	11/16/93
Iron	0.10	U	0.10	6010	11/16/93
Nickel	0.040	U	0.040	6010	11/16/93
Lead	0.0030	U	0.0030	7421	11/11/93
Mercury	0.00020	U	0.00020	7471	11/11/93
Silver	0.010	U	0.010	6010	11/16/93
Zinc	0.020	U	0.020	6010	11/16/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

SAMPLE ID: **LAB BLANK #2**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Total Organic Carbon		1.0U	1.0	MG/L	11/14/93	EPA415_1

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

SAMPLE ID: **LAB BLANK #3**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Total Organic Carbon		1.0U	1.0	MG/L	11/17/93	EPA415_1

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **TPH - IR** TEST CODE **418_1**

418_1	Method 418.1: Total Recoverable Petroleum Hydorcarbons, infrared spectrophotmetric method. Methods for the chemical analysis of water and wastes. USEPA.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water.

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME **Mercury** TEST CODE **HG_AA**

Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK2**

Method not available.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis cf Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Total Organic Carbon** TEST CODE **TOC**

Total Organic Carbon	Method 415.1-Chemical Analysis of Water and Wastewater. Chemical oxidation and nondispersive infrared analysis. Equivalent to SW-846 Method 9060. Sample prep is instrument manufacturer specific.

TEST NAME **ICPES Digestion - Water** TEST CODE **Z3005**

Water Digestion	Method 3005A, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Digestion procedure for the preparation of surface and ground water samples for analysis by flame atomic absorption spectroscopy and inductively coupled plasma spectroscopy. The procedure determines total recoverable or dissolved metals.

Company: IT CORPORATION
Date: 12/04/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-10-313

TEST NAME **GFAA Digestion - Water** TEST CODE **Z3020**

Water Digestion	Method 3020, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 420743
Page 1 of 3

Project Name/No. Tinker 5001
Sample Team Members 2 M. Wilson / L. Rodriguez
Profit Center No. 3 3527
Project Manager 4 Jimmy Taylor
Purchase Order No. 6 409832.003
Required Report Date 11 NTAT

Samples Shipment Date 7 10/22/93
Lab Destination 8 ITAS - Austin
Lab Contact 9 Karmen Deane 405 736-2260
Project Contact/Phone 12 Dan McGregor
Carrier/Waybill No. 13 Fed Ex 8460755494

Bill to: 5 409832.03.01 D.O. 5001
Report to: 10 Tim Jennings IT Austin

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
A1509	WS-013 water	10/22/93 1017	clear glass	40ml	HCl	8240 VOC	Good, RVR 4°C 10/25/93	B324WJ
A1509	"	"	amber glass	2.5L ~~Coo~~	Cool	8270 SVOC		
A1509	"	"	amber glass	1L	H_2SO_4	418.1 TPH		
A1509	"	"	"	250ml	H_2SO_4	~~415~~ 415.1 TOC		
A1509	"	"	Plastic	250ml	HNO_3	6010/7000 metals		
A1510	WS-013 water duplicate	10/22/93 1017	clear glass	40ml	HCl	8240 VOC		B324WJ
A1510	WS-013 water duplicate	"	amber glass	2.5L	Cool	8270 SVOC		
A1510	"	"	"	1L	H_2SO_4	418.1 TPH		

Special Instructions: 23

Possible Hazard Identification: 24
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal: 25
Return to Client ☐ Disposal by Lab ☑ Archive (mos.)

Turnaround Time Required: 26
Normal ☑ Rush ☐

QC Level: 27
I. ☑ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by 28 (Signature/Affiliation) Matthew H. Wilson ITES Austin Date: 10/22/93 Time: 1634
1. Received by 28 (Signature/Affiliation) [signature] ITS Date: 10/25/93 Time: 0906
2. Relinquished by (Signature/Affiliation) Date: Time:
2. Received by (Signature/Affiliation) Date: Time:
3. Relinquished by (Signature/Affiliation) Date: Time:
3. Received by (Signature/Affiliation) Date: Time:

Comments: 29

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 420743
Page 2 of 3

Project Name Tinker 5001

Project No. 409832

Samples Shipment Date 10/22/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A1510	WS-013 duplicate water	10/22/93 1017	amber glass	250ml	H_2SO_4	415.1 TOC	Good, RVR, 4°C 10/25/93	
A1510	"	"	Plastic	250ml	HNO_3	6010/7000 metals		
A1511	WS-013 field blank water	10/22/93 1100	40ml	clear glass	HCl	8240 VOC		B3244100
A1511	"	"	2.5L	amber glass	Cool	8270 SVOC		
A1511	"	"	1L	"	H_2SO_4	418.1 TPH		
A1511	"	"	250ml	"	H_2SO_4	415.1 TOC		
A1511	"	"	250ml	Plastic	HNO_3	6010/7000 metals		
A1512	WS-015 water	10/22/93 1410	~~amber glass~~ ~~40ml~~	clear glass	HCl	8240 VOC		B3244100
A1512	WS-015 water	10/22/93 1410	2.5L	amber glass	Cool	8270 SVOC		
A1512	"	"	1L	"	H_2SO_4	418.1 TPH		
A1512	"	"	250ml	"	HNO_3	415.1 TOC		
A1512	"	"	250ml	Plastic	~~HCl~~ HNO_3	6010/7000 metals		
A1513	WS-015 water duplicate	10/22/93 1410	clear glass	40ml	HCl	8240 VOC		B3244100
A1513	"	"	amber glass	2.5L	Cool	8270 SVOC		
A1513	"	"	"	1L	H_2SO_4	418.1 TPH		
A1513	"	"	"	250mL	H_2SO_4	415.1 TOC		
A1513	"	"	Plastic	250mL	HNO_3	6010/7000 metals		
A1514	WS-015 water Field Blank	10/22/93 1449	clear glass	40ml	HCl	8240 VOC		B3244100
A1514	"	"	amber glass	2.5L	Cool	8270 SVOC		
A1[illegible]4	"	"	"	1L	H_2SO_4	418.1 TPH		

White: To accompany samples
Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 420743

Page 3 of 3

Project Name Tile 5001

Project No. 409832

Samples Shipment Date 10/22/93

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
A1514	WS-015 Water Field Blank	10/22/93 1449	amber glass	250ml	H_2SO_4	415.1 TOC	Gw, YC, RVR 10/25/93	
A1514	"	"	Plastic	250ml	HNO_3	6010/7000 metals	FOR LAB USE ONLY	
A1515	Trip Blank	10/20/93 1700	clear glass	40ml	HCl	8240 VOC		
A1516	Trip Blank	10/20/93 1700	clear glass	40ml	HCl	8240 VOC		

FOR LAB USE ONLY

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

Auxiliary Data Summary 12/03/93

Work order : B310313 Sample ID : A1509

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
01C	418_1	B310313-09C	1104TPHIR3	11/04/93	11/10/93	1.0
01D	TOC	B310313-09D	1111TOC1	11/11/93	11/11/93	5.0
01E						
	Arsenic	B310313-09E	111030201	11/10/93	11/12/93	1.0
	Mercury	B310313-09E	1111HGAA1	11/11/93	11/11/93	1.0
	Lead	B310313-09E	111030201	11/10/93	11/11/93	1.0

Auxiliary Data Summary 12/03/93

Work order : B310313 Sample ID : A1510

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02C	418_1	B310313-09C	1104TPHIR3	11/04/93	11/10/93	1.0
02D	TOC	B310313-09D	1111TOC1	11/11/93	11/11/93	5.0
02E						
	Arsenic	B310313-09E	111030201	11/10/93	11/12/93	1.0
	Mercury	B310313-09E	1111HGAA1	01/11/93	11/11/93	1.0
	Lead	B310313-09E	111030201	11/10/93	11/11/93	1.0

Auxiliary Data Summary 12/03/93

Work order : B310313 Sample ID : A1511

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03C	418_1	B310313-09C	1104TPHIR3	11/04/93	11/10/93	1.0
03D	TOC	B310313-11A	1117TOC1	11/17/93	11/17/93	1.0
03E						
	Arsenic	B310313-09E	111030201	11/10/93	11/12/93	1.0
	Mercury	B310313-09E	1111HGAA1	11/11/93	11/11/93	1.0
	Lead	B310313-09E	111030201	11/10/93	11/11/93	1.0

Auxiliary Data Summary 12/03/93

Work order : B310313 Sample ID : A1512

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04C	418_1	B310313-09C	1104TPHIR3	11/04/93	11/10/93	1.0
04D	TOC	B310313-09D	1111TOC1	11/11/93	11/11/93	5.0
04E						
	Arsenic	B310313-09E	111030201	11/10/93	11/12/93	1
	Mercury	B310313-09E	1111HGAA1	11/11/93	11/11/93	4
	Lead	B310313-09E	111030201	11/10/93	11/11/93	1

Auxiliary Data Summary 12/03/93

Work order : B310313 Sample ID : A1513

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
05C	418_1	B310313-09C	1104TPHIR3	11/04/93	11/10/93	1.0
05D	TOC	B310313-09D	1111TOC1	11/11/93	11/11/93	5.0
05E						
	Arsenic	B310313-09E	111030201	11/10/93	11/12/93	1.0
	Mercury	B310313-09E	1111HGAA1	11/11/93	11/11/93	1.0
	Lead	B310313-09E	111030201	11/10/93	11/11/93	1.0

Auxiliary Data Summary 12/03/93

Work order : B310313 Sample ID : A1514

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06C	418_1	B310313-09C	1104TPHIR3	11/04/93	11/10/93	1.0
06D	TOC	B310313-10A	1114TOC1	11/14/93	11/14/93	1.0
06E						
	Arsenic	B310313-09E	111030201	11/10/93	11/12/93	1.0
	Mercury	B310313-09E	1111HGAA1	11/11/93	11/11/93	1.0
	Lead	B310313-09E	111030201	11/10/93	11/11/93	1.0

Auxiliary Data Summary 12/03/93

Work order : B310313 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
09D	TOC	B310313-09D	1111TOC1	11/11/93	11/11/93	1.0
09E	6010				11/19/93	
	Arsenic	B310313-09E	111030201	11/10/93	11/12/93	1.0
	Mercury	B310313-09E	1111HGAA1	11/11/93	11/11/93	1.0
	Lead	B310313-09E	111030201	11/10/93	11/11/93	1.0

Auxiliary Data Summary 12/03/93

Work order : B310313 Sample ID : LAB BLANK #2

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
10A	TOC	B310313-10A	1114TOC1	11/14/93	11/14/93	1.0

Auxiliary Data Summary 12/03/93

Work order : B310313 Sample ID : LAB BLANK #3

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
11A	TOC	B310313-11A	1117TOC1	11/17/93	11/17/93	1.0

APPENDIX B
SITE SURVEY REPORT

Phone: (405) 843-4847
WATS: (800) 864-3219
FAX: (405) 843-0975

TOPOGRAPHIC LAND SURVEYORS OF OKLAHOMA

Surveying and Mapping for Oklahoma's Energy Industry

6709 N. Classen Blvd. Oklahoma City, Oklahoma 73116

International Technology Corporation
Attn.: Joe Pacelli
312 Directors Drive
Knoxville, Tn 37923
Reference: IT Subcontract No. **547295**
IDO-5001
Bid 93116
(*Survey Contract*)
4.4 Documentation of Surveying Activities

Survey Contractor:

Topographic Land Surveyors of Oklahoma
6709 N. Classen Blvd.
Oklahoma City, Oklahoma 73116
Edward D. (Deral) Paulk, PLS
President
Harry McClintick, PLS
Party Chief
(405) 843-4847

Instrumentation:

Work done was completed with a Topcon/Sokkisha Model C3E. Last calibration by the factory was done 10/10/1993 and was checked daily by standard survey methods to determine that the tolerance was within factory limits. The unique serial number for the instrument is # 153047. The data collector was a Hewlett-Packard 48SX using the TDS Survey card.

Methods:

Standard mil-spec survey methods were employed during the survey and included.
Double sets of repetitive angles, both in horizontal and vertical.
Distance in Meters and Feet for double redundancy.

Control Points:

All control points used were set by the Corps of Engineers and the coordinates were supplied to us in NAD-83 Meters, Oklahoma North Zone (3501) based upon the Lambert projection. Typical numbers were;

BM SE (secondary control points)
BM PR (Primary control points)

These points were established by Trimble 4000SE GPS receivers and are capable of obtaining accuracy in the centimeter range. During our survey we confirmed this accuracy and due to the nature of GPS usage, we did not balance our traverse of the monumentation. See explanation beginning on page three, this document.

Tabulation of Vertical and Horizontal Coordinates:

In sheet form broken into per site information in three formats.
NAD-83 Meters
NAD-27 Feet
NAD-83 Feet

Field Notes, Calculations and Reduction Techniques:

All field work was performed using Total Station and no reduction was necessary. Grid and Sea level factors used in the calculations are attached as part of this report. No paper field notes were kept, except diagrams explaining shot points. These are included as drawings and are part of the digital information supplied.
Actual closure of each particular site is disclosed within this document beginning on page 4.

This survey is true and accurate based upon monumentation supplied by Tinker Air Force Base.

Edward D. Paulk, PLS #1279
Topographic Land Surveyors of Oklahoma
6709 N. Classen Blvd.
Oklahoma City, Oklahoma 73116

REGISTERED LAND SURVEYOR
Edward Deral Paulk, Jr.
L. S. 1279
OKLAHOMA

USAGE OF GPS MONUMENTATION

Qualifications:
We are a Trimble Navigation dealer for the Midwest and have had crews surveying using GPS for over two years. Edward D. Paulk, has attended training and seminars continually to maintain a level of experience and technical knowledge of GPS that exceeds specs of GPS surveys.

During the course of our preliminary survey, we had closures that exceeded specs and we were forced to continue surveys back to our point of beginning to check our accuracy. We continually proved our surveys by closures exceeding 1 in 10,000, but we could not achieve this using the provided GPS monumentation and closing on a third monument.

We contacted the base mapping department and learned that the monuments were set using 4000SE receivers (GPS) by the Corps of Engineers. The 4000SE is capable of accuracy on any point of +/- 1-3 Centimeters. After this determination, we were well within specs of their given coordinates.

Their survey closure was probably quite good given the distances that they monumented, however when you use relatively close monuments as our survey dictated and very few traverse points, the error looks poor. Had we shot a mile away, then back to add some footage to our survey, the closure would have been much better. Since this technique is only used to comply with a pure mathematical closure, not a better survey, and would not actually improve positional accuracy, we did not do this.

Site by Site Report

File HM-A
HCL Tank
4 Soil Borings
IT Drawing #409832 Fig. 5.5
Horizontal and Vertical Control was establish for (4) four Soil Borings.
BM SE-33, SE-05 and PR-07 were used for control.

Upon first completion of traverse, we closed on PR-07 with 3.041' of error, but our vertical was with 0.05'. We made a closure back to SE-05 and closed within 0.4'. This site had the only apparent large discrepancy in their control. Since SE-33 and SE-05 agreed within limits we used these to determine closure.

Horizontal Accuracy 1 in 10,000
Vertical Accuracy 1 in 95,800

File HM-B
SPILL POND
2 Soil Borings
IT Drawing #409832 Fig. 5.6
Horizontal and Vertical Control was establish for (2) Soil Borings.
BM SE-33, SE-37 and SE-42 were used for control.

Horizontal Accuracy 1 in 5902
Vertical Accuracy 1 in 12,000

We closed back upon our first monument horizontally 1 in 25,000 as a check.

File HM-C
Sludge Drying Beds and Old Pesticide Area
13 Soil Borings
6 Monitor Wells
7 SG Points
IT Drawing # 409832 Fig. 5.3 and 5.7
Horizontal and Vertical Control was established for (13) Soil Borings, (6) Six Monitor wells and (7) SG Points.
BM SE-41, SE-45 and SE-47 were used for control.
Horizontal Accuracy 1 in 8725
Vertical Accuracy 1 in 390,000

We closed back upon BM SE-45 as a check and closed 1 in 14,000 Horizontally.

FileHM-D
Fuel Truck
(8) Soil Borings
(3) Monitor Wells
(3) SG Points
IT Drawing #409832 Fig. 5.4
Horizontal and Vertical Control was established for (8) Soil Borings, (3) Monitor wells and (3) SG Points.
BM PR-02, SE-16 and PR-03 were used for control.

Horizontal Accuracy 1 in 22,586
Vertical Accuracy 1 in 20,000

File HM-E
Ordnance Disposal Area
(5) Soil Borings
(4) Corners of area as per staked and Dan McGregor's instructions.
IT Drawing #409832 Fig. 5.1
Horizontal and Vertical Control was established for (5) Soil Borings, (4) Corners of area.
BM SE-19, PR-02 and SE-016 were used for control.

Horizontal Accuracy 1 in 10,000
Vertical Accuracy 1 in 20,000

File HM-F
Fire Training Area 2
(8) Monitor Wells
IT Drawing #409832 Fig. 5.8
Horizontal and Vertical Control was established for (8) Monitor Wells.
BM SE-37, SE-33 and BM32 were used for control.

Horizontal Accuracy 1 in 34,800
Vertical Accuracy 1 in 95,000

File HM-G
AFFF Fire Control Pond
(4) Soil Borings
IT Drawing #409832 Fig. 5.2
Horizontal and Vertical Control was established for (4) Soil Borings.
BM SE-31, SE-22 and PR-01 were used for control.

Horizontal Accuracy 1 in 6500
Vertical Accuracy 1 in 58,000

Shots Typical

Soil Borings- One X,Y,Z placed center of drill hole, typically on top of concrete fill-in area.
(36) Total Soil Borings

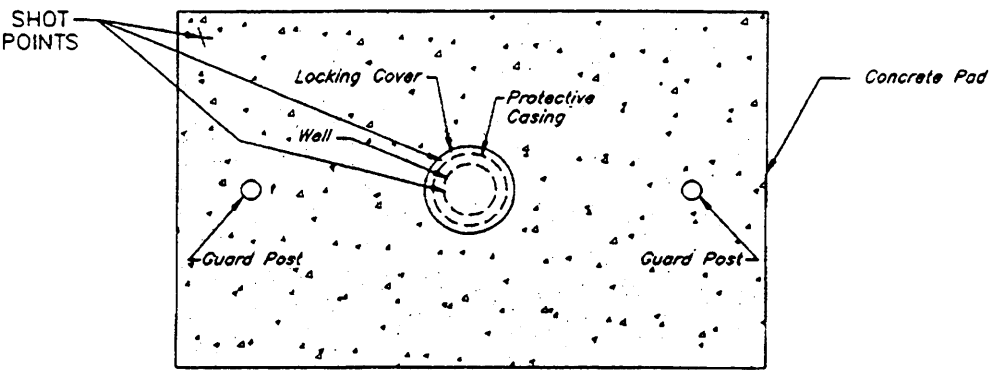
Monitor Well- (*Flush mount*) Three X,Y,Z,s were placed upon each well.
1: NW Corner of concrete pad.
2: Top of retaining casing, where well number was stamped into a milled area.
3: Top of well, under seal, (X,Y determined for center, and Z determined at north lip of well.

(*Tower Mount*) Three X,Y,Z,s were placed upon each well.
1: NW Corner of concrete pad.
2: Top of square guard, center
3: Screw cap removed, X and Y in Center and Z on the North lip of well.
(17) Total Monitoring wells. 51 points.

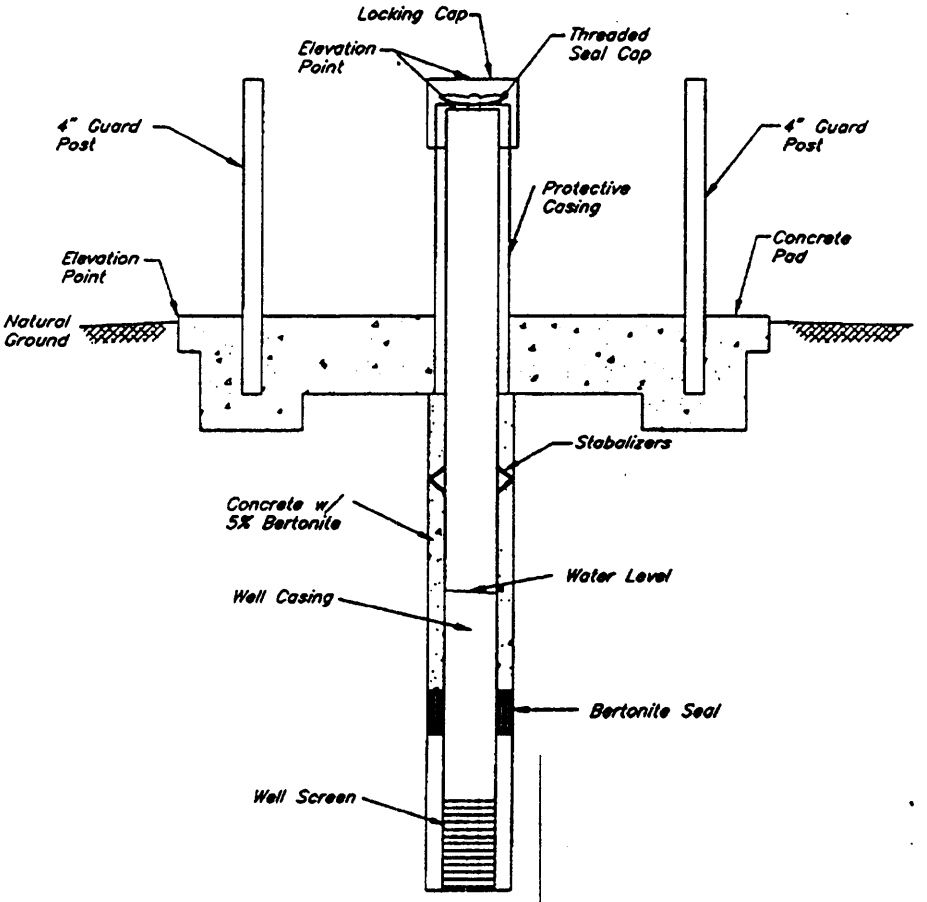
In addition; we determined X,Y and Z for a number of SG points. These were determined at center of dig point.

In addition; we determined X,Y and Z for four corners of an area in the **Ordnance Disposal area** as per Dan McGregor's instructions. These points were stakes set by previous contractor.

Included in this report are two drawings showing typical well layouts.
Drawing Flush.Dwg
Tower.Dwg



TOP VIEW



SIDE VIEW

NO.	REVISION	DATE	BY

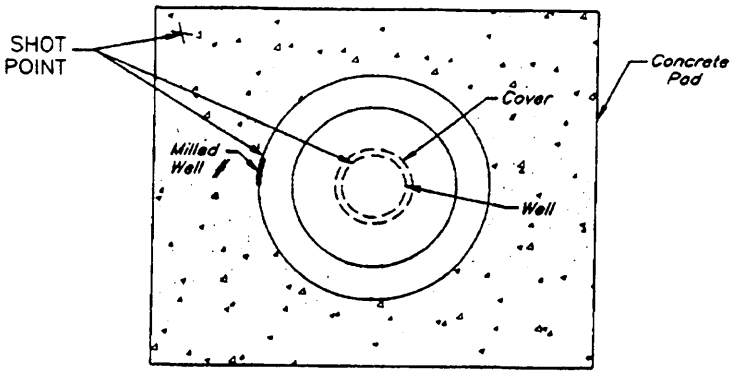
TYPICAL STICK-UP MONITORING WELLS

TOPOGRAPHIC LAND SURVEYORS
OKLAHOMA CITY, OKLAHOMA

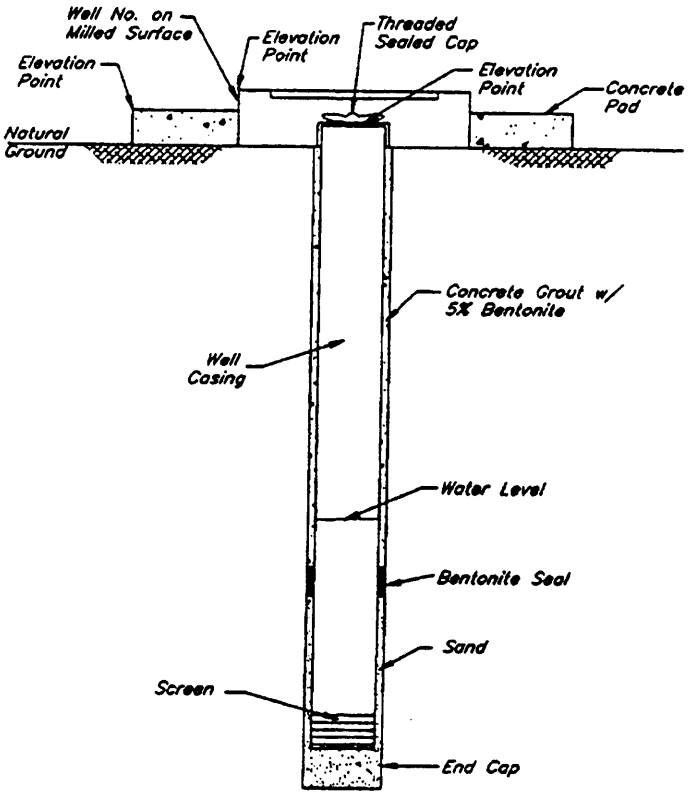
DATE: 1-19-94

DRAWING: STICK-UP DWG

SHEET OF



TOP VIEW



SIDE VIEW

NO.	REVISION	DATE	BY

TYPICAL FLUSH MOUNT MONITORING WELLS

TOPOGRAPHIC LAND SURVEYORS
OKLAHOMA CITY, OKLAHOMA

DATE: 1-18-94

DRAWING: FLUSH.DWG

SHEET OF

Tinker AFB		**Factors**	
		Factors.txt	
Calculations for Grid Distance			
Formula Used	1-(1250)/(20,906,000)	0.9999402086	Elevation Factor
Elevation average is 1250			
Grid Factor from USGS Tables			
Average Latitude is 35-25		1.0000306000	Grid Factor
Combination Factor is multiple of these		0.9999708067	Combo Factor

Diskette Files

Disk Labeled *IDO-5001*
#547295
Text Files and Final Reports

FILE NAME	DESCRIPTION
Report.WPS	Microsoft Works file of final report
Report.TXT	ASCII file of final report.
Finals.WB1	Quattro Pro for Windows data base All areas, control and Factors NAD-83, NAD-27
Finals.WK3	1-2-3 V.3.x database All areas, control and Factors
Hcl.TXT	ASCII of HCL Area
Spill.TXT	ASCII of Spill Pond
Sludge.TXT	ASCII of Sludge and Pesticide
Fuel.TXT	ASCII of Fuel Truck
Ordance.TXT	ASCII of Ordnance area
Fire.TXT	ASCII of Fire Training
FireC.TXT	ASCII of Fire Control
NAD83.TXT	ASCII of X,Y,Z and Description
NAD27.TXT	ASCII of X,Y,Z and Description
Control.TXT	ASCII of X,Y,Z and Description of control monuments.
Factor.TXT	ASCII of grid/elevation factors used in calculations.

Nad 83 Datum — **Format given was in meters**

State Plane Lambert Coordinate System — Conversion used was

Oklahoma North Zone — Meters X 3.280833337

Values in Feet — Nad 1927

Control Coordinates from GPS

	GPS Marker	Meters	Feet	Meters Northing	Meters Easting	Feet Northing	Feet Easting
Fire Training Center	SE24	[illegible]	1,269.18	45950.816	655952.839	[illegible]	150730.564	2183669.404
	SE28	[illegible]	1,239.53	45604.798	655531.584	[illegible]	149595.353	2182287.332
	SE32	[illegible]	1,248.09	45431.969	655045.990	[illegible]	149028.353	2180694.179
	SE43	[illegible]	1,240.39	46303.717	654817.311	[illegible]	151888.413	2179943.944
Bldg 1030 Spill Pond	SE37	[illegible]	1,240.00	45788.902	654625.746	[illegible]	150199.400	2179315.440
	SE42	[illegible]	1,229.29	46296.627	654526.676	[illegible]	151865.163	2178990.423
Bldg 970 AFFF	SE22	[illegible]	1,267.20	44861.607	655589.130	[illegible]	147157.075	2182476.110
	SE31	[illegible]	1,233.22	44877.485	654833.045	[illegible]	147209.198	2179995.530
	PR01	[illegible]	1,288.46	44381.814	655603.420	[illegible]	145592.956	2182522.978
Sludge Drying Beds	SE45	[illegible]	1,229.49	46693.176	654086.898	[illegible]	153166.188	2177546.973
	SE47	[illegible]	1,222.30	47117.173	654049.981	[illegible]	154557.245	2177426.498
	SE41	[illegible]	1,218.10	46360.622	653942.053	[illegible]	152075.142	2177072.383
HCL Tank	SE05	387.294	1,270.95	46999.293	656307.763	[illegible]	154170.415	2184833.870
	SE08	[illegible]	1,296.84	46012.200	656807.677	[illegible]	150931.917	2186473.977
	PR07	[illegible]	1,231.13	47640.475	656374.729	[illegible]	156274.017	2185053.591
Ordinance Disposal	SE16	[illegible]	1,299.13	44935.219	656910.278	[illegible]	147398.529	2186810.565
	PR02	[illegible]	1,303.84	44519.766	656757.523	[illegible]	146035.508	2186309.389
	SE15	[illegible]	1,297.22	44874.549	656322.201	[illegible]	147199.504	2184881.187
Fuel Truck Maint.	SE10	391.856	1,285.81	45464.255	656655.015	[illegible]	149134.216	2185973.103
	PR03	[illegible]	1,306.73	45229.480	657014.725	[illegible]	148363.948	2187153.241
Others	SE03	[illegible]	1,259.28	47481.646	656307.338	[illegible]	155752.933	2184832.489
	SE19	386.425	1,267.80	44134.062	656649.276	[illegible]	144770.084	2185954.242
	SE33	394.161	1,293.37	45572.014	654847.132	[illegible]	149487.624	2180041.762
	SE38	384.542	1,260.98	45560.105	653975.745	[illegible]	149448.783	2177182.896
	[illegible]	383.527	1,255.01	45726.546	654009.317	[illegible]	149994.949	2177293.048

Tinker AFB			
Calculations for Grid Distance			
Formula Used	1-(1250)/(20,906,000)	0.9999402086	Elevation Factor
Elevation average is 1250			
Grid Factor from USGS Tables			
Average Latitude is 35-25		1.0000306000	Grid Factor
Combination Factor is multiple of these		0.9999708067	Combo Factor

Topographic	HM-A File	HCL Tank									
	NAD-83 Feet				NAD-83 Meters				NAD-27		
Description	Northing	Easting	Elevation		Northing	Easting	Elevation		Northing	Easting	Elevation
SB-045	153284.190	2153636.064	1275.110		46721.114	656,429.578	388.654		153257.757	2,185,233.520	1275.110
SB-044	153838.492	2153621.494	1275.980		46890.066	656,425.137	388.919		153812.059	2,185,218.954	1275.980
SB-042	154150.008	2153620.517	1276.230		46985.016	656,424.839	388.996		154123.573	2,185,217.979	1276.230
SB-043	154445.476	2153604.478	1275.830		47075.075	656,419.950	388.874		154419.041	2,185,201.941	1275.830
					Conversion Factor				NAD-27 Derived with		
					Meters X 3.28083337				Corpscon Program		
					3.28083337						

Topographic	*HM-B File*	Spill Pond								
	NAD-83 Feet			NAD-83 Meters				NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation		Northing	Easting	Elevation
SB-019	150763.571	2148028.472	1227.435	45952.828	654,720.380	374.123		150737.212	2,179,625.925	1227.435
SB-020	150782.180	2148011.904	1226.202	45958.500	654,715.330	373.747		150755.821	2,179,609.357	1226.202
				Conversion Factor				NAD-27 Derived with		
				Meters X 3.28083337				Corpscon Program		
				3.28083337						

Topographic	HM-C	Sludge and Pesticide		Conversion	3.28083337				
	NAD-83 Feet			NAD-83 Meters			NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
SB-029	153312.251	2145687.276	1226.929	46729.667	654006.782	373.969	153285.911	2177284.758	1226.929
SB-030	153346.842	2145683.882	1225.960	46740.210	654005.748	373.673	153320.501	2177281.365	1225.960
SB-031	153365.289	2145684.283	1226.145	46745.833	654005.870	373.730	153338.949	2177281.766	1226.145
SB-032	153366.845	2145704.893	1226.026	46746.307	654012.152	373.693	153340.504	2177302.376	1226.026
SB-033	153369.982	2145725.373	1226.205	46747.263	654018.394	373.748	153343.640	2177322.855	1226.205
SB-034	153367.428	2145750.652	1225.884	46746.485	654026.099	373.650	153341.088	2177348.133	1225.884
NWCorPad	153327.504	2145660.862	1227.987	46734.316	653998.731	374.291	153301.164	2177258.344	1227.987
BrassTag	153325.646	2145662.395	1228.252	46733.750	653999.199	374.372	153299.307	2177259.879	1228.252
MW2-67A	153325.656	2145662.944	1227.880	46733.753	653999.366	374.259	153299.317	2177260.427	1227.880
NWCorPad	153334.792	2145660.365	1227.942	46736.538	653998.580	374.277	153308.454	2177257.848	1227.942
BrassTag	153332.586	2145662.743	1228.136	46735.865	653999.305	374.337	153306.246	2177260.227	1228.136
MW2-67B	153333.109	2145662.460	1227.749	46736.025	653999.218	374.219	153306.771	2177259.941	1227.749
SG-021	153294.259	2145661.494	1227.875	46724.183	653998.924	374.257	153267.920	2177258.977	1227.875
SG-027	153504.913	2145656.153	1227.450	46788.391	653997.296	374.128	153478.575	2177253.637	1227.450
NWCorPad	153485.156	2145668.540	1227.773	46782.369	654001.072	374.226	153458.818	2177266.025	1227.773
BrassTag	153482.661	2145670.729	1227.992	46781.608	654001.739	374.293	153456.321	2177268.214	1227.992
MW2-68A	153483.317	2145670.331	1227.639	46781.808	654001.618	374.185	153456.977	2177267.817	1227.639
NWCorPad	153498.329	2145667.974	1227.737	46786.384	654000.899	374.215	153471.990	2177265.458	1227.737
BrassTag	153497.345	2145669.894	1227.801	46786.084	654001.484	374.234	153471.006	2177267.377	1227.801
MW2-68B	153496.783	2145670.021	1227.501	46785.913	654001.523	374.143	153470.445	2177267.505	1227.501
SB-035	153513.044	2145686.160	1225.832	46790.869	654006.442	373.634	153486.704	2177283.644	1225.832
SB-041	153461.953	2145572.501	1226.184	46775.296	653971.799	373.742	153435.613	2177169.986	1226.184
SG-045	153403.851	2145548.281	1227.352	46757.587	653964.417	374.098	153377.514	2177145.766	1227.352
SG-043	153478.151	2145547.779	1227.388	46780.233	653964.264	374.109	153451.811	2177145.265	1227.388
SB-039	153436.514	2145600.936	1225.186	46767.542	653980.466	373.437	153410.174	2177198.420	1225.186
SB-040	153422.287	2145576.593	1225.367	46763.206	653973.046	373.493	153395.948	2177174.077	1225.367
SB-036	153520.297	2145709.088	1225.408	46793.080	654013.431	373.505	153493.958	2177306.573	1225.408
SB-037	153515.849	2145723.059	1225.822	46791.724	654017.689	373.631	153489.509	2177320.543	1225.822
SB-038	153515.734	2145749.026	1225.397	46791.689	654025.604	373.502	153489.394	2177346.511	1225.397
SG-030	153587.989	2145651.621	1228.246	46813.712	653995.915	374.370	153561.649	2177249.107	1228.246
SG-034	153561.346	2145780.604	1228.528	46805.591	654035.229	374.456	153535.004	2177378.089	1228.528
SG-035	153529.622	2145780.692	1228.755	46795.922	654035.256	374.525	153503.281	2177378.177	1228.755
NWCorPad	153503.822	2145892.455	1228.566	46788.058	654069.321	374.468	153477.479	2177489.938	1228.566
BrassTag	153501.522	2145894.847	1228.786	46787.357	654070.050	374.535	153475.180	2177492.330	1228.786
MW2-66B	153501.835	2145894.243	1228.424	46787.452	654069.866	374.424	153475.491	2177491.726	1228.424
NWCorPad	153512.675	2145892.637	1228.458	46790.756	654069.377	374.435	153486.331	2177490.122	1228.458
BrassTag	153511.424	2145894.290	1228.601	46790.375	654069.880	374.478	153485.081	2177491.772	1228.601
MW2-66A	153510.700	2145894.300	1228.209	46790.154	654069.883	374.359	153484.356	2177491.782	1228.209

Topographic	HM-D	Fuel Truck							
	NAD-83 Feet			NAD-83 Meters			NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
NWCorPad	148775.507	2155282.108	1295.444	45346.865	656931.293	394.852	148749.069	2186879.522	1295.444
TopCap	148773.603	2155283.795	1298.011	45346.284	656931.807	395.635	148747.163	2186881.208	1298.011
MW2-59	148773.597	2155283.829	1297.780	45346.283	656931.818	395.564	148747.160	2186881.244	1297.780
NWCorPad	148680.914	2155133.601	1295.503	45318.033	656886.028	394.870	148654.478	2186731.015	1295.503
TopCap	148679.362	2155135.280	1297.910	45317.560	656886.540	395.604	148652.926	2186732.695	1297.910
MW2-61	148679.399	2155135.301	1297.669	45317.571	656886.546	395.530	148652.962	2186732.714	1297.669
SG-011	148684.532	2155080.720	1293.606	45319.135	656869.910	394.292	148658.094	2186678.134	1293.606
SG-007	148683.636	2155169.969	1294.398	45318.862	656897.113	394.533	148657.198	2186767.383	1294.398
SB-028	148708.492	2155153.422	1295.649	45326.439	656892.069	394.915	148682.056	2186750.834	1295.649
SB-026	148715.397	2155133.878	1295.280	45328.543	656886.112	394.802	148688.959	2186731.291	1295.280
SB-025	148744.572	2155125.634	1295.337	45337.436	656883.600	394.820	148718.136	2186723.049	1295.337
SB-024	148770.840	2155121.237	1295.452	45345.442	656882.259	394.855	148744.402	2186718.650	1295.452
SB-023	148773.567	2155152.471	1295.640	45346.273	656891.780	394.912	148747.128	2186749.887	1295.640
SG-003	148792.311	2155168.857	1295.340	45351.987	656896.774	394.820	148765.875	2186766.271	1295.340
SB-021	148790.269	2155106.589	1295.427	45351.364	656877.795	394.847	148763.832	2186704.005	1295.427
SB-022	148767.379	2155095.618	1295.804	45344.387	656874.451	394.962	148740.941	2186693.033	1295.804
SB-027	148708.128	2155095.209	1295.822	45326.328	656874.326	394.967	148681.693	2186692.623	1295.822
NWCorPad	148744.809	2155092.856	1295.791	45337.508	656873.609	394.958	148718.373	2186690.271	1295.791
Brasstag	148743.943	2155093.661	1295.890	45337.244	656873.854	394.988	148717.506	2186691.074	1295.890
MW2-60	148743.299	2155093.599	1295.587	45337.048	656873.835	394.896	148716.863	2186691.012	1295.587
		Conversion	3.28083337						
		Factor							

Topographic									
Topographic	HM-E File	Ordnance		NAD-83 Meters			NAD-27		
	NAD-83 Feet								
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
SB-014	146445.086	2154383.435	1311.061	44636.551	656657.377	399.612	146418.665	2185980.834	1311.061
SB-013	146413.073	2154355.429	1310.171	44626.793	656648.841	399.341	146386.651	2185952.828	1310.171
SB-011	146447.893	2154329.998	1310.433	44637.407	656641.089	399.421	146421.474	2185927.396	1310.433
SB-012	146465.811	2154321.959	1310.473	44642.868	656638.639	399.433	146439.390	2185919.358	1310.473
SB-010	146542.271	2154343.810	1311.318	44666.173	656645.299	399.691	146515.850	2185941.209	1311.318
NWCorSite	146721.400	2154322.520	1309.813	44720.772	656638.810	399.232	146694.980	2185919.921	1309.813
SWCorSite	146451.388	2154188.076	1308.511	44638.472	656597.831	398.835	146424.969	2185785.474	1308.511
SECorSite	146305.859	2154478.943	1308.422	44594.115	656686.488	398.808	146279.439	2186076.341	1308.422
NECorSite	146573.205	2154611.871	1306.203	44675.602	656727.004	398.131	146546.781	2186209.268	1306.203
		Conversion Factor	3.28083337						

Topographic	HM-F	Fire Training							
	NAD-83 Feet			NAD-83 Meters			NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
NWCorPad	150499.212	2150362.314	1246.117	45872.251	655431.737	379.817	150472.826	2181959.759	1246.117
Brasstag	150496.710	2150361.243	1246.334	45871.488	655431.410	379.883	150470.323	2181958.686	1246.334
MW2-64A	150496.592	2150361.920	1246.052	45871.452	655431.617	379.797	150470.205	2181959.365	1246.052
NWCorPad	150496.378	2150370.497	1245.748	45871.387	655434.231	379.705	150469.991	2181967.941	1245.748
BrassTag	150494.048	2150369.766	1245.897	45870.677	655434.008	379.750	150467.662	2181967.209	1245.897
MW2-64B	150493.787	2150370.314	1245.586	45870.598	655434.175	379.655	150467.403	2181967.757	1245.586
NWCORPAD	150413.765	2150435.848	1243.361	45846.207	655454.150	378.977	150387.380	2182033.291	1243.361
BRASSTAG	150412.971	2150437.446	1243.561	45845.965	655454.637	379.038	150386.585	2182034.889	1243.561
MW2-63B	150412.498	2150437.914	1243.284	45845.821	655454.780	378.954	150386.113	2182035.358	1243.284
NWCORPAD	150417.479	2150443.373	1243.630	45847.339	655456.444	379.059	150391.093	2182040.817	1243.630
BRASSTAG	150416.999	2150445.608	1243.790	45847.192	655457.125	379.108	150390.611	2182043.052	1243.790
MW2-63A	150416.351	2150445.576	1243.387	45846.995	655457.115	378.985	150389.964	2182043.019	1243.387
NWCORPAD	150472.247	2150540.674	1246.052	45864.032	655486.101	379.797	150445.859	2182138.117	1246.052
BRASSTAG	150471.088	2150542.460	1246.266	45863.679	655486.645	379.863	150444.701	2182139.902	1246.266
MW2-62B	150470.906	2150543.115	1245.940	45863.623	655486.845	379.763	150444.517	2182140.558	1245.940
NWCORPAD	150475.671	2150552.586	1246.409	45865.076	655489.732	379.906	150449.284	2182150.03	1246.409
BRASSTAG	150474.251	2150554.084	1246.531	45864.643	655490.188	379.943	150447.863	2182151.526	1246.531
MW2-62A	150474.276	2150554.721	1246.213	45864.651	655490.383	379.846	150447.890	2182152.166	1246.213
NWCORPAD	150726.091	2150590.145	1251.120	45941.404	655501.180	381.342	150699.702	2182187.591	1251.120
BRASSTAG	150724.666	2150593.078	1251.270	45940.970	655502.074	381.388	150698.278	2182190.524	1251.270
MW2-65A	150724.671	2150592.440	1250.976	45940.971	655501.879	381.298	150698.281	2182189.884	1250.976
NWCORPAD	150740.546	2150583.419	1250.939	45945.810	655499.130	381.287	150714.157	2182180.865	1250.939
BRASSTAG	150739.181	2150585.126	1251.089	45945.394	655499.650	381.333	150712.792	2182182.571	1251.089
MW2-65B	150739.263	2150585.757	1250.812	45945.419	655499.842	381.248	150712.875	2182183.201	1250.812
		Conversion Factor	3.28083337						

Topographic	HMA-G File	Fire Control								
	NAD-83 Feet			NAD-83 Meters				NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation		Northing	Easting	Elevation
SB-018	147211.133	2150886.702	1268.631	44870.043	655,591.571	386.679		147184.752	2,182,484.119	1268.631
SB-017	147032.432	2150889.734	1270.361	44815.574	655,592.495	387.207		147006.049	2,182,487.149	1270.361
SB-016	146809.976	2150890.028	1273.784	44747.770	655,592.584	388.250		146783.596	2,182,487.440	1273.784
SB-015	146611.995	2150890.336	1275.957	44687.425	655,592.678	388.912		146585.615	2,182,487.746	1275.957
				Conversion Factor				NAD-27 Derived		
				Meters X 3.28083337				Corpscon Prog		
				3.28083337						

Coordinates in NAD 27 (Feet)

SB-045	153257.757	2185233.520	1275.110
SB-044	153812.059	2185218.954	1275.980
SB-042	154123.573	2185217.979	1276.230
SB-043	154419.041	2185201.941	1275.830
SB-019	150737.212	2179625.925	1227.435
SB-020	150755.821	2179609.357	1226.202
SB-029	153285.911	2177284.758	1226.929
SB-030	153320.501	2177281.365	1225.960
SB-031	153338.949	2177281.766	1226.145
SB-032	153340.504	2177302.376	1226.026
SB-033	153343.640	2177322.855	1226.205
SB-034	153341.088	2177348.133	1225.884
NWCorPad	153301.164	2177258.344	1227.987
BrassTag	153299.307	2177259.879	1228.252
MW2-67A	153299.317	2177260.427	1227.880
NWCorPad	153308.454	2177257.848	1227.942
BrassTag	153306.246	2177260.227	1228.136
MW2-67B	153306.771	2177259.941	1227.749
SG-021	153267.920	2177258.977	1227.875
SG-027	153478.575	2177253.637	1227.450
NWCorPad	153458.818	2177266.025	1227.773
BrassTag	153456.321	2177268.214	1227.992
MW2-68A	153456.977	2177267.817	1227.639
NWCorPad	153471.990	2177265.458	1227.737
BrassTag	153471.006	2177267.377	1227.801
MW2-68B	153470.445	2177267.505	1227.501
SB-035	153486.704	2177283.644	1225.832
SB-041	153435.613	2177169.986	1226.184
SG-045	153377.514	2177145.766	1227.352
SG-043	153451.811	2177145.265	1227.388
SB-039	153410.174	2177198.420	1225.186
SB-040	153395.948	2177174.077	1225.367
SB-036	153493.958	2177306.573	1225.408
SB-037	153489.509	2177320.543	1225.822
SB-038	153489.394	2177346.511	1225.397
SG-030	153561.649	2177249.107	1228.246
SG-034	153535.004	2177378.089	1228.528
SG-035	153503.281	2177378.177	1228.755
NWCorPad	153477.479	2177489.938	1228.566
BrassTag	153475.180	2177492.330	1228.786
MW2-66B	153475.491	2177491.726	1228.424
NWCorPad	153486.331	2177490.122	1228.458
BrassTag	153485.081	2177491.772	1228.601
MW2-66A	153484.356	2177491.782	1228.209
NWCorPad	148749.069	2186879.522	1295.444
TopCap	148747.163	2186881.208	1298.011
MW2-59	148747.160	2186881.244	1297.760
NWCorPad	148654.478	2186731.015	1295.503
TopCap	148652.926	2186732.695	1297.910
MW2-61	148652.962	2186732.714	1297.669
SG-011	148658.094	2186678.134	1293.606
SG-007	148657.198	2186767.383	1294.398
SB-028	148682.056	2186750.834	1295.649
SB-026	148688.959	2186731.291	1295.280
SB-025	148718.136	2186723.049	1295.337
SB-024	148744.402	2186718.650	1295.452
SB-023	148747.128	2186749.887	1295.640
SG-003	148765.875	2186766.271	1295.340
SB-021	148763.832	2186704.005	1295.427
SB-022	148740.941	2186693.033	1295.804
SB-027	148681.693	2186692.623	1295.822
NWCorPad	148718.373	2186690.271	1295.791
Brasstag	148717.506	2186691.074	1295.890
MW2-60	148716.863	2186691.012	1295.587
SB-014	146418.665	2185980.834	1311.061
SB-013	146386.651	2185952.828	1310.171
SB-011	146421.474	2185927.396	1310.433
SB-012	146439.390	2185919.358	1310.473
SB-010	146515.850	2185941.209	1311.318
NWCorSite	146894.980	2185919.921	1309.813
SWCorSite	146424.969	2185785.474	1308.511
SECorSite	146279.439	2186076.341	1308.422
NECorSite	146546.781	2186209.268	1306.203
NWCorPad	150472.826	2181959.759	1246.117

Brasstag	150470.323	2181958.686	1246.334
MW2-64A	150470.205	2181959.365	1246.052
NWCorPad	150469.991	2181967.941	1245.748
BrassTag	150467.662	2181967.209	1245.897
MW2-64B	150467.403	2181967.757	1245.586
NWCORPAD	150387.380	2182033.291	1243.361
BRASSTAG	150386.585	2182034.889	1243.561
MW2-63B	150386.113	2182035.358	1243.284
NWCORPAD	150391.093	2182040.817	1243.630
BRASSTAG	150390.611	2182043.052	1243.790
MW2-63A	150389.984	2182043.019	1243.387
NWCORPAD	150445.859	2182138.117	1246.052
BRASSTAG	150444.701	2182139.902	1246.266
MW2-62B	150444.517	2182140.558	1245.940
NWCORPAD	150449.284	2182150.03	1246.409
BRASSTAG	150447.863	2182151.526	1246.531
MW2-62A	150447.890	2182152.166	1246.213
NWCORPAD	150699.702	2182187.591	1251.120
BRASSTAG	150698.278	2182190.524	1251.270
MW2-65A	150698.281	2182189.884	1250.976
NWCORPAD	150714.157	2182180.865	1250.939
BRASSTAG	150712.792	2182182.571	1251.089
MW2-65B	150712.875	2182183.201	1250.812
SB-018	147184.752	2,182,484.119	1268.631
SB-017	147006.049	2,182,487.149	1270.361
SB-016	146783.596	2,182,487.440	1273.784
SB-015	146585.615	2,182,487.746	1275.957

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Coordinates in NAD 83 (Meters)

46721.114	656429.578	388.654	SB-045
46890.066	656425.137	388.919	SB-044
46985.016	656424.839	388.996	SB-042
47075.075	656419.950	388.874	SB-043
45952.828	654720.380	374.123	SB-019
45958.500	654715.330	373.747	SB-020
46729.667	654006.782	373.969	SB-029
46740.210	654005.748	373.673	SB-030
46745.833	654005.870	373.730	SB-031
46746.307	654012.152	373.693	SB-032
46747.263	654018.394	373.748	SB-033
46746.485	654026.099	373.650	SB-034
46734.318	653998.731	374.291	NWCorPad
46733.760	653999.199	374.372	BrassTag
46733.753	653999.366	374.259	MW2-67A
46736.538	653998.580	374.277	NWCorPad
46735.865	653999.305	374.337	BrassTag
46736.025	653999.218	374.219	MW2-67B
46724.183	653998.924	374.257	SG-021
46788.391	653997.296	374.128	SG-027
46782.369	654001.072	374.226	NWCorPad
46781.608	654001.739	374.293	BrassTag
46781.808	654001.618	374.185	MW2-68A
46786.384	654000.899	374.215	NWCorPad
46786.084	654001.484	374.234	BrassTag
46788.913	654001.523	374.143	MW2-68B
46790.869	654006.442	373.634	SB-035
46775.296	653971.799	373.742	SB-041
46767.587	653964.417	374.098	SG-045
46780.233	653964.264	374.109	SG-043
46767.542	653980.466	373.437	SB-039
46763.206	653973.046	373.493	SB-040
46793.080	654013.431	373.505	SB-036
46791.724	654017.689	373.631	SB-037
46791.689	654025.604	373.502	SB-038
46813.712	653995.915	374.370	SG-030
46805.591	654035.229	374.456	SG-034
46795.922	654035.256	374.525	SG-035
46785.058	654069.321	374.468	NWCorPad
46787.357	654070.050	374.535	BrassTag
46787.452	654069.866	374.424	MW2-66B
46790.786	654069.377	374.435	NWCorPad
46790.375	654069.880	374.478	BrassTag
46790.154	654069.883	374.359	MW2-66A
45346.865	656931.293	394.852	NWCorPad
45346.284	656931.807	395.635	TopCap
45346.283	656931.818	395.564	MW2-59
45318.033	656886.028	394.870	NWCorPad
45317.580	656886.540	395.604	TopCap
45317.571	656886.546	395.530	MW2-61
45319.135	656869.910	394.292	SG-011
45318.862	656897.113	394.533	SG-007
45328.439	656892.069	394.915	SB-028
45328.543	656886.112	394.802	SB-026
45337.436	656883.600	394.820	SB-025
45345.442	656882.259	394.855	SB-024
45346.273	656891.780	394.912	SB-023
45351.987	656896.774	394.820	SG-003
45351.364	656877.795	394.847	SB-021
45344.387	656874.451	394.962	SB-022
45328.328	656874.326	394.967	SB-027
45337.508	656873.609	394.958	NWCorPad
45337.244	656873.854	394.988	Brasstag
45337.048	656873.835	394.896	MW2-60
44838.551	656857.377	399.612	SB-014
44828.793	656848.841	399.341	SB-013
44637.407	656641.089	399.421	SB-011
44642.868	656638.639	399.433	SB-012
44866.173	656645.299	399.691	SB-010
44720.772	656638.810	399.232	NWCorSite
44638.472	656597.831	398.835	SWCorSite
44694.115	656686.488	398.808	SECorSite
44876.602	656727.004	398.131	NECorSite
45872.251	655431.737	379.817	NWCorPad

45871.488	655431.410	379.883	Brasstag
45871.452	655431.617	379.797	MW2-64A
45871.387	655434.231	379.705	NWCorPad
45870.677	655434.008	379.750	BrassTag
45870.598	655434.175	379.655	MW2-64B
45846.207	655454.150	378.977	NWCORPAD
45845.965	655454.637	379.038	BRASSTAG
45845.821	655454.780	378.954	MW2-63B
45847.339	655456.444	379.059	NWCORPAD
45847.192	655457.125	379.108	BRASSTAG
45846.995	655457.115	378.985	MW2-63A
45864.032	655486.101	379.797	NWCORPAD
45863.679	655486.645	379.863	BRASSTAG
45863.623	655486.845	379.763	MW2-62B
45865.076	655489.732	379.906	NWCORPAD
45864.643	655490.188	379.943	BRASSTAG
45864.651	655490.383	379.846	MW2-62A
45941.404	655501.180	381.342	NWCORPAD
45940.970	655502.074	381.388	BRASSTAG
45940.971	655501.879	381.298	MW2-65A
45945.810	655499.130	381.287	NWCORPAD
45945.394	655499.650	381.333	BRASSTAG
45945.419	655499.842	381.248	MW2-65B
44870.043	655591.571	386.679	SB-018
44815.574	655592.495	387.207	SB-017
44747.770	655592.584	388.250	SB-016
44687.425	655592.678	388.912	SB-015

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END