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ORNL/TM-11226

Morgantown Energy Technology Center

Sampling and Analysis Data Document

This document contains uninterpreted sampling and analytical data. The data will be interpreted by the DOE Environmental Survey Team and used to modify, as appropriate, the tentative Survey findings contained in the Environmental Survey Preliminary Report. Final Survey findings will be presented in the Environmental Survey Summary Report.

DRAFT

July 1989

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DEPARTMENT OF ENERGY

ENVIRONMENTAL SURVEY

ORNL/TM-11226

MORGANTOWN ENERGY TECHNOLOGY CENTER SAMPLING AND ANALYSIS DATA DOCUMENT

(DRAFT)

July 1989

Prepared by:
DOE Environmental Survey and
Oak Ridge National Laboratory

Operated by
Martin Marietta Energy Systems, Inc.

Under
U.S. DOE Contract No. DE-AC05-84OR21400

for the
U.S. Department of Energy

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LIST OF ABBREVIATIONS

AA	Atomic absorption
ACD	Analytical Chemistry Division
ACK	Analytical Chemistry Division - K25
AE	Flame atomic emission photometry
AFAN	Ammonium fluoride - ammonium nitrate solution
Ag	Silver
AgCl	Silver chloride
AGS	Alternating Gradient Synchroton
A_i	Percent relative atom abundance
ARRF	Average relative retention factor
ASTM	American Society for Testing Materials
A-WMG	Wide-mouth glass (I-Chem cleaning protocol A)
Be	Beryllium
BFB	Bromofluorobenzene
BOD	Biochemical oxygen demand
BOM	Bureau of Mines
Br^-	Bromide
B-WMG	Wide-mouth glass (I-Chem cleaning protocol B)
C	Centigrade
Ca	Calcium
Ca^{+2}	Calcium ions
CAPA	Chemical and Physical Analysis
CAS Number	Chemical Abstract System Number
CCC	Calibration check compounds
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH_4	Methane
Cl^-	Chloride
Cl_2	Chlorine
CLP	Contract Laboratory Program
cm	Centimeter
CN	Cyanide
CNCl	Cyanogen chloride
CO_2	Carbon dioxide
COC	Chain of custody
cpm	Counts per minute
Cr	Chromium
CRQL	Contract required quantitation limit
CRREL	U.S. Army Cold Regions Research and Engineering Laboratory
Cu	Copper
CV	Calibration verification

CVFAA	Cold vapor flameless atomic absorption
C-WMHDPE	Wide-mouth high density polyethylene (I-Chem cleaning protocol C)
CWSS	Contaminated wastewater sewer system
D&D	Decontamination and decommissioning
DBBP	Dibutyl butyl phosphonate
DBC	Dibutylchlorendate
DDD	Dichloro diphenyl dichloroethane
DDE	Dichloro diphenyl chloroethane
DDT	Dichloro diphenyl trichloroethane
DEL	Deleted
DFTPP	Decafluorotriphenylphosphine
DMF	Dimethyl formamide
DMS	Data Management System
DoD	Department of Defense
DOE	Department of Energy
DOE-ES	Department of Energy Environmental Survey
DOE-HQ	Department of Energy Headquarters
dpm	Disintegrations per minute
DW	Drinking water
EAL	Environmental Analysis Laboratory
ECH	Environmental Compliance and Health Protection Division
EHP	Environmental and Health Protection Division
EICP	Extracted ion current profile
EMSL-LV	Environmental Monitoring and Systems Laboratory, Las Vegas
EP	Extraction procedure
EPA	Environmental Protection Agency
EPA-CLP	Environmental Protection Agency-Contract Laboratory Program
EPTOX	Extraction procedure toxicity
ESD	Environmental Sciences Division
ESM	Environmental Survey Manual
Eu	Europium
EVAL	Pesticide evaluation standard mixture
F^-	Fluoride
FES	Flame emission photometry
FID	Flame ionization detector
FQC	Field quality control
FS	Fire site
FSCC	Fused silica capillary column
FW	Formula weight
g	Grams
GA	Gross alpha
GB	Gross beta
GC	Gas chromatography

GC-ECD	Gas chromatography - electron capture detector
GC-FID	Gas chromatography - flame ionization detection
GC-MS	Gas chromatography-mass spectrometry or gas chromatograph-mass spectrometer
GFAA	Graphite furnace atomic absorption
GPC	Gel permeation chromatography
GSA	General service area
GW	Groundwater
H	Hydrogen
HCl	Hydrochloric acid
HCN	Hydrocyanic acid
HD	High dispersion
HDPE(B)	High density polyethylene bottles (I-Chem cleaning protocol B)
HDPE(C)	High density polyethylene bottles (I-Chem cleaning protocol C)
He	Helium
HE	High explosive
Hg	Mercury
HMX	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HNS	Dipicrylethane
HNO_3	Nitric acid
HPLC	High performance liquid chromatography
HRGC/HRMS	High resolution gas chromatography/high resolution mass spectrometry
H&SO	Health and Safety Officer
H_2SO_4	Sulfuric acid
H_3	Tritium
IC	Internal standard compounds
ICP	Inductively coupled plasma
ICP-AES	Inductively coupled plasma - atomic emission spectrometry
ID	Identification
I.D.	Inside diameter
IDL	Instrument detection limit
IND	Pesticide individual standard
IS	Internal standard
IS1 (BCM)	Volatile organic internal standard compound (Bromochloromethane)
IS1 (DCB)	Semivolatile internal standard compound (1,4 -Dichlorobenzene-d4)
IS2 (DFB)	Volatile organic internal standard compound (1,4 -Difluorobenzene)
IS2 (NPT)	Semivolatile internal standard compound (Naphthalene-d8)
IS3 (ANT)	Semivolatile internal standard compound (Acenaphthene-d8)

IS3 (CBZ)	Volatile organic internal standard compound (Chlorobenzene)
IS4 (PHN)	Semivolatile internal standard compound (Phenanthrene-d10)
IS5 (CRY)	Semivolatile internal standard compound (Chrysene-d12)
IS6 (PRY)	Semivolatile internal standard compound (Perylene-d12)
JMC	Soil hand-core sampling device
K	Potassium
K^+	Potassium ion
KCl	Potassium chloride
kg	Kilogram
km^2	Square kilometers
L	Liter
LCS	Laboratory control samples
LLRA	Low-level Radiochemical Analysis
LLRAG	Low-level Radiochemical Analysis Group
LLW	Low-level waste
LWCS	Laboratory wastewater collection system
m	Meter
M	Molar
MCL	Maximum concentration level
MCLG	Maximum contaminant level goal
MDL	Method detection limit
$MeCl_2$	Methylene chloride
MEK	Methyl ethyl ketone
METC	Morgantown Energy Technology Center
Mg	Magnesium
Mg^{+2}	Magnesium ion
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
Mg_2SO_4	Magnesium sulfate
MIBK	Methyl isobutyl ketone (4-methyl-2-pentanone)
mL	Milliliter
mm	Millimeter
MMES	Martin Marietta Energy Systems, Inc.
mR/hr	MilliRad per hour
m/s	Meters per second
mS/cm	milliSiemens per centimeter
MSA	Method of standard additions
MS%Rec	Matrix spike percent recovery
MSD%Rec	Matrix spike duplicate percent recovery
MW	Monitoring well
N	Normal
Na	Sodium
Na^+	Sodium ion
NA	Not applicable, not available, not analyzed

NaOH	Sodium hydroxide
Na_2SO_3	Sodium sulfate
NBC	National Bureau of Calibrations
NBS	National Bureau of Standards
NEIC	National Enforcement Investigation Center
ng	Nanograms
Ni	Nickel
NIOSH	National Institute for Occupational Safety and Health
nm	Nanometers
NO_3^-	Nitrate
NPDES	National Pollution Discharge Elimination System
NR	Not required
ODS	Octadecylsilane
O&G	Oil and grease
ORGDP	Oak Ridge Gaseous Diffusion Plant
ORNL	Oak Ridge National Laboratory
OSHA	Occupational Safety and Health Administration
OVA	Organic vapor analysis
P/P	Pesticide/PCB
Pb	Lead
PBLK	Pesticide method blank
PCB	Polychlorinated biphenyl
pCi	PicoCuries
pCi/g	PicoCuries per gram
pCi/kg	PicoCuries per kilogram
pCi/L	PicoCuries per liter
pCi/mL	PicoCuries per milliliter
P.E.	Performance evaluation
PETN	Pentaerythritol tetranitrate
PID	Photoionization detector
PNA	Polynuclear Aromatics
PO_4^{-3}	Phosphate
POTW	Pubically owned treatment works
ppb	Parts per billion
ppm	Parts per million
ppt	Parts per trillion
PVC	Polyvinyl chloride
QA	Quality assurance
QA/QC	Quality assurance/quality control
QB	Quarterly blind
QC	Quality control
QD	Quality Department
r	Correlation coefficient
Rad. or RAD	Radionuclides, radioactivity, or radiological
RCRA	Resource Conservation and Recovery Act
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine or cyclonite

RE	Reanalysis
RMCL	Recommended maximum contaminant level
RPD	Relative percent difference
RRF	Relative response factor
RSD	Relative standard difference
RT	Retention time
Ru	Ruthenium
S&A	Sampling and analysis
S1(DCB)	Pesticide surrogate compound (Dibutylchlorendate)
S1(NBZ)	Semivolatile surrogate compound (Nitrobenzene-d5)
S1(TOL)	Volatile organic surrogate compound (Toluene-d8)
S2(BFB)	Volatile organic surrogate compound (Bromofluorobenzene)
S2(FBP)	Semivolatile surrogate compound (2-Fluorobiphenyl)
S3(DCE)	Volatile organic surrogate compound (1,2 Dichloroethane-d4)
S3(TPH)	Semivolatile surrogate compound (Terphenyl-d14)
S4(PHL)	Semivolatile surrogate compound (Phenol-d5)
S5(ZFP)	Semivolatile surrogate compound (2-Fluorophenol)
S6(TBP)	Semivolatile surrogate compound (2,4,6-Tribromophenol)
SAIC	Science Applications International Corporation
SBLK	Semivolatile method blank
SC	Surrogate compounds
SD	Standard deviation
SDG	Sample delivery group
SIUs	International System of Units
SO_4^{-2}	Sulfate
SOP	Standard operating procedure
SOW	Statement of work
SPCC	System performance check compounds
SRC	Solvent refined coal
SS	Suspended soils
SSTD	Semivolatile standard
STD	Standard
STP	Sewage Treatment Plant
SV	Semivolatile organic compound
SW	Surface water
SepF (Extraction)	Separatory funnel extraction
Sonc (Extraction)	Sonication extraction
TATB	Triamino-trinitro-benzene
TBP	Semivolatiles organics protocol
TC	Target compounds
TCB	Trichlorobenzene
TCDD	2,3,7,8-Tetrachloro-Dibenlo (p) Dioxin
TCE	Trichloroethylene
TCL	Target compound list
TCLP	Toxic characteristic leaching procedure

TCTNB	Trichloro-trinitro-benzene
TDS	Total dissolved solids
Tetryl	N-methyl-N-2,4,6-tetranitroanaline
TIC	Tentatively identified compounds
TICH	Total identifiable chlorinated hydrocarbons
TICP	Total ion current profile
TIP	PhotoVac OVA instrument
TKN	Total Kjeldahl nitrogen
TNT	2,4,6-trinitrotoluene
TOC	Total organic carbon
TOPO	Trioctylphosphine oxide
TRU	Transuranic
TSCA	Toxic Substance Control Act
TSS	Total suspended solids
2,4D	2,4-Dichlorophenoxy acetic acid
2,4-DNT	2,4-dinitrotoluene
2,6-DNT	2,6-dinitrotoluene
2,4,5-T	2,4,5-Trichlorophenoxy
2,4,5-TP	Propionic acid (Silvex)
2NZN	2 N (Normal) Zinc acetate
U	Uranium
ug	Micrograms
ug/kg	Micrograms per kilogram
ug/L	Micrograms per liter
UST	Underground storage tank
V&V	Verification and validation
VBLK	Volatile organic method blank
VOA	Volatile organic analysis
VOC	Volatile organic compound
vol	Volume
VSTD	Volatile organic standard
W	Tungsten
W_i	Percent relative weight abundance
WVDER	West Virginia Department of Environmental Resources
WWTF	Wastewater Treatment Facility
Y	Yttrium
Zn	Zinc

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INORGANIC ANALYSIS DATA FLAGS

Concentration Qualifiers

B	Value less than the CRDL but greater than IDL
U	Analyte analyzed for but not detected

QA/QC Qualifiers

E	Value estimated or not reported because of the presence of interference
M	Duplicate injection results exceed control limits
N	Spiked sample recovery not within control limits
S	Value determined by the Method of Standard Additions (MSA)
W	Post-digestion spike for Furnace AA analysis is out of control limits (85% - 115%), while sample absorbance is less than 50% of spike absorbance.
*	Duplicate analysis not within control limits
+	Correlation coefficient for the MSA is less than 0.995

Method Qualifiers

A	Flame AA
AE	Atomic emission - ICP
AS	Semiautomated spectrophotometric
AV	Automated cold vapor AA
C	Manual spectrophotometric
CV	Manual cold vapor AA
F	Furnace AA
NR	Analyte is not required to be analyzed
P	ICP
T	Titrimetric

ORGANIC ANALYSIS DATA FLAGS

A	TIC is a suspected aldol-condensation product
B	Analyte found in associated blank as well as in the sample
C	Pesticide identification confirmed by GC-MS
D	Compounds identified in an analysis at a secondary dilution factor
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
U	Compound analyzed for but not detected
X, Y, Z	Wildcard flags (see explanation in section 4.2.2.2)

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1.0 INTRODUCTION

This document presents the Department of Energy's (DOE's) Environmental Survey with field and analytical data collected by the Oak Ridge National Laboratory (ORNL) Sampling and Analysis Team at the Morgantown Energy Technology Center (METC). The sampling for this site was done in August 1988, and the majority of sample analyses was completed by October 1988.

NOTE

> It should be noted that this document contains uninterpreted sampling and analysis data. The data will be interpreted by the DOE Environmental Survey Team and used with the tentative Survey findings contained in the Environmental Survey Preliminary Report. Final Survey findings will be contained in the Environmental Survey Summary Report.

This METC Sampling and Analysis Data Document includes information from the DOE Environmental Survey Sampling and Analysis Plan for the METC Site (Ref. 1-1) and field and analytical data. Please refer to the August 1987 DOE Environmental Survey Manual (Ref. 1-2) for additional detailed descriptions of field and analytical procedures. For an overview of the DOE Environmental Survey Sampling and Analysis Program and for background information on the METC environmental setting, please refer to the Environmental Survey Preliminary Report for the METC site (Ref. 1-3) and the DOE Environmental Survey Sampling and Analysis Plan for the site.

This document contains six chapters. Chapter 1.0 provides background information on site sampling and analysis efforts. Chapter 2.0 was deemed to be redundant and unnecessary and is retained only in title. Chapter 3.0 provides a brief description of field and analytical procedures. Chapter 4.0 describes how to evaluate the sampling and analysis data and presents the main data on each environmental problem. Quality assurance (QA) data are presented and discussed

in Chapter 5.0. References and bibliographic information are included in Chapter 6.0.

This document also contains Appendices A through E. Appendix A contains a listing of sampling and analytical requests. Appendix B presents a discussion and listing of background concentrations of analytes. Appendix C includes audit findings. Appendix D contains a summary of analytical quality assurance/quality control (QA/QC) information. Appendix E includes radiological QA/QC data.

1.1 Site Sampling and Analysis

Oak Ridge National Laboratory was designated by DOE to be responsible for providing a sampling team for the METC Site and for the performance of the required laboratory analytical services. The requests for sampling and analysis were developed by the DOE Environmental Survey Team after careful consideration of the needs of the METC Site to identify both actual and potential environmental problems. The team based its requests on detailed and lengthy considerations of local environmental characteristics, historical environmental monitoring data, and an understanding of the production and research and development operations performed at the site.

The technical specialists of the Survey Team compared notes, reviewed objectives, and determined which actual or potential environmental problems required sampling and analysis in order to be completely and accurately evaluated. In some cases, a group of sample and analytical requests from different technical disciplines in the Survey Team supported the investigative needs for evaluating a single actual or potential environmental problem.

The purpose of the Sampling and Analysis Plan was to outline a plan for environmental field sampling and laboratory analysis in support of the DOE Environmental Survey at the METC Site (see Fig. 1.1) located near Morgantown,

West Virginia. The Sampling and Analysis Plan was intended to be a guide that incorporated the standard procedures, analytical protocols, field sampling protocols, and other laboratory guidance from the DOE Environmental Survey Manual.

The METC Sampling and Analysis Team involved personnel from many organizations. ORNL managed the project and was responsible for all sampling, laboratory analyses, field analyses, data management, and report preparation. Argonne National Laboratory provided the actual laboratory analyses. Figure 1.2 shows the organizational structure for METC sampling and analysis personnel.

This METC Sampling and Analysis Data Document has been prepared by ORNL and subsequently reviewed by the Environmental Protection Agency's (EPA's) Environmental Monitoring Systems Laboratory in Las Vegas (EMSL-LV) and the DOE Survey Team. All comments were addressed or considered before the final draft was issued.

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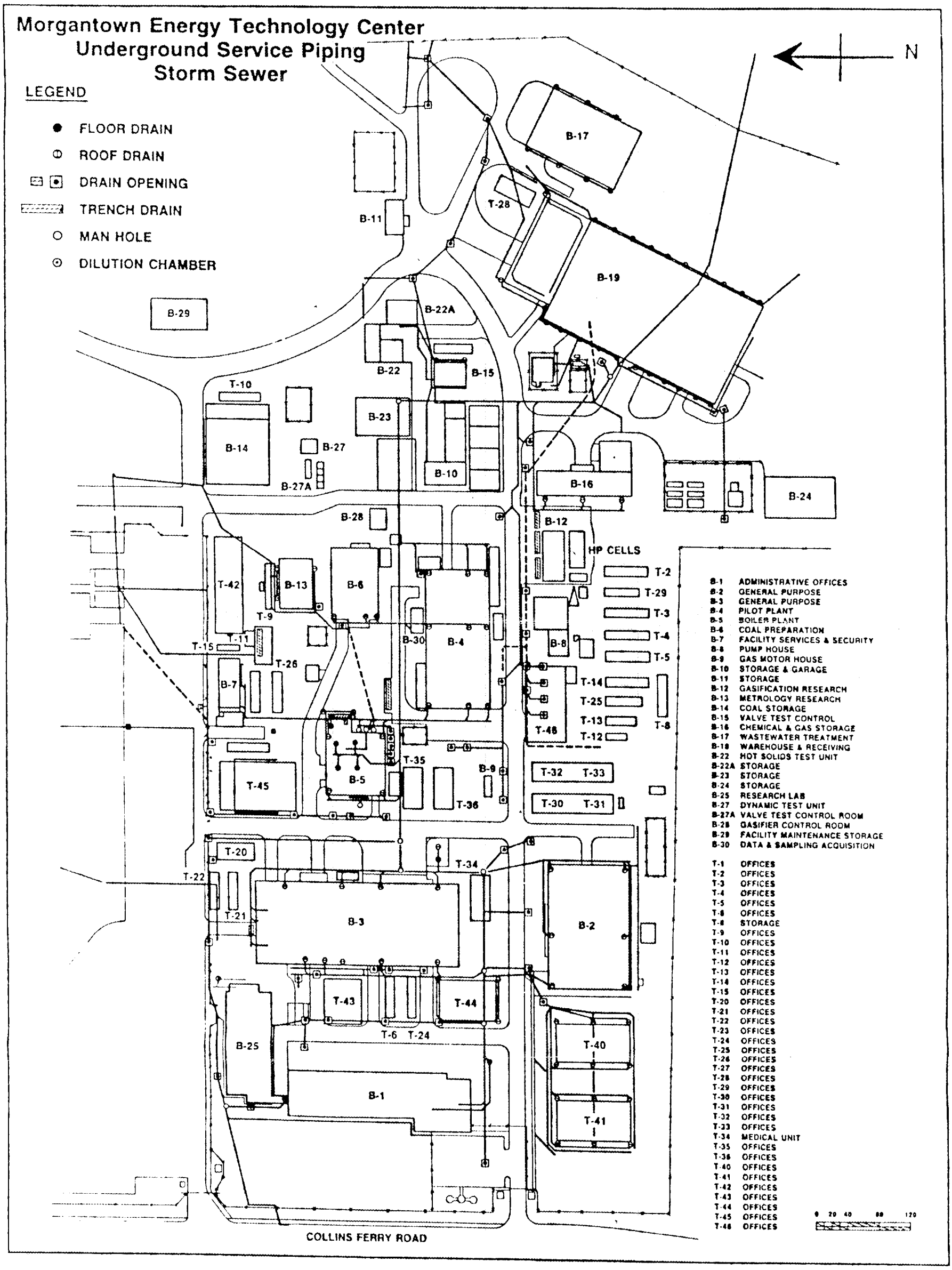

Figure 1.1. Morgantown Energy Technology Center Site Map

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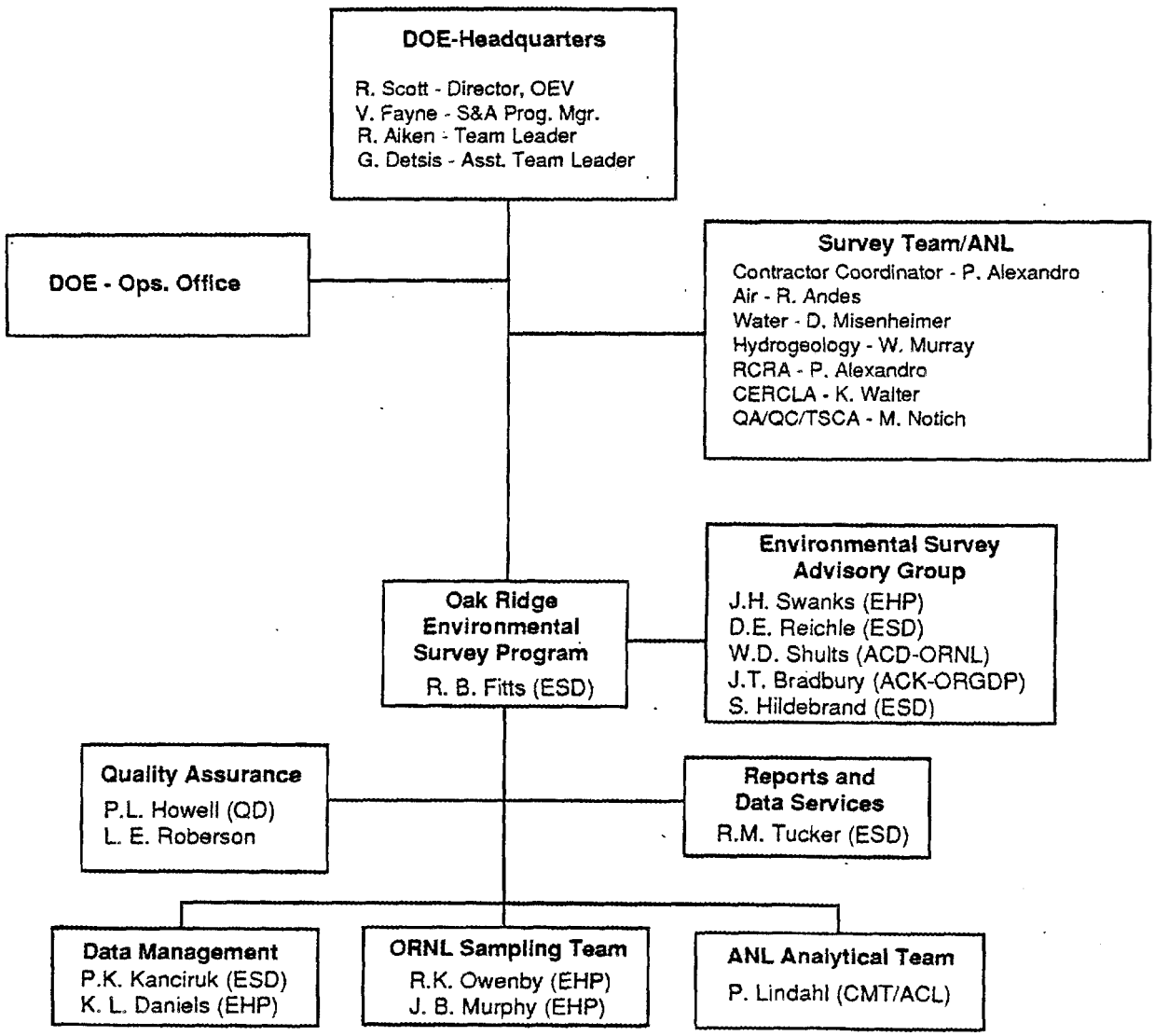

Legend:

ACD - Analytical Chemistry Division
ACK - Analytical Chemistry Department
CMT/ACL - Chemical Technology Division/Analytical Chemistry Laboratory
EHP - Environmental and Health Protection Division
ESD - Environmental Sciences Division
ORGDP - Oak Ridge Gaseous Diffusion Plant
ORNL - Oak Ridge National Laboratory
QD - Quality Department

Figure 1.2 DOE Leaders, Team Leaders, and Sampling and Analysis Teams for METC

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2.0 SUMMARY OF SAMPLING AND ANALYSIS

Chapter 2.0 was originally reserved for a summary of the scope and data resulting from the sampling and analysis effort. After further consideration, it was decided that the Survey Team could just as effectively accomplish its objective of modifying the findings by reviewing the data appearing in Chapter 4.0 (Data Presentation) contained in the Environmental Survey Preliminary Report. Consequently, Chapter 2.0 was deemed to be redundant and unnecessary and is retained only in title so as to avoid inconsistencies with references in the Survey Manual and other sections within the Data Document.

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3.0 METHODS

Standard methods and procedures for sampling and analysis provide results which are representative of the site, of known analytical quality, and comparable with other Survey data. Field sampling protocols and analytical methods have been developed and documented in the DOE Environmental Survey Manual (Refs. 1-2). Appendices D and E of the DOE Environmental Survey Manual provide detailed technical descriptions of the sampling and analytical methods described in the following sections.

Sampling and analytical teams used sampling and analysis protocols developed by the American Society for Testing Materials (ASTM), The National Bureau of Standards (NBS), the U.S. Environmental Protection Agency (EPA), EPA inorganic and organic laboratory analysis methods, and DOE radiological assessment procedures.

Standard practices to ensure sample integrity were in place for each field sampling method. Samples were handled with latex gloves, surface contamination was wiped or rinsed off, and samples were then labeled. Each sample was bagged in a zip-top bag and placed in an insulated ice chest. The samples were then logged in field books and chain-of-custody documents. Chain-of-custody documents were initiated at the time of sample collection and accompanied the samples until they arrived at the analytical laboratories.

For additional details on methods, please refer to the DOE Environmental Survey Manual (i.e., Reference E4.2.1 refers to Sect. E4.2.1, "Sample Container Immersion," of Appendix E of the DOE Environmental Survey Manual). Section 6.0 of this data document contains a bibliography of sources and references used to develop and perform analyses.

3.1 Field Sampling Methods

3.1.1 Surface Water Sampling Methods

3.1.1.1 Immersion Method

The immersion method was the preferred method for collection of grab samples from shallow streams, ponds, and effluent streams. The sample bottle was submerged below the water surface with the opening oriented upstream. The sample was collected, preserved, capped, and the container rinsed with deionized water (Reference E4.2.1, "Sample Container Immersion").

3.1.1.2 Time Composite Sampling

An automated sampler was used to determine mass per unit time concentrations and identify sporadically discharged contaminants from outfalls or streams. Composite samplers were located near the sample point and set to collect a selected volume at the desired frequency, e.g., 320 milliliter (mL) collected at the same time each hour. The sample was pumped through a tube to a 2-1/2 gallon (gal.) refrigerated collection jar. Samples were then dispersed from the collection jar to appropriate sample containers (Reference E4.2.2, "Automated Composite Sampler").

3.1.1.3 Volatile Organic Compounds by Vial

Grab samples for volatile organics were collected in 40-mL vials with Teflon-coated septa. A vial was slowly submerged, upside down, in the water. The sample was then collected by righting the vial. The vial was removed from the water, capped, and inverted to check for air bubbles. A lack of bubbles verified an intact sample. It was then rinsed, wiped, labeled, and packed (Reference E4.2.3A, "Volatile Organic Compounds by Vial").

3.1.1.4 Volatile Organic Compounds by Dipper

A grab sample for volatile organics was obtained by slowly submerging a stainless steel dipper in water. The dipper was retrieved and a sample decanted into a 40-mL sample vial that was slightly tipped against the dipper. The vial was filled, capped, checked for air bubbles, and packaged (Reference E4.2.3B, "Volatile Organic Compounds by Dipper").

3.1.1.5 Field Measurements for Surface Waters

Horiba or Yellow Springs instruments were used to monitor the water samples for pH, temperature, and conductivity. The presence of volatile organic compounds (VOCs) was determined with either a photoionization detector (PID) or a flame ionization detector (FID). A Sybron/Barnstead conductivity bridge was used to determine resistivity (Reference E4.5, "Field Measurements").

3.1.2 Solids

The methods used for solid sampling (soils, sludge, and sediments) were designed to account for the heterogeneous composition of such solids. Several aliquots from systematic points were collected, pooled, homogenized in an aluminum pan using a stainless steel spoon, and bottled. A minimum of three pooled samples was collected from each sample location (Reference E5.0, "Solids"). In instances where a sediment to be collected was limited in quantity, grab samples were collected until a suitable volume was obtained.

3.1.2.1 Surface Soils

Surface samples (top 3 inches [in.] of soil with stones and vegetation removed) were sampled using stainless steel spoons, spatulas, etc. The soil was then

pooled and placed in sample bottles. Volatile samples were collected without homogenization or pooling. Nonvolatile samples were collected in an aluminum pan, mixed, and placed in sample bottles.

For trenches and ditches, subsamples were systematically collected at random along the centerline of the trench. For spill areas, the subsamples were obtained from heavily stained areas; for large surface areas, a simple random grid was used to ensure a representative sample (Reference E5.1, "Surface Soils").

3.1.2.2 Subsurface Soils

Subsurface soil samples [less than 50 feet (ft) in depth] were collected by a variety of techniques. Augers, core samplers, and drive tubes with split-spoon samplers were used as soil conditions dictated. Soil cores were preferable to augered samples, but core samplers were useful only in areas where gravel/cobble was not abundant and where there were no high hazard wastes (Reference E5.2, "Subsurface Soils").

3.1.2.3 Auger and Thin-Wall Tube Sampling

Samples were collected, following augering, to a desired sample depth by removing the auger and replacing it with a tube corer. The corer was lowered into position at the sample depth and forced into the soil. The corer was then withdrawn and the sample collected, sometimes directly from the auger. This latter method was used when the soil contained cobble which precluded use of the corer. Continuous flight augers were used in some cases. Although samples from specific depths were difficult to collect directly off the auger, satisfactory composite samples were collected (Reference E5.2.1, "Subsurface Solid Sampling with Auger and Thin-Wall Tube Sampler").

3.1.2.4 Core Sampling

The core tube was driven into the ground to a desired depth, withdrawn, and the sample placed in an aluminum tray. The core was then examined with field survey instruments for radioactivity or organic vapor concentrations. A new core was then taken nearby and the core position corresponding to the highest concentration of organic vapor was resampled to obtain an undisturbed sample for volatile organic analysis. Three additional cores from the same sample vicinity were collected, pooled, and placed in sample bottles. This procedure was completed three additional times to collect a total of three composite samples (Reference E5.2.2, "Core Sample"). When sampling boreholes that penetrated the soil 10 ft or more, split-spoon samples were taken. The contents of the split-spoon were screened for VOCs and radioactivity. Immediately following screening, the VOC samples were taken. Following collection of the VOC samples, the split-spoon sample was emptied into a stainless steel pan and homogenized. The remaining samples were then taken from this composite.

3.1.2.5 Sludge and Sediments

Sludge is a semidry material ranging from dewatered solids to high viscosity liquids. Sediments are the deposited materials underlying a body of water. When sediments are exposed by evaporation, stream rerouting, or other means, they are collected by soil or sludge collection methods.

Sludge and sediment were usually sampled using a scoop if the liquid layer over the material was shallow (Reference E5.3, "Sludges and Sediments").

3.1.2.5.1 Scoop Sampling

Although sample collection with a scoop may disturb the liquid-solid interface and alter the sample integrity, sample integrity can be maintained by using extreme care.

The scoop method was used to collect a composite sample by inserting the scoop and removing a sample. For sludge exposed to air, the first 1 to 2 centimeters (cm) of material were removed prior to collecting the sample. The sample was placed in an aluminum tray, mixed, and transferred to an appropriate bottle (Reference E5.3.1, "Scoop").

3.1.2.6 Field Measurements for Solids

The two methods in field measurements for solids used the Photoionization Detector and the Flame Ionization Detector. When used, the PID was calibrated with benzene using the headspace method. A specified volume of vapor was removed from the headspace in a benzene reagent bottle and injected into a known volume Tedlar air bag containing zero air. The benzene atmosphere in the bag was calculated from the atmospheric pressure and the vapor pressure of the benzene at the ambient temperature. The PID was adjusted to the resultant concentration and periodically checked throughout the sampling procedure. In sampling, the soil core was removed from the bore hole and a portion placed into a container to prevent loss of volatiles. The remaining portion was placed into a container fitted with a gas-tight sampling port. After 10 to 20 minutes (min), the PID sampling tube was inserted into the container through the port and the vapor concentrations measured. The results were recorded as "ppm benzene equivalent." The depth with the highest PID measurement was selected for sample submission, and the portion previously placed in the container to prevent loss of volatiles constituted the sample.

When used, the FID was calibrated using a methane/air mixture. A gas chromatograph-mass spectrometer (GC-MS) was used to determine the methane concentration (usually 93 parts per million [ppm]) in the cylinder containing the compressed methane/air mixture. Daily calibrations of the FID were performed by filling a Tedlar air bag with the calibration gas, making the necessary adjustments to the FID, and then "locking" the instrument dials. This ensured that the readings on the FID were correct.

3.2 Analytical Methods

3.2.1 Organic Analysis Methods

3.2.1.1 Volatile Organics

Volatile organic contaminants in low- and medium-level samples of water, soil, or sediment were determined using the Contract Laboratory Program (CLP) Statement of Work (SOW) 7/87 and Appendix D of the DOE Environmental Survey Manual. The method cited in these two sources is appropriate for the determination of volatile organics in typical environmental matrices, using purge and trap sample introduction into a GC-MS. Thirty-four volatile target compounds can be identified and quantitated with the technique. Table 3.1 summarizes these analytes and their respective detection limits, as specified in the DOE Environmental Survey Manual.

Volatile organics are purged from an aqueous sample or a mixture of soil and distilled water at ambient temperature using an inert gas. The vapor is swept through a sorbent column where the volatiles are trapped. After purging is completed, the sorbent column is heated and backflushed with the inert gas to desorb the volatiles onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the volatiles, which are then detected with a mass spectrometer. Target compounds are identified by: (1) elution of

Table 3.1. Analytes Determined by CLP Volatiles Analysis Method

	Analyte	CAS Number	Contract Required Detection Limits[a] Water (ug/L)	Low Soil/Sediment[b,c] (ug/kg)
1.	Chloromethane	74-87-3	10	10
2.	Bromomethane	74-83-9	10	10
3.	Vinyl Chloride	75-00-4	10	10
4.	Chloroethane	75-00-3	10	10
5.	Methylene Chloride	75-09-2	5	5
6.	Acetone	67-64-1	10	10
7.	Carbon disulfide	75-15-0	5	5
8.	1,1-Dichloroethene	75-35-4	5	5
9.	1,1-Dichloroethane	75-35-3	5	5
10.	1,2-Dichloroethene (total)	540-59-0	5	5
11.	Chloroform	67-66-3	5	5
12.	1,2-Dichloroethane	107-06-2	5	5
13.	2-Butanone	78-93-3	10	10
14.	1,1,1-Trichloroethane	71-55-6	5	5
15.	Carbon Tetrachloride	56-23-5	5	5
16.	Vinyl acetate	108-05-4	10	10
17.	Bromodichloromethane	75-27-4	5	5
18.	1,1,2,2-Tetrachloroethane	79-34-5	5	5
19.	1,2-Dichloropropane	78-87-5	5	5
20.	cis-1,3-Dichloropropene	10061-01-5	5	5
21.	Trichloroethene	79-01-6	5	5
22.	Dibromochloromethane	124-48-1	5	5
23.	1,1,2-Trichloroethane	79-00-5	5	5
24.	Benzene	71-43-2	5	5
25.	trans-1,3-Dichloropropene	10061-02-6	5	5
26.	Bromoform	75-25-2	5	5
27.	2-Hexanone	591-78-6	10	10
28.	4-Methyl-2-pentanone	108-10-1	10	10
29.	Tetrachloroethene	127-18-4	5	5
30.	Toluene	108-88-3	5	5
31.	Chlorobenzene	108-90-7	5	5
32.	Ethyl benzene	100-41-4	5	5
33.	Styrene	100-42-5	5	5
34.	Xylenes (total)	133-02-7	5	5

Table 3.1. Analytes Determined by CLP Volatiles Analysis Method (Continued)

a. Specific detection limits are highly matrix dependent. The detection limits listed herein are provided for guidance and may not always be achievable.
b. Detection limits listed for soil/sediment are based on wet weight. The detection limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.
c. Contract required detection limits (CRDL) for volatiles at medium levels in soil/sediment are 100 times the listed CRDL for volatiles at low levels in soil/sediment.

the sample component at the same GC relative retention time as the standard component and (2) correspondence of the sample component and standard component mass spectra. A search of the NBS Mass Spectral Library and interpretation by a mass spectrometrist are used to tentatively identify up to ten nontarget analytes of greatest concentration in the chromatogram.

Method interferences may be caused by contaminants in solvents, reagents, glassware, and other sample processing hardware that could lead to artifacts and/or elevated baselines in the total ion profile. Laboratory reagent blanks are used to monitor the presence of such interferences. Interferences introduced by the sample matrix are monitored by the use of internal standards and matrix and surrogate spike recoveries.

Interpretation of volatiles data requires an assessment of the impact of holding times on data quality. The Survey protocol requires that the analysis be conducted within 14 days of sample collection. Samples which exceed this holding time can still provide useful information, as long as the data are interpreted with caution.

3.2.1.2 Semivolatile Organics

Semivolatile organic contaminants in low- and medium-level samples of water, soil, or sediment were determined using CLP SOW 7/87 and Appendix D of the DOE Environmental Survey Manual. The protocol described in these two sources is appropriate for the determination of a number of organic compounds that are partitioned into an organic solvent and are amenable to gas chromatography. The target compound list (TCL) and required limits specified in the DOE Environmental Survey Manual are listed in Table 3.2.

Semivolatile organics are serially extracted from aqueous samples with methylene chloride at a pH greater than 11 and again at a pH less than 2. The methylene

Table 3.2. Analytes Determined by CLP Semivolatiles Analysis Method

	Analyte	CAS Number	Contract Required Detection Limits[a] Water (ug/L)	Low Soil/Sediment[b,c] (ug/kg)
35.	Phenol	108-95-2	10	330
36.	bis(2-Chloroethyl) ether	111-44-4	10	330
37.	2-Chlorophenol	95-57-8	10	330
38.	1,3-Dichlorobenzene	541-73-1	10	330
39.	1,4-Dichlorobenzene	106-46-7	10	330
40.	Benzyl alcohol	100-51-6	10	330
41.	1,2-Dichlorobenzene	95-50-1	10	330
42.	2-Methylphenol	95-48-7	10	330
43.	bis(2-Chloroisopropyl) ether	39638-32-9	10	330
44.	4-Methylphenol	106-44-5	10	330
45.	N-Nitroso-di-n-propylamine	621-64-7	10	330
46.	Hexachloroethane	67-72-1	10	330
47.	Nitrobenzene	98-95-3	10	330
48.	Isophorone	78-59-1	10	330
49.	2-Nitrophenol	88-75-5	10	330
50.	2,4-Dimethylphenol	105-67-9	10	330
51.	Benzoic acid	65-85-0	50	1600
52.	bis(2-Chlorethoxy) methane	111-91-1	10	330
53.	2,4-Dichlorophenol	120-83-2	10	330
54.	1,2,4-Trichlorobenzene	120-82-1	10	330
55.	Naphthalene	91-20-3	10	330
56.	4-Chloroaniline	106-47-8	10	330
57.	Hexachlorobutadiene	87-68-3	10	330
58.	4-Chloro-3-methylphenol (para-chloro-meta-cresol)	59-50-7	10	330
59.	2-Methylnaphthalene	91-57-6	10	330
60.	Hexachlorocyclopentadiene	77-47-4	10	330
61.	2,4,6-Trichlorophenol	88-06-2	10	330
62.	2,4,5-Trichlorophenol	95-95-4	50	1600
63.	2-Chloronaphthalene	91-58-7	10	330
64.	2-Nitroaniline	88-74-4	50	1600
65.	Dimethyl phthalate	131-11-3	10	330
66.	Acenaphthylene	208-96-8	10	330
67.	2,6-Dinitrotoluene	606-20-2	10	330
68.	3-Nitroaniline	99-09-2	50	1600
69.	Acenaphthene	83-32-9	10	330

Table 3.2. Analytes Determined by CLP Semivolatiles Analysis Method (Continued)

	Analyte	CAS Number	Contract Required Detection Limits[a] Water (ug/L)	Low Soil/Sediment[b,c] (ug/kg)
70.	2,4-Dinitrophenol	51-28-5	50	1600
71.	4-Nitrophenol	100-02-7	50	1600
72.	Dibenzofuran	132-64-9	10	330
73.	2,1-Dinitrotoluene	121-14-2	10	330
74.	Diethylphthalate	84-66-2	10	330
75.	4-Chlorophenyl phenyl ether	7005-72-3	10	330
76.	Fluorene	86-73-7	10	330
77.	4-Nitroaniline	100-01-6	50	1600
78.	4,6-Dinitro-2-methylphenol	534-52-1	50	1600
79.	N-Nitrosodiphenylamine	86-30-6	10	330
80.	4-Bromophenyl phenyl ether	101-55-3	10	330
81.	Hexachlorobenzene	118-74-1	10	330
82.	Pentachlorophenol	87-86-5	50	1600
83.	Phenanthrene	85-01-8	10	330
84.	Anthracene	120-12-7	10	330
85.	Di-n-butylphthalate	84-74-2	10	330
86.	Fluoranthene	206-44-0	10	330
87.	Pyrene	129-00-0	10	330
88.	Butylbenzylphthalate	85-68-7	10	330
89.	3,3'-Dichlorobenzidine	91-94-1	20	660
90.	Benzo(a)anthracene	56-55-3	10	330
91.	Chrysene	218-01-9	10	330
92.	bis(2-Ethylhexyl)phthalate	117-81-7	10	330
93.	Di-n-octyl phthalate	117-84-0	10	330
94.	Benzo(b)fluoranthene	205-99-2	10	330
95.	Benzo(k)fluoranthene	207-08-9	10	330
96.	Benzo(a)pyrene	50-32-8	10	330
97.	Indeno(1,2,3-cd)Pyrene	193-39-5	10	330
98.	Dibenz(a,h)anthracene	53-70-3	10	330
99.	Benzo(g,h,i)perylene	191-24-2	10	330

a. Specific detection limits are highly matrix dependent. The detection limits listed herein are provided for guidance and may not always be achievable.

b. Detection limits listed for soil/sediment are based on wet weight. The detection limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

c. Contract required detection limits (CRDL) for semivolatiles at medium levels in soil/sediment are 60 times the listed CRDL for semivolatiles at low levels in soil/sediment.

chloride extracts are dried and concentrated separately. Low level soil samples are mixed with anhydrous powdered sodium sulfate and serially extracted with 1:1 methylene chloride/acetone using an ultrasonic probe. The methylene chloride and extracted semivolatile organics are then collected by decanting and concentrated. All extracts are stored at 4°C in the dark until they are analyzed using GC-MS. Target compounds are identified on a cross-correlation basis of: (1) relative retention times (compound elution times) compared to internal standard retention times, and (2) correspondence of the sample component and standard component mass spectra. A search of the NBS Mass Spectral Library and interpretation by a mass spectrometer specialist are used to provide tentative identification for up to 20 non-targeted compounds meeting EPA concentration criteria.

Method interferences may be caused by contaminants in solvents, reagents, glassware, and other sample processing hardware that lead to artifacts or elevated baselines in the total ion profiles. Laboratory reagent blanks are used to monitor the presence of such interferences. Matrix interferences may be caused by soil acting as a sorbent for semivolatile organics, or by contaminants that are co-extracted with the sample. Sample matrix effects are monitored by internal standards, as well as surrogate and matrix spike recoveries.

Interpretation of semivolatile organics data requires an assessment of the impact of holding times on data quality. The Survey protocol requires that aqueous samples must be extracted within 7 days of sample collection; soil samples must be extracted within 14 days. Samples that have exceeded this holding time can still provide useful information as long as the data is interpreted with caution.

3.2.1.3 Pesticides/Polychlorinated Biphenyls

Pesticides and polychlorinated biphenyls (PCBs) in low- and medium-level water, soil, or sediment samples were determined using CLP SOW 7/87 and the DOE

Environmental Survey Manual. The analytical method described in these two sources involves extraction of the chlorinated hydrocarbon contaminants from the environmental matrices with methylene chloride, concentration of the extracts, and the analysis of the extracts on a gas chromatograph/electron capture detector (GC/ECD). If pesticides or PCBs are tentatively identified, a second GC/ECD analysis is performed using an alternate chromatographic column for positive identification. Confirmation by GC-MS is seldom done due to insufficient concentration of the pesticides and PCBs in the samples.

Survey protocol requires the identification of 27 target compounds at the Contract Required Detection Limits (CRDL) listed in Table 3.3.

Method interferences may be caused by contaminants in solvents, reagents, glassware, and other sample processing hardware. The presence of these artifacts is determined by running a laboratory method blank under the same conditions as the samples. Poor extraction efficiency due to sample matrix effects is monitored by the use of surrogate and matrix spike recoveries.

Interpretation of pesticide/PCB data requires an assessment of the impact of holding times on data quality. The Survey protocol requires that aqueous samples be extracted within seven days of sample collection and soil samples completed within 14 days. Samples that have exceeded these holding times can still provide useful information as long as the data are interpreted with caution. Extracts are stored at less than 4°C between the time of extraction and analysis to ensure that the sample quality is not compromised.

Table 3.3. Analytes Determined by CLP Pesticide/PCB Analysis Method

Analyte	CAS Number	Contract Required Detection Limits[a] Water (ug/L)	Low Soil/Sediment[b,c] (ug/kg)
100. alpha-BHC	319-84-6	0.05	8.0
101. beta-BHC	319-85-7	0.05	8.0
102. delta-BHC	319-86-8	0.05	8.0
103. gamma-BHC (Lindane)	58-89-9	0.05	8.0
104. Heptachlor	76-44-8	0.05	8.0
105. Aldrin	309-00-2	0.05	8.0
106. Heptachlor epoxide	1024-57-3	0.05	8.0
107. Endosulfan I	959-98-8	0.05	8.0
108. Dieldrin	60-57-1	0.10	16.0
109. 4,4'-DDE	72-55-9	0.10	16.0
110. Endrin	72-20-8	0.10	16.0
111. Endosulfan II	33213-65-9	0.10	16.0
112. 4,4'-DDD	72-54-8	0.10	16.0
113. Endosulfan sulfate	1031-07-8	0.10	16.0
114. 4,4'-DDT	50-29-3	0.10	16.0
115. Endrin ketone	53494-70-5	0.10	16.0
116. Methoxychlor	72-43-5	0.5	80.0
117. alpha-chlordane	5103-71-9	0.5	80.0
118. gamma-chlordane	5103-74-2	0.5	80.0
119. Toxaphene	8001-35-2	1.0	160.0
120. Aroclor-1016	12674-11-2	0.5	80.0
121. Aroclor-1221	11104-28-2	0.5	80.0
122. Aroclor-1232	11141-16-5	0.5	80.0
123. Aroclor-1242	53469-21-9	0.5	80.0
124. Aroclor-1248	12672-29-6	0.5	80.0
125. Aroclor-1254	11097-69-1	1.0	160.0
126. Aroclor-1260	11096-82-5	1.0	160.0

a. Specific detection limits are highly matrix dependent. The detection limits listed herein are provided for guidance and may not always be achievable.
b. Detection limits listed for soil/sediment are based on wet weight. The detection limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.
c. Contract Required Detection Limits (CRDL) for pesticides/PCBs at medium levels in soil/sediment are 15 times the listed CRDL for pesticides/PCBs at low levels in soil/sediment.

3.2.2 Inorganic Analysis Methods

3.2.2.1 CLP Metals Determination by Atomic Emission or Absorption Techniques

The determination of low levels of metal contaminants was accomplished using a protocol based on EPA CLP SOW 7/87 for Inorganic Analysis Multi-media, Multi-concentration and Appendix D of the DOE Environmental Survey Manual. Table 3.4 summarizes the analytical method and the required detection limits for a total of 23 specific metal contaminants. The metals determined by the inductively coupled plasma (ICP) technique according to the full CLP technical criteria include most of the elements specified by the DOE protocol. In addition, three elements (arsenic, selenium, and lead) were also determined by ICP and were reported to detection levels which exceeded the CLP requisite limits, but were significantly below the ICP method detection limits listed in the DOE protocol. When required, graphite furnace atomic absorption (FAA) was used to determine and report the concentrations of six elements (silver, arsenic, cadmium, lead, selenium, and thallium) in METC Site samples.

Mercury was determined by cold vapor atomic absorption (CVAA).

CLP protocol was used to monitor the precision and accuracy of the individual elemental results. Calibration data were verified during the course of an analytical run. Interference check samples were used to determine the effectiveness of interelement corrections for the ICP metals. The precision of the measurements was estimated using sample duplicates. Sample digestion efficiency was assessed by including laboratory control samples with each preparation batch. Matrix spikes, analytical spikes (for FAA only), and serial dilutions of samples (for ICP only) were made to assess the accuracy and to determine the presence of analytical interferences attributable to the sample matrix or to preparation procedures.

Table 3.4. Elements Determined by Atomic Emission or Absorption Techniques

Element	Contract Required Detection Level (ug/L)	DOE Method Detection Limit for ICP (ug/L)	Analytical Method
Aluminum	200	200	ICP
Antimony	60	150	ICP
Arsenic	10	250	ICP, FAA
Barium	200	200	ICP
Beryllium	5	5	ICP
Cadmium	5	20	ICP, FAA
Calcium	5000	5000	ICP
Chromium	10	10	ICP
Cobalt	50	50	ICP
Copper	25	25	ICP
Iron	100	100	ICP
Lead	5	200	ICP, FAA
Magnesium	5000	5000	ICP
Manganese	15	15	ICP
Mercury	0.2	---	CVAA
Nickel	40	40	ICP
Potassium	5000	5000	ICP
Selenium	5	400	ICP, FAA
Silver	10	30	ICP, FAA
Sodium	5000	5000	ICP
Thallium	10	500	ICP, FAA
Vanadium	50	50	ICP
Zinc	20	20	ICP

ICP = Inductively coupled plasma emission spectrometry.
FAA = Graphite furnace atomic absorption spectrometry.
CVAA = Cold vapor atomic absorption spectrometry.

3.2.2.1.1 ICP Metals-Atomic Emission Spectrometry

The basis of this method is the simultaneous multi-element measurement of atomic emission by an optical spectroscopic technique. Samples are nebulized and the aerosol that is produced is transported to a high temperature plasma where excitation occurs. Characteristic atomic-line emission spectra are produced by the radio-frequency inductively coupled plasma and are dispersed by a grating spectrometer. The line intensities, which are a measurement of elemental concentrations, are monitored by photomultiplier tubes. The photocurrents from the photomultiplier tubes are processed and controlled by a computer system.

A background correction technique is required to compensate for variable background contributions to the determination of trace elements. Background is measured adjacent to analyte lines on samples during analysis. The position selected for the background intensity measurement, on either or both sides of the analytical line, is determined by the complexity of the spectrum adjacent to the analyte line. The position used should be free of spectral interference and reflect the same change in background intensity that occurs as the analyte wavelength is measured. Background correction is not required in cases of line broadening where a background correction measurement would actually degrade the analytical result. Additional interferences, i.e., spectral, physical, and/or chemical, are also possible. Appropriate corrections are made, when required, and are documented in the ICP case cover page supplement.

Acid digestion of soil, sediment, and sludge samples is performed according to the CLP SOW 7/87 protocol prior to trace metal analysis by ICP. The protocol for water sample is modified as to sample aliquot used. A 50-mL aliquot of an aqueous sample is digested with a mixture of nitric and hydrochloric acids. The acidified sample is heated below boiling for approximately 2 hrs or until the sample volume is reduced to half of its initial volume. The sample is then

cooled, filtered, and diluted volumetrically. For solid samples, a representative 1-g (wet weight) sample is digested with nitric acid and hydrogen peroxide. The digestate is refluxed with nitric and hydrochloric acid, then allowed to cool prior to filtration and dilution. Analyte concentrations are reported on a dry weight basis.

3.2.2.1.2 Atomic Absorption, Furnace Technique

Graphite furnace atomic absorption was used to determine the concentration of arsenic, cadmium, lead, selenium, silver, and thallium in METC Site samples. When using the furnace technique in conjunction with an atomic absorption spectrophotometer, a representative aliquot of a sample is placed in the graphite tube of the furnace, evaporated to dryness, charred, and atomized. Analyte atoms are vaporized and dissociated for light absorption in the tube. Radiation from a light source, hollow cathode, or electrodeless discharge lamp of the element being determined is passed through the vapor containing ground-state atoms of that element. The intensity of the transmitted radiation decreases in proportion to the amount of the ground state element in the vapor. A grating monochromator isolates the characteristic radiation from the hollow cathode lamp and a photosensitive device measures the attenuated transmitted radiation.

Aqueous samples are prepared by digesting 50-mL aliquots with a mixture of nitric acid and hydrogen peroxide. The acidified sample is then heated below boiling for approximately 2 hrs or until the sample volume is reduced to half of its initial volume. The sample is then cooled, diluted volumetrically, and then filtered to remove insoluble material. Representative 1-g solid samples are prepared by digesting them in nitric acid and hydrogen peroxide. The digestate is refluxed with nitric acid, cooled, diluted volumetrically, and then filtered.

3.2.2.1.3 Mercury

Mercury is determined by CVAA. The flameless AA procedure is a physical method based on the absorption of radiation at 253.7 nanometers (nm) by mercury vapor. Organic mercury compounds are converted to inorganic forms by the oxidative digestion of the sample. An aliquot of the diluted digestate is transferred to a 50-mL closed reaction chamber where stannous chloride is used to reduce the mercury to the elemental form. The mercury vapor is then purged from the solution into a 90-cm absorption cell positioned in the light path of an atomic absorption spectrophotometer. Absorbance (peak height) is measured as a function of mercury concentration.

Samples are prepared according to the CLP methods. Aqueous samples are prepared by digesting 50-mL aliquots with sulfuric and nitric acids, potassium permanganate, and potassium persulfate. Representative 0.2g solid samples are also treated with sulfuric and nitric acids, potassium permanganate, and potassium persulfate. After digestion, the sample is adjusted to volume. An aliquot of this solution is used for the determination of mercury.

3.2.2.2 Percent Solids

To determine the percent solids in a sample, a portion of the material is placed on a weighed dish; the difference in weight represents the wet sample weight. The sample is then dried at 103-105°C overnight, cooled, and reweighed. The difference between the dried sample and the dish represents the dry weight. The ratio of dry weight to wet weight is multiplied by 100 to obtain the percent solids contained in a solid sample.

3.2.2.3 Toxicity Characteristic Leaching Procedure

The EPA has proposed to amend the Extraction Procedure Toxicity Characteristic (EPTC) to include 38 additional compounds and a modified leaching procedure known as the Toxicity Characteristic Leaching Procedure (TCLP). A description of and background information on TCLP is found in "Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Notification Requirements; Reportable Quantity Adjustments: Proposed Rule" (40 CFR Parts 261, 271, and 302) in Volume 51 of the Federal Register. Under the proposed rule, a leaching test is used to determine whether an unacceptably high level of groundwater contamination might result from improper waste management of wastes containing any one of the 52 listed toxicants. Regulatory level concentrations for the individual toxicants are based on chronic toxicity reference levels, combined with a compound-specific dilution/attenuation factor (derived from application of a groundwater transport equation).

The TCLP is intended to be a first-order approximation of the leaching of low molecular weight carboxylic acids generated in actively decomposing sanitary landfills. Acetic acid is one of the more dominant carboxylic acids present in municipal waste leachate. As such, approximately 100 g of a soil sample is extracted with 20 times the weight of the solid phase with a buffered acidic acid extraction fluid. The liquid extract is separated from the solid phase prior to chemical analysis. Waste samples containing less then 0.5% solids are defined as the TCLP extract. Two-phase waste samples are filtered with 0.6-0.8 um glass fiber filters; the solid phase then is extracted with the acetic acid extraction fluid. The leachate, if compatible, is then recombined with the liquid phase prior to analysis. If incompatible, the liquids are analyzed separately and the results are mathematically combined to yield a volume weighted average concentration. Analytical results above the proposed regulatory limits for the individual compounds will define the sample as a hazardous waste. TCLP need not be run on samples if a total analysis of the original sample demonstrates

that individual contaminants are not present in the waste, or that they are present, but at such low concentrations that the appropriate regulatory thresholds could not possibly be exceeded. Tables 3.5, 3.6, and 3.7 list the regulatory levels for semivolatile, pesticide, and metal analytes determined using CLP analysis protocol.

3.2.2.4 Radiological

Radiochemical contamination in soil and water is determined by either direct counting or by radiochemical separations and specific counting to ascertain radionuclide activity. Water samples are acidified to pH 2 at collection time. Soil samples are dried at 105°C to a constant weight, then pulverized and blended well before sample aliquots are removed. All soil samples are analyzed on a dry weight basis.

3.2.2.4.1 Gamma Ray Emitting Nuclides in Water and Soil

A 10% Ge(Li) detector, interfaced with a multichannel analyzer is used to obtain a gamma spectrum of a sample contained in a Nalgene bottle. This spectrum ion transferred to a VAX computer which processes the data using the computer code GAMANAL. The GAMANAL program contains gamma-ray libraries and detector efficiency curves which permit the identification and quantification of gamma-emitting radionuclides.

The method can be applied to soils, waters, etc. providing the sample can be condensed or reduced in size such that it can be placed in a calibrated geometry for counting.

Table 3.5. TCLP Limits for CLP Semivolatile Compounds

Semivolatile	CAS Number	Reg. Level (mg/L)
Bis (2-chloroethyl)ether	111-44-4	0.05
o-Cresol	95-48-7	10.0
m-Cresol	108-39-4	10.0
p-Cresol	106-44-5	10.0
1,2 - Dichlorobenzene	95-50-1	4.3
1,4 - Dichlorobenzene	106-46-7	10.8
2,4 - Dinitrotoluene	121-14-2	0.13
Hexachlorobenzene	118-74-1	0.13
Hexachlorobutadiene	87-68-3	0.72
Hexachloroethane	67-72-1	4.3
Nitrobenzene	98-95-3	0.13
Pentachlorophenol	87-86-5	3.6
Phenol	108-95-2	14.4
2,4,5 - Trichlorophenol	95-95-4	5.8
2,4,6 - Trichlorophenol	88-06-2	0.30
2,3,4,6 - Tetrachlorophenol	108-88-3	14.4
Pyridine	110-86-1	5.0

Table 3.6. TCLP Limits for ICP Metals

Metals	CAS Number	Reg. Level (mg/L)
Arsenic	7440-38-2	5.0
Barium	7440-39-3	100
Cadmium	7440-43-9	1.0
Chromium	1330-82-0	5.0
Lead	7439-91-1	5.0
Mercury	7439-97-6	0.2
Selenium	7782-49-2	1.0
Silver	7440-22-4	5.0

Table 3.7. TCLP Limits for Metals

Metals	CAS Number	Reg. Level (mg/L)
Arsenic	7440-38-2	5.0
Barium	7440-39-3	100
Cadmium	7440-43-9	1.0
Chromium	1330-82-0	5.0
Lead	7439-91-1	5.0
Mercury	7439-97-6	0.2
Selenium	7782-49-2	1.0
Silver	7440-22-4	5.0

4.0 DATA PRESENTATION

4.1 Introduction

This section presents the data collected as part of the DOE Environmental Survey of the METC Site. Findings generated by the Survey Team were divided into units called environmental problems. This chapter presents the environmental problem sampling and analysis data. Sections 4.2 through 4.4 describe the format and content of data tables, data qualifiers, and the criteria for reporting comparison values.

> **NOTE:** The lists of acronyms and data flags at the end of the Table of Contents can be removed from their location and referenced as data for each environmental problem are examined.

Data are presented in order by environmental problem. Sample request numbers and the name of the Survey Team member who requested the sample collection and analysis are presented for each problem. The reason for examination of a certain site or sites is given in the Finding and Basis section. The Sampling and Analysis Objectives define the Survey's goal for that environmental problem. The Sampling and Analysis Design section describes the sampling design and methods, the analytes of interest for each sample, and changes from the design and methods reported in the METC Sampling and Analysis Plan (Ref. 1-1). Sampling methods addressed in the individual environmental problems refer to the DOE Environmental Survey Manual. For brevity, only the section in this manual is called out (i.e., Reference E4.2.1 refers to Section E4.2.1, "Sampling Container Immersion" of Appendix E of the DOE Environmental Survey Manual). The field and analytical data are then presented in text and tabular form with statements of the level of data quality. Italicized text indicates summary information, including a summary of sampling and analytical data and related findings for the environmental problem.

form of a Quality Control (QC) presentation. A discussion of the QA/QC results can be found in Chapter 5.0.

Other appendices include an updated listing of sampling and analytical requests (Appendix A); background concentrations (Appendix B); results of field, analytical chemistry, documentation, and data management audits (Appendix C); and the radiological QC section (Appendix E).

4.2 Data Tables, Data Flags, and Restrictions on Data Reporting

This section presents descriptions of the structure and contents of the two basic types of data tables that may accompany the discussion of each environmental problem. Explanations for the types of data flags that appear in the tables are given. The basis for inclusion/exclusion of entries to tables is discussed.

4.2.1 Sampling and Analytical Data Tables

Table 4.1 summarizes field and analytical completion data for sampling and analysis requests for the METC Site. The summary is organized by request number. For each request number, the status, date collected, location, type of location, media, number of samples planned and actually collected, the type of sample, and the number of samples planned and analyzed for each parameter are given. In each section presenting an environmental problem, a table with a similar format is provided if samples were requested. Table 4.1 can be used as a guide to the level of activity that appears in the environmental problem-specific Table 4.2 series of tables.

> **NOTE:** When data are formatted into problem-specific tables, the last digit in a three-digit table numbering system is used to specify the applicability of that data to a specific environmental problem. For example, Table 4.3.4 is the analytical data summary by medium series table that applies specifically to Environmental Problem 4. Problem-

TABLE 4.1 METC SITE ENVIRONMENTAL SURVEY S&A REQUESTS
WITH FIELD AND ANALYTICAL COMPLETION DATA

REQUEST NUMBER	STAT	DATE COLL. DD/MM/YY	LOCATION	TYPE LOCATION	MEDIA	NUMB SAMP ACT COLL	NUMB SAMP PLAN COLL	TYPE	METALS ACT ANAL	METALS PLAN ANAL	PES/H/PCB ACT ANAL	PES/H/PCB PLAN ANAL	SEMIVOLS ACT ANAL	SEMIVOLS PLAN ANAL	VOLS ACT ANAL	VOLS PLAN ANAL	RADS ACT ANAL	RADS PLAN ANAL
ME300		23/08/88	BURROUGHS	SEWER	SEDIMENT	3	3	GRAB	3	3	0	0	3	3	0	0	0	0
ME301		23/08/88	BURROUGHS	SEWER	SEDIMENT	9	9	GRAB	9	9	0	0	9	9	0	0	0	0
ME302		24/08/88	BURROUGHS	SEWER	SUR WATER	2	2	GRAB	0	0	0	0	0	0	2	2	0	0
ME302		24/08/88	BURROUGHS	SEWER	SUR WATER	1	1	T COM	1	1	0	0	1	1	0	0	0	0
ME302		25/08/88	BURROUGHS	SEWER	SUR WATER	2	2	GRAB	0	0	0	0	0	0	2	2	0	0
ME302		25/08/88	BURROUGHS	SEWER	SUR WATER	1	1	T COM	1	1	0	0	1	1	0	0	0	0
ME302		26/08/88	BURROUGHS	SEWER	SUR WATER	2	2	GRAB	0	0	0	0	0	0	2	2	0	0
ME302		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	QC RN	1	1	0	0	1	1	0	0	0	0
ME302		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	T COM	1	1	0	0	1	1	0	0	0	0
ME303		24/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME303		25/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME303		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	QC FL	1	1	0	0	0	0	0	0	0	0
ME303		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME304		25/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME304		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME304		27/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME305		24/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME305		25/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME305		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME306		23/08/88	BURROUGHS	SEWER	SEDIMENT	3	3	GRAB	3	3	0	0	3	3	0	0	0	0
ME306		23/08/88	BURROUGHS	SEWER	SUR WATER	1	1	QC RN	1	1	0	0	1	1	0	0	0	0
ME307		23/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME307		24/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME307		25/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME308		23/08/88	BURROUGHS	SEWER	SEDIMENT	1	1	S COM	1	1	0	0	0	0	0	0	0	0
ME309		23/08/88	NW B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME309		24/08/88	NW B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME309		25/08/88	NW B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME310	DELETED		NW B. B-17	STORMWATER	SUR WATER	0	2	GRAB	0	2	0	0	0	2	0	0	0	0
ME310		23/08/88	NW B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME311		23/08/88	NW B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME311		24/08/88	NW B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME311		25/08/88	NW B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME800		24/08/88	B. B-11	WASTE	SOIL	6	6	GRAB	6	6	6	6	6	6	0	0	6	6
ME800		24/08/88	B. B-11	WASTE	SUR WATER	1	1	QC RN	1	1	1	1	1	1	0	0	1	1
ME801		24/08/88	B. B-11	WASTE	SOIL	6	6	GRAB	6	6	6	6	7	6	0	0	0	0
ME801		25/08/88	B. B-11	WASTE	SOIL	6	6	GRAB	6	6	6	6	6	6	0	0	0	0
					TOTAL	66	68		60	62	19	19	47	48	6	6	7	7

specific tables are located in the appropriate environmental problem section of this chapter. The problem-specific data series tables are:

4.2.1-4.2.3	Sampling and Analysis Data Summary
4.3.1-4.3.3	Analytical Data Summary by Medium for Environmental Problem
4.4.1-4.4.3	Groundwater Sample Locations and Sample Volumes

The Table 4.2 series of tables displays sampling and analytical activities and the level of activity for each type of analysis for each environmental problem. On a problem-specific basis, the Table 4.2 series presents a consistent grouping of medium, location, and sampling and analysis request number. In all cases, the problem-specific 4.2 series tables will include a pair of numbers for each analysis type for which at least one analyte was detected. The numbers represent the number of samples analyzed and the number of samples with at least one analyte detected, respectively. As shown in Table 4.1, each table will also include descriptive sampling and analytical information on a sample-specific basis. More detailed sample-analyte data are presented in the problem-specific Table 4.2 series. Table 4.1 can be used as a guide to the level of activity that appears in the Table 4.2 series.

Tables 4.3.1 through 4.3.3 illustrate sample-specific analyte data, for each environmental problem. (The data presentation for radiological analysis using gamma spectrometry is discussed separately.) Tables 4.3.1 through 4.3.3 provide a consistent grouping by sampling and analysis request number, location, medium, and type of analysis on a problem-specific basis. Although the basic format is constant, the exact manner in which the data are displayed was determined by first having sampling and analytical personnel identify the logical groupings of the data and then having data management determine an easily readable form for the data presentation. Field measurements for OVAs in the 4.3 series tables show only the highest PID reading for a particular sample.

The headings on Table 4.3.1 through 4.3.3 include a row designated "SDG Number." Sample delivery group (SDG) is a term that evolved out of EPA-CLP terminology. An SDG number is used to uniquely identify an analytical batch of samples within a given type of analysis. This is important because the QA/QC data qualifiers appearing in Tables 4.3.1 through 4.3.3 are specific to an SDG (analytical batch) and not necessarily to a particular environmental problem. QA/QC data presented in Appendix D are grouped by SDG within analysis type. For each analysis type listed in the 4.3 series tables, a directory for sample numbers and SDGs is provided (Table D.1). The directory includes a list of sample numbers grouped by environmental problem, each sample number's corresponding SDG number (QA/QC table), and the table and page number of the QA/QC table in Appendix D on which that sample number's data are located. The SDG number provides the link between the concentration data in Tables 4.3.1 through 4.3.3 and the applicable QA/QC data in Appendix D. For a given sample, look up the Appendix D table number for the SDG in the directory for QA/QC tables in this document.

4.2.2 Data Flags

In many of the data tables, the reported value is accompanied by a flag that represents a qualifying condition for a reported result, e.g., a problem with the analytical instrument or control value was encountered, or a specific method or dilution factor was used to obtain the result. This section offers a detailed explanation of the qualifying data flags listed in the data flag reference guide found at the end of the Table of Contents.

4.2.2.1 Data Flags: Inorganic Analysis

Inorganic analysis data tables have concentrations reported in milligrams per kilogram (mg/kg) for solid samples and micrograms per liter (ug/L) for multiphasic (liquids and solids) or aqueous samples.

For each reported concentration, the types of qualifiers and the designated groups are as follows:

Concentration Qualifiers: Relate the data to quantitation limits and to the detection or lack of detection of analytes.

B This qualifier indicates that the reported value is less than the Contract Required Quantitation Limit (CRQL) but greater than the Instrument Detection Limit (IDL).

U This qualifier indicates the analyte was analyzed for but not detected.

QA/QC Qualifiers: Relate to specific QA/QC problems. They are only presented in Appendix D, QC tables.

E Value estimated or not reported because of the presence of interference.

M Duplicate injection precision not met.

N Spiked sample recovery not within control limits.

S The reported value was determined by the Method of Standard Additions (MSA).

***** Duplicate analysis not within control limits.

+ Correlation coefficient for the MSA is less than 0.995.

The use of S or + is mutually exclusive. No combination of these qualifiers can accompany a single reported analyte combination.

Method Qualifiers: Analytical method used for determination of analyte concentration.

P	ICP
A	Flame AA
F	Graphite furnace AA
CV	Manual cold vapor AA
AV	Automated cold vapor AA
AS	Semiautomated spectrophotometric
C	Manual spectrophotometric
T	Titrimetric
NR	If analyte is not required to be analyzed.
AE	Atomic emission - ICP

4.2.2.2 Data Flags: Organic Analysis

In data tables, organic analysis analyte concentrations are reported in ug/L for liquid or multiphasic samples or micrograms per kilogram (ug/kg) for solid samples.

Four notations are used to qualify the results from organic analysis. The qualifiers are as follows:

U Indicates the compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds (TIC) where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit (CRQL), but greater than zero. For example, if the sample quantitation limit is 10 ug/L but a concentration of 3 ug/L is calculated, it is reported as 3 **J**. The sample quantitation limit is adjusted for both dilution and percent moisture. If a sample with 24% moisture and a 1:10 dilution factor has a calculated concentration of 300 ug/L and a sample quantitation limit of 430 ug/kg, the concentration is reported as 300 **J**.

B This flag is used when the analyte is found in the associated analytical blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag is used for a TIC and a positively identified TCL compound.

E This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

The combination of flags **BU** or **UB** is expressly prohibited. Blank contaminants are flagged **B** only when they are also detected in the sample.

4.2.3 Restrictions on Data Reporting

The general rule for data appearing in Tables 4.3.1 through 4.3.3 is that analyte-specific results are presented in the table for all analytes for which at least one sample's detected concentration was not accompanied by any QC data flag. A consistent, partially subjective method was employed in determining which analytical data would appear in the tables.

Data are not presented in the summary data when an analyte has been conclusively attributed to external contamination. For example, detection of acetone in a laboratory method blank, at levels corresponding to those found in applicable field samples, indicates that the acetone should be attributed to a laboratory contamination problem. As a result, the value would not be reported in the problem-specific summary data table.

The complete data set, with QC data included, is found in Appendix D. The types of contamination which require an analyst to make a determination as to whether or not an analyte can be attributed to external contamination include: travel blank cross contamination, decontamination procedure contamination, method blank contamination, preparation blank contamination, and reagent contamination. Investigation of these possible sources of contamination is an integral part of the data quality assessment process conducted by the analytical chemist.

Exceptions to the above rule can occur when the analyst determines that additional data should be reported. For example, a specific analyte is detected in a blank (e.g., method blank) and in field samples, yet the relative magnitude of the levels makes it impossible to conclusively attribute the presence of the analyte to contamination. In this case, the appropriately flagged data are included in data summary tables, and an assessment of the impact on data quality is provided in the accompanying text. For example, if acetone is detected in a method blank at 20 ug/L, and in a field sample at 350 ug/L, the value of 350

ug/L flagged with a **B** to indicate method blank contamination would be provided in the data table. In addition, the data quality assessment would provide an explanation of the fact that despite acetone being detected in the method blank, it is likely that the elevated levels detected in field samples are representative of the actual field samples. The guidelines discussed above for reporting data apply to the following types of analysis: organics, inorganics, anions, and cations. Additional restrictions on what data appear in the table for each type of analysis are presented below.

4.2.4 Radiological Data Tables

For some environmental problems, radiological (RAD) analysis of samples was performed. Data for RAD analysis are presented in problem-specific tables (the 4.3 series). The QC data relevant to each sample are retrievable and appear in Appendix E.

4.3 Analytical Data Quality Evaluation

Each problem-specific table is accompanied by a discussion of its contents, significant data points, and the reasons data have been interpreted as such.

An assessment of the quality level for the field and analytical data is made at the end of the discussion of each environmental problem. The assessments are made relative to the three Data Utility Levels developed as part of the DOE Environmental Survey. The three levels are designated as Level I, Level II, and Level III and are in descending order regarding their usefulness in making either quantitative or qualitative (judgmental) decisions regarding an environmental problem. A rating of Quality Level I signifies the highest standard of documentation and reliability of results. Quality Level II includes a wide range of quality, but indicates that the information is usable. A rating of Quality Level III implies serious deficiencies requiring further evaluation of the results

or the problem as defined. The three levels are discussed in detail in Appendix A of the DOE Environmental Survey Manual (Ref.1-2).

4.4 Background Values

A discussion and presentation of information on background levels of contaminants for environmental media in the METC Site area, derived directly from the METC site environmental reports, are presented in Appendix B. This data will be interpreted by the Department of Energy, and final survey findings will be contained in the Environmental Survey Summary Report.

4.5 Data Tables for Additional Analysis Types

All analysis types are presented in the Table 4.3 series.

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4.6 Environmental Problem 1: Sanitary Sewer and Building Underdrain Discharges

Request Numbers: 300, 301, 302, 303, 304, 305, 306, 307, and 308.
Requester: D. Misenheimer.
Finding and Basis: It was thought that contamination of surface water and sediment in Burrough's Run may have occurred due to high strength (process) wastewater cross connections into the sanitary sewer system. These unknown connections reflect the site development that has occurred since 1955. These high-strength contaminants may disrupt the biological treatment system for sanitary wastewater, or pass through the system untreated and be discharged to the stabilization pond and Burrough's Run. The sludge from the stabilization pond is not routinely analyzed for semivolatile organics or heavy metals. The potential presence of polynuclear aromatics (PNAs), other semivolatile organics, mercury, and other heavy metals in the stabilization pond sludge may be acting as an ongoing source of contamination to Burrough's Run.

Further potential contamination of surface water and sediments in Burrough's Run may be occurring due to discharges of heavy metals from the Building B-19 underdrain outfall. Fly ash backfill under the building is the source of the potential contamination. The underdrain outfall is not routinely sampled and analyzed for heavy metals, and a prominent reddish discoloration was noted below the outfall drain.

4.6.1 Sampling and Analysis Objectives

Statement: Samples were to be collected and analyzed to determine if the surface water concentrations of PNAs and heavy metals in Burrough's Run exceeded the West Virginia Department of Environmental Resources (WVDER) water quality standards (Appendix A of the Sampling and Analysis Plan) as a result of METC stormwater and wastewater discharges. Samples were also collected to determine if the concentrations of PNAs and heavy metals in the

sediments of Burrough's Run exceeded normal values (based on data collected through sampling and analysis) for this site as a result of METC stormwater and wastewater discharges.

Supporting Information: Prior to 1983, wastewater from the analytical labs, photo labs, garage, enhanced oil recovery labs, coal processing labs, and coal bin drainage discharged directly into the stormwater sewer system. The stormwater sewer system discharged into Burrough's Run, a tributary of West Run, which flows into the Monongahela River. Analytical results of samples collected from West Run and Burrough's Run in 1980 are provided in Appendix B of the Sampling and Analysis Plan.

Mercury contamination of the stormwater sewer system was reported in the 1981 report by Sanders and Thomas entitled, "Wastewater Management Plan, Vol. II." The Sanders and Thomas report gives results of stream and stormwater sampling and analysis conducted to determine the source and extent of mercury contamination (Appendix C of the Sampling and Analysis Plan). Based on their analyses, it was concluded that mercury contamination originated from the analytical laboratories located in Buildings B-1, B-2, and B-3.

Since 1983, wastewater from the analytical labs, photo labs, garage, enhanced oil recovery, coal processing labs, and coal bin drainage have been redirected to the contaminated wastewater sewer system (CWSS). The CWSS discharges to the stabilization pond. Potentially, PNAs, other semivolatile organics, and heavy metals have been discharged into the stabilization pond and have probably settled out in the sludge. As wastewaters pass through the stabilization pond, these contaminants are potentially leaching out of the sludge. The pond effluent is discharged into Burrough's Run. Therefore, the sludge is potentially acting as an ongoing source of contamination to Burrough's Run.

It is suspected that contaminants may enter the sanitary sewer system via unknown connections to the system. These unknown connections reflect the

haphazard site development that has occurred since 1955. Extremely high influent biochemical oxygen demand (BOD), total suspended solids (TSS), and total Kjeldahl nitrogen (TKN) values have been recorded for the sewage treatment plant (STP). These influent values are as follows:

Date	BOD (mg/L)	TSS (mg/L)	TKN (mg/L)
1/84	390	260	--
1/84	295	2,400	--
3/84	930	3,700	--
6/84	550	370	--
9/84	350	510	--
10/84	1,200	250	--
12/84	240	660	--
2/85	--	--	134
4/85	--	925	--
8/85	--	712	--
10/85	--	518	--
2/86	668	--	639
8/86	--	--	303

NOTE: Treated wastewater effluent from the sewage treatment plant is discharged to the stabilization pond. The stabilization pond effluent is discharged to Burrough's Run.

These data indicate that high-strength process wastewaters may be entering the sanitary sewers through cross connections and/or spills. If process wastewaters are entering the sanitary sewer system, contaminants such as PNAs and heavy metals may also be present but not detected because no analyses for these contaminants are required.

Bottom ash was used as fill material near Building B-19. The area has an underdrain system that discharges to Burrough's Run. A reddish discoloration of

the surface rock material is evident from the water discharged at the underdrain outfall.

4.6.2. Sampling and Analytical Design

4.6.2.1 Sampling Design

Request 300: Upstream (South) of the Stabilization Pond Outfall (Sediment) (Fig. 4.1a). Three grab sediment samples were to be collected to the depth of sediment from Burrough's Run Creek from an area 30 to 90 ft upstream (south) of the Stabilization Pond Outfall. All three samples were to be collected on the same day, after the collection of samples for Request 306 (downstream sediment samples), thus sequencing the samples from downstream to upstream (Sampling Method: Reference E5.3.1).

The Sampling Team arrived on-site at 1020 on 23AUG88 under hazy, slightly overcast skies. The temperature was 70°F, humidity was slight, and the wind was calm. The Team divided the area beginning 30 ft above the Stabilization Pond Outfall into a 6 x 10 grid. Randomly selecting three segments for sampling to the depth of sediment, the Team collected Sample ME300028 (Grid 38) from 0 to 6 in. below the surface, Sample ME300039 (Grid 39) from 0 to 5 in. below the surface, and Sample ME300017 (Grid 18) from 0 to 6 in. below the surface. The sediment upstream of the Stabilization Pond Outfall was a moist, brown loam mixed with gravel. Using the "scoop" sampling method, the Team collected the samples between 1130 and 1132 on 23AUG88.

Request 301: Stabilization Pond South of Building B-17 (Sludge) (Fig. 4.1b). For Request 301, the Sampling Team was to collect nine grab sludge samples from a stabilization pond, which was over 500 m^2 (approximately 34 x 15 m) and which was divided into three areas by two baffles running the length of the pond, perpendicular to the direction of influent and effluent. These three samples

were to be collected to the depth of sediment from each of the three areas of the stabilization pond for a total of nine samples (Sampling Method: Reference METC Sampling and Analysis Plan, Appendix H). Because the sludge in the pond was reported to have been cleaned out in 1981, the current sludge was assumed to reflect operational buildup since that time.

The Sampling Team arrived on-site at 0900 on 23AUG88. The temperature was between 70° and 75°F, wind was from 0 to 5 mph, the sky was overcast, and a light rain fell throughout the day. The Team used the three areas, which they labeled A, B, and C, already marked by the baffles. Area A represented the length of the pond from the point of outfall to the first baffle. Area B represented the area between the two baffles, and Area C, the remainder of the pond. After dividing each area into 3 x 20 grids, the Team randomly selected from Area A a segment between 1 and 20 and designated it Area A Sample 1. Area A Sample 2 was selected by adding 20 to the grid number for Sample 1, and Area A Sample 3 was selected by adding 20 to the grid number for Sample 2. Repeating this labeling system for Areas B and C, the Team collected the total of nine sludge samples from the Stabilization Pond.

After dividing the areas into grid segments and determining the segments for sampling, the Team began collecting samples from Area A. Sample ME301018 (Grid 7) was collected from 0 to 1 ft below the surface. The team members observed black sludge, but no odor. The RAD scan showed 30 cpm. Sample ME301029 (Grid 27) was collected from 0 to 6 in. below the surface. This sample, observed to be black sludge with sand, smelled like diesel fuel. Sample ME301030 (Grid 47), collected from 0 to 1 ft below the surface, was brown sand mixed with some black sludge. Sampling in Area B was begun at 1200. Sample ME301041 (Grid 14), collected from 0 to 2 ft below the surface, was light gray with sand. Sample ME301052 (Grid 34), collected from 0 to 6 in. below the surface, showed black and light gray with sand. In all three of these samples (ME301030, ME301041, and ME301052), oil film was present. Sample ME301063 (Grid 54) was collected from 0 to 1 ft below the surface and was mostly brown

with sand. Sampling in Area C was started at 1240. Sample ME301074 (Grid 15), collected from 0 to 6 in. below the surface, was black with some sand. Again, oil film was present. Sample ME301085 (Grid 35), collected from 0 to 6 in. below the surface, was black and sandy and had a strong smell of oil. Sample ME301096 (Grid 55), collected from 0 to 5 in. below the surface, was sandy and brown with a very black slime. The pond had oil film present over the entire area, and the sediment had a strong odor of diesel fuel in some areas, mostly in the upper half of the pond toward the influent. These samples were collected between 1030 and 1310 on 23AUG88.

Request 302: Stabilization Pond Outfall (Water) (Fig. 4.1c). From the Stabilization Pond Outfall (METC NPDES Outfall 001), the Team was to collect three time composite water samples that were approximately eight hours apart and six grab water samples. Flow was normally present from this outfall. The 8-hr time-proportional composite water sample was to be collected between 0900 and 1700 on each of three separate days (one per day), and the grab samples for volatiles were to be collected at the beginning and the end of each sampling period each day (two per day) (Sampling Method: Reference E4.2.1). Specific conductance, pH, and temperature readings were to be taken each day on the composite sample and also each day on the grab samples (Field Method: Reference E4.5.1, E4.5.4, and E4.5.2).

The Sampling Team arrived on-site at 0920 on 24AUG88. The sky was overcast, the temperature was 70°F, and wind was from 0 to 5 mph. The Manning sampler had been started at 0830 by D. Pickel and R. K. Owenby. At 0922 on 24AUG88, volatile Sample ME302042 was taken from the concrete hole located at Outfall 001 of the Stabilization Pond. When the Team returned to the pond to obtain the second volatile grab sample (ME302053) at 1624 and the composite water sample (ME302019) at 1640, they noticed that a flow of water coming into the pond on the north west side was turning the area in baffle #1 black and was migrating into the baffle #2 area toward the #3 area.

On 25AUG88, the Team arrived at 0755 and set up the Manning sampler to begin the 8-hr composite. The sky was partly cloudy, the temperature a pleasant 80°F, the humidity low, and the wind from 0 to 10 mph. After documenting the Horiba readings for the first set of volatiles (Field Method: Reference E4.5.1, E4.5.2, and E4.5.4), the Team then collected Sample ME302064 at 0823 with a stainless steel dipper. Next, they placed blue ice in the Manning. At 1606, the Team collected composite Sample ME302020. At 1616, they collected the second set of volatiles (Sample ME302075) by dipping with a stainless steel dipper and then immersing the volatile bottle into the dipper. The water was fairly clear.

On 26AUG88 at 0720, the Sampling Team set up the Manning sampler for the third day's composite sample. The sky was partly cloudy, the temperature was approximately 70°F, and wind was from 0 to 5 mph. The pond was covered with an oily film. At 0753, the first set of volatiles (Sample ME302086) was collected and Horiba readings were taken. Team member W. Parsons collected the second set of volatiles (Sample ME302097) at 1550 and composite Sample ME302031 at 1555. Horiba readings were also taken. Although the log sheet requested the QC rinsate (Sample ME302100) of composite sampler to be taken before the first composite sample, it was taken 26AUG88 at 1623.

Request 303: METC Outfall 003 (Water) (Fig. 4.1d). The Sampling Team was to collect three grab water samples at three different times during the site sampling, either by collecting all three sets of samples at three separate times on the same day or on three separate days. If flow were present and samples could be collected on three separate days, then the samples were to be collected in this way (Sampling Method: Reference E4.2.1). Storm drain Outfall 003, located approximately 130 ft north of Outfall 001, carried stormwater runoff, draining much of the METC site. Although at this location flow sometimes depended on precipitation, flow also occurred on a more regular basis because of the possibility of cross connects with the process system. The Team was to check the location daily for flow and note weather conditions each time the outfall was checked.

The Team collected samples on three separate days. They arrived on 24AUG88 at 1035, took Horiba measurements, and at 1036 collected Sample ME303010 from the B-19 underdrain (METC Outfall 003). The temperature was 75°F, the wind was from 5 to 10 mph, and the sky was partly cloudy. On 25AUG88, they arrived at 0850, took Horiba readings, and collected the second grab sample (Sample ME303021) directly into sample containers. The sky was partly cloudy, the temperature cool (approximately 70°F), and the wind was from 0 to 5 mph. The water was clear. On 26AUG88 at 0812, the Team took temperature, pH, and conductivity readings (Field Method: Reference E4.5.1, E4.5.4, and E4.5.2). The water was clear and a good flow was coming through the pipe. At 0814 Sample ME303032 was caught directly into bottles. The sky was slightly overcast and the temperature was approximately 72°F. Also on 26AUG88 at 0839, a QC field blank (Sample ME303043) was taken on the B-19 underdrain (METC 003).

Request 304: Building B-19 Underdrain (Water) (Fig. 4.1e). The Team was to collect three grab water samples at three separate times from the underdrain for the area near Building B-19 where bottom ash backfill had been used (Sampling Method: Reference E4.2.1). Located east of the southern corner of Building B-17 and approximately 200 ft north of Outfall 001, this outfall (identified as underdrain outfall in Fig. 4.1e) discharged into Burrough's Run. Because flow at this location often depended on precipitation, the Team was instructed to disregard Request 304 if no flow were present. Collecting all three sets of samples from this location on the same day was acceptable; however, if flow were present, collecting samples on three separate days was preferable.

The Sampling Team arrived on-site at 1030 24AUG88 with temperature approximately 75°F, wind from 5 to 10 mph, and the sky partly cloudy. At their first arrival on-site, the Team found no flow at the underdrain. At 1420 with temperature approximately 80°F, wind from 5 to 10 mph, and sky partly cloudy, they returned and again found no flow. At 1550, they attempted to recheck the site, but could not because the gate was locked.

On 25AUG88 under partly cloudy skies, the Team arrived on-site at 0855 and again found no flow. The temperature was approximately 70°F and wind was from 0 to 5 mph. At 1350, the Team deviated from the S&A Plan Sampling Procedure and changed the location to a pipe that was flowing from Outfall 003 (METC Outfall 002) because they believed this pipe at Outfall 003 actually to be the major stormwater drain. The sky was sunny, wind from 0 to 10 mph, and the temperature approximately 80°F. Horiba readings were taken (Field Method: Reference E4.5.1, E4.5.2, and E4.5.4). Sample ME304011 was collected from clear water with a stainless steel dipper. After collecting this sample, the Team scheduled to collect two more samples on the following day (26AUG88).

On 26AUG88 under partly cloudy skies with temperature approximately 70°F and wind from 0 to 5 mph, the Team arrived on-site at 0800, took Horiba readings, and at 0806 from Outfall 003 collected Sample ME304022. The sample was collected with a stainless steel dipper and then poured directly into sample containers. Instead of collecting two samples on this day (26AUG88), however, the Team returned at 0838 on 27AUG88, took Horiba readings, and from Outfall 003 at 0840 collected directly into sample bottles Sample ME304033. The flow was very low and the water was clear. The sky was sunny, wind was 0 mph, and the temperature approximately 68°F. The Team left the site at 0845.

Request 305: Storm Drain Northeast of Building B-17 (Water) (Fig. 4.1f). For Request 305, three grab water samples were to be collected at three different times from the 15-in. corrugated metal pipe located northeast of Building B-17 and approximately 300 ft north of Outfall 001 (Sampling Method: Reference E4.2.1). Carrying stormwater runoff from the METC site, outfall from this pipe (identified as Outfall 004 in Fig. 4.1f) discharged into Burrough's Run Creek. Although at times dependent on precipitation, flow also occurred regularly because of possible cross connects with the process system. If flow were available without precipitation, the Team was to collect samples then. Collecting all three sets of samples on the same day was acceptable; however, collecting

the samples on three separate days was preferable. The team was to check Outfall 004 daily for flow, noting the weather conditions each time.

The Sampling Team collected samples on three separate days. They arrived on-site 24AUG88 at 1025 under partly cloudy skies with the temperature 75°F and wind from 5 to 10 mph. Horiba readings were taken (Field Method: Reference E4.5.1, E4.5.2, and E4.5.4). At 1028 Sample ME305012 was collected from storm drain Outfall 004. On 25AUG88, the Team again took Horiba readings, and at 0900 collected Sample ME305023. The water was clear. Because flow was minimal, the water sample was collected as it dripped from the pipe. The sky was cloudy, temperature approximately 75°F, and wind from 0 to 5 mph. On 26AUG88 at 0818, the Team checked the site and discovered no flow, only a drip from the pipe. Therefore, they could not collect a sample. At 0905 under a sunny sky and with a temperature of 75°F and calm wind, the Team returned to the site and placed a stainless pan on a rock to collect water as it dripped from the underground pipe onto the rock. After approximately 3 1/2 hours of continuous dripping, at 1310 Sample ME305034 was collected in the pan. The water was clear. Horiba readings were also taken.

Request 306: Downstream (north) of the Outfall Northeast of Building B-17 (Sediment) (Fig. 4.1g). Three grab sediment samples were to be collected to the depth of sediment from Burrough's Run Creek from an area 30 to 90 ft downstream (north) of the outfall located northeast of Building B-17 and approximately 50 ft below Outfall 004 (Sampling Method: Reference E5.3.1). All three samples were to be collected on the same day before the collection of samples for Request 300 (Burrough's Run sediment upstream of the Stabilization Pond Outfall), thus sequencing the samples from downstream to upstream.

The Sampling Team arrived on-site at 1325 on 23AUG88 under cloudy skies with a light rain, a temperature of 70°F, and a calm wind. The Team divided the area beginning 30 ft downstream of the outfall northeast of Building B-17 into a 10 x 6 grid. Randomly selecting three segments to the depth of sediment,

between 1331 and 1349 on 23AUG88 the Team collected Samples ME306013 (Grid 12), ME306024 (Grid 19), and ME306035 (Grid 36), all from 0 to 3 inches below the surface. The sediment was moist clay mixed with gravel. A QC rinsate (Sample ME306046) was taken at 1440 when the Team returned to their van.

Request 307: Stormwater Manhole 6 (Water) (Fig. 4.1h). Three grab water samples were to be collected on three separate occasions from stormwater manhole 6 located at the edge of the road in front of the loading dock on the east side of Building B-3 (Sampling Method: Reference E4.2.4). Because flow was not always present, collecting the samples on separate occasions on the same day was acceptable; however, collecting the samples on three separate days was preferable. If flow were present, the Team was to collect the first set of water samples for this request before collecting the sediment samples for Request 308 (stormwater manhole 6 sediment).

The Team arrived at approximately 1005 on 23AUG88. The sky was overcast, wind was from 0 to 10 mph, and the temperature was approximately 80°F. Before collecting the first sample, they took a TIP reading, which showed no elevated level. Since bailing the water would have taken a long time, one team member climbed into the manhole and at 1032 collected Sample ME307014, using a stainless steel bailer's dipper. The water was clear. Sampling and decontamination were completed at 1055. The Team planned to return to the site two more days to collect the remaining samples. Because the Horiba seemed to be working incorrectly, the Team members took a second pH reading with a new instrument and at 1352, finding the pH to be slightly elevated, marked through the first pH entry on the log sheet and recorded the new one (Field Method: Reference E4.5.2).

On 24AUG88, the Team arrived on-site at 1330 and, before entering the manhole, checked for oxygen and explosives with the CGI meter. Under partly sunny skies, the temperature was approximately 80°F and wind was from 5 to 10 mph.

The Team members took Horiba readings and at 1339 collected Sample ME307025 by immersing the dipper. The water was clear.

The Team arrived 25AUG88 at 0947 under sunny skies. The temperature was approximately 80°F and there was a slight breeze. P. Mascioli of METC removed the manhole cover. Before a Team member entered the manhole, a TIP reading was taken to check for volatiles. At 0955, Sample ME307036 was taken with a stainless steep dipper from clear water. The flow was good. After temperature, pH, and conductivity readings were taken, the equipment was decontaminated.

Request 308: Stormwater Manhole 6 (Sediment) (Fig. 4.1i). A spatial composite sediment sample was to be collected to the depth of sediment from the stormwater manhole 6 located at the edge of the road in front of the loading dock on the east side of Building B-3 (Sampling Method: Reference E4.2.4). Because visual observations showed the accessible area at the bottom of the manhole to be small with very little sediment and because a very small area was being sampled, all of the readily available sediment at the bottom of the manhole was to be collected as one composite. However, the Team was instructed to disregard Request 308 if adequate sediment (greater than 12g) were not present. The Team was to collect the sediment sample from the manhole immediately after collecting the first set of water samples for Request 307. The sediment sample was to be thoroughly mixed before being collected into bottles.

The Sampling Team arrived on-site at 1014 on 23AUG88. The sky was hazy with a slight overcast, wind was from 3 to 5 mph, temperature was 70°F, and humidity was low. Before entering the manhole, the Team members took TIP readings, but no reading was read near 0 ppm; post TIP readings were identical. After removing the manhole cover with a pry bar, the Team discovered that there appeared to be no sediment in the drain itself. However, on the north side of the drain pipe was a small sediment deposit, which was not in the main flow of water but which fed into the main drainage. Sample ME308015 was

collected from this deposit at 1050. Sediment depth varied from 0 to 1/4 in. and from 0 to 7/8 in.

4.6.2.2 Analytical Design

Request 300: No field measurements were requested. Parameters analyzed included semivolatiles, ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, AA-silver, and total PNAs.

Request 301: No field measurements were requested. Parameters analyzed included total PNAs, TCLP-semivolatiles, TCLP-metals, and AA-mercury.

Request 302: Parameters measured included pH, specific conductance, and temperature. Parameters analyzed included volatiles, semivolatiles, total PNAs, ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, and AA-silver.

Request 303: Parameters measured included pH, specific conductance, and temperature. Parameters analyzed included ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, and AA-silver.

Request 304: Parameters measured included pH, specific conductance, and temperature. Parameters analyzed included ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, and AA-silver.

Request 305: Parameters measured included pH, specific conductance, and temperature. Parameters analyzed included ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, and AA-silver.

Request 306: No field measurements were requested. Parameters analyzed included semivolatiles, total PNAs, ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, and AA-silver.

Request 307: Parameters measured included pH, specific conductance, and temperature. Parameters analyzed included ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, and AA-silver.

Request 308: No field measurements were requested. Parameters analyzed included ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, and AA-silver.

4.6.3 Field and Analytical Data

Field Data:

Request 300: *No field measurements were requested.*

Request 301: *No field measurements were requested.*

Request 302: *Field data for Environmental Problem 1 are shown in Table 4.3.1. Temperature for the nine samples taken at the Stabilization Pond outfall over a three day period ranged from 21° to 29°C. The water samples were slightly basic with pH values ranging from 7.9 to 8.8. Conductivity values ranged from 0.72 from to 1.1 mS/cm.*

Request 303: *Field data for Environmental Problem 1 are shown in Table 4.3.1. Temperature for the three samples taken from storm drain outfall 003 on three consecutive days ranged from 22° to 23°C. The water samples were neutral with pH values ranging from 7.1 to 7.3. Conductivity values ranged from 1.1 to 1.4 mS/cm.*

Request 304: *Field data for Environmental Problem 1 are shown in Table 4.3.1. Temperature for the three samples taken from a pipe at outfall 003 on three consecutive days ranged from 22° to 25°C. The water samples were neutral to*

slightly basic with pH values ranging from 7.6 to 8.1. Conductivity values ranged from 0.82 to 0.9 mS/cm.

Request 305: *Field data for Environmental Problem 1 are shown in Table 4.3.1. Temperature for the three samples taken from a storm drain northeast of Building 17 on three consecutive days ranged from 18° to 23°C. The water samples were neutral to slightly basic with pH values ranging from 7.5 to 8.9. Conductivity values ranged from 0.81 to 1.2 mS/cm.*

Request 306: *No field measurements were requested.*

Request 307: *Field data for Environmental Problem 1 are shown in Table 4.3.1. Temperature for the three samples taken from stormwater manhole 6 on three consecutive days ranged from 23° to 26°C. The water was neutral to slightly basic with pH values ranging from 7.6 to 9. Conductivity values ranged from 0.63 to 1.2 mS/cm.*

Request 308: *No field measurements were requested.*

Field Data Evaluation:

Request 300: No field measurements were requested.

Request 301: No field measurements were requested.

Request 302: Generally, it appears that the temperature of the water is higher in the samples collected later in the day (ME302053, ME302075, and ME302097) than those collected earlier in the day (ME302064 and ME302086). Conductivity (0.83 mS/cm range) and pH (0.9 pH units range) were fairly consistent for the nine samples.

Request 303: Field data are consistent for the three samples taken on consecutive days.

Request 304: Field data are consistent for the three samples taken on consecutive days.

Request 305: Field data are consistent for the three samples taken on consecutive days.

Request 306: No field measurements were requested.

Request 307: Field data are consistent for the three samples taken on consecutive days.

Request 308: No field measurements were requested.

Analytical Data:

Request 300:

Metals. Analytical data for metals in sediment are presented in Table 4.3.1. Of the 22 metals detected the following five were below either the CRDL or the IDL in all three samples: antimony, cadmium, silver, sodium, and thallium. Of the remaining metals detected, arsenic ranged from 2.8 to 5.4 mg/kg, barium 79 to 106 mg/kg, beryllium 1.1 to 1.5 mg/kg, chromium 28 to 32 mg/kg, copper 14 to 22 mg/kg, lead 15 to 47 mg/kg, mercury 0.04 to 0.07 mg/kg, nickel 19 to 22 mg/kg, and zinc 79 to 86 mg/kg. Other metals detected were aluminum, calcium, cobalt, iron, magnesium, manganese, potassium, and vanadium.

Extractable organics. Analytical results for semivolatile organic compounds are presented in Table 4.3.1. Twenty positively identified extractable organics were detected in samples collected in Burrough's Run Creek upstream (south) of the

stabilization pond outfall, with three compounds detected at levels exceeding the CRQL. Fluoranthene (1100 ug/kg), phenanthrene (1100 ug/kg), and pyrene (820 ug/kg) were all detected above the CRQL (720 ug/kg) in Sample ME300039.

Twenty-three tentatively identified compounds are reported at concentrations ranging form 120 to 1300 ug/kg.

Total PNAs. These compounds, which include naphthalene, phenanthrene, anthracene, and their substituents, were analyzed as part of the Extractable Organics (Semivolatiles). Results are included in the Extractable Organics section.

Request 301:

Metals. Analytical data for metals in sediment are presented in Table 4.3.1. Of the eight metals detected in Area A near BLDG B-17, the following three were below either the CRDL or the IDL in all three samples: arsenic, selenium, and silver. Of the remaining metals detected, barium ranged from 827 to 834 ug/L, chromium from 15 to 59 ug/L, and mercury from 0.18 to 2.5 mg/kg. Cadmium was 30 ug/L, and lead was 333 ug/L.

Analytical data for metals in sediment are presented in Table 4.3.1. Of the seven metals detected in Area B near BLDG B-17, the following four were below either the CRDL or the IDL in all three samples: arsenic, cadmium, lead, and silver. Of the remaining metals detected, barium ranged from 875 to 1060 ug/L, chromium from 10 to 15 ug/L, and mercury from 0.44 to 0.59 mg/kg.

Analytical data for metals in sediment are presented in Table 4.3.1. Of the six metals detected in Area C near BLDG B-17, the following three were below either the CRDL or the IDL in all three samples: cadmium, lead, and silver. Of the remaining metals detected, barium ranged from 709 to 1360 ug/L, chromium from 11 to 20 ug/L, and mercury from 0.52 to 0.6 mg/kg.

Extractable organics. Analytical results for semivolatile organic compounds are presented in Table 4.3.1.

In Area A, no semivolatile organic compounds were detected above the CRQL. Two to fourteen semivolatile organic compounds were detected below the CRQL in the three samples. Thirty tentatively identified compounds are reported. A sulfur compound had the highest concentration detected (27000 ug/kg). The rest of the TIC's were in concentrations ranging from 180 to 8300 ug/kg.

In Area B, no semivolatile organic compounds were detected above the CRQL. Seven to sixteen semivolatile organic compounds were detected below the CRQL in the three samples. Twenty-eight tentatively identified compounds are reported in concentrations of 1300 ug/kg or less.

In Area C, no semivolatile organic compounds were detected above the CRQL. Ten to twelve semivolatile organic compounds were detected below the CRQL in the three samples. Twenty-three tentatively identified compounds are reported. The highest concentrations (up to 4900 ug/kg) were detected in the six siloxane compounds. The rest of the TICs were in concentrations of 96 to 2200 ug/kg.

Total PNAs. These compounds, which include naphthalene, phenanthrene, anthracene, and their substituents, were analyzed as part of the Extractable Organics (Semivolatiles). Results are included in the Extractable Organics section.

Request 302:

Metals. Analytical data for metals in surface water are presented in Table 4.3.1. Of the 18 metals detected, the following nine were below either the CRDL or the IDL in all three samples: arsenic, barium, cadmium, chromium, copper, lead, mercury, silver, and thallium. Of the remaining metals detected, zinc ranged

from 29 to 43 ug/L. Other metals detected were aluminum, calcium, iron, magnesium, manganese, potassium, sodium, and vanadium.

Extractable organics. Analytical results for semivolatile organic compounds are presented in Table 4.3.1 along with a single rinsate sample. Four positively identified extractable organics were detected, with only Bis(2-ethylhexyl)phthalate (90 to 110 ug/L) being detected above the CRQL in all three samples.

Thirty-one tentatively identified compounds are reported in concentrations of 31 ug/L or less.

Total PNAs. Total PNAs were analyzed for, but not detected.

Volatile organics. Analytical results for volatile organic compounds are presented in Table 4.3.1. Seven positively identified volatile organics were detected with four compounds detected at levels exceeding the CRQL. Acetone (17 to 88 ug/L), chloroform (15 to 24 ug/L), and methylene chloride (10 to 19 ug/L) were detected in all six samples. Bromodichloromethane was detected at 5 ug/L in Sample ME302075 and ME302086.

Request 303:

Metals. Analytical data for metals in surface water are presented in Table 4.3.1. Of the 20 metals detected, the following eleven were below either the CRDL or the IDL in all three samples: aluminum, antimony, barium, beryllium, cadmium, chromium, copper, lead, mercury, thallium, and vanadium. Of the remaining metals detected, selenium ranged from 7.4 to 10 ug/L; silver was 24 ug/L, and zinc was 27 ug/L. Other metals detected were calcium, iron, magnesium, manganese, potassium, and sodium.

Request 304:

Metals. Analytical data for metals in surface water are presented in Table 4.3.1. Of the 17 metals detected, the following nine were below either the CRDL or the IDL in all three samples: arsenic, barium, chromium, copper, mercury, potassium, selenium, silver, and vanadium. Of the remaining metals detected, lead was 5.4 ug/L, and zinc ranged from 43 to 121 ug/L. Other metals detected were aluminum, calcium, iron, magnesium, manganese, and sodium.

Request 305:

Metals. Analytical data for metals in surface water are presented in Table 4.3.1. Of the 18 metals detected, the following ten were below either the CRDL or the IDL in all three samples: aluminum, arsenic, barium, cadmium, chromium, copper, mercury, silver, thallium, and vanadium. Of the remaining metals detected selenium was 5.8 ug/L, and zinc ranged from 28 to 239 ug/L. Other metals detected were calcium, iron, magnesium, manganese, potassium, and sodium.

Request 306:

Metals. Analytical data for metals in sediment are presented in Table 4.3.1. Of the 23 metals detected, the following six were below either the CRDL or the IDL in all three samples: antimony, cadmium, potassium, selenium, sodium, and thallium. Of the remaining metals detected, arsenic ranged from 5 to 10 mg/kg, barium from 68 to 84 mg/kg, beryllium from 1.2 to 1.5 mg/kg, chromium from 25 to 34 mg/kg, copper from 11 to 16 mg/kg, lead from 17 to 26 mg/kg, mercury from 0.09 to 0.17 mg/kg, and nickel from 16 to 19 mg/kg. Silver was 3 mg/kg, and zinc 77 to 101 mg/kg. Other metals detected were aluminum, calcium, cobalt, iron, magnesium, manganese, and vanadium.

Extractable organics. Analytical results for semivolatile organic compounds are presented in Table 4.3.1 along with a single rinsate sample. Twenty positively

identified extractable organics were detected with six compounds detected at levels exceeding the CRDL. The Sample ME306013 has six compounds above the CRDL (740 ug/kg) with concentrations ranging from 780 to 1200 ug/kg. In Sample ME306035, only bis(2-ethylhexyl)phthalate (770 ug/kg with associated blank contamination of 110 ug/kg) was detected at a level exceeding the CRDL (760 ug/kg).

Fourteen tentatively identified compounds were detected. The maximum TIC concentrations were detected in cyclohexadecane (2400 ug/kg) and hexanedioic acid, mono (6800 ug/kg). The rest of the TIC's are in concentrations of 630 ug/kg or less.

Total PNAs. These compounds, which include naphthalene, phenanthrene, anthracene, and their substituents, were analyzed as part of the Extractable Organics (Semivolatiles). Results are included in the Extractable Organics section.

Request 307:

Metals. Analytical data for metals in surface water are presented in Table 4.3.1. Of the 19 metals detected, the following nine were below either the CRDL or the IDL in all three samples: arsenic, barium, cadmium, chromium, copper, selenium, silver, thallium, and vanadium. Of the remaining metals detected, lead ranged from 7.8 to 16 ug/L; mercury was 1.1 ug/L, and zinc ranged from 20 to 63 ug/L. Other metals detected were aluminum, calcium, iron, magnesium, manganese, potassium, and sodium.

Request 308:

Metals. Analytical data for metals in sediment are presented in Table 4.3.1. Of the 21 metals detected, the following three were below either the CRDL in the sample collected: potassium, sodium, and thallium. Of the remaining metals

detected, arsenic was 6.5 mg/kg; barium, 69 mg/kg; beryllium, 1.5 mg/kg; cadmium, 1.7 mg/kg; chromium, 28 mg/kg; copper, 10 mg/kg; lead, 44 mg/kg; mercury, 0.9 mg/kg; nickel, 17 mg/kg; silver, 23 mg/kg; and zinc, 87 mg/kg. Other metals detected were aluminum, calcium, cobalt, iron, magnesium, manganese, and vanadium.

Analytical Data Evaluation:

Request 300:

Metals. Nine metals of interest (arsenic, barium, beryllium, chromium, copper, lead, mercury, nickel, and zinc) were detected above either the CRDL or the IDL for this request.

Extractable organics. Three semivolatiles were detected above the CRDL in Sample ME300039. Ten to eighteen semivolatiles were detected at levels below the CRDL in each of the three samples. Little blank contamination is associated with these samples. Twenty-three tentatively identified compounds were detected among the three samples.

Total PNAs. See extractable organics section.

Request 301:

Metals. In Area A near BLDG B-17, five metals of interest (barium, cadmium, chromium, lead, and mercury) were detected above either the CRDL or the IDL for this request.

In Area B near BLDG B-17, three metals of interest (barium, chromium, and mercury) were detected above either the CRDL or the IDL for this request.

(Area C near BLDG B-17) Three metals of interest (barium, chromium, and mercury) were detected above either the CRDL or the IDL for this request.

Extractable organics. No semivolatiles were detected above the CRDL in any of the three areas. Two to sixteen semivolatiles were detected at levels below the CRDL in each of the nine samples from the three areas. Little blank contamination is associated with the samples. Up to thirty tentatively identified compounds were detected in samples from each of the three areas sampled.

Total PNAs. See extractable organics section.

Request 302:

Metals. One metal of interest (zinc) was detected above either the CRDL or the IDL for this request.

Extractable organics. Bis(2-ethylhexyl)phthalate was the only semivolatile detected above the CRDL in all three samples. Three other semivolatiles were detected at levels below the CRDL in each of the three samples. Little blank contamination is associated with these samples. Twenty-one tentatively identified compounds were detected among the three samples.

Total PNAs. Total PNAs were analyzed for, but not detected.

Volatile organics. Acetone, chloroform, and methylene chloride were detected above the CRDL in all six samples. Bromodichloromethane was only detected in two of the samples. No blank contamination is associated with these samples.

Request 303:

Metals. Three metals of interest (selenium, silver, and zinc) were detected above either the CRDL or the IDL for this request.

Request 304:

Metals. Two metals of interest (lead and zinc) were detected above either the CRDL or the IDL for this request.

Request 305:

Metals. Two metals of interest (selenium and zinc) were detected above either the CRDL or the IDL for this request.

Request 306:

Metals. Ten metals of interest (arsenic, barium, beryllium, chromium, copper, lead, mercury, nickel, silver, and zinc) were detected above either the CRDL or the IDL for this request.

Extractable organics. Six semivolatiles were detected above the CRDL in Sample ME306013 and one semivolatile was detected in Sample ME306035. Twelve to fifteen semivolatiles were detected at levels below the CRDL in each of the three samples. Little blank contamination is associated with these samples. Fourteen tentatively identified compounds were detected among the three samples.

Total PNAs. See extractable organics section.

Request 307:

Metals. Three metals of interest (lead, silver, and zinc) were detected above either the CRDL or the IDL for this request.

Request 308:

Metals. Eleven metals of interest (arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc) were detected above either the CRDL or the IDL for this request.

4.6.4 Limitations and Qualifications

Data Quality Level:

Request 300: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level II because the grid should have been 60 feet long. The overall analytical rating is Quality Level III. Reasons for a Quality Level III are presented under 4.6.4 Limitations and Qualifications, Analytical Data, Request 300.

Request 301: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level I. The overall analytical rating is Quality Level II. Reasons for a Quality Level II are presented under 4.6.4 Limitations and Qualifications, Analytical Data, Request 301.

Request 302: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level II because the QC rinsate was not taken before the first composite sample. The overall analytical rating is Quality Level II. Reasons for a Quality Level II are presented under 4.6.4 Limitations and Qualifications, Analytical Data, Request 302.

Request 303: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level I. The overall analytical rating is Quality Level I.

Request 304: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level III because the sampling team changed the sampling location

to a pipe that was flowing from Outfall 003 (METC Outfall 002). They believed this pipe at Outfall 003 to be the major stormwater drain. The overall analytical rating is Quality Level I.

Request 305: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level I. The overall analytical rating is Quality Level I.

Request 306: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level II because the grid should have been 60 feet long. The overall analytical rating is Quality Level III. Reasons for a Quality Level III are presented under 4.6.4 Limitations and Qualifications, Analytical Data, Request 306.

Request 307: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level I. The overall analytical rating is Quality Level I.

Request 308: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level I. The overall analytical rating is Quality Level II. Reasons for a Quality Level II are presented under 4.6.4 Limitations and Qualifications, Analytical Data, Request 508.

Field Data:

Request 300: No field measurements were requested.

Request 301: No field measurements were requested.

Request 302: The Quality Level rating is I.

Request 303: The Quality Level rating is I.

Request 304: The Quality Level rating is I.

Request 305: The Quality Level rating is I.

Request 306: No field measurements were requested.

Request 307: The Quality Level rating is II because the Horiba instrument seemed to be working incorrectly and a new instrument was required to replace it.

Request 308: No field measurements were requested.

Analytical Data:

Request 300:

Metals. Analytical results for ICP metals are Quality Level I except for antimony, beryllium, chromium, copper, potassium, selenium, silver, sodium, thallium, and zinc, which are Quality Level II. Calcium, iron, magnesium, manganese, and vanadium are Quality Level III. For antimony, the percent recovery for spikes falls within the range of 30 to 74%; also, the reported sample result is less than the IDL, indicating the posibility of a false negative. For beryllium, copper, and potassium, the 10% criteria for serial dilution result was not met. A matrix interference is suspected. For calcium, the RPD value for duplicate analysis was greater than 50%. The data is considered as confirmation of the qualitative presence of the analyte only. For chromium and zinc, the RPD value for duplicate analysis was greater than 20%, but less than 50%. The data are considered as estimated but acceptable. For iron, ICP serial dilution results were not obtained. This analysis is required to ascertain whether significant physical or chemical interferences exist due to sample matrix. The data are considered as estimated but usable. For magnesium, manganese, and vanadium, the RPD value for duplicate analysis was greater than 50%. The data are considered as confirmation of the qualitative presence of the analyte only.

For selenium, the percent recovery value for the laboratory control standard (LCS) fell within the range of 30 to 79%; also, the element was not detected in the sample, indicating the possibility of a false negative. For silver, the percent recovery for spikes was within the range of 30 to 74%; also, the reported sample result was positive, indicating the possibility of a false negative. For sodium, the six month holding time was violated. For thallium, the percent recovery for the laboratory control standard (LCS) was greater than 120%; also, a positive sample was reported. The data are considered as estimated but acceptable.

Analytical results for AA metals are Quality Level I except for cadmium, silver, and selenium, which are at Quality Level II. Arsenic is Quality Level III. For arsenic, the reported value for duplicate analyses was greater than 50%. The data are considered as confirmation of the qualitative presence of the analyte only. For cadmium, mercury, selenium, and silver the percent recovery for spikes was within the range of 30 to 74%; also, the reported sample result was positive, indicating the possibility of a false negative.

Extractable organics. The Quality Level rating is III because the 40-day holding time for analysis of the sample extracts was exceeded by 59 to 62 days due to equipment failure, resulting in the need for reanalysis.

Request 301:

Metals. The analytical results for ICP metals were Quality Level I except for silver at Quality Level II. For silver, the percent recovery for spikes was within the range of 30 to 74%; also, the reported sample result was positive, indicating the possibility of a false negative.

The analytical results for AA metals in Area A near BLDG B-17 are Quality Level I except for mercury, which is Quality Level II. For mercury the holding time exceeded 28 days, but was less than 56 days.

The analytical results for AA metals in Area B near BLDG B-17 are Quality Level I except for mercury, which is Quality Level II. For mercury, the holding time exceeded 28 days, but was less than 56 days.

The analytical results for AA metals in Area C near BLDG B-17 are Quality Level I except for mercury which is Quality Level II. For mercury, the holding time exceeded 28 days, but was less than 56 days.

Extractable organics. The Quality Level rating for sample ME301052 is I. The Quality Level rating for samples ME301018, ME310029, ME301063, ME301074, ME301085, and ME301096 is II because the 40-day holding time for analysis of the sample extracts was exceeded by one to six days due to equipment failure, resulting in the need for reanalysis. The Quality Level rating for samples ME301030 and ME301041 is III because the holding times were exceeded by 58 to 59 days.

Request 302:

Metals. Analytical results for ICP and AA metals are Quality Level I except for thallium at Quality Level III. For thallium, the Interference Check Standard (ICS) was outside the control limits of 80 to 120%. The analytical results for AA metals were Quality Level I except for selenium at Quality Level II in samples ME305023A and ME309027D. For selenium, correlation coefficients of less than .995 were obtained for method of standard addition (MSA) plots.

Extractable organics. The Quality Level rating is II because in this SDG the 40-day holding time on the matrix spike sample was exceeded by one day and on the blank extracts by 62 to 65 days. Also, the percent of the MS/MSD pair was outside the limits.

Volatile organics. The Quality Level rating is I.

Request 303:

Metals. For sample ME303010A, the analytical results for ICP and AA metals are Quality Level I. Analytical results for ICP metals are Quality Level I. For samples ME303021 and ME303032, the analytical results for AA metals are Quality Level I except for cadmium and lead, which are Quality Level II. For cadmium and lead, the percent recovery for spikes is greater than 125% and the reported sample result is positive. The results are considered as estimated but acceptable.

Request 304:

Metals. Analytical results for AA metals are Quality Level I except for cadmium and lead, which are Quality Level II. For cadmium and lead, the percent recovery for spikes is greater than 125% and the reported sample result is positive. The results are considered as estimated but acceptable. Analytical results for ICP metals are Quality Level I.

Request 305:

Metals. Analytical results for ICP and AA metals are Quality Level I.

Request 306:

Metals. Analytical results for ICP metals are Quality Level I except for antimony, beryllium, chromium, copper, potassium, selenium, silver, sodium, thallium, and zinc, which are Quality Level II. Calcium, iron, magnesium, manganese, and vanadium are Quality Level III. For antimony, the percent recovery for spikes falls within the range of 30 to 74%; also, the reported sample result is less than the IDL, indicating the posibility of a false negative. For beryllium, copper, and potassium, the 10% criteria for serial dilution result was not met. A matrix interference is suspected. For calcium, the RPD value for duplicate analysis was greater than 50%. The data are considered as

confirmation of the qualitative presence of the analyte only. For chromium and zinc, the RPD value for duplicate analysis was greater than 20%, but less than 50%. The data are considered as estimated but acceptable. For iron, ICP serial dilution results were not obtained. This analysis is required to ascertain whether significant physical or chemical interferences exist due to sample matrix. The data are considered as estimated but usable. For magnesium, manganese, and vanadium, the RPD value for duplicate analysis was greater than 50%. The data are considered as confirmation of the qualitative presence of the analyte only. For selenium the percent recovery value for the laboratory control standard (LCS) fell within the range of 30 to 79%; also, the element was not detected in the sample, indicating the possibility of a false negative. For silver, the percent recovery for spikes was within the range of 30 to 74%; also, the reported sample result was positive, indicating the possibility of a false negative. For sodium, the six month holding time was violated. For thallium, the percent recovery for the laboratory control standard (LCS) was greater than 120%, and a positive sample was reported. The data are considered as estimated but acceptable.

Analytical results for AA metals are Quality Level I except for cadmium, mercury, selenium, and silver, which are Quality Level II. Arsenic is Quality Level III. For arsenic, the reported value for duplicate analyses was greater than 50%. The data are considered as confirmation of the qualitative presence of the analyte only. For cadmium, mercury, selenium, and silver the percent recovery for spikes was within the range of 30 to 74%; also, the reported sample result was positive, indicating the possibility of a false negative.

Extractable organics. The Quality Level rating is III because the 40-day holding time for analysis of the sample extracts was exceeded by 58 to 62 days due to equipment failure, resulting in the need for reanalysis.

Request 307:

Metals. Analytical results for ICP and AA metals are Quality Level I.

Request 308:

Metals. Analytical results for ICP metals are Quality Level I except for antimony, beryllium, chromium, copper, potassium, selenium, silver, sodium, thallium, and zinc, which are Quality Level II. Calcium, iron, magnesium, manganese, and vanadium are Quality Level III. For antimony, the percent recovery for spikes falls within the range of 30 to 74%; also, the reported sample result is less than the IDL, indicating the posibility of a false negative. For beryllium, copper, and potassium, the 10% criteria for serial dilution result was not met. A matrix interference is suspected. For calcium, the RPD value for duplicate analysis was greater than 50%. The data are considered as confirmation of the qualitative presence of the analyte only. For chromium and zinc, the RPD value for duplicate analysis was greater than 20%, but less than 50%. The data are considered as estimated but acceptable. For iron, ICP serial dilution results were not obtained. This analysis is required to ascertain whether significant physical or chemical interferences exist due to sample matrix. The data are considered as estimated but usable. For magnesium, manganese, and vanadium, the RPD value for duplicate analysis was greater than 50%. The data are considered as confirmation of the qualitative presence of the analyte only. For selenium, the percent recovery value for the laboratory control standard (LCS) fell within the range of 30 to 79%; also, the element was not detected in the sample, indicating the possibility of a false negative. For silver, the percent recovery for spikes was within the range of 30 to 74%; also, the reported sample result was positive, indicating the possibility of a false negative. For sodium the six month holding time was violated. For thallium, the percent recovery for the laboratory control standard (LCS) was greater than 120%, and a positive sample was reported. The data are considered as estimated but acceptable.

Analytical results for AA metals are Quality Level I except for cadmium, mercury, selenium, and silver, which are Quality Level II. Arsenic is Quality Level III. For arsenic the reported value for duplicate analyses was greater

than 50%. The data are considered as confirmation of the qualitative presence of the analyte only. For cadmium, mercury, selenium, and silver, the percent recovery for spikes was within the range of 30 to 74%; also, the reported sample result was positive, indicating the possibility of a false negative.

Environmental Problem: 1
Request Number: 300

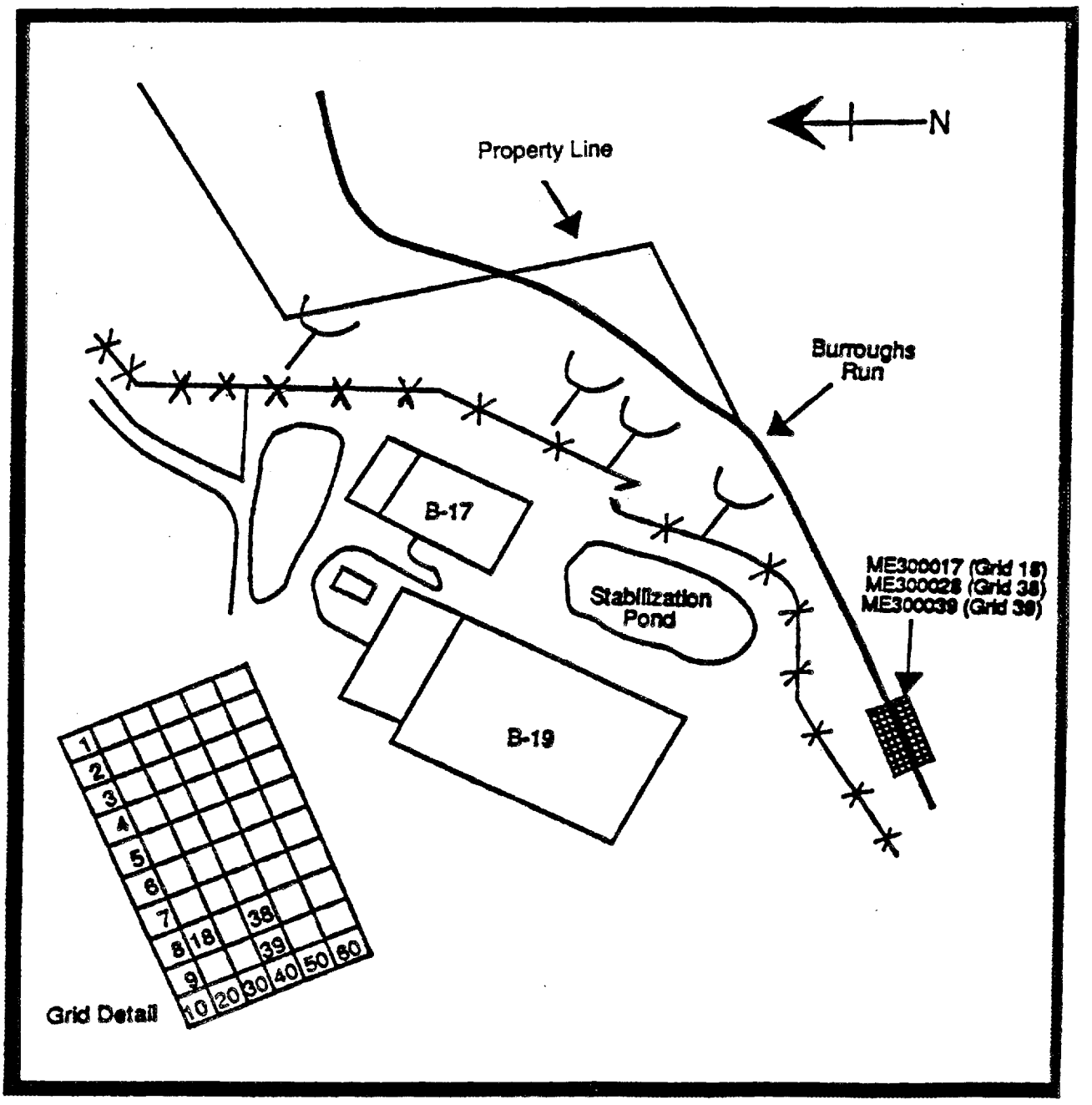

Figure 4.1a. Upstream (South) of the Stabilization Pond Outfall

Environmental Problem: 1
Request Number: 301

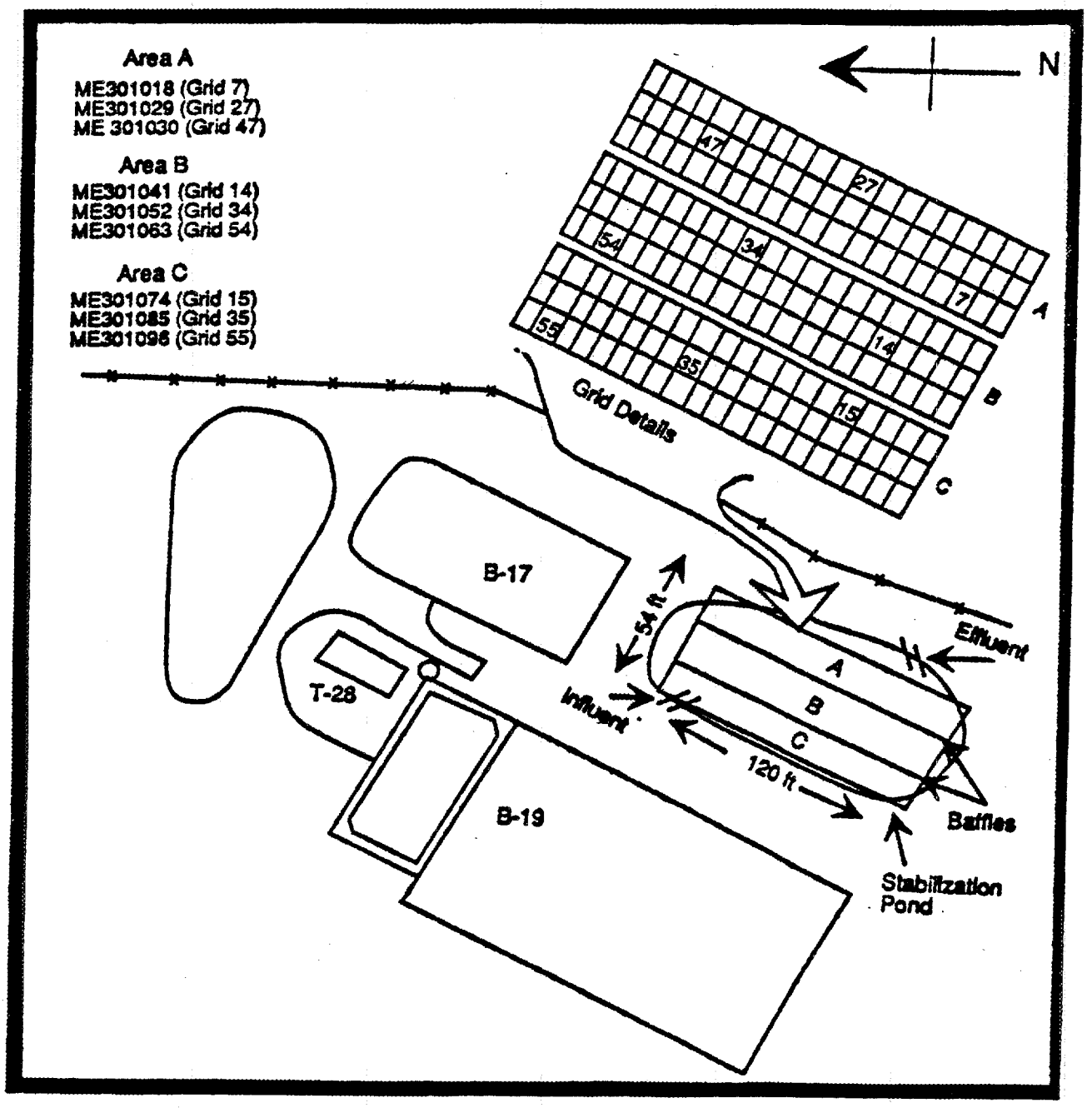

Figure 4.1b. Stabilization Pond South of Building B-17

Environmental Problem: 1
Request Number: 302

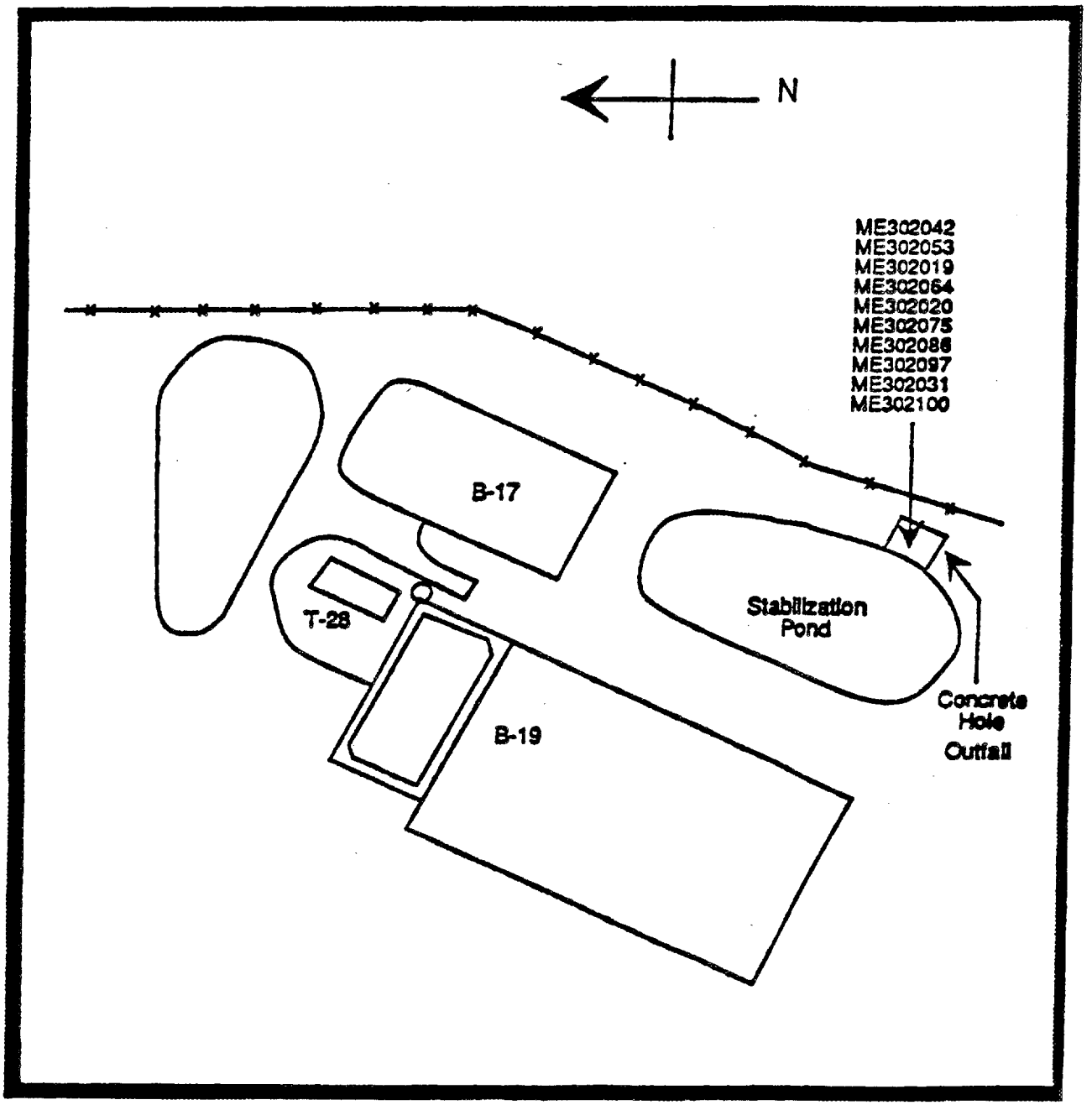

Figure 4.1c. Stabilization Pond Outfall

Environmental Problem: 1
Request Number: 303

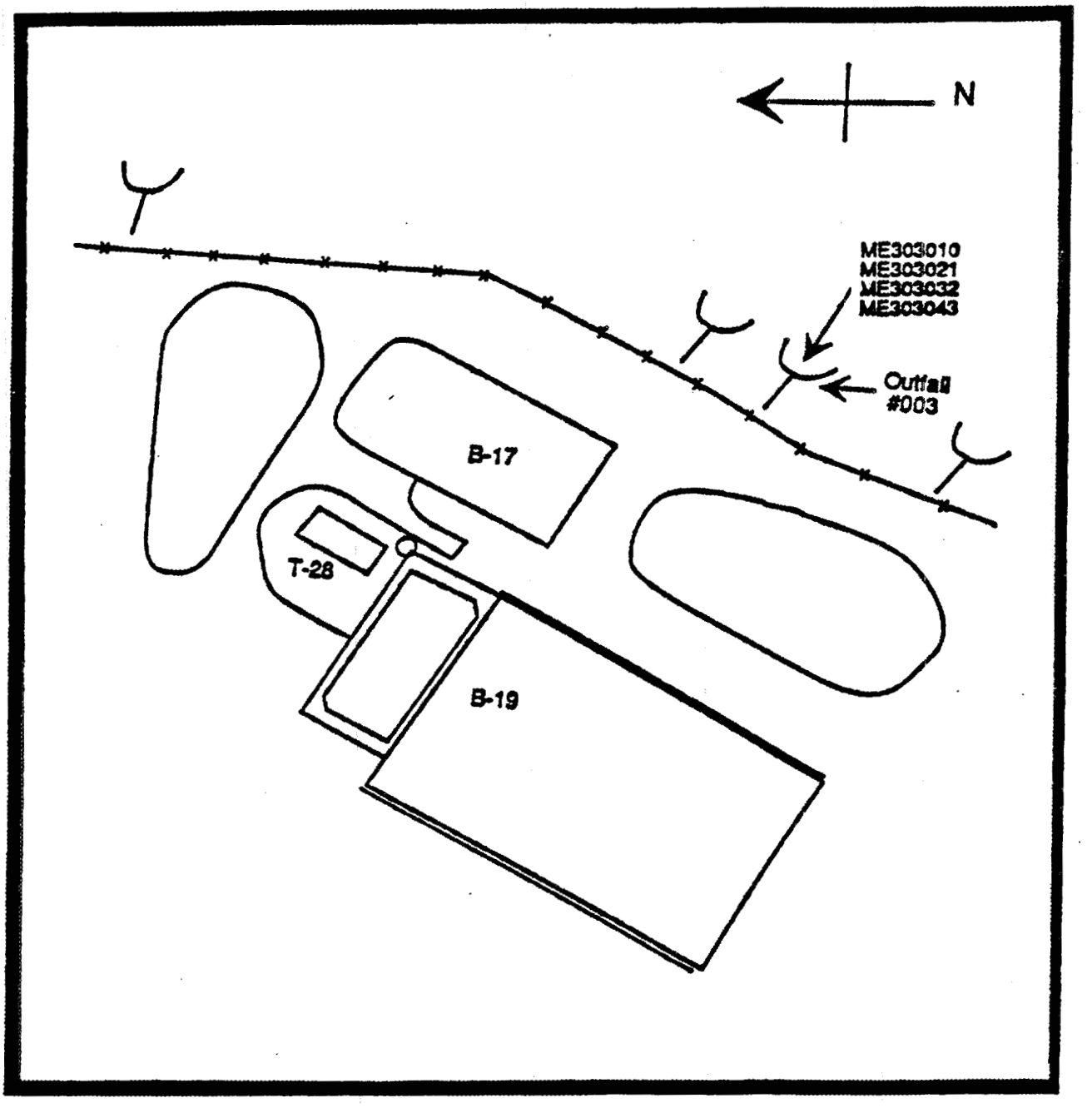

Figure 4.1d. METC Outfall 003

Environmental Problem: 1
Request Number: 304

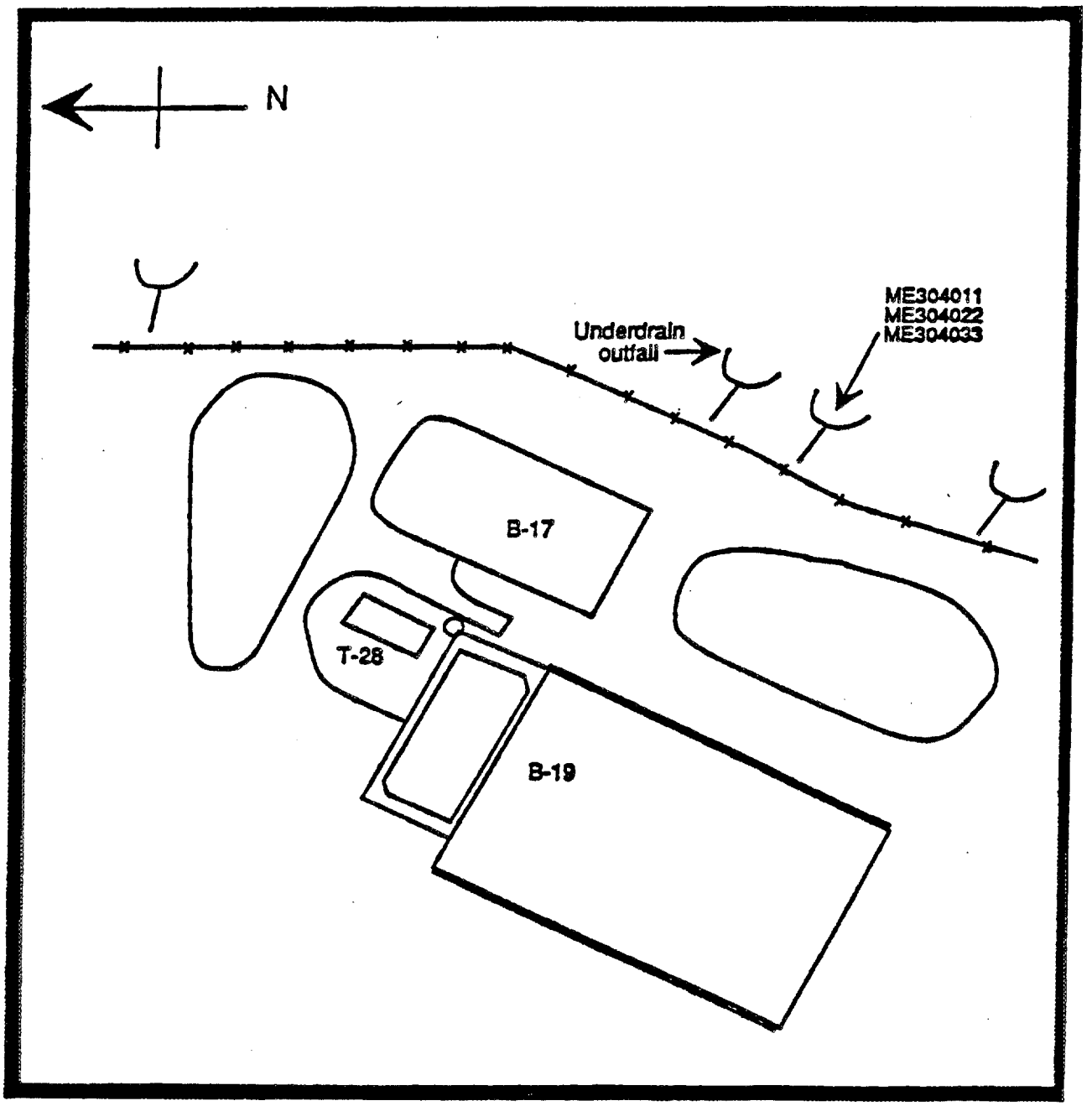

Figure 4.1e. Building B-19 Underdrain

Environmental Problem: 1
Request Number: 305

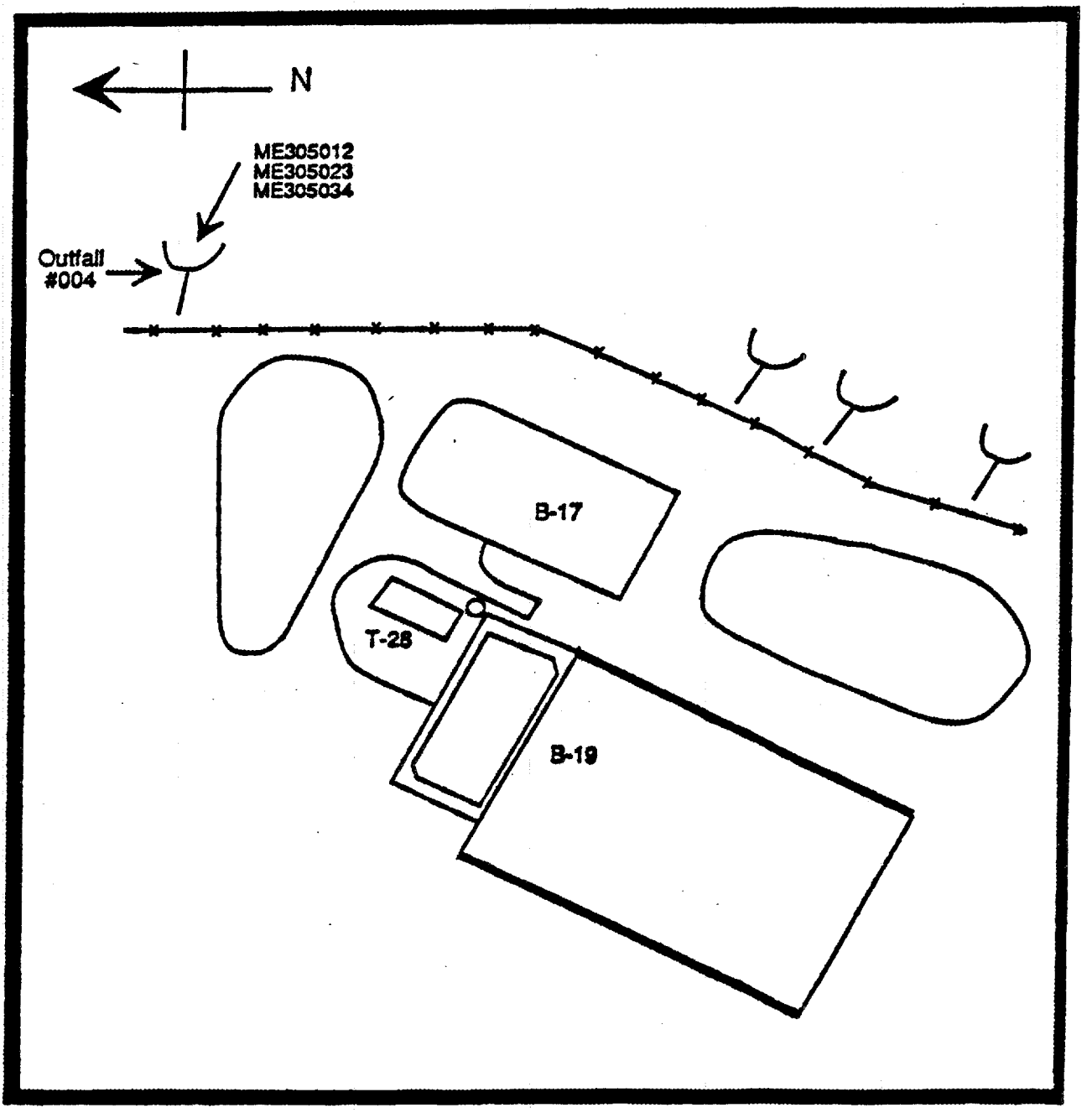

Figure 4.1f. Storm Drain Northeast of Building B-17

Environmental Problem: 1
Request Number: 306

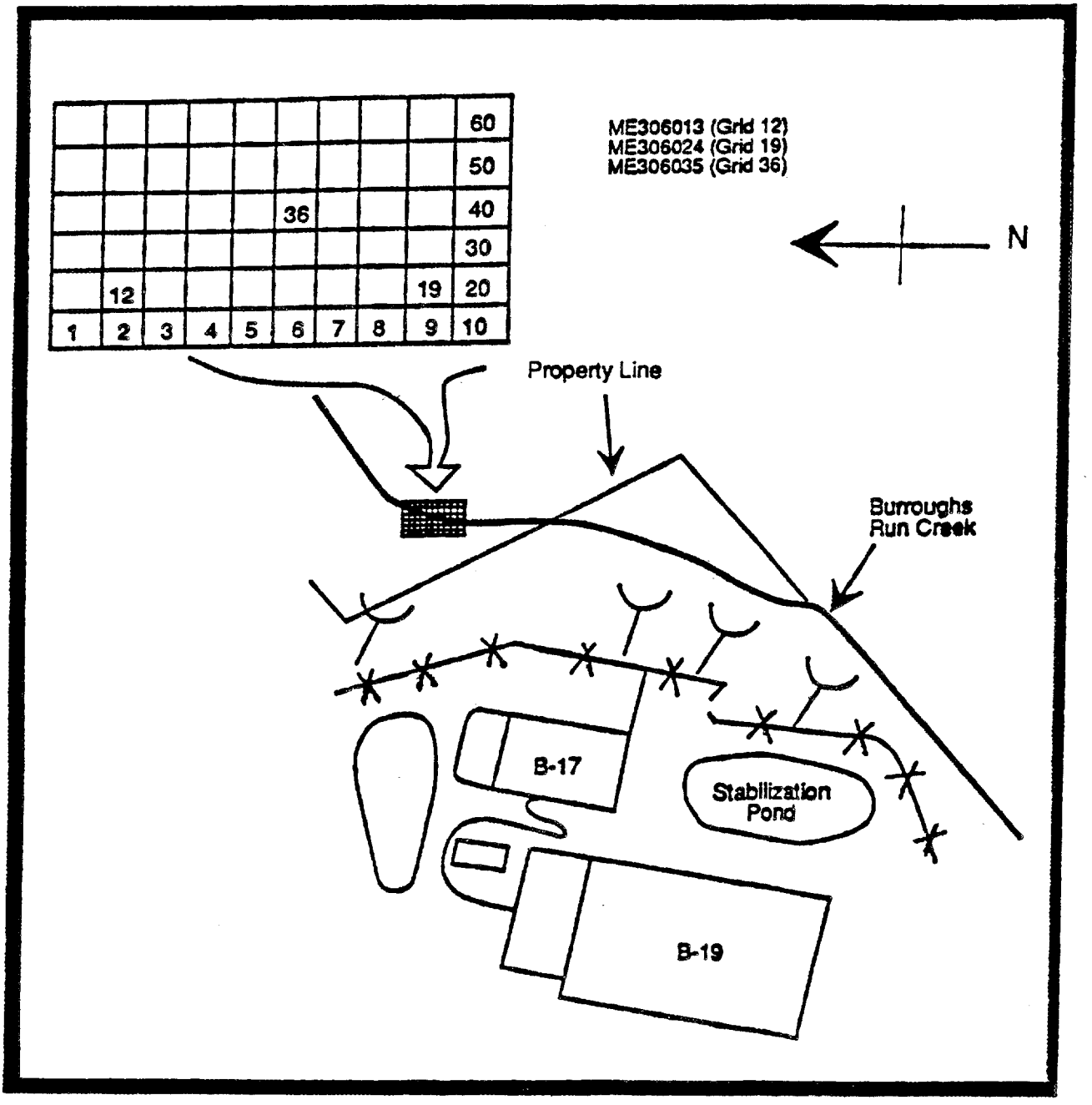

Figure 4.1g. Downstream (North) of the Outfall Northeast of Building B-17

Environmental Problem: 1
Request Number: 307

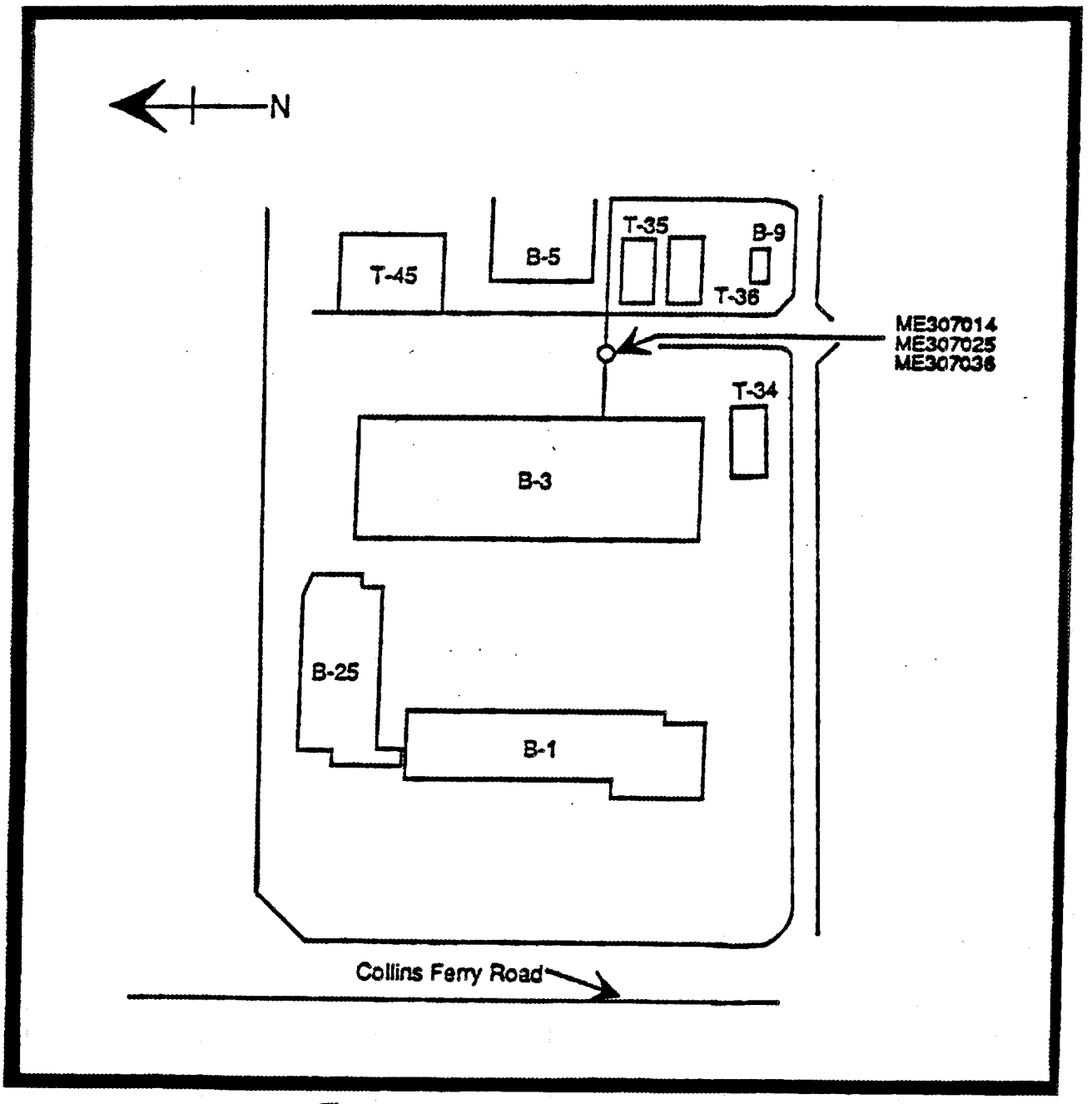

Figure 4.1h. Stormwater Manhole 6

Environmental Problem: 1
Request Number: 308

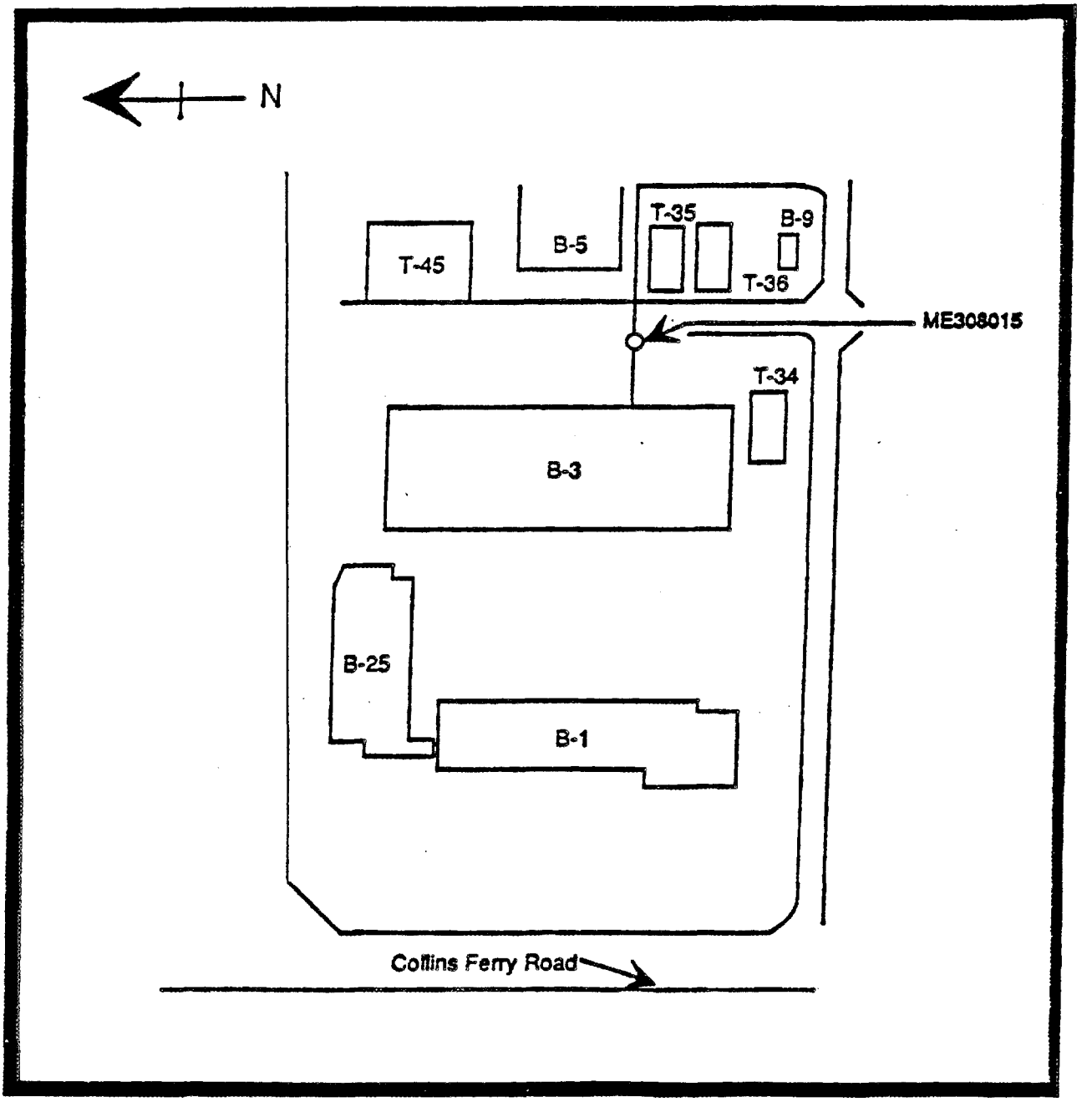

Figure 4.1i. Stormwater Manhole 6

TABLE 4.2.1 SAMPLING AND ANALYSIS DATA SUMMARY
ENVIRONMENTAL PROBLEM - 1

REQUEST NUMBER	LOCATION	TYPE LOCATION	MEDIA	NUMB REQ	NUMB COLL	TYPE	METALS NUMB HITS	METALS NUMB ANAL	PES/H/PCB NUMB HITS	PES/H/PCB NUMB ANAL	SEMIVOLS NUMB HITS	SEMIVOLS NUMB ANAL	VOLS NUMB HITS	VOLS NUMB ANAL	RADS NUMB HITS	RADS NUMB ANAL
ME300	BURROUGHS	SEWER	SEDIMENT	3	3	GRAB	3	3	0	0	3	3	0	0	0	0
ME301	BURROUGHS	SEWER	SEDIMENT	9	9	GRAB	9	9	0	0	9	9	0	0	0	0
ME306	BURROUGHS	SEWER	SEDIMENT	3	3	GRAB	3	3	0	0	3	3	0	0	0	0
ME308	BURROUGHS	SEWER	SEDIMENT	1	1	S COM	1	1	0	0	0	0	0	0	0	0
		MED TOTAL		16	16		16	16	0	0	15	15	0	0	0	0
ME302	BURROUGHS	SEWER	SUR WATER	6	6	GRAB	0	0	0	0	0	0	6	6	0	0
ME302	BURROUGHS	SEWER	SUR WATER	1	1	QC RN	1	1	0	0	1	1	0	0	0	0
ME302	BURROUGHS	SEWER	SUR WATER	3	3	T COM	3	3	0	0	3	3	0	0	0	0
ME303	BURROUGHS	SEWER	SUR WATER	1	1	QC FL	1	1	0	0	0	0	0	0	0	0
ME303	BURROUGHS	SEWER	SUR WATER	3	3	GRAB	3	3	0	0	0	0	0	0	0	0
ME304	BURROUGHS	SEWER	SUR WATER	3	3	GRAB	3	3	0	0	0	0	0	0	0	0
ME305	BURROUGHS	SEWER	SUR WATER	3	3	GRAB	3	3	0	0	0	0	0	0	0	0
ME306	BURROUGHS	SEWER	SUR WATER	1	1	QC RN	1	1	0	0	1	1	0	0	0	0
ME307	BURROUGHS	SEWER	SUR WATER	3	3	GRAB	3	3	0	0	0	0	0	0	0	0
		MED TOTAL		24	24		18	18	0	0	5	5	6	6	0	0
		EP TOTAL		40	40		34	34	0	0	20	20	6	6	0	0

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 300
LOCATION: BURROUGH'S RUN UPSTREAM (SOUTH) OF STABILIZATION POND OUTFALL
MEDIUM: SEDIMENT

METALS, INCLUDING CR+6 (MG/KG)	SAMP NO:	ME300017B	ME300017C	ME300028B	ME300028C	ME300039B	ME300039C
	SDG NO:	ME300017B	ME300017C	ME300017B	ME300017C	ME300017B	ME300017C
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALUMINUM			5320		6070		6960
ANTIMONY			7.6 UN		7.7 BN		7.3 UN
ARSENIC		2.8 *		5.4 *		4.5 *	
BARIUM			79		80		106
BERYLLIUM			1.5 E		1.1 E		1.1 E
CADMIUM		0.47 BN		0.42 BN		0.17 BN	
CALCIUM			55900 *		18400 *		33700 *
CHROMIUM			32 *		32 *		28 *
COBALT			17		14		20
COPPER			14 NE		22 NE		19 NE
IRON			39300 *		33300 *		42100 *
LEAD		47		29		15	
MAGNESIUM			7020 *		2040 *		2560 *
MANGANESE			1080 *		857 *		1080 *
MERCURY		0.04 N		0.07 N		0.04 N	
NICKEL			20		19		22
POTASSIUM			666 E		724 E		656 E
SILVER		0.48 BN		0.33 BN		0.26 BN	
SODIUM			71 B		34 B		34 U
THALLIUM			21 B		4 B		3.8 B
VANADIUM			37 N*		18 N*		21 N*
ZINC			81 *		86 *		79 *

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME300017A	ME300028A	ME300039A
	SDG NO:	ME300017A	ME300017A	ME300017A
	TYPE:	GRAB	GRAB	GRAB
ACENAPHTHENE		850 U	870 U	52 J
ACENAPHTHYLENE		850 U	32 J	21 J
ANTHRACENE		850 U	62 J	180 J
BENZO(A)ANTHRACENE		110 J	300 J	510 J
BENZO(A)PYRENE		140 J	180 J	270 J
BENZO(B)FLUORANTHENE		240 J	380 J	500 J
BENZO(G,H,I)PERYLENE		850 U	270 J	170 J
BIS(2-ETHYLHEXYL)PHTHALATE		360 BJ	650 BJ	470 BJ
BUTYLBENZYLPHTHALATE		430 J	340 J	330 J
CHRYSENE		130 J	270 J	390 J
DI-N-BUTYLPHTHALATE		340 BJ	160 BJ	240 BJ
DIBENZOFURAN		850 U	27 J	47 J
FLUORANTHENE		220 J	520 J	1100
FLUORENE		850 U	36 J	88 J

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 300
LOCATION: BURROUGH'S RUN UPSTREAM (SOUTH) OF STABILIZATION POND OUTFALL
MEDIUM: SEDIMENT

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME300017A	ME300028A	ME300039A			
	SDG NO:	ME300017A	ME300017A	ME300017A			
	TYPE:	GRAB	GRAB	GRAB			
INDENO(1,2,3-CD)PYRENE		850 U	290 J	720 U			
NAPHTHALENE		850 U	29 J	30 J			
PHENANTHRENE		130 J	390 J	1100			
PHENOL		850 U	49 J	720 U			
PYRENE		170 J	420 J	820			
2-METHYLNAPHTHALENE		850 U	870 U	38 J			
* BUTYL 2-METHYLPROPY PHT(29.97)		620 J					
* BUTYL 2-METHYLPROPYLPHT(30.01)			390 J				
* BUTYL 2-METHYLPROPYLPHT(30.02)				530 J			
* HEPTADECANE(27.01)		210 J					
* HEPTASILOXANE,HEXADECAM(24.54)		140 J					
* HEPTASILOXANE,HEXADECAM(24.57)			340 J				
* HEPTASILOXANE,HEXADECAM(24.59)				160 J			
* HEPTASILOXANE,HEXADECAM(27.69)		170 J					
* HEPTASILOXANE,HEXADECAM(27.72)			270 J				
* HEPTASILOXANE,HEXADECAM(27.74)				240 J			
* HEXASILOXANE,TETRADECAM(21.04)		130 J					
* HEXASILOXANE,TETRADECAM(21.07)			140 J				
* PENTADECANE(22.82)		150 J					
* PENTADECANE(22.85)			230 J				
* SULFUR, MOL. (S8)(32.61)			1100 J				
* TETRADECANE(20.64)		180 J					
* TETRADECANE(20.67)			200 J				
* TRIDECANE(18.37)			120 J				
* UNKNOWN HYDROCARBON(37.27)		1000 J					
* UNKNOWN PHTHALATE(37.54)		1300 J					
* UNKNOWN PHTHALATE(37.57)			540 J	420 J			
* UNKNOWN(30.94)			350 J				
* UNKNOWN(41.73)			760 J				

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 301
LOCATION: STABILIZATION POND SOUTH OF BLDG B-17 AREA A
MEDIUM: SEDIMENT

METALS, INCLUDING CR+6 (MG/KG)	SAMP NO:	ME301018C	ME301029C	ME301030C			
	SDG NO:	ME301018C	ME301018C	ME301018C			
	TYPE:	GRAB	GRAB	GRAB			
MERCURY		2.5	0.48	0.18			

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME301018B	ME301029B	ME301030B			
	SDG NO:	ME301018B	ME301018B	ME301018B			
	TYPE:	GRAB	GRAB	GRAB			
ARSENIC		100 B	80 U	80 U			
BARIUM		12 B	834	827			
CADMIUM		30	2.7 B	2.5 U			
CHROMIUM		59	28	15			
LEAD		333	50 U	50 U			
MERCURY		0.1 B	0.1 B	0.1 B			
SELENIUM		134 B	97 U	97 U			
SILVER		11 BN	5.5 BN	5 BN			

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME301018A	ME301029A	ME301030A			
	SDG NO:	ME300017A	ME300017A	ME300017A			
	TYPE:	GRAB	GRAB	GRAB			
ACENAPHTHYLENE		270 J	2400 U	830 U			
BENZO(A)ANTHRACENE		930 J	2400 U	830 U			
BENZO(B)FLUORANTHENE		1300 J	2400 U	830 U			
BIS(2-ETHYLHEXYL)PHTHALATE		1900 BJ	2400 U	830 U			
CHRYSENE		940 J	2400 U	830 U			
DI-N-BUTYLPHTHALATE		1800 BJ	510 BJ	350 BJ			
DI-N-OCTYL PHTHALATE		1400 J	2400 U	830 U			
DIBENZOFURAN		370 J	2400 U	830 U			
FLUORANTHENE		2100 J	2400 U	830 U			
FLUORENE		450 J	2400 U	830 U			
NAPHTHALENE		620 J	61 J	40 J			
PHENANTHRENE		1500 J	2400 U	39 J			
PYRENE		1500 J	2400 U	830 U			
2-METHYLNAPHTHALENE		890 J	71 J	53 J			
* C12-ALKANE(16.79)		960 BJ					
* C14-ALKANE(20.69)		2500 BJ					
* C15-ALKANE(22.60)		2800 J					
* C16-ALKANE(26.49)		2100 J					
* C17-ALKANE(27.59)		6700 J					
* C18-ALKANE(29.54)		5900 J					
* DECANE, 2,6,7-TRIMETHYL(18.24)		1200 J					

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 301
LOCATION: STABILIZATION POND SOUTH OF BLDG B-17 AREA A
MEDIUM: SEDIMENT

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME301018A	ME301029A	ME301030A
	SDG NO:	ME300017A	ME300017A	ME300017A
	TYPE:	GRAB	GRAB	GRAB
* HEPTADECANE(27.47)		4400 J		
* HEPTASILOXANE,HEXADECAM(25.11)		6900 J		
* HEXASILOXANE,TETRADECAM(21.59)		2500 J		
* HEXASILOXANE,TETRADECAM(21.62)			1100 J	
* PENTADECANE(23.40)		3500 J		
* PENTASILOXANE, DODECAME(17.64)			250 J	
* PHENANTHRENE,9-DODECYLT(46.84)		6900 J		
* PHENANTHRENE,9-DODECYLT(49.04)		4000 J		
* SULFUR, MOL. (S8)(32.62)				570 J
* SULFUR, MOL. (S8)(33.22)		27000 J	1300 J	
* TETRADECANE(21.22)		2500 J		
* UNKNOWN HYDROCARBON(27.02)				240 J
* UNKNOWN HYDROCARBON(29.94)		4900 J		
* UNKNOWN HYDROCARBON(35.82)			180 J	
* UNKNOWN HYDROCARBON(36.01)				510 J
* UNKNOWN HYDROCARBON(37.29)				1200 J
* UNKNOWN HYDROCARBON(39.87)			370 J	
* UNKNOWN SILOXANE(25.14)			1500 J	
* UNKNOWN SILOXANE(28.26)		8300 J		
* UNKNOWN SILOXANE(28.29)			990 J	
* UNKNOWN SILOXANE(30.97)		4000 J		
* UNKNOWN SILOXANE(31.01)			480 J	
* 1-HEPTANOL, 2-PROPYL-(29.56)			430 J	

S&A REQUEST: 301
LOCATION: STABILIZATION POND SOUTH OF BLDG B-17 AREA B
MEDIUM: SEDIMENT

METALS, INCLUDING CR+6 (MG/KG)	SAMP NO:	ME301041C	ME301052C	ME301063C
	SDG NO:	ME301018C	ME301018C	ME301018C
	TYPE:	GRAB	GRAB	GRAB
MERCURY		0.59	0.79	0.44

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 301
LOCATION: STABILIZATION POND SOUTH OF BLDG B-17 AREA B
MEDIUM: SEDIMENT

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME301041B	ME301052B	ME301063B			
	SDG NO:	ME301018B	ME301018B	ME301018B			
	TYPE:	GRAB	GRAB	GRAB			
ARSENIC		80 U	80 U	86 B			
BARIUM		1060	1030	875			
CADMIUM		3.4 B	3.3 B	2.8 B			
CHROMIUM		15	10	10			
LEAD		92 B	90 B	101 B			
MERCURY		0.1 B	0.1 B	0.1 B			
SILVER		5.5 BN	18 BN	5.9 BN			

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME301041A	ME301052A	ME301063A			
	SDG NO:	ME300017A	ME300017A	ME300017A			
	TYPE:	GRAB	GRAB	GRAB			
ANTHRACENE		1100 U	24 J	850 U			
BENZO(A)ANTHRACENE		1100 U	69 J	49 J			
BENZO(A)PYRENE		1100 U	36 J	850 U			
BENZO(B)FLUORANTHENE		1100 U	94 J	70 J			
BIS(2-ETHYLHEXYL)PHTHALATE		140 BJ	120 BJ	110 BJ			
CHRYSENE		1100 U	73 J	50 J			
DI-N-BUTYLPHTHALATE		520 BJ	400 BJ	370 BJ			
DIBENZOFURAN		1100 U	22 J	26 J			
FLUORANTHENE		93 J	160 J	100 J			
FLUORENE		1100 U	28 J	40 J			
INDENO(1,2,3-CD)PYRENE		1100 U	45 J	850 U			
NAPHTHALENE		51 J	53 J	17 J			
PHENANTHRENE		68 J	110 J	77 J			
PHENOL		1100 U	38 J	850 U			
PYRENE		67 J	130 J	82 J			
2-METHYLNAPHTHALENE		59 J	53 J	850 U			
* C14-ALKANE(21.42)			280 BJ				
* C15-ALKANE(23.62)				150 J			
* C17-ALKANE(27.04)		420 J					
* C17-ALKANE(27.81)				220 J			
* C17-ALKANE(27.82)			380 J				
* HEPTADECANE(26.92)		250 J					
* HEPTADECANE(27.67)				180 J			
* HEPTADECANE(27.71)			260 J				
* HEPTASILOXANE,HEXADECAM(24.60)		340 J					
* HEPTASILOXANE,HEXADECAM(27.74)		410 J					
* HEXANE, 2-BROMO-(9.34)			1300 J				
* HEXASILOXANE,TETRADECAM(21.77)				240 J			
* HEXASILOXANE,TETRADECAM(21.79)			190 J				

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 301
LOCATION: STABILIZATION POND SOUTH OF BLDG B-17 AREA B
MEDIUM: SEDIMENT

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME301041A	ME301052A	ME301063A			
	SDG NO:	ME300017A	ME300017A	ME300017A			
	TYPE:	GRAB	GRAB	GRAB			
* NONADECANE(31.19)			490 J				
* PENTADECANE(23.64)			280 J				
* SULFUR, MOL. (S8)(32.67)		1200 J					
* SULFUR, MOL. (S8)(33.41)				630 J			
* SULFUR, MOL. (S8)(33.44)			1100 J				
* TETRADECANE(21.40)				130 J			
* TRIDECANE(19.10)			220 J				
* UNKNOWN HYDROCARBON(39.76)			260 J				
* UNKNOWN SILOXANE(25.31)				460 J			
* UNKNOWN SILOXANE(25.32)			290 J				
* UNKNOWN SILOXANE(28.46)				490 J			
* UNKNOWN SILOXANE(28.49)			390 J				
* UNKNOWN SILOXANE(31.14)				310 J			
* 2(1H)-PHENANTHRENONE,3,(38.76)		450 J					
* 4H-PYRAN-4-ONE,3-HYDROX(17.90)			300 J				

S&A REQUEST: 301
LOCATION: STABILIZATION POND SOUTH OF BLDG B-17 AREA C
MEDIUM: SEDIMENT

METALS, INCLUDING CR+6 (MG/KG)	SAMP NO:	ME301074C	ME301085C	ME301096C			
	SDG NO:	ME301018C	ME301018C	ME301018C			
	TYPE:	GRAB	GRAB	GRAB			
MERCURY		0.52	0.54	0.6			

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME301074B	ME301085B	ME301096B			
	SDG NO:	ME301018B	ME301018B	ME301018B			
	TYPE:	GRAB	GRAB	GRAB			
BARIUM		1360	800	709			
CADMIUM		2.5 U	6.7 B	2.5 U			
CHROMIUM		20	14	11			
LEAD		109 B	127 B	72 B			
MERCURY		0.1 B	0.1 B	0.1 B			
SILVER		12 BN	8.4 BN	4.3 BN			

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 301
LOCATION: STABILIZATION POND SOUTH OF BLDG B-17 AREA C
MEDIUM: SEDIMENT

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME301074A	ME301085A	ME301096A
	SDG NO:	ME300017A	ME300017A	ME300017A
	TYPE:	GRAB	GRAB	GRAB
BENZO(A)ANTHRACENE		1000 U	93 J	33 J
BENZO(A)PYRENE		1000 U	67 J	860 U
BENZO(B)FLUORANTHENE		48 J	120 J	30 J
BIS(2-ETHYLHEXYL)PHTHALATE		160 BJ	340 BJ	190 BJ
CHRYSENE		47 J	83 J	32 J
DI-N-BUTYLPHTHALATE		490 BJ	1400 U	440 BJ
DI-N-OCTYL PHTHALATE		34 BJ	55 BJ	31 BJ
DIBENZOFURAN		1000 U	37 J	860 U
FLUORANTHENE		75 J	160 J	67 J
NAPHTHALENE		34 J	74 J	38 J
PHENANTHRENE		67 J	95 J	75 J
PYRENE		62 J	110 J	52 J
2-METHYLNAPHTHALENE		41 J	87 J	44 J
* CYCLOPENTASILOXANE, DEC(15.47)		96 J		
* C17-ALKANE(27.77)		290 J	710 J	
* C17-ALKANE(27.79)				180 J
* C18-ALKANE(29.71)			800 J	
* C27-ALKANE(39.69)		290 J		
* C28-ALKANE(40.99)		690 J		
* HEPTADECANE(27.64)		210 J	500 J	
* HEPTADECANE(27.66)				200 J
* HEXASILOXANE,TETRADECAM(21.74)		320 J	1800 J	
* HEXASILOXANE,TETRADECAM(21.75)				250 J
* PENTASILOXANE, DODECAME(17.74)			280 J	
* PHENOL,2,6-BIS(1,1-DIME(23.94)		210 J		
* SULFUR, MOL. (S8)(33.39)		1200 J	2200 J	
* SULFUR, MOL. (S8)(33.41)				620 J
* TETRADECANE(21.37)			210 J	
* UNKNOWN HYDROCARBON(30.09)			780 J	
* UNKNOWN SILOXANE(25.27)		280 J	4900 J	
* UNKNOWN SILOXANE(25.29)				410 J
* UNKNOWN SILOXANE(28.42)			4700 J	
* UNKNOWN SILOXANE(28.44)				300 J
* UNKNOWN SILOXANE(31.11)			2100 J	
* UNKNOWN(38.41)			800 J	

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 302
LOCATION: STABILIZATION POND OUTFALL
MEDIUM: SURFACE WATER

FIELD MEASUREMENTS	SAMP NO:	ME302019	ME302020	ME302031	ME302042	ME302053	ME302064
CONDUCTIVITY (MS/CM)		1	0.84	0.83	1.1	1.1	0.72
PH (UNITS)		8.8	8.3	8	8.3	8.4	8
TEMPERATURE (DEG C)		29	23	21	23	28	23

FIELD MEASUREMENTS	SAMP NO:	ME302075	ME302086	ME302097			
CONDUCTIVITY (MS/CM)		0.94	0.87	0.93			
PH (UNITS)		8.1	7.9	7.9			
TEMPERATURE (DEG C)		28	22	27			

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME302019D	ME302019E	ME302020D	ME302020E	ME302031D	ME302031E
	SDG NO:	ME302019D	ME302019E	ME302020D	ME302020E	ME302020D	ME302020E
	TYPE:	T. COMPOSITE	T. COMPOSITE	T. COMPOSITE	T. COMPOSITE	T. COMPOSITE	T. COMPOSITE
ALUMINUM			468		257		239
ARSENIC		1.2 B		2.1 B		1.1 U	
BARIUM			47 B		49 B		53 B
CADMIUM		0.4 U		0.43 BN		0.4 UN	
CALCIUM			62200		61000		62200
CHROMIUM			5.4 B		4.2 B		4.8 B
COPPER			3.3 U		8.5 B		4 B
IRON			378		245		222
LEAD		1.6 U		2.3 BN		3.3 BN	
MAGNESIUM			12100		12400		13000
MANGANESE			59		73		80
MERCURY		0.1 B		0.1 B		0.1 B	
POTASSIUM			6760		6020		5900
SILVER		5.3 B		1.4 B		2.6 B	
SODIUM			54200		52500		50900
THALLIUM			75 B		26 U		29 B
VANADIUM			1040		16 B		17 B
ZINC			43		34		29

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME302100D	ME302100E
	SDG NO:	ME302020D	ME302020E
	TYPE:	RINSATE	RINSATE
ALUMINUM			24 B
ARSENIC		1.1 U	
BARIUM			2 U
CADMIUM		0.4 UN	

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 302
LOCATION: STABILIZATION POND OUTFALL
MEDIUM: SURFACE WATER

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME302100D	ME302100E				
	SDG NO:	ME302020D	ME302020E				
	TYPE:	RINSATE	RINSATE				
CALCIUM			26 B				
CHROMIUM			2.6 U				
COPPER			1.9 U				
IRON			11 B				
LEAD		2.8 BN					
MAGNESIUM			41 U				
MANGANESE			1.2 B				
MERCURY		0.1 B					
POTASSIUM			82 U				
SILVER		0.74 B					
SODIUM			27 B				
THALLIUM			26 U				
VANADIUM			2.9 B				
ZINC			2.8 B				

EXTRACTABLE ORGANICS (UG/L)	SAMP NO:	ME302019A	ME302020A	ME302031A	ME302100A		
	SDG NO:	ME302019A	ME302019A	ME302019A	ME302019A		
	TYPE:	T. COMPOSITE	T. COMPOSITE	T. COMPOSITE	RINSATE		
BIS(2-ETHYLHEXYL)PHTHALATE		110	91	90	4 J		
DI-N-BUTYLPHTHALATE		2 BJ	1 BJ	3 BJ	5 BJ		
DI-N-OCTYL PHTHALATE		10 U	2 J	10 U	10 U		
PHENOL		10 U	10 U	1 J	10 U		
* CYCLOHEXANOL, BROMO(14.15)		12 J					
* CYCLOHEXANOL, 2-BROMO-,(14.12)				25 J			
* CYCLOHEXANOL, 2-BROMO-,(14.14)			27 J				
* CYCLOHEXENOL, BROMO(13.10)				16 J			
* DODECANOIC ACID(25.02)		4.8 J					
* HEPTASILOXANE,HEXADECAM(28.56)				13 J			
* HEPTASILOXANE,HEXADECAM(28.57)			6.7 J				
* HEPTASILOXANE,HEXADECAM(31.24)		5.2 J		14 J			
* HEPTASILOXANE,HEXADECAM(31.26)			11 J				
* HEPTASILOXANE,HEXADECAM(33.32)		4.8 J	11 J	15 J			
* HEPTASILOXANE,HEXADECAM(37.87)				7.5 J			
* HEPTASILOXANE,HEXADECAM(39.42)				5.4 J			
* HEPTASILOXANE,HEXADECAM(41.37)				10 J			
* PHENOL,2,6-BIS(1,1-DIME(24.05)					5.3 J		
* PHENOL,2,6-BIS(1,1-DIME(24.07)		4.7 J					
* UNKNOWN(21.49)					21 J		
* UNKNOWN(26.01)					14 J		
* 1,3,5-TRIAZINE-2,4-DIAM(28.67)		12 J	14 J				

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 302
LOCATION: STABILIZATION POND OUTFALL
MEDIUM: SURFACE WATER

EXTRACTABLE ORGANICS (UG/L)	SAMP NO:	ME302019A	ME302020A	ME302031A	ME302100A		
	SDG NO:	ME302019A	ME302019A	ME302019A	ME302019A		
	TYPE:	T. COMPOSITE	T. COMPOSITE	T. COMPOSITE	RINSATE		
* 2-PYRROLIDINONE, 1-METH(12.35)				22 J			
* 2-PYRROLIDINONE, 1-METH(12.37)			31 J				
* 2-PYRROLIDINONE, 1-METH(12.39)		26 J					

VOLATILE ORGANICS (UG/L)	SAMP NO:	ME302042A	ME302053A	ME302064A	ME302075A	ME302086A	ME302097A
	SDG NO:	ME302042A	ME302042A	ME302042A	ME302042A	ME302042A	ME302042A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ACETONE		17	42	62	88	69	36
BROMODICHLOROMETHANE		3 J	4 J	4 J	5	5	4 J
CARBON TETRACHLORIDE		5 U	1 J	5 U	5 U	5 U	5 U
CHLOROFORM		24	21	20	15	18	22
DIBROMOCHLOROMETHANE		2 J	2 J	2 J	2 J	2 J	2 J
METHYLENE CHLORIDE		11	12	19	10	15	10
TOLUENE		5 U	5 U	2 J	1 J	3 J	2 J

S&A REQUEST: 303
LOCATION: B-19 UNDERDRAIN (OUTFALL 003)
MEDIUM: SURFACE WATER

FIELD MEASUREMENTS	SAMP NO:	ME303010	ME303021	ME303032			
CONDUCTIVITY (MS/CM)		1.4	1.1	1.2			
PH (UNITS)		7.1	7.1	7.3			
TEMPERATURE (DEG C)		23	23	22			

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME303010A	ME303010B	ME303021A	ME303021B	ME303032A	ME303032B
	SDG NO:	ME302019D	ME302019E	ME302020D	ME302020E	ME302020D	ME302020E
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALUMINUM			72 B		80 B		71 B
ANTIMONY			49 B		58 U		58 U
BARIUM			36 B		43 B		42 B
BERYLLIUM			0.24 U		0.27 B		0.2 U
CADMIUM		0.4 U		0.4 UN		0.4 UN	
CALCIUM			117000		121000		123000

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 303
LOCATION: B-19 UNDERDRAIN (OUTFALL 003)
MEDIUM: SURFACE WATER

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME303010A	ME303010B	ME303021A	ME303021B	ME303032A	ME303032B
	SDG NO:	ME302019D	ME302019E	ME302020D	ME302020E	ME302020D	ME302020E
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
CHROMIUM			7.2 B		6 B		4.5 B
COPPER			3.3 U		1.9 U		2.4 B
IRON			370		392		407
LEAD		1.6 U		2.5 BN		1.6 UN	
MAGNESIUM			24300		26600		26800
MANGANESE			148		149		147
MERCURY		0.1 B		0.1 B		0.03 U	
POTASSIUM			5880		5820		5740
SELENIUM		9 S		7.4 S		10	
SILVER		24		0.7 U		0.7 U	
SODIUM			37000		38100		39700
THALLIUM			97 B		69 B		26 U
VANADIUM			28 B		30 B		29 B
ZINC			27		12 B		15 B

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME303043A	ME303043B
	SDG NO:	ME302020D	ME302020E
	TYPE:	FIELD BLANK	FIELD BLANK
ALUMINUM			26 B
ANTIMONY			58 U
BARIUM			2 U
BERYLLIUM			0.2 U
CADMIUM		0.51 BN	
CALCIUM			117 B
CHROMIUM			2.6 U
COPPER			1.9 U
IRON			4 U
LEAD		2.5 BN	
MAGNESIUM			79 B
MANGANESE			1.7 B
MERCURY		0.03 U	
POTASSIUM			82 U
SELENIUM		1.4 U	
SILVER		0.7 U	
SODIUM			30 B
THALLIUM			26 B
VANADIUM			6.2 B
ZINC			1.3 U

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 304
LOCATION: OUTFALL 003 (METC'S 002)
MEDIUM: SURFACE WATER

FIELD MEASUREMENTS	SAMP NO:	ME304011	ME304022	ME304033			
CONDUCTIVITY (MS/CM)		0.9	0.82	0.86			
PH (UNITS)		8.1	7.9	7.6			
TEMPERATURE (DEG C)		25	23	22			

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME304011A	ME304011B	ME304022A	ME304022B	ME304033A	ME304033B
	SDG NO:	ME302020D	ME302020E	ME302020D	ME302020E	ME302020D	ME302020E
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALUMINUM			228		263		224
ARSENIC		1.1 U		1.6 B		1.1 U	
BARIUM			53 B		53 B		49 B
CALCIUM			70300		65200		66200
CHROMIUM			3.2 B		2.6 U		2.6 U
COPPER			4.4 B		2.1 B		3.1 B
IRON			111		374		132
LEAD		1.6 UN		5.4 N		2.5 BN	
MAGNESIUM			14100		13200		13700
MANGANESE			50		70		23
MERCURY		0.1 B		0.1 B		0.1 B	
POTASSIUM			4180 B		4260 B		3960 B
SELENIUM		1.5 BW		1.4 UW		1.5 BS	
SILVER		0.78 B		0.95 B		1.2 B	
SODIUM			44500		44200		42200
VANADIUM			21 B		22 B		19 B
ZINC			43		121		52

S&A REQUEST: 305
LOCATION: STORM DRAIN NORTHEAST OF BLDG B-17
MEDIUM: SURFACE WATER

FIELD MEASUREMENTS	SAMP NO:	ME305012	ME305023	ME305034			
CONDUCTIVITY (MS/CM)		1.1	0.81	1.2			
PH (UNITS)		7.5	8.1	8.9			
TEMPERATURE (DEG C)		23	18	21			

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 305
LOCATION: STORM DRAIN NORTHEAST OF BLDG B-17
MEDIUM: SURFACE WATER

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME305012A	ME305012B	ME305023A	ME305023B	ME305034A	ME305034B
	SDG NO:	ME302019D	ME302019E	ME302019D	ME302019E	ME302020D	ME302020E
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALUMINUM			149 B		119 B		122 B
ARSENIC		1.2 BW		1.1 UW		2.1 B	
BARIUM			47 B		55 B		41 B
CADMIUM		0.44 B		0.4 U		0.4 UWN	
CALCIUM			74000		106000		97900
CHROMIUM			4.4 B		7.4 B		2.6 U
COPPER			3.3 U		3.3 U		3 B
IRON			105		78 B		26 B
MAGNESIUM			14100		17200		17900
MANGANESE			17		19		11 B
MERCURY		0.1 B		0.1 B		0.1 B	
POTASSIUM			4660 B		6130		7070
SELENIUM		5.8 S		2.6 B+		3.3 BS	
SILVER		0.7 U		0.7 U		5.3 B	
SODIUM			59300		54200		77300
THALLIUM			46 B		30 B		26 U
VANADIUM			16 B		21 B		22 B
ZINC			130		239		28

S&A REQUEST: 306
LOCATION: BURROUGH'S RUN DOWNSTREAM (NORTH) OF OUTFALL NE OF BLDG B-17
MEDIUM: SEDIMENT

METALS, INCLUDING CR+6 (MG/KG)	SAMP NO:	ME306013B	ME306013C	ME306024B	ME306024C	ME306035B	ME306035C
	SDG NO:	ME300017B	ME300017C	ME300017B	ME300017C	ME300017B	ME300017C
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALUMINUM			5880		5500		5400
ANTIMONY			7.1 UN		7 UN		7.1 BN
ARSENIC		5 *		5.4 *		10 *	
BARIUM			84		68		70
BERYLLIUM			1.5 E		1.2 E		1.2 E
CADMIUM		0.43 BN		0.46 BN		0.24 BN	
CALCIUM			71500 *		40600 *		47100 *
CHROMIUM			34 *		30 *		25 *
COBALT			15		12		15
COPPER			16 NE		14 NE		11 NE
IRON			36100 *		37200 *		30000 *

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 306
LOCATION: BURROUGH'S RUN DOWNSTREAM (NORTH) OF OUTFALL NE OF BLDG B-17
MEDIUM: SEDIMENT

METALS, INCLUDING CR+6 (MG/KG)	SAMP NO:	ME306013B	ME306013C	ME306024B	ME306024C	ME306035B	ME306035C
	SDG NO:	ME300017B	ME300017C	ME300017B	ME300017C	ME300017B	ME300017C
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
LEAD		23		26		17	
MAGNESIUM			2590 *		2420 *		2730 *
MANGANESE			920 *		882 *		772 *
MERCURY		0.1 N		0.17 N		0.09 N	
NICKEL			19		16		19
POTASSIUM			568 BE		600 BE		485 BE
SELENIUM		0.37 BN		0.38 BN		0.4 BN	
SILVER		1.3 BN		3 SN		0.26 BN	
SODIUM			33 U		33 B		44 B
THALLIUM			13 B		3.1 U		9.6 B
VANADIUM			24 N*		24 N*		19 N*
ZINC			101 *		82 *		77 *

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME306013A	ME306024A	ME306035A
	SDG NO:	ME300017A	ME300017A	ME300017A
	TYPE:	GRAB	GRAB	GRAB
ACENAPHTHENE		35 J	780 U	760 U
ACENAPHTHYLENE		380 J	780 U	28 J
ANTHRACENE		270 J	40 J	33 J
BENZO(A)ANTHRACENE		620 J	180 J	160 J
BENZO(A)PYRENE		810	110 J	150 J
BENZO(B)FLUORANTHENE		1200	250 J	350 J
BENZO(G,H,I)PERYLENE		540 J	780 U	160 J
BIS(2-ETHYLHEXYL)PHTHALATE		780 B	220 BJ	770 B
BUTYLBENZYLPHTHALATE		300 J	780 U	280 J
CHRYSENE		630 J	220 J	220 J
DI-N-BUTYLPHTHALATE		170 BJ	460 BJ	130 BJ
DIBENZO(A,H)ANTHRACENE		110 J	780 U	760 U
DIBENZOFURAN		120 J	780 U	24 J
FLUORANTHENE		1000	520 J	390 J
FLUORENE		180 J	780 U	760 U
INDENO(1,2,3-CD)PYRENE		670 J	96 J	190 J
NAPHTHALENE		280 J	20 J	29 J
PHENANTHRENE		1100	290 J	250 J
PYRENE		890	390 J	300 J
2-METHYLNAPHTHALENE		120 J	780 U	760 U
* BENZOIC ACID, 2-HYDROXY(18.65)		220 J		
* CYCLOHEXADECANE(30.24)		2400 J		
* HEPTADECANE(26.92)			100 J	
* HEPTASILOXANE,HEXADECAM(24.59)		310 J		

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 306
LOCATION: BURROUGH'S RUN DOWNSTREAM (NORTH) OF OUTFALL NE OF BLDG B-17
MEDIUM: SEDIMENT

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME306013A	ME306024A	ME306035A
	SDG NO:	ME300017A	ME300017A	ME300017A
	TYPE:	GRAB	GRAB	GRAB
* HEPTASILOXANE,HEXADECAM(27.74)		360 J		
* HEXANEDIOIC ACID, MONO((36.34)				6800 J
* HEXASILOXANE,TETRADECAM(21.07)		160 J		
* METHYL NAPHTHALENE(18.79)		220 J		
* PYRENE, 1-METHYL-(34.72)			150 J	
* SULFUR, MOL. (S8)(32.64)			540 J	
* SULFUR, MOL. 9S8)(32.61)				630 J
* UNKNOWN HYDROCARBON(45.78)		520 J		
* UNKNOWN HYDROCARBON(47.03)		520 J		
* UNKNOWN PHTHALATE(37.57)		520 J		280 J

S&A REQUEST: 306
LOCATION: BURROUGH'S RUN DOWNSTREAM (NORTH) OF OUTFALL NE OF BLDG B-17
MEDIUM: SURFACE WATER

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME306046B	ME306046C
	SDG NO:	ME302019D	ME302019E
	TYPE:	RINSATE	RINSATE
ALUMINUM			23 B
CADMIUM		0.47 B	
CALCIUM			54 B
MAGNESIUM			62 B
MANGANESE			2 B
SILVER		0.77 B	
SODIUM			5.6 B
VANADIUM			5.1 B

EXTRACTABLE ORGANICS (UG/L)	SAMP NO:	ME306046A
	SDG NO:	ME302019A
	TYPE:	RINSATE
BIS(2-ETHYLHEXYL)PHTHALATE		2 J
DI-N-BUTYLPHTHALATE		1 BJ
* UNKNOWN(21.47)		18 J
* UNKNOWN(25.97)		9.7 J

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 307
LOCATION: STORMWATER MANHOLE 6
MEDIUM: SURFACE WATER

FIELD MEASUREMENTS	SAMP NO:	ME307014	ME307025	ME307036			
CONDUCTIVITY (MS/CM)		1	1.2	0.63			
PH (UNITS)		9	7.8	7.6			
TEMPERATURE (DEG C)		23	26	24			

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME307014A	ME307014B	ME307025A	ME307025B	ME307036A	ME307036B
	SDG NO:	ME302019D	ME302019E	ME302019D	ME302019E	ME302019D	ME302019E
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALUMINUM			267		194 B		255
ARSENIC		1.1 U		1.4 BW		1.2 BW	
BARIUM			65 B		59 B		55 B
CADMIUM		0.8 B		0.4 U		0.4 U	
CALCIUM			63200		80000		65700
CHROMIUM			9.1 B		4.1 B		5.8 B
COPPER			6.5 B		3.3 U		3.3 U
IRON			8700		322		352
LEAD		16		7.8		1.6 U	
MAGNESIUM			12600		13600		12700
MANGANESE			82		52		40
MERCURY		1.1		0.1 B		0.03 U	
POTASSIUM			14700		5770		3960 B
SELENIUM		1.4 UW		2.3 BW		1.4 UW	
SILVER		2.7 B		4.6 B		2.7 B	
SODIUM			45400		47700		43000
THALLIUM			60 B		101 B		40 B
VANADIUM			16 B		17 B		15 B
ZINC			63		32		20

S&A REQUEST: 308
LOCATION: STORMWATER MANHOLE 6
MEDIUM: SEDIMENT

FIELD MEASUREMENTS	SAMP NO:	ME308015					
FID/PID (PPM)		0.01					

TABLE 4.3.1 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 1 DRAFT DO NOT CITE
SANITARY SEWER & BUILDING UNDERDRAIN DISCHARGES

S&A REQUEST: 308
LOCATION: STORMWATER MANHOLE 6
MEDIUM: SEDIMENT

METALS, INCLUDING CR+6 (MG/KG)	SAMP NO:	ME308015A	ME308015B
	SDG NO:	ME300017B	ME300017C
	TYPE:	S. COMPOSITE	S. COMPOSITE
ALUMINUM			5180
ARSENIC		6.5 *	
BARIUM			69
BERYLLIUM			1.5 E
CADMIUM		1.7 N	
CALCIUM			89700 *
CHROMIUM			28 *
COBALT			13
COPPER			10 NE
IRON			27800 *
LEAD		44	
MAGNESIUM			2500 *
MANGANESE			714 *
MERCURY		0.9 N	
NICKEL			17
POTASSIUM			509 BE
SILVER		23 SN	
SODIUM			38 B
THALLIUM			7.3 B
VANADIUM			21 N*
ZINC			87 *

4.7 Environmental Problem 2: Stormwater Discharges

Request Numbers: 309, 310, and 311.
Requester: D. Misenheimer.
Finding and Basis: It was thought that potential surface water and sediment contamination of West Run and Burrough's Run may have resulted from past and possibly present on-site stormwater discharges containing polynuclear aromatics (PNAs), mercury, and other heavy metals. Prior to 1983, wastewater from the analytical labs, photo labs, garage, enhanced oil recovery labs, coal processing labs, and coal bin drainage discharged directly into the stormwater sewer system. The stormwater sewer system discharged into tributaries of West Run.

4.7.1 Sampling and Analysis Objectives

Statement: Samples were to be collected and analyzed to determine if the surface water concentrations of PNAs and heavy metals in tributaries of West Run exceeded the West Virginia Department of Environmental Resources (WVDER) water quality standards (see Appendix A of the Sampling and Analysis Plan) as a result of METC stormwater discharges.

Supporting Information: Prior to 1983, wastewater from the analytical labs, photo labs, garage, enhanced oil recovery labs, coal processing labs, and coal bin drainage discharged directly to the stormwater sewer system. The stormwater sewer system discharged into tributaries of West Run. Analytical results of samples collected from West Run and Burrough's Run in 1980 are provided in Appendix B of the Sampling and Analysis Plan.

Mercury contamination of the stormwater sewer system was reported in the 1981 report by Sanders and Thomas entitled, "Wastewater Management Plan, Vol. II." The Sanders and Thomas report gives results of stream and stormwater sampling and analysis conducted to determine the source and extent of mercury contamination (see Appendix C of the Sampling and Analysis Plan). Based on

their analyses, it was concluded that mercury contamination mainly originated from the analytical laboratories located in Buildings B-1, B-2, and B-3.

It was suspected that PNAs and heavy metals were deposited in the sediments of the storm sewers and drainage ways that receive storm sewer discharges, creating a potential ongoing source of surface water contamination.

It was also suspected that contaminants may have entered the storm sewer system via unknown connections to the system. These unknown connections reflect the haphazard site development that has occurred since 1955. Consequently, there were potentially additional sources of contamination entering the storm sewer system, resulting in ongoing surface water contamination.

4.7.2 Sampling and Analytical Design

4.7.2.1 Sampling Design

Request 309: PVC Pipe Outfall for Underdrain (Water) (Fig. 4.2a). Three composite water samples were to be collected from the white 4-in. PVC underdrain pipe located north of Trailer-2 (T-2), northwest of Building B-7, and just inside the fence boundary (Sampling Method: Reference E4.2.2). Because visual observations indicated flow from this discharge pipe to be extremely low (less than 1 liter per hour), an 8-hr composite was to be collected on three separate days. It was anticipated that all the discharge from this pipe in the 8-hr period would be collected for analysis (continuous collection). However, if a storm caused a flow that was higher than anticipated, three grab samples were to be collected at three separate times either on the same day or on separate days. Temperature, pH, and conductivity were also to be measured (Field Method: Reference E4.5.1, E4.5.4, and E4.5.2).

The Sampling Team arrived on-site 23AUG88. They checked the site twice early in the day, but could not collect a sample because there was no flow, only a

drip from the pipe. However, at 1539 they collected grab Sample ME309016 in the rain. Under cloudy, rainy skies, the temperature was 75°F. A grab sample was collected instead of a composite because the flow was much higher than anticipated due to a storm. The water, a dirty, light-brown, had some suds in it.

On 24AUG88, the Team arrived on-site at 0825. The temperature was approximately 70°F, and the sky was cloudy. Because rain had fallen the previous night, water was flowing slightly over the weir. Taken from behind the weir because there was not enough flow for a composite, grab Sample ME309027 was collected at 0830 by means of an I-CHEM plastic bottle that had been cut to form a cup. The water in the pipe was clear.

When the Team arrived at 0943 on 25AUG88, they found no flow in the pipe. The sky was partly cloudy, wind from 0 to 5 mph, and the temperature a pleasant 75°F. When they returned to the site at 1420, the sky was sunny, the temperature was approximately 80°F, and there was a slight breeze. At this time, they found water building up behind the weir. At 1420, using the bottom of a plastic bottle, one team member collected grab Sample ME309038 from the PVC pipe, draining the pipe as it filled.

Request 310: Stormwater Drainage Outfall North of Building B-14 and Upstream (West) of the 20-in. Culvert (Water) (Fig. 4.2b). Three grab water samples were to be collected either on three separate days or at three separate times on the same day from the 12- to 18-in. corrugated metal pipe located north of Building B-14 and 5 to 6 ft upstream (west) of the 20-in. culvert (Sampling Method: Reference E4.2.1). Because this outfall was a storm drain and flow often depended on precipitation, the Team was requested to disregard Request 310 if no flow were present when they were on-site. Temperature, conductivity, and pH were also to be measured (Field Method: Reference E4.5.1, E4.5.4, and E4.5.2).

The Team arrived on-site 23AUG88 under cloudy skies with a temperature of approximately 75°F. After checking twice earlier on 23AUG88 and finding no flow, the Team returned at 1548 and collected grab Sample ME310019 in the rain by immersing sample containers in the water as it flowed from the pipe. On 24AUG88, the Team checked the sample location at 1415 and found no flow. The temperature was approximately 80°F, the sky was partly sunny, and the wind was from 5 to 10 mph. On 25AUG88, the Team checked the site at 0808, 0938, and 1415 and found no flow. After a slight shower and with partly cloudy skies, wind from 0 to 5 mph, and temperature 75°F, they checked the site at 1545 and again found no flow. On 26AUG88, the Team checked the sample location at 0715 and found mud in the ditch, but no flow, although it had rained during the night. The sky was cloudy and the temperature was approximately 70°F. At 1410 under partly cloudy skies, wind from 0 to 5 mph, and temperature approximately 80°F, the Team again found no flow. They tried again on 27AUG88, but found no flow. Therefore, the last two sets of samples (ME310020 and ME310031) could not be collected.

Request 311: Stormwater Drainage Outfall North of Building B-14 at the East Headwall of the 20-in. Culvert (Water) (Fig. 4.2c). Three grab water samples were to be collected either on three separate days or at three separate times on the same day from the 4-in. white PVC pipe at the east headwall of the 20-in. culvert located north of Building B-14 (Sampling Method: Reference E4.2.1). Because the outfall was a storm drain and flow often depended on precipitation, the Team was requested to disregard Request 311 if no flow were present when they were on-site.

The Sampling Team arrived on-site on 23AUG88 at 1105 under an overcast sky. Wind was from 0 to 10 mph, and the temperature was approximately 80°F. Grab Sample ME311010 was collected from clear water at 1108 straight from the 4-in. PVC pipe north of Building B-14. No decontamination was required. The Team left the site at 1120. Because the Horiba did not appear to be working correctly, it was recalibrated; at 1420, the Team returned to the site to take

another pH reading with the new Horiba (Field Method: Reference E4.5.2). This reading was normal.

On 24AUG88, the Team arrived at 1404 under sunny but partly cloudy skies. Wind was from 5 to 10 mph, and the temperature was approximately 80°F. Grab Sample ME311021 was collected at 1406 directly from the PVC pipe. The water was clear; no decontamination was required.

The Team arrived at 0930 on 25AUG88. With partly sunny skies and a slight breeze, the temperature was approximately 77°F. After taking the water temperature, pH, and conductivity readings, the Team collected grab Sample ME311032 at 0932. The water was very clear. Although the Horiba was decontaminated, no other decontamination was necessary because the sample was collected directly into bottles from the PVC pipe. Sampling was completed at 0936.

4.7.2.2 Analytical Design

Request 309: Parameters measured included pH, specific conductance, and temperature. Parameters analyzed included semivolatiles, ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, and AA-silver.

Request 310: Parameters measured included pH, specific conductance, and temperature. Parameters analyzed included semivolatiles, ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, and AA-silver.

Request 311: Parameters measured included pH, specific conductance, and temperature. Parameters analyzed included semivolatiles, ICP-metals, AA-arsenic, AA-cadmium, AA-lead, AA-mercury, AA-selenium, and AA-silver.

4.7.3 Field and Analytical Data

Field Data:

Request 309: *Field data for Environmental Problem 2 are shown in Table 4.3.2. Temperature for the three samples taken on three consecutive days ranged from 22° to 23°C. The water samples were near neutral with pH values ranging from 6.4 to 7.9. Conductivity values ranged from 0.35 to 1.6 mS/cm.*

Request 310: *Field data for Environmental Problem 2 are shown in Table 4.3.2. Only one sample was taken. The temperature was 25°C, the pH was 6.9, and the conductivity was 0.38 mS/cm.*

Request 311: *Field data for Environmental Problem 2 are shown in Table 4.3.2. Temperature for the three samples taken on three consecutive days ranged from 24° to 26°C. The water samples were slightly basic with pH values ranging from 7.8 to 8.3. Conductivity values ranged from 0.67 to 0.99 mS/cm.*

Field Data Evaluation:

Request 309: Field data are consistent for the three samples taken on three consecutive days. Generally, all the parameters (except conductivity in samples ME309027 and ME309038) increased in value on each consecutive day (i.e., sample ME309016 values were lowest and ME309038 values were highest).

Request 310: Since only one sample was obtained, no evaluation of data between samples from this request can be made. However, compared to other water samples taken at METC, the temperature and pH values are consistent and the conductivity value appears to be somewhat low.

Request 311: Field data are consistent for the three samples taken on consecutive days. The second sample (ME311021) has the highest values for all measured parameters.

Analytical Data:

Request 309:

Metals. Analytical data for metals in surface water are presented in Table 4.3.2. Of the 16 metals detected in the Outfall from Bldg B-1, the following nine were below the CRDL in the sample collected: aluminum, arsenic, barium, chromium, iron, lead, manganese, silver, and vanadium. Of the remaining metals detected, mercury was 0.3 ug/L; selenium, 18 ug/L; and zinc, 32 ug/L. Other metals detected were calcium, magnesium, potassium, and sodium.

Analytical data for metals in surface water are presented in Table 4.3.2. Of the 20 metals detected in the Outfall from Bldg B-17, the following seven were below either the CRDL or the IDL in both samples: arsenic, barium, copper, nickel, silver, thallium, and vanadium. Of the remaining metals detected, cadmium was 12 ug/L; chromium, 25 ug/L; lead, 41 ug/L; mercury, 0.2 ug/L; selenium, 12 ug/L; and zinc, 2340 ug/L. Other metals detected were aluminum, calcium, iron, magnesium, manganese, sodium, and potassium.

Extractable organics. Analytical results for semivolatile organic compounds are presented in Table 4.3.2. Five positively identified semivolatile organic compounds were detected these samples, with only bis(2-ethylhexyl)phthalate exceeding the CRDL in samples ME309016 (23 ug/L) and ME309027 (59 ug/L).

Five tentatively identified compounds are reported in concentrations ranging from 5.7 to 18 ug/L.

Request 310:

Metals. Analytical data for metals in surface water are presented in Table 4.3.2. Of the 19 metals detected, the following ten were below either the CRDL or the IDL in both samples: arsenic, barium, magnesium, mercury, nickel, potassium, selenium, silver, sodium, and vanadium. Of the remaining metals detected, cadmium was 7.4 ug/L; chromium, 18 ug/L; copper, 26 ug/L; lead, 45 ug/L; and zinc, 194 ug/L. Other metals detected were aluminum, calcium, iron, and manganese.

Extractable organics. Analytical results for semivolatile organic compounds are presented in Table 4.3.2. Only di-n-octylphthalate (12 ug/L) was detected above the CRDL; however, blank contamination estimated at 5 ug/L makes this result suspect. Six other semivolatiles were detected at levels below the CRDL in this sample.

Nine tentatively identified compounds are reported in concentrations ranging from 5.4 to 47 ug/L.

Request 311:

Metals. Analytical data for metals in surface water are presented in Table 4.3.2. Of the 15 metals detected, the following nine were below either the CRDL or the IDL in all three samples: aluminum, arsenic, barium, cadmium, iron, mercury, potassium, thallium, and vanadium. Of the remaining metals detected, chromium was 18 ug/L, and zinc 37 to 70 ug/L. Other metals detected were calcium, magnesium, manganese, and sodium.

Extractable organics. Analytical results for semivolatile organic compounds are presented in Table 4.3.2. No semivolatile organic compounds were detected above the CRDL. Among the three samples, two semivolatiles were detected at levels below the CRDL.

One tentatively identified compound was reported at a concentration of 3.7 ug/L.

Analytical Data Evaluation:

Request 309:

Metals. In the Outfall from Bldg B-1, three metals of interest (mercury, selenium, and zinc) were detected above either the CRDL or the IDL for this request.

In the Outfall from Bldg B-17, six metals of interest (cadmium, chromium, lead, mercury, selenium, and zinc) were detected above either the CRDL or the IDL for this request.

Extractable organics. Bis(2-ethylhexyl)phthalate was the only semivolatile organic compound detected above the CRDL. Among the three samples, four other semivolatiles were detected below the CRDL. Little blank contamination is associated with these samples. Five tentatively identified compounds were detected in one or more of the three samples.

Request 310:

Metals. Five metals of interest (cadmium, chromium, copper, lead, and zinc) were detected above either the CRDL or the IDL for this request.

Extractable organics. Di-n-octylphthalate was the only semivolatile organic compound detected above the CRDL; however, blank contamination makes this result suspect. Six other semivolatiles were detected below the CRDL in this sample. Little blank contamination is associated with this sample. Nine tentatively identified compounds were detected in this sample.

Request 311:

Metals. Two metals of interest (chromium and zinc) were detected above either the CRDL or the IDL for this request.

Extractable organics. No semivolatile organic compounds were detected above the CRDL. Two semivolatiles were detected at levels below the CRDL among the three samples. Little blank contamination is associated with these samples. One tentatively identified compound was reported at a concentration of 3.7 ug/L.

4.7.4 Limitations and Qualifications

Data Quality Level:

Request 309: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level II because samples ME309027 and ME309038 were not taken from the PVC pipe as specified in the Sampling and Analysis Plan. The overall analytical rating is Quality Level II. Reasons for a Quality Level II are presented under 4.7.4 Limitations and Qualifications, Analytical Data, Request 309.

Request 310: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level I. The overall analytical rating is Quality Level II. Reasons for a Quality Level II are presented under 4.7.4 Limitations and Qualifications, Analytical Data, Request 310.

Request 311: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level I. The overall analytical rating is Quality Level II. Reasons for a Quality Level II are presented under 4.7.4 Limitations and Qualifications, Analytical Data, Request 311.

Field Data:

Request 309: The Quality Level rating is I.

Request 310: The Quality Level rating is I.

Request 311: The Quality Level rating is II because the Horiba did not appear to be working correctly and had to be replaced.

Analytical Data:

Request 309:

Metals. The analytical results for ICP metals in the outfall from Bldg B-1 are Quality Level I. Analytical results for AA metals are Quality Level I except for cadmium and lead, which are Quality Level II. For cadmium and lead the percent recovery for spikes is greater than 125% and the reported sample result is positive. The results are considered as estimated but acceptable.

The analytical results for ICP and AA metals in the outfall from Bldg B-17 are Quality Level I.

Extractable organics. The Quality Level rating is II because in this SDG the 40-day holding time on the matrix spike sample was exceeded by one day and on the blank extracts by 62 to 65 days. Also, the percent of the MS/MSD pair was outside the limits.

Request 310:

Metals. Analytical results for ICP and AA metals are Quality Level I.

Extractable organics. The Quality Level rating is III because the 40 day holding time for analysis of the sample extracts was exceeded by 63 days due to equipment failure, resulting in the need for reanalysis.

Request 311:

Metals. Analytical results for ICP and AA metals are Quality Level I.

Extractable organics. The Quality Level rating is II because in this SDG the 40-day holding time on the matrix spike sample was exceeded by one day and on the blank extracts by 62 to 65 days. Also, the percent of the MS/MSD pair was outside the limits.

Environmental Problem: 2
Request Number: 309

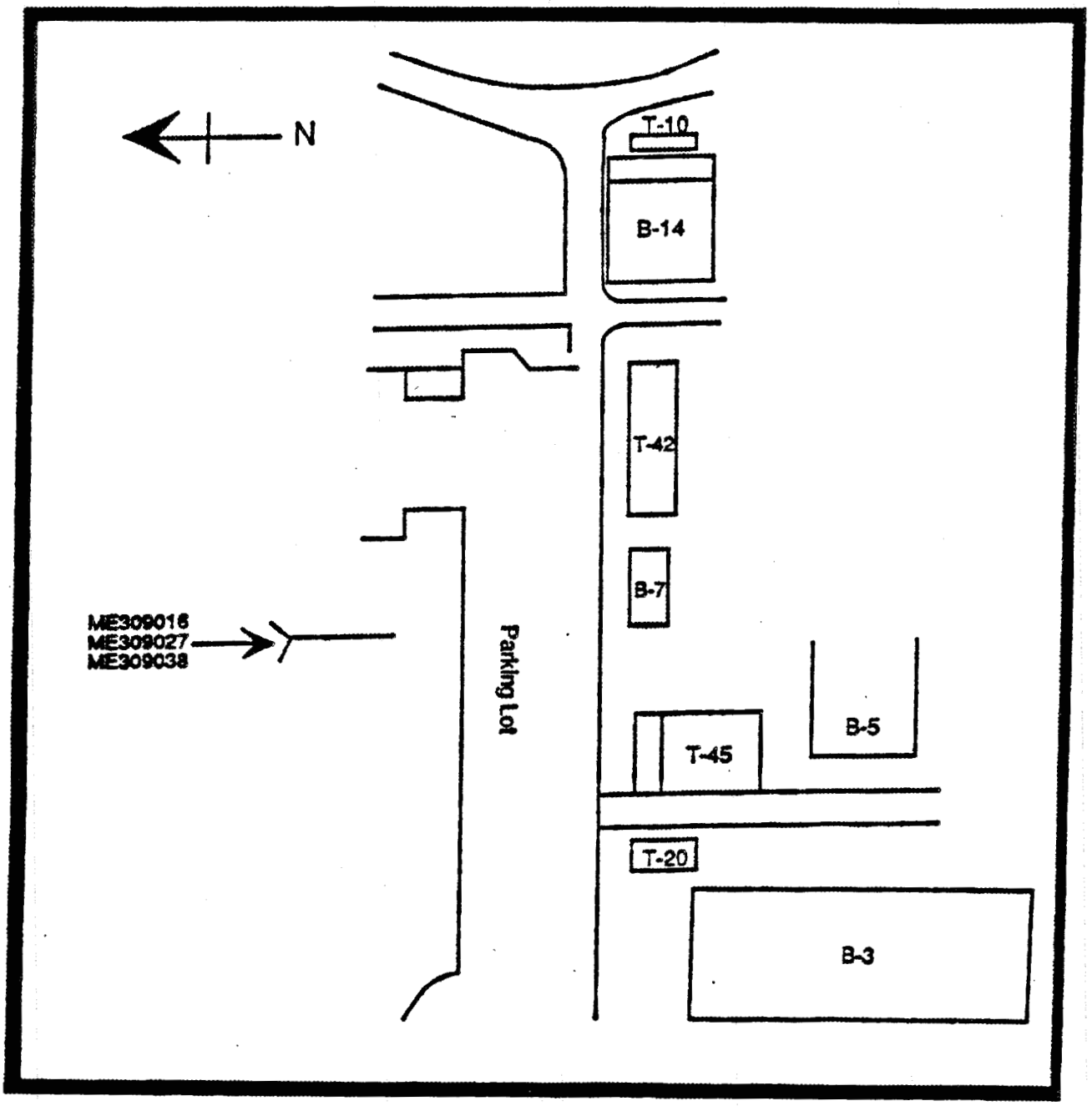

Figure 4.2a. PVC Pipe Outfall for Underdrain

Environmental Problem: 2
Request Number: 310

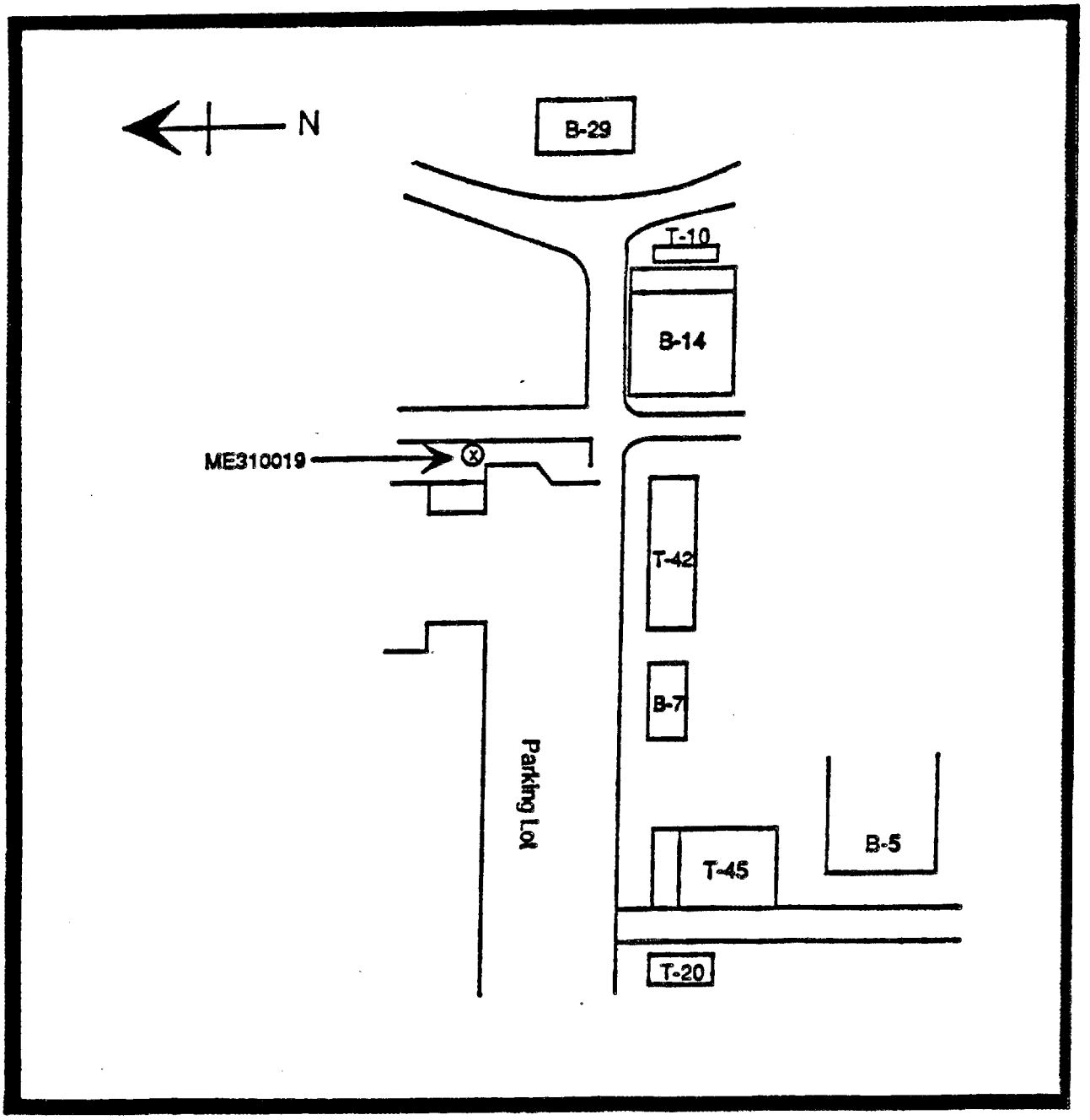

Figure 4.2b. Stormwater Drainage Outfall North of Building B-14 and Upstream (West) of the 20-in. Culvert

Environmental Problem: 2
Request Number: 311

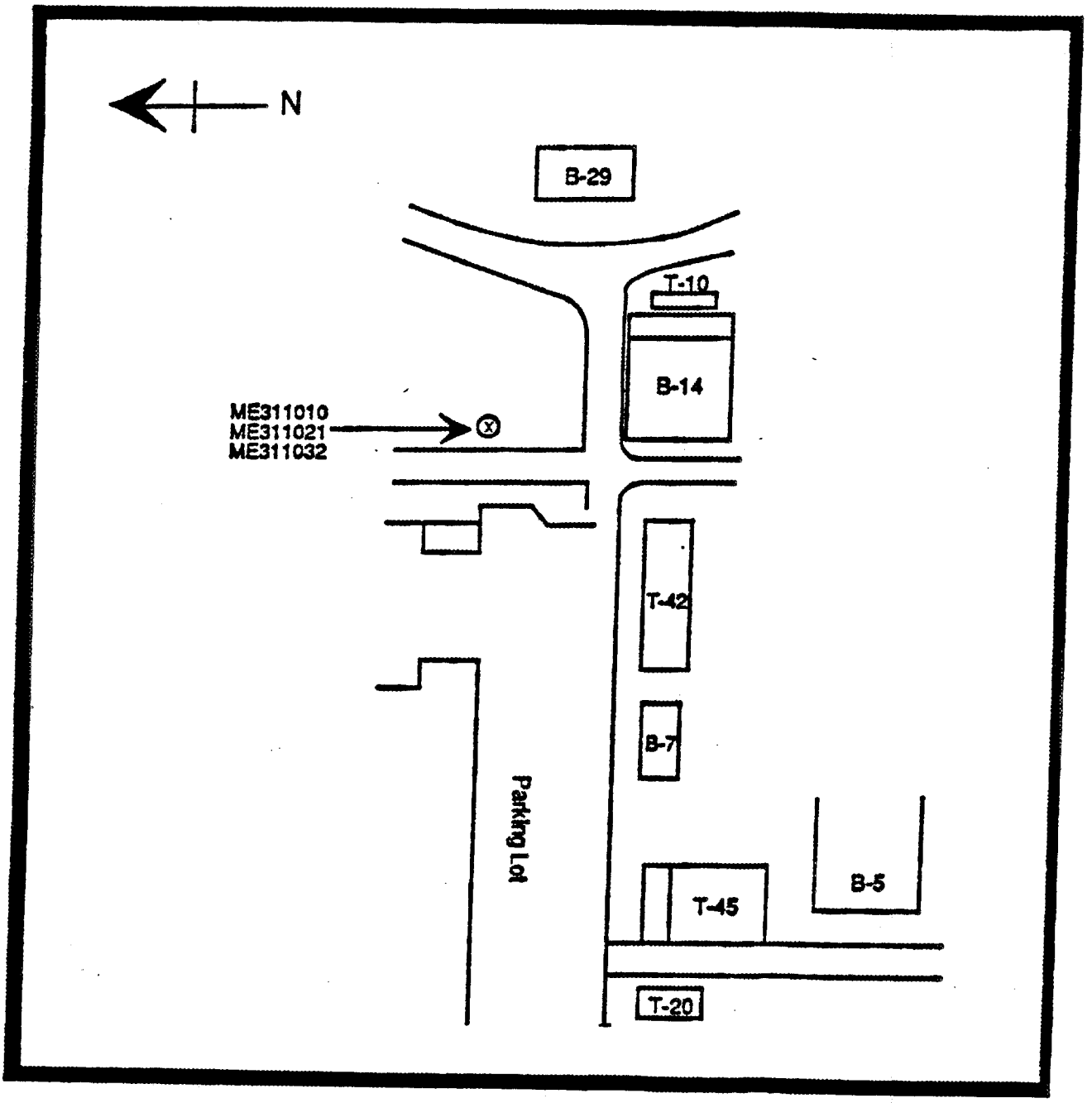

Figure 4.2c. Stormwater Drainage Outfall North of Building B-14 at the East Headwall of the 20-in. Culvert

TABLE 4.2.2 SAMPLING AND ANALYSIS DATA SUMMARY
ENVIRONMENTAL PROBLEM - 2

REQUEST NUMBER	LOCATION	TYPE LOCATION	MEDIA	NUMB REQ	NUMB COLL	TYPE	METALS NUMB HITS	METALS NUMB ANAL	PES/H/PCB NUMB HITS	PES/H/PCB NUMB ANAL	SEMIVOLS NUMB HITS	SEMIVOLS NUMB ANAL	VOLS NUMB HITS	VOLS NUMB ANAL	RADS NUMB HITS	RADS NUMB ANAL
ME309	NW B. B-17	STORMWATER	SUR WATER	3	3	GRAB	3	3	0	0	3	3	0	0	0	0
ME310	NW B. B-17	STORMWATER	SUR WATER	3	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME311	NW B. B-17	STORMWATER	SUR WATER	3	3	GRAB	3	3	0	0	3	3	0	0	0	0
		MED TOTAL		9	7		7	7	0	0	7	7	0	0	0	0
		EP TOTAL		9	7		7	7	0	0	7	7	0	0	0	0

TABLE 4.3.2 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 2 DRAFT DO NOT CITE
STORMWATER DISCHARGES

S&A REQUEST: 309
LOCATION: WEST RUN & BURROUGH'S RUN PVC PIPE OUTFALL FOR UNDERDRAIN LOCATED NW BLDG B-1
MEDIUM: SURFACE WATER

FIELD MEASUREMENTS	SAMP NO:	ME309038
CONDUCTIVITY (MS/CM)		1.5
PH (UNITS)		7.9
TEMPERATURE (DEG C)		25

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME309038D	ME309038E
	SDG NO:	ME302020D	ME302020E
	TYPE:	GRAB	GRAB
ALUMINUM			70 B
ARSENIC		1.6 B	
BARIUM			63 B
CALCIUM			101000
CHROMIUM			4 B
IRON			14 B
LEAD		2.1 BN	
MAGNESIUM			18300
MANGANESE			12 B
MERCURY		0.3	
POTASSIUM			11600
SELENIUM		18 S	
SILVER		2.2 B	
SODIUM			114000
VANADIUM			22 B
ZINC			32

EXTRACTABLE ORGANICS (UG/L)	SAMP NO:	ME309038A
	SDG NO:	ME302019A
	TYPE:	GRAB
BIS(2-ETHYLHEXYL)PHTHALATE		9 J
DI-N-BUTYLPHTHALATE		4 BJ
DI-N-OCTYL PHTHALATE		2 J

TABLE 4.3.2 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 2 DRAFT DO NOT CITE
STORMWATER DISCHARGES

S&A REQUEST: 309
LOCATION: WEST RUN & BURROUGH'S RUN PVC PIPE OUTFALL FOR UNDERDRAIN LOCATED NW BLDG B-17
MEDIUM: SURFACE WATER

FIELD MEASUREMENTS	SAMP NO:	ME309016	ME309027				
CONDUCTIVITY (MS/CM)		0.35	1.6				
PH (UNITS)		6.4	7.1				
TEMPERATURE (DEG C)		22	24				

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME309016D	ME309016E	ME309027D	ME309027E		
	SDG NO:	ME302019D	ME302019E	ME302019D	ME302019E		
	TYPE:	GRAB	GRAB	GRAB	GRAB		
ALUMINUM			10200		45 B		
ARSENIC		2.9 B		1.1 UW			
BARIUM			108 B		46 B		
CADMIUM		12		0.4 U			
CALCIUM			53700		89100		
CHROMIUM			25		7.3 B		
COPPER			23 B		3.3 U		
IRON			12400		20 B		
LEAD		41		1.6 U			
MAGNESIUM			4430 B		14900		
MANGANESE			231		12 B		
MERCURY		0.2		0.1 B			
NICKEL			29 B		13 U		
POTASSIUM			4410 B		9740		
SELENIUM		2 BW		12 +			
SILVER		3.6 B		0.7 U			
SODIUM			14500		84500		
THALLIUM			22 B		84 B		
VANADIUM			31 B		17 B		
ZINC			2340		12 B		

EXTRACTABLE ORGANICS (UG/L)	SAMP NO:	ME309016A	ME309027A				
	SDG NO:	ME302019A	ME302019A				
	TYPE:	GRAB	GRAB				
BENZOIC ACID		42 J	54 U				
BIS(2-ETHYLHEXYL)PHTHALATE		23	59				
DI-N-BUTYLPHTHALATE		2 BJ	2 BJ				
DI-N-OCTYL PHTHALATE		2 BJ	11 U				
PHENOL		2 J	11 U				
* UNKNOWN HYDROCARBON(43.33)		16 J					
* UNKNOWN HYDROCARBON(45.39)		7 J					
* UNKNOWN HYDROCARBON(47.94)		18 J					
* UNKNOWN HYDROCARBON(51.13)		11 J					

TABLE 4.3.2 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 2 DRAFT DO NOT CITE
STORMWATER DISCHARGES

S&A REQUEST: 309
LOCATION: WEST RUN & BURROUGH'S RUN PVC PIPE OUTFALL FOR UNDERDRAIN LOCATED NW BLDG B-17
MEDIUM: SURFACE WATER

EXTRACTABLE ORGANICS (UG/L)	SAMP NO:	ME309016A	ME309027A
	SDG NO:	ME302019A	ME302019A
	TYPE:	GRAB	GRAB
* UNKNOWN(42.18)			5.7 J

S&A REQUEST: 310
LOCATION: STORMWATER DRAINAGE OUTFALL NORTH OF BLDG B-14 & UPSTREAM (W) OF CULVERT
MEDIUM: SURFACE WATER

FIELD MEASUREMENTS	SAMP NO:	ME310019
CONDUCTIVITY (MS/CM)		0.38
PH (UNITS)		6.9
TEMPERATURE (DEG C)		25

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME310019D	ME310019E
	SDG NO:	ME302019D	ME302019E
	TYPE:	GRAB	GRAB
ALUMINUM			4860
ARSENIC		3.5 B	
BARIUM			65 B
CADMIUM		7.4	
CALCIUM			56000
CHROMIUM			18
COPPER			26
IRON			6470
LEAD		45	
MAGNESIUM			3250 B
MANGANESE			165
MERCURY		0.1 B	
NICKEL			34 B
POTASSIUM			2690 B
SELENIUM		1.9 BW	
SILVER		1.2 B	
SODIUM			4270 B
VANADIUM			21 B
ZINC			194

TABLE 4.3.2 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 2 DRAFT DO NOT CITE
STORMWATER DISCHARGES

S&A REQUEST: 310
LOCATION: STORMWATER DRAINAGE OUTFALL NORTH OF BLDG B-14 & UPSTREAM (W) OF CULVERT
MEDIUM: SURFACE WATER

EXTRACTABLE ORGANICS (UG/L)	SAMP NO:	ME310019A
	SDG NO:	ME302019A
	TYPE:	GRAB
BIS(2-ETHYLHEXYL)PHTHALATE		9 J
BUTYLBENZYLPHTHALATE		4 J
DI-N-BUTYLPHTHALATE		2 BJ
DI-N-OCTYL PHTHALATE		12 B
DIETHYLPHTHALATE		4 J
FLUORANTHENE		1 J
4-METHYLPHENOL		1 J
* C27-ALKANE(39.24)		8.9 J
* C28-ALKANE(40.46)		47 J
* C29-ALKANE(41.91)		20 J
* DIHEPTYL PHTHALATE(42.64)		19 J
* DIISONONYL PHTHALATE(46.68)		10 J
* PENTADECANE(22.90)		5.4 J
* UNKNOWN HYDROCARBON(38.17)		11 J
* UNKNOWN HYDROCARBON(43.68)		10 J
* UNKNOWN HYDROCARBON(45.83)		15 J

S&A REQUEST: 311
LOCATION: STORMWATER DRAINAGE OUTFALL NORTH OF BLDG B-14 AT EAST HEADWALL OF CULVERT
MEDIUM: SURFACE WATER

FIELD MEASUREMENTS	SAMP NO:	ME311010	ME311021	ME311032
CONDUCTIVITY (MS/CM)		0.68	0.99	0.67
PH (UNITS)		7.8	8.3	7.9
TEMPERATURE (DEG C)		25	26	24

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME311010D	ME311010E	ME311021D	ME311021E	ME311032D	ME311032E
	SDG NO:	ME302019D	ME302019E	ME302019D	ME302019E	ME302019D	ME302019E
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALUMINUM			90 B		75 B		77 B
ARSENIC		1.1 U		1.2 BW		1.1 UW	
BARIUM			73 B		73 B		70 B
CADMIUM		0.4 U		0.49 B		0.4 U	
CALCIUM			62400		63600		60400
CHROMIUM			4.5 B		18		5 B

TABLE 4.3.2 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 2 DRAFT DO NOT CITE
STORMWATER DISCHARGES

S&A REQUEST: 311
LOCATION: STORMWATER DRAINAGE OUTFALL NORTH OF BLDG B-14 AT EAST HEADWALL OF CULVERT
MEDIUM: SURFACE WATER

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME311010D	ME311010E	ME311021D	ME311021E	ME311032D	ME311032E
	SDG NO:	ME302019D	ME302019E	ME302019D	ME302019E	ME302019D	ME302019E
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
IRON			18 B		79 B		29 B
MAGNESIUM			13400		13200		13000
MANGANESE			26		29		23
MERCURY		0.03 U		0.03 U		0.1 B	
POTASSIUM			2700 B		3180 B		2780 B
SODIUM			44200		39400		40400
THALLIUM			31 B		72 B		40 B
VANADIUM			16 B		17 B		16 B
ZINC			37		58		70

EXTRACTABLE ORGANICS (UG/L)	SAMP NO:	ME311010A	ME311021A	ME311032A
	SDG NO:	ME302019A	ME302019A	ME302019A
	TYPE:	GRAB	GRAB	GRAB
DI-N-BUTYLPHTHALATE		2 BJ	1 BJ	5 BJ
DIETHYLPHTHALATE		10 U	10 U	10 J
* PHENOL,2,6-BIS(1,1-DIME(24.05)			3.7 J	

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4.8 Environmental Problem 3: Historical Waste and Scrap Accumulation Areas

Request Numbers: 800 and 801.
Requester: K. Walter.
Finding and Basis: It was thought that potential spills and leaks from scrap and waste materials may have resulted in soil contamination at two historic waste-accumulation areas near Buildings B-11 and B-24. The area around B-11 includes the scrapyard east of B-11 and south and across the road from B-11. The area around B-24 includes the area to the southwest of B-24.

Historical aerial photographs show that between 1980 and the present, the area around Building B-24 has been used for waste/scrap accumulation and storage. Photos also show that the area around B-11 has been used in a similar manner since the mid-1960s. The potential exists for contamination of soils with polychlorinated biphenyls (PCBs), heavy metals, and tars containing polynuclear aromatics (PNAs) at these two historic waste accumulation areas.

4.8.1 Sampling and Analysis Objectives

Statement: Samples were to be collected and analyzed to determine if semivolatile organics (including total PNAs), PCBs, heavy metals, and gamma radiation (B-11 area only) were present in surface soils at the waste accumulation areas in concentrations in excess of the method detection limits and to determine normal levels for these parameters for comparison purposes.

Supporting Information: Visual observations by the Survey Team revealed a pile of 2 to 3 yd^3 of apparent ash materials, possibly mixed with waste tars south of Building B-24, and several piles of waste metal scrap in the area around Building B-11. Several areas of oil-stained soils were found in the area around Building B-24.

Double-metal encapsulated radiological sources for coal testing were used on-site from 1969 through 1979, and proper disposition records have not been found. The source materials included gamma emitters, plutonium-239, polonium-210, and californium-252, with the largest source being cesium-137 (20 curies). Testing was conducted on site in a small underground concrete-block building called the sulfur pit, which was demolished in place and is now under 5 to 15 ft of earth. There is no evidence that the sources ever leaked; however, proper records are not available.

4.8.2 Sampling and Analytical Design

4.8.2.1 Sampling Design

Request 800: Building B-11 and Scrapyard Waste Accumulation Area (Soil) (Fig. 4.3a). For Request 800, six 0- to 4-ft grab soil samples were to be collected from the waste accumulation area (by means of a posthole digger or a drive tube) around Building B-11 and the scrapyard (Sampling Method: Reference E5.2). The area to be sampled was approximately 3000 m^2 and appeared to be heterogeneous. Parts of the area were covered by a paved road, and different sections of the area had been used for such purposes as a scrapyard and sulfur pits.

The Sampling Team arrived on-site 24AUG88 at 0815 with an overcast sky and temperature approximately 70°F. Light rain began to fall at 0948. After dividing the area into an 8 x 15 grid (approximately 10 by 30 ft), the Team randomly selected a starting point between segments 1 and 20 and designated it segment 1. Segment 2 was selected by adding 20 to the grid number for segment 1; segment 3 was selected by adding 20 to the grid number for segment 2; segments 4, 5, and 6 were selected by the same procedure. If any of the segments fell completely within the paved area, the Team was to select the next higher segment that was not paved.

After dividing the area into grid segments and determining the segments for sampling, the Team began collecting samples. The ground was still wet due to heavy storms the previous day and night. Sample ME800012 (Grid 1) was brown soil, which was moist due to heavy rain. The RAD scan showed 50 cpm. Although the Team hit concrete on Grid 1 and had to back up about a foot, they still were able to stay within the grid area. Sample ME800023 (Grid 21) showed brown soil at the first foot, gray clay at the second foot, and moisture at the third foot. The RAD scan showed 30 cpm. Sample ME800034 (Grid 48) was light brown with small rocks. The grid number was changed from 41 to 48 because Grid 41 was in the paved area. Sample ME800045 (Grid 61) showed red soil. Although the Team hit rock at 1 ft on Grid 81, they moved about 1 ft and were able to collect Sample ME800056 from Grid 81. This sample showed light brown soil, which was dry to about 3 1/2 ft and moist at 4 ft. The RAD scan showed 35 cpm. This grid area, which was within the scrapyard, was covered with small pieces of scrap metal, nuts and bolts, glass, and plastic. In Sample 800067 (Grid 101), water was present at 3 ft. The sample was mostly light-brown and tan sludge. Behind the storage building, the RAD scan for this area showed 30 cpm. The hole refilled with water after the augers were removed. These samples were taken from 0.0 to 4.0 ft below the surface and were collected between 0830 and 1035 on 24AUG88. A QC rinsate (Sample ME800078) was taken at 1050.

Request 801: Waste Accumulation Area Southwest of Building B-24 (Soil) (Fig.4.3b). For Request 801, the Sampling Team was to collect six 0 to 4 ft grab soil samples from the waste accumulation area located southwest of Building B-24, zero to three additional surface soil samples from stained areas, and zero to three samples from ash piles to the depth of the ash pile (Sampling Method: Reference E5.2 and E5.1). The Team was to use a dual approach involving collection of samples from visibly stained areas and ash piles and from systematic random locations. The area to be sampled was greater than 2500 m^2. The 0- to 4-ft interval grab soil samples were to be collected by means of a posthole digger or a drive tube.

The Sampling Team arrived on-site 24AUG88 at 1330 with an overcast sky, wind from 0 to 5 mph, and temperature between 70° and 75°F. The Team members walked over the area to locate three stain and three ash pile areas to be sampled. The RAD scan showed 30 cpm. After dividing the area into an 8 x 15 grid, the Team randomly selected a starting point between segments 1 and 20 and designated it segment 1. Segment 2 was selected by adding 20 to the grid number for segment 1; segment 3 was selected by adding 20 to the grid number for segment 2. Segments 4, 5, and 6 were selected by the same procedure.

At 1341, the drill was set up on Grid 5 for Sample ME801013. However, because the battery was down and jumper cables had to be used to boost the rig, Sample ME801013 was not collected until over an hour later, at 1446. This sample showed light-gray and brown soil with moisture. The RAD scan showed 30 cpm. Sample ME801024 (Grid 25) showed brown soil with small gravel. Sample ME801057 (Grid 85), collected in a light rain, showed brown, moist soil. Sample ME801035 (Grid 45) was light-brown soil with very small bits of gravel. Sample 801068 (Grid 105) was light-brown sandy soil with a RAD count of 30 cpm. Sample 801046 (Grid 65) was brown soil with small gravel. Several inches of standing water were in the area. These samples were taken from 0.0 to 4.0 ft below the surface and were collected between 1446 and 1645 on 24AUG88. Stain areas and ash piles were to be sampled on 25AUG88.

On 25AUG88, the Team arrived at the stains located at the waste accumulation area southwest of Building B-24 at 0815. The temperature was 70°F, wind was from 0 to 5 mph, and the sky was clear. Three stained areas were randomly selected, identified, and sampled. A surface sample (0 to 3 in.) from each stained area was collected. The RAD scan showed 35 cpm. Sample ME801079 (Grid 45) was taken from the same grid used for grab soil sample ME801035. This sample, taken to the depth of stain, appeared to be hydraulic fuel. Sample ME801080 (Grid 112) looked like machine oil or fluid. Sample ME801091 (Grid 8) looked like oil from equipment. The RAD scan showed 35 cpm. These samples

were taken from 0.0 to 3.0 in. below the surface and were collected on 25AUG88 between 0820 and 0905.

Also on 25AUG88, three areas containing ash piles were randomly selected, identified, and sampled. A sample to the depth of the ash pile at each selected ash pile location was collected. Sample ME801104 was collected from the ash pile located near Grid 45. Sample ME801115 was collected from the ash pile near Grid 105, and Sample ME801126 was collected from the ash pile at Grid 118. The Rad scan showed 35 cpm. These samples were taken from 0 to 4 in. below the surface between 0917 and 0950.

4.8.2.2 Analytical Design

Request 800: No field measurements were requested. Parameters analyzed included semivolatiles, total PNAs, PCBs, ICP-metals, and gamma scan.

Request 801: No field measurements were requested. Parameters analyzed included semivolatiles, total PNAs, PCBs, and ICP-metals.

4.8.3 Field and Analytical Data

Field Data:

Request 800: *No field measurements were requested.*

Request 801: *No field measurements were requested.*

Field Data Evaluation:

Request 800: No field measurements were requested.

Request 801: No field measurements were requested.

Analytical Data:

Request 800:

Metals. Analytical data for metals in soil are presented in Table 4.3.3. Of the 19 metals detected, the following four were below either the CRDL or the IDL in all six samples: arsenic, cadmium, silver, and thallium. Of the remaining metals detected, barium ranged from 53 to 265 mg/kg, beryllium from 1.1 to 1.8 mg/kg, chromium from 15 to 22 mg/kg, copper from 5.9 to 19 mg/kg, nickel from 12 to 18 mg/kg, and zinc from 25 to 102 mg/kg. Lead was 57 mg/kg. Other metals detected were aluminum, calcium, cobalt, iron, magnesium, manganese, potassium, and vanadium.

PCBs and other extractables. Analytical results for PCB's are presented in Table 4.3.3 along with a single rinsate. Gamma Chlordane (8.4 ug/kg) was detected below the CRDL (87 ug/kg) in sample ME800012.

Extractable organics. Analytical results for semivolatile organic compounds are presented in Table 4.3.3. Nineteen positively identified semivolatile organic compounds were detected in these samples with only two compounds exceeding the CRDL. Bis(2-ethylhexyl)phthalate (960 ug/kg with 45 ug/kg blank contamination) was detected above the CRDL in sample ME800045. Di-n-octylphthalate (760 to 1000 ug/kg with 1100 ug/kg blank contamination) was detected in samples ME800023, ME800034, and ME800067.

Thirty-four tentatively identified compounds are reported. Two sulfur compounds were detected at the highest concentrations, 890 ug/kg and 1700 ug/kg, respectively. All other TIC's were detected in concentrations of 560 ug/kg or less.

Total PNA's. These compounds, which include naphthalene, phenanthrene, anthracene, and their substituents, were analyzed as part of the Extractable Organics (Semivolatiles). Results are included in the Extractable Organics section.

Radiochemistry. Analytical results for Radiological compounds are presented in Table 4.3.3. Bismuth-214 (1020 to 1200 pCi/kg dry), potassium-40 (9880 to 18800 pCi/kg dry), radium-226 (952 to 1190 pCi/kg dry), thorium-228 (938 to 1620 pCi/kg dry), and thorium-232 (941 to 1560 pCi/kg dry) were detected in all six samples. Cesium-137 (87 to 120 pCi/kg dry) was detected in samples ME800012, ME800023, and ME800034.

Request 801:

Metals. Analytical data for metals in soil are presented in Table 4.3.3. Of the 21 metals detected, the following four were below either the CRDL or the IDL in all twelve samples: antimony, arsenic, silver, and thallium. Of the remaining metals detected, barium ranged from 53 to 497 mg/kg, beryllium from 1 to 2.2 mg/kg, chromium from 8.6 to 107 mg/kg, copper from 14 to 140 mg/kg, lead from 52 to 160 mg/kg, nickel from 10 to 49 mg/kg, and zinc from 35 to 1360 mg/kg. Cadmium was 9.6 mg/kg, and selenium was 124 mg/kg. Other metals detected were aluminum, calcium, cobalt, iron, magnesium, manganese, potassium, and vanadium.

PCBs and other extractables. Analytical results for pesticides are presented in Table 4.3.3. Six positively identified pesticides were detected among the twelve samples with five compounds detected at levels exceeding the CRDL. Aldrin (120 ug/kg) was detected in sample ME801080 in the stain area. Aldrin (140 ug/kg), dieldrin (35 ug/kg), endrin (160 ug/kg), gamma chlordane (100 ug/kg), and heptachlor (20 to 100 ug/kg) were all detected above the CRDL among the three samples taken from the ash pile areas.

Extractable organics. Analytical results for semivolatile organic compounds are presented in Table 4.3.3. Twenty-two positively identified extractable organics were detected in these twelve sample, with four compounds detected at levels exceeding the CRDL. Di-n-butylphthalate (910 ug/kg), fluoranthene (1300 ug/kg), phenanthrene (1100 ug/kg), and pyrene (940 ug/kg) were all detected above the CRDL in sample ME801013. Di-n-butylphthalate (910 to 1700 ug/kg) was detected in all six of the randomly collected samples; however, blank contamination of 1100 ug/kg makes these results suspect.

Eighty-three tentatively identified compounds are reported.

Total PNA's. These compounds, which include naphthalene, phenanthrene, anthracene, and their substituents, were analyzed as part of the Extractable Organics (Semivolatiles). Results are included in the Extractable Organics section.

Analytical Data Evaluation:

Request 800:

Metals. Seven metals of interest (barium, beryllium, chromium, copper, lead, nickel, and zinc) were detected above either the CRDL or the IDL for this request.

PCBs and other extractables. Only one compound was detected and it was at a level below the CRDL.

Extractable organics. Bis(2-ethylhexyl)phthalate was the only semivolatile organic compound detected above the CRDL. The detection of di-n-butylphthalate is suspect due to blank contamination which exceeded the sample results. Seventeen other semivolatiles were detected below the CRDL among the six samples. Little blank contamination is associated with these samples.

Thirty-four tentatively identified compounds were detected in one or more of the samples.

Total PNA's. See Extractable Organics section.

Radiochemistry. Radiological instrumentation was calibrated daily. Because control sample results were within 10% of their true value, radiological data are considered reliable. Six radiological compounds were detected among the six samples.

Request 801:

Metals. Nine metals of interest (barium, beryllium, cadmium, chromium, copper, lead, nickel, selenium, and zinc) were detected above either the CRDL or the IDL for this request.

PCBs and other extractables. Aldrin was detected above the CRDL in the stained area samples, while five PCB compounds were detected above the CRDL among the ash pile samples.

Extractable organics. Di-n-octylphthalate was detected above the CRDL in all six randomly collected samples; however, blank contamination makes these results suspect. Three semivolatiles were detected above the CRDL in sample ME801013. Among the twelve samples, eighteen other semivolatile compounds were detected below the CRDL. Little blank contamination is associated with these samples. Eighty-three tentatively identified compounds were detected in these samples.

Total PNA's. See Extractable Organics section.

4.8.4 Limitations and Qualifications

Data Quality Level:

Request 800: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level I. The overall analytical rating is Quality Level II. Reasons for a Quality Level II are presented under 4.8.4 Limitations and Qualifications, Analytical Data, Request 800.

Request 801: The sampling plan is rated Quality Level I; the field sampling is rated Quality Level I. The overall analytical rating is Quality Level II. Reasons for a Quality Level II are presented under 4.8.4 Limitations and Qualifications, Analytical Data, Request 801.

Field Data:

Request 800: No field measurements were requested.

Request 801: No field measurements were requested.

Analytical Data:

Request 800:

Metals. Analytical results for ICP metals are Quality Level I except for arsenic, calcium, iron, magnesium, silver, and thallium, which are Quality Level II. For arsenic and thallium, the calibration verification result was outside the control windows, but within the ranges of 111-150%. The sample results are considered as estimated but usable. For calcium and iron, the RPD value for duplicate analysis was greater than 20%, but less than 50%. The data are considered as estimated but acceptable. For magnesium, the 10% criteria for serial dilution result was not met. A matrix interference is suspected. For silver and

thallium, the percent recovery for spikes was within the range of 30 to 74%; also, the reported sample result was positive, indicating the possibility of a false negative.

PCBs and other extractables. The Quality Level is III because the 60-day holding time was exceeded. Samples were analyzed 82 to 92 days after the extraction was initiated.

Extractable organics. The Quality Level rating is II because the 40-day holding time for analysis of the sample extracts was exceeded by five to seven days.

Radiochemistry. The Quality Level rating is I.

Request 801:

Metals. Analytical results for ICP metals are Quality Level I except for arsenic, calcium, iron, magnesium, silver, and thallium, which are Quality Level II. For arsenic and thallium, the calibration verification result was outside the control windows, but within the ranges of 111-150%. The sample results are considered as estimated but usable. For calcium and iron, the RPD value for duplicate analysis was greater than 20%, but less than 50%. The data are considered as estimated but acceptable. For magnesium, the 10% criteria for serial dilution result was not met. A matrix interference is suspected. For silver and thallium, the percent recovery for spikes was within the range of 30 to 74%; also, the reported sample result was positive, indicating the possibility of a false negative.

PCBs and other extractables. The Quality Level is III because the 60-day holding time was exceeded. Samples were analyzed 82 to 92 days after the extraction was initiated.

Extractable organics. The Quality Level rating is II because the 40-day holding time for analysis of the sample extracts was exceeded by five to seven days.

Environmental Problem: 3
Request Number: 800

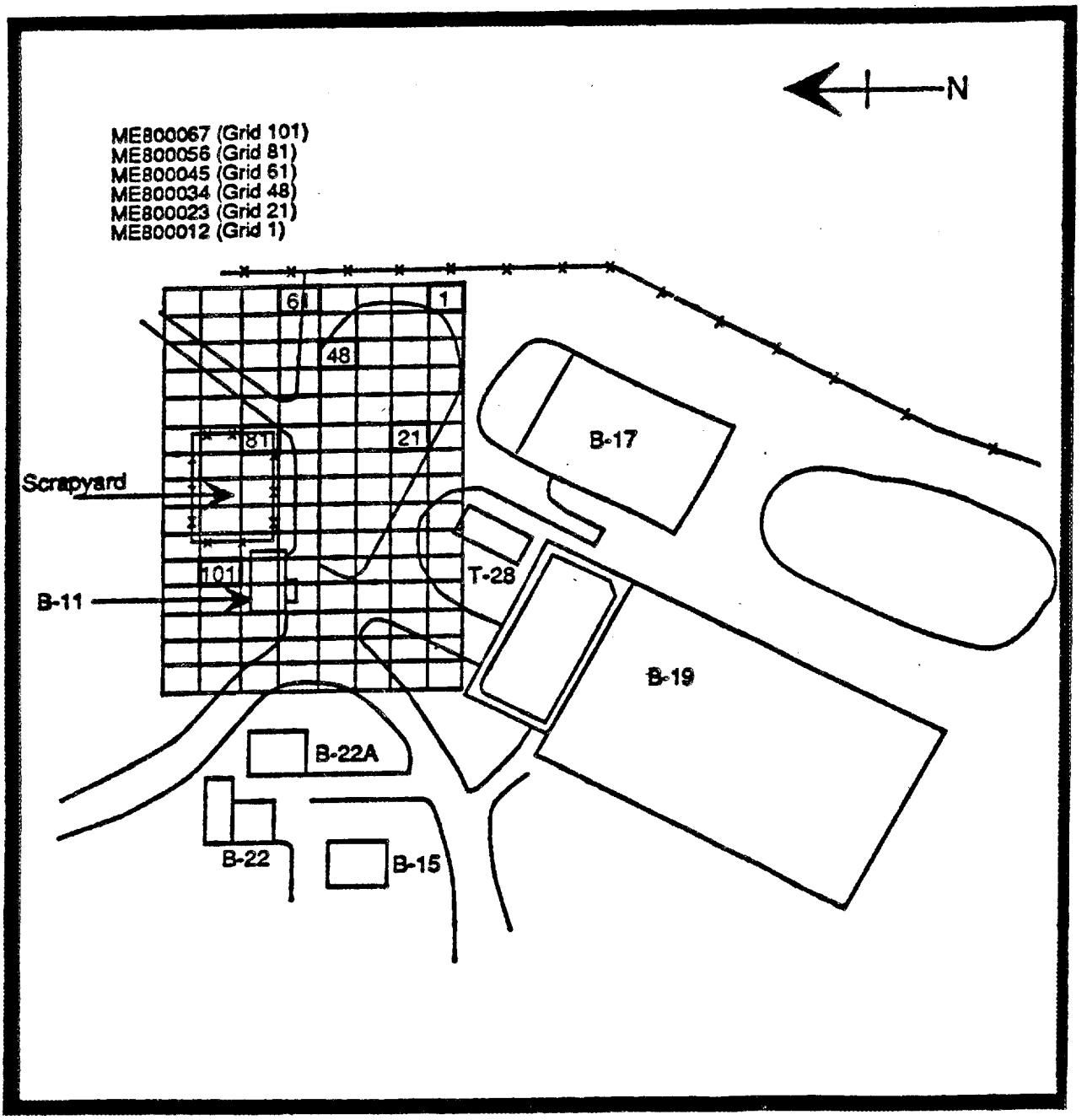

Figure 4.3a. Building B-11 and Scrapyard Waste Accumulation Area

Environmental Problem: 3
Request Number: 801

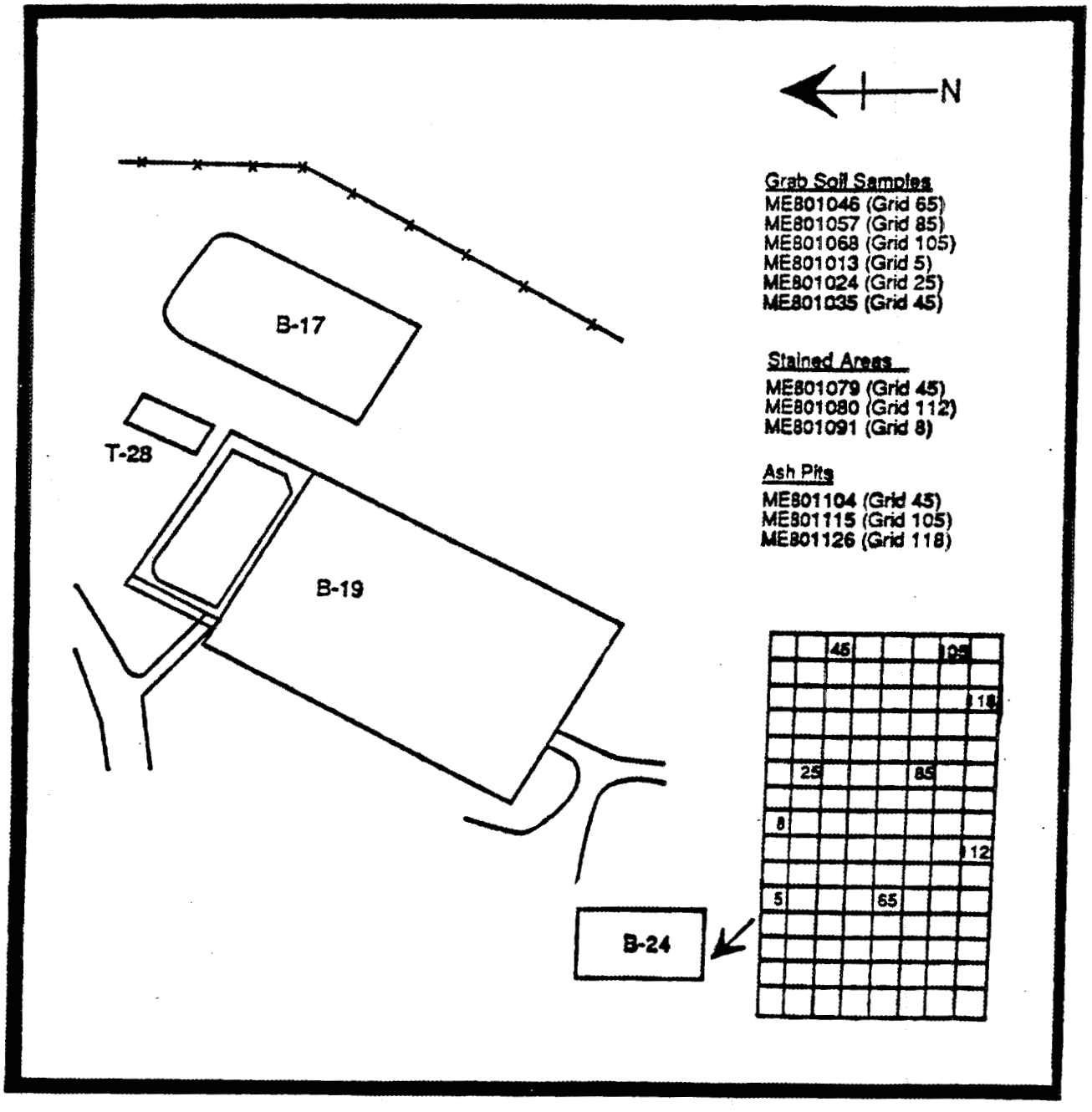

Figure 4.3b. Waste Accumulation Area Southwest of Building B-24

TABLE 4.2.3 SAMPLING AND ANALYSIS DATA SUMMARY
ENVIRONMENTAL PROBLEM - 3

REQUEST NUMBER	LOCATION	TYPE LOCATION	MEDIA	NUMB REQ	NUMB COLL	TYPE	METALS NUMB HITS	METALS NUMB ANAL	PES/H/PCB NUMB HITS	PES/H/PCB NUMB ANAL	SEMIVOLS NUMB HITS	SEMIVOLS NUMB ANAL	VOLS NUMB HITS	VOLS NUMB ANAL	RADS NUMB HITS	RADS NUMB ANAL
ME800	B. B-11	WASTE	SOIL	6	6	GRAB	6	6	1	6	6	6	0	0	6	6
ME801	B. B-11	WASTE	SOIL	12	12	GRAB	12	12	4	12	12	13	0	0	0	0
			MED TOTAL	18	18		18	18	5	18	18	19	0	0	6	6
ME800	B. B-11	WASTE	SUR WATER	1	1	QC RN	1	1	1	1	1	1	0	0	0	1
			MED TOTAL	1	1		1	1	1	1	1	1	0	0	0	1
			EP TOTAL	19	19		19	19	6	19	19	20	0	0	6	7
			TOTAL	68	66		60	60	6	19	46	47	6	6	6	7

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 800
LOCATION: BLDG B-11 & SCRAPYARD WASTE ACCUMULATION AREA
MEDIUM: SOIL

METALS, INCLUDING CR+6 (MG/KG)	SAMP NO:	ME800012B	ME800023B	ME800034B	ME800045B	ME800056B	ME800067B
	SDG NO:	ME800012B	ME800012B	ME800012B	ME800012B	ME800012B	ME800012B
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALUMINUM		7210	7350	6270	7810	6350	6440
ARSENIC		21 B	16 U	26 B	17 B	16 U	15 U
BARIUM		85	94	76	73	265	53
BERYLLIUM		1.1	0.98 B	0.64 B	0.7 B	1.8	0.65 B
CADMIUM		0.71 B	0.82 B	0.48 U	0.48 U	1.2 B	0.6 B
CALCIUM		36400 *	1830 *	6580 *	624 B*	144000 *	28900 *
CHROMIUM		22	19	18	19	18	15
COBALT		13	11	14	25	5.4 B	11
COPPER		16	19	12	13	16	5.9
IRON		22600 *	14800 *	20500 *	28100 *	14200 *	16800 *
LEAD		28 B	24 B	22 B	32 B	57	26 B
MAGNESIUM		2130 E	1550 E	1040 E	959 BE	4510 E	1340 E
MANGANESE		339	132	412	603	214	256
NICKEL		15	17	12	12	18	7 B
POTASSIUM		946 B	1210	546 B	620 B	870 B	520 B
SILVER		1.1 BN	0.98 BN	1.1 BN	0.94 BN	1.9 BN	1.1 BN
THALLIUM		14 BN	5.2 UN	5 UN	5 UN	8 BN	4.9 UN
VANADIUM		23	24	22	24	21	19
ZINC		54	94	43	38	102	25

PCBS & OTHER EXTRACTABLES (UG/KG)	SAMP NO:	ME800012A	ME800023A	ME800034A	ME800045A	ME800056A	ME800067A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
GAMMA CHLORDANE		8.4 J	94 U	90 U	90 U	88 U	98 U

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME800012A	ME800023A	ME800034A	ME800045A	ME800056A	ME800067A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ACENAPHTHENE		57 J	770 U	740 U	740 U	2900 U	800 U
ANTHRACENE		67 J	770 U	71 J	740 U	2900 U	800 U
BENZO(A)ANTHRACENE		210 J	770 U	220 J	740 U	2900 U	800 U
BENZO(A)PYRENE		150 J	770 U	150 J	740 U	2900 U	800 U
BENZO(B)FLUORANTHENE		310 J	770 U	300 J	740 U	2900 U	800 U
BENZO(G,H,I)PERYLENE		120 J	770 U	130 J	740 U	2900 U	800 U
BIS(2-ETHYLHEXYL)PHTHALATE		120 BJ	100 BJ	99 BJ	960 B	200 BJ	39 BJ
CHRYSENE		230 J	770 U	210 J	36 J	2900 U	800 U
DI-N-BUTYLPHTHALATE		610 BJ	1000 B	760 B	610 BJ	1100 BJ	900 B
DI-N-OCTYL PHTHALATE		26 BJ	770 U	740 U	21 BJ	2900 J	17 BJ

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 800
LOCATION: BLDG B-11 & SCRAPYARD WASTE ACCUMULATION AREA
MEDIUM: SOIL

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME800012A	ME800023A	ME800034A	ME800045A	ME800056A	ME800067A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
DIBENZOFURAN		43 J	770 U	36 J	740 U	2900 U	800 U
DIETHYLPHTHALATE		25 J	770 U	740 U	740 U	2900 U	800 U
FLUORANTHENE		390 J	24 J	330 J	740 U	110 J	800 U
FLUORENE		45 J	770 U	740 U	740 U	2900 U	800 U
INDENO(1,2,3-CD)PYRENE		110 J	770 U	140 J	740 U	2900 U	800 U
NAPHTHALENE		68 J	770 U	73 J	740 U	2900 U	800 U
PHENANTHRENE		370 J	26 J	360 J	740 U	86 J	800 U
PYRENE		300 J	22 J	250 J	740 U	100 J	800 U
2-METHYLNAPHTHALENE		74 J	770 U	48 J	740 U	2900 U	800 U
* BIS(4-METHYLPENTYL)PHTH(35.74)					240 J		
* BIS(4-METHYLPENTYL)PHTH(36.01)					210 J		
* C15-ALKANE(23.42)						390 J	
* C17-ALKANE(27.59)				100 J			
* C17-ALKANE(27.62)		200 J					
* C18-ALKANE(29.37)		330 J					
* C18-ALKANE(29.56)		150 J					
* C19-ALKENE(30.74)			450 J				
* C20-ALKANE(32.42)		200 J					
* C21-ALKANE(33.66)		170 J					
* C23-ALKANE(35.81)			94 J				
* C26-ALKENE(38.24)				300 J			
* C26-ALKENE(38.54)				290 J			
* C27-ALKANE(39.84)			300 J				
* C27-ALKANE(39.86)		170 J					
* C34-ALKANE(47.18)				420 J			
* C34-ALKANE(47.19)			300 J				
* C34-ALKANE(47.21)		560 J					
* DECYL HEXYL PHTHALATE(36.31)					150 J		
* HEPTADECANE(27.49)		210 J					
* NONADECANE(31.01)		280 J					
* PENTADECANE(23.40)				120 J			
* PENTADECANE(23.42)		280 J					
* SULFUR, MOL. (S8)(33.19)						1700 J	
* SULFUR, MOL. (S8)(33.24)		890 J					
* TETRADECANE(21.22)				100 BJ		200 BJ	
* TETRADECANE(21.24)		260 BJ					
* TRIDECANE(18.92)		170 J					
* UNKNOWN HYDROCARBON(36.47)			390 J				
* UNKNOWN HYDROCARBON(42.81)			460 J				
* UNKNOWN(30.74)					220 J		
* UNKNOWN(38.54)					330 J		
* UNKNOWN(38.56)		250 J	310 J				

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 800
LOCATION: BLDG B-11 & SCRAPYARD WASTE ACCUMULATION AREA
MEDIUM: SOIL

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME800012A	ME800023A	ME800034A	ME800045A	ME800056A	ME800067A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
* UNKNOWN(41.79)			230 J				

RADIOCHEMISTRY (PCI/KGD)	SAMP NO:	ME800012C	ME800023C	ME800034C	ME800045C	ME800056C	ME800067C
	SDG NO:	GS-ME-01	GS-ME-01	GS-ME-01	GS-ME-01	GS-ME-01	GS-ME-01
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
BI-214		1170	1200	1030	1020	1200	1110
CS-137		120	113	87		81 U	
K-40		12700	18800	12200	10700	10900	9880
RA-226		1120	1160	952	983	1190	1130
TH-228		1420	1620	1200	1220	938	1030
TH-232		1560	1420	1120	1280	1190	941

S&A REQUEST: 800
LOCATION: BLDG B-11 & SCRAPYARD WASTE ACCUMULATION AREA
MEDIUM: SURFACE WATER

METALS, INCLUDING CR+6 (UG/L)	SAMP NO:	ME800078B
	SDG NO:	ME302019E
	TYPE:	RINSATE
ALUMINUM		29 B
CALCIUM		211 B
CHROMIUM		5 B
IRON		8 B
MANGANESE		2.9 B
SODIUM		5.6 B
VANADIUM		6.1 B

PCBS & OTHER EXTRACTABLES (UG/L)	SAMP NO:	ME800078A
	SDG NO:	ME800012A
	TYPE:	RINSATE
BETA-BHC		0.1 B

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 800
LOCATION: BLDG B-11 & SCRAPYARD WASTE ACCUMULATION AREA
MEDIUM: SURFACE WATER

EXTRACTABLE ORGANICS (UG/L)	SAMP NO:	ME800078A
	SDG NO:	ME302019A
	TYPE:	RINSATE
BIS(2-ETHYLHEXYL)PHTHALATE		3 J
BUTYLBENZYLPHTHALATE		3 J
DI-N-BUTYLPHTHALATE		7 BJ
* UNKNOWN(21.49)		13 J
* UNKNOWN(26.01)		10 J

S&A REQUEST: 801
LOCATION: WASTE ACCUMULATION AREA SW OF BLDG B-24
MEDIUM: SOIL

METALS, INCLUDING CR+6 (MG/KG)	SAMP NO:	ME801013B	ME801024B	ME801035B	ME801046B	ME801057B	ME801068B
	SDG NO:	ME800012B	ME800012B	ME800012B	ME800012B	ME800012B	ME800012B
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALUMINUM		7640	7530	8200	7780	8480	8290
ANTIMONY		12 U	17 B	16 B	12 U	11 U	12 B
ARSENIC		16 U	16 U	31 B	16 U	15 U	19 B
BARIUM		153	188	147	136	246	137
BERYLLIUM		1 B	1.7	2.2	0.99 B	1.3	1.4
CADMIUM		0.67 B	0.49 U	0.49 U	0.5 U	1.2 B	0.5 U
CALCIUM		30800 *	73200 *	150000 *	26300 *	44700 *	43900 *
CHROMIUM		17	16	18	17	18	17
COBALT		12	9.6 B	14	12	13	15
COPPER		18	32	24	16	30	35
IRON		16600 *	16900 *	32700 *	18900 *	20500 *	22000 *
LEAD		32 B	23 B	31 B	29 B	52	33 B
MAGNESIUM		2470 E	4920 E	7550 E	2410 E	4720 E	5290 E
MANGANESE		320	365	765	362	447	501
NICKEL		20	25	29	18	26	28
POTASSIUM		1210	2050	1810	1150	1600	1880
SELENIUM		20 U	19 U	19 U	19 U	19 U	19 U
SILVER		1.2 BN	1.7 BN	2.4 BN	1.3 BN	3 BN	1.9 BN
THALLIUM		14 BN	10 BN	23 BN	5.2 UN	17 BN	9.9 BN
VANADIUM		22	19	24	23	24	23
ZINC		65	71	70	57	79	70

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 801
LOCATION: WASTE ACCUMULATION AREA SW OF BLDG B-24
MEDIUM: SOIL

METALS, INCLUDING CR+6 (MG/KG)	SAMP NO:	ME801079B	ME801080B	ME801091B	ME801104B	ME801115B	ME801126B
	SDG NO:	ME800012B	ME800012B	ME800012B	ME800012B	ME800012B	ME800012B
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALUMINUM		4490	5340	2210	1870	787	2740
ANTIMONY		12 U	13 B	11 U	18 B	11 U	16 B
ARSENIC		16 U	15 U	16 U	16 U	15 U	14 U
BARIUM		497	95	53	110	35 B	81
BERYLLIUM		1.4	0.56 B	2.6	1.4	0.34 B	1
CADMIUM		0.81 B	0.52 B	0.49 U	3.6 B	0.46 U	9.6
CALCIUM		93600 *	7650 *	271000 *	144000 *	4040 *	70600 *
CHROMIUM		14	15	8.6	40	12	107
COBALT		9.4 B	12	2.8 B	6.9 B	5.1 B	11
COPPER		26	17	0.37 U	38	14	140
IRON		19100 *	18100 *	6440 *	29000 *	12500 *	124000 *
LEAD		26 B	27 B	9.8 U	107	17 B	160
MAGNESIUM		4650 E	1280 E	8650 E	3100 E	419 BE	2290 E
MANGANESE		453	399	172	280	74	634
NICKEL		23	13	10	20	7.3 B	49
POTASSIUM		1260	858 B	488 B	298 B	115 B	444 B
SELENIUM		19 U	18 U	19 U	124	18 U	17 U
SILVER		1.4 BN	1 BN	2.5 BN	1.5 BN	1.5 BN	3.2 BN
THALLIUM		6.8 BN	4.9 UN	21 BN	6.8 BN	4.9 BN	8.8 BN
VANADIUM		16	19	15	22	8.8 B	69
ZINC		76	55	35	284	47	1360

PCBS & OTHER EXTRACTABLES (UG/KG)	SAMP NO:	ME801024A	ME801035A	ME801046A	ME801057A	ME801068A	ME801079A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ALDRIN		8.6 U	9.3 U	8.9 U	9.2 U	9.1 U	9.6 U
DIELDRIN		17 U	19 U	18 U	18 U	18 U	19 U
ENDRIN		17 U	19 U	18 U	18 U	18 U	19 U
GAMMA CHLORDANE		86 U	93 U	89 U	92 U	90 U	96 U
HEPTACHLOR		8.6 U	9.3 U	8.9 U	9.2 U	9.1 U	9.6 U
METHOXYCHLOR		86 U	93 U	89 U	92 U	90 U	96 U

PCBS & OTHER EXTRACTABLES (UG/KG)	SAMP NO:	ME801080A	ME801091A	ME801104A	ME801115A	ME801126A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB
ALDRIN		120	8.1 U	8.5 U	140	48 U
DIELDRIN		18 J	16 U	35	7.9 J	95 U
ENDRIN		18 U	16 U	17 U	20 U	160

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 801
LOCATION: WASTE ACCUMULATION AREA SW OF BLDG B-24
MEDIUM: SOIL

PCBS & OTHER EXTRACTABLES (UG/KG)	SAMP NO:	ME801080A	ME801091A	ME801104A	ME801115A	ME801126A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB
GAMMA CHLORDANE		92 U	81 U	100	46 J	280 J
HEPTACHLOR		9.2 U	8.1 U	20	74	100
METHOXYCHLOR		9.3 J	81 U	85 U	99 U	480 U

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME801013A	ME801024A	ME801035A	ME801046A	ME801057A	ME801068A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ACENAPHTHENE		110 J	710 U	760 U	45 J	45 J	750 U
ACENAPHTHYLENE		36 J	710 U	760 U	25 J	19 J	750 U
ANTHRACENE		190 J	710 U	760 U	88 J	64 J	750 U
BENZO(A)ANTHRACENE		430 J	710 U	760 U	290 J	170 J	750 U
BENZO(A)PYRENE		350 J	710 U	760 U	190 J	100 J	750 U
BENZO(B)FLUORANTHENE		730 J	710 U	81 J	410 J	220 J	41 J
BENZO(G,H,I)PERYLENE		280 J	710 U	760 U	140 J	110 J	750 U
BIS(2-ETHYLHEXYL)PHTHALATE		160 BJ	590 BJ	150 BJ	88 BJ	110 BJ	190 BJ
BUTYLBENZYLPHTHALATE		770 U	160 J	760 U	730 U	750 U	52 J
CHRYSENE		440 J	710 U	760 U	290 J	170 J	30 J
DI-N-BUTYLPHTHALATE		910 B	1200 B	1700 B	1600 B	1400 B	1500 B
DI-N-OCTYL PHTHALATE		31 BJ	25 BJ	32 BJ	31 BJ	29 BJ	24 BJ
DIBENZO(A,H)ANTHRACENE		770 U	710 U	760 U	43 J	750 U	750 U
DIBENZOFURAN		120 J	710 U	760 U	36 J	38 J	
DIETHYLPHTHALATE		770 U	710 U	760 U	22 J	750 U	750 U
FLUORANTHENE		1300	710 U	760 U	620 J	350 J	49 J
FLUORENE		150 J	710 U	760 U	61 J	62 J	750 U
INDENO(1,2,3-CD)PYRENE		260 J	710 U	760 U	150 J	99 J	750 U
NAPHTHALENE		76 J	710 U	760 U	51 J	72 J	750 U
PHENANTHRENE		1100	15 J	760 U	500 J	360 J	34 J
PYRENE		940	710 U	760 U	490 J	280 J	43 J
2-METHYLNAPHTHALENE		70 J	710 U	760 U	39 J	60 J	750 U
* ANTHRACENE, 1-METHYL-(31.14)							
* BIS(4-METHYLPENTYL)PHTH(35.42)			53 J				
* C1-PYRENE(35.36)							
* C14-ALKANE(20.67)						120 J	
* C15-ALKANE(27.57)		270 J					
* C17-ALKANE(27.57)					420 J	540 J	
* C18-ALKANE(29.51)						320 J	
* C21-HYDROCARBON(33.62)		230 J					
* C26-HYDROCARBON(38.51)		540 BJ					
* C26-HYDROCARBON(38.52)			350 BJ	310 J			
* C27-HYDROCARBON(39.81)		300 J					

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 801
LOCATION: WASTE ACCUMULATION AREA SW OF BLDG B-24
MEDIUM: SOIL

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME801013A	ME801024A	ME801035A	ME801046A	ME801057A	ME801068A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
* C30-ALKANE(42.74)							560 J
* C30-ALKANE(42.76)					740 J		
* C30-HYDROCARBON(42.74)		690 J					
* C34-ALKANE(47.13)					430 J		
* C34-HYDROCARBON(47.11)		400 J					
* DECYL HEXYL PHTHALATE(36.31)			75 J				
* DOCOSANE(34.72)							
* DODECANE(16.40)					140 J	120 J	
* EICOSANE(32.36)						240 J	
* EICOSANE(32.37)		240 J					
* ETHANE, 1,1,2,2-TETRACH(8.50)							
* HENEICOSANE(33.59)							
* HENEICOSANE(33.61)						200 J	
* HENEICOSANE(33.62)					380 J		
* HEPTACOSANE(39.79)						320 J	
* HEPTACOSANE(39.82)					310 J		
* HEPTADECANE(27.44)		250 J				350 J	
* HEPTADECANE(27.46)					410 J		
* NONADECANE(30.94)							
* NONADECANE(30.96)		230 J					
* NONADECANE(30.97)					300 J	280 J	
* OCTADECANE(29.32)					530 J	450 J	
* PENTADECANE(23.39)		170 J			460 J	360 J	
* PHENANTHRENE, 2,3-DIMET(32.77)							
* PHENANTHRENE, 3-METHYL-(31.04)							
* PHENANTHRENE, 4-METHYL-(31.17)		290 J					
* PHENANTHRENE, 4-METHYL-(31.42)							
* PHENANTHRENE,2,3,5-TRIM(34.49)							
* PHTHALATE ESTER(36.41)							140 J
* PYRENE, 1-METHYL-(35.16)							
* PYRENE, 1-METHYL-(35.19)		400 J					
* PYRENE, 2-METHYL-(35.76)							
* SULFUR, MOL. (S8)(33.14)						350 J	
* TETRADECANE(21.19)		170 BJ			350 BJ	160 BJ	
* TRICOSANE(35.76)						210 J	
* TRICOSANE(35.77)		290 J					
* TRICOSANE(35.79)					320 J		
* TRIDECANE(18.82)							
* TRIDECANE(18.87)		110 J					
* UNKNOWN ALKANE(22.54)							
* UNKNOWN ALKANE(22.57)						240 J	
* UNKNOWN ALKANE(26.46)						510 J	

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 801
LOCATION: WASTE ACCUMULATION AREA SW OF BLDG B-24
MEDIUM: SOIL

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO: SDG NO: TYPE:	ME801013A ME800012A GRAB	ME801024A ME800012A GRAB	ME801035A ME800012A GRAB	ME801046A ME800012A GRAB	ME801057A ME800012A GRAB	ME801068A ME800012A GRAB
* UNKNOWN ALKANE(27.52)							
* UNKNOWN HYDROCARBON(22.59)					200 J		
* UNKNOWN HYDROCARBON(29.51)					220 J		
* UNKNOWN HYDROCARBON(29.87)							
* UNKNOWN HYDROCARBON(33.32)							
* UNKNOWN HYDROCARBON(33.41)							
* UNKNOWN HYDROCARBON(34.04)							
* UNKNOWN HYDROCARBON(34.44)							
* UNKNOWN HYDROCARBON(34.56)							
* UNKNOWN HYDROCARBON(35.12)							
* UNKNOWN HYDROCARBON(35.52)							
* UNKNOWN HYDROCARBON(35.94)							
* UNKNOWN HYDROCARBON(36.39)						220 J	
* UNKNOWN HYDROCARBON(36.42)					360 J		
* UNKNOWN HYDROCARBON(38.49)						390 J	
* UNKNOWN HYDROCARBON(38.66)						310 J	
* UNKNOWN HYDROCARBON(38.96)							
* UNKNOWN HYDROCARBON(39.81)							170 J
* UNKNOWN HYDROCARBON(40.67)							
* UNKNOWN HYDROCARBON(41.74)						310 J	
* UNKNOWN HYDROCARBON(42.09)							
* UNKNOWN HYDROCARBON(42.74)						370 J	
* UNKNOWN HYDROCARBON(47.08)							
* UNKNOWN HYDROCARBON(47.09)							350 J
* UNKNOWN HYDROCARBON(47.11)						720 J	
* UNKNOWN(27.52)							
* UNKNOWN(38.52)					410 J		
* 11H-BENZO[A]FLUORENE(35.19)					300 J		
* 4H-CYCLOPENTA[DEF]PHENA(31.44)		520 J					
* 9,10-ANTHRACENEDIONE(32.19)		340 J					

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO: SDG NO: TYPE:	ME801079A ME800012A GRAB	ME801080A ME800012A GRAB	ME801091A ME800012A GRAB	ME801104A ME800012A GRAB	ME801115A ME800012A GRAB	ME801126A ME800012A GRAB
ACENAPHTHENE		240000 U	760000 U	270000 U	70000 U	41000 U	39000 U
ACENAPHTHYLENE		240000 U	760000 U	270000 U	70000 U	41000 U	39000 U
ANTHRACENE		240000 U	760000 U	270000 U	70000 U	41000 U	4000 J
BENZO(A)ANTHRACENE		240000 U	760000 U	270000 U	70000 U	41000 U	13000 J
BENZO(A)PYRENE		240000 U	760000 U	270000 U	70000 U	41000 U	4600 J
BENZO(B)FLUORANTHENE		240000 U	760000 U	270000 U	70000 U	41000 U	12000 J

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 801
LOCATION: WASTE ACCUMULATION AREA SW OF BLDG B-24
MEDIUM: SOIL

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME801079A	ME801080A	ME801091A	ME801104A	ME801115A	ME801126A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
BENZO(G,H,I)PERYLENE		240000 U	760000 U	270000 U	70000 U	41000 U	39000 U
BIS(2-ETHYLHEXYL)PHTHALATE		240000 U	760000 U	270000 U	70000 U	41000 U	39000 U
BUTYLBENZYLPHTHALATE		240000 U	760000 U	270000 U	70000 U	41000 U	39000 U
CHRYSENE		240000 U	760000 U	270000 U	70000 U	41000 U	10000 J
DI-N-BUTYLPHTHALATE		7300 BJ	21000 BJ	11000 BJ	2200 BJ	1500 BJ	1600 BJ
DI-N-OCTYL PHTHALATE		240000 U	760000 U	270000 U	70000 U	41000 U	39000 U
DIBENZO(A,H)ANTHRACENE		240000 U	760000 U	270000 U	70000 U	41000 U	39000 U
DIBENZOFURAN		240000 U	760000 U	270000 U	70000 U	1100 J	1500 J
DIETHYLPHTHALATE		240000 U	760000 U	270000 U	70000 U	41000 U	39000 U
FLUORANTHENE		240000 U	760000 U	270000 U	3700 J	41000 U	16000 J
FLUORENE		240000 U	760000 U	270000 U	70000 U	41000 U	1800 J
INDENO(1,2,3-CD)PYRENE		240000 U	760000 U	270000 U	70000 U	41000 U	3500 J
NAPHTHALENE		240000 U	760000 U	270000 U	70000 U	2800 J	3300 J
PHENANTHRENE		240000 U	760000 U	270000 U	4300 J	2100 J	14000 J
PYRENE		240000 U	760000 U	270000 U	2200 J	41000 U	12000 J
2-METHYLNAPHTHALENE		240000 U	760000 U	270000 U	70000 U	2500 J	3000 J
* ANTHRACENE, 1-METHYL-(31.14)							13000 J
* BIS(4-METHYLPENTYL)PHTH(35.42)							
* C1-PYRENE(35.36)							14000 J
* C14-ALKANE(20.67)							
* C15-ALKANE(27.57)							
* C17-ALKANE(27.57)							
* C18-ALKANE(29.51)							
* C21-HYDROCARBON(33.62)							
* C26-HYDROCARBON(38.51)							
* C26-HYDROCARBON(38.52)							
* C27-HYDROCARBON(39.81)							
* C30-ALKANE(42.74)							
* C30-ALKANE(42.76)							
* C30-HYDROCARBON(42.74)							
* C34-ALKANE(47.13)							
* C34-HYDROCARBON(47.11)							
* DECYL HEXYL PHTHALATE(36.31)							
* DOCOSANE(34.72)				32000 J			
* DODECANE(16.40)							
* EICOSANE(32.36)							
* EICOSANE(32.37)							
* ETHANE, 1,1,2,2-TETRACH(8.50)		56000 J					
* HENEICOSANE(33.59)				47000 J			
* HENEICOSANE(33.61)							
* HENEICOSANE(33.62)							
* HEPTACOSANE(39.79)							

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 801
LOCATION: WASTE ACCUMULATION AREA SW OF BLDG B-24
MEDIUM: SOIL

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME801079A	ME801080A	ME801091A	ME801104A	ME801115A	ME801126A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
* HEPTACOSANE(39.82)							
* HEPTADECANE(27.44)							
* HEPTADECANE(27.46)				36000 J			
* NONADECANE(30.94)							
* NONADECANE(30.96)							
* NONADECANE(30.97)							
* OCTADECANE(29.32)							
* PENTADECANE(23.39)							2800 J
* PHENANTHRENE, 2,3-DIMET(32.77)							8800 J
* PHENANTHRENE, 3-METHYL-(31.04)							
* PHENANTHRENE, 4-METHYL-(31.17)							13000 J
* PHENANTHRENE, 4-METHYL-(31.42)							6800 J
* PHENANTHRENE,2,3,5-TRIM(34.49)							
* PHTHALATE ESTER(36.41)							13000 J
* PYRENE, 1-METHYL-(35.16)							
* PYRENE, 1-METHYL-(35.19)							12000 J
* PYRENE, 2-METHYL-(35.76)							
* SULFUR, MOL. (S8)(33.14)							
* TETRADECANE(21.19)							
* TRICOSANE(35.76)							
* TRICOSANE(35.77)							
* TRICOSANE(35.79)						9700 J	
* TRIDECANE(18.82)							
* TRIDECANE(18.87)						4900 J	
* UNKNOWN ALKANE(22.54)							
* UNKNOWN ALKANE(22.57)							
* UNKNOWN ALKANE(26.46)						11000 J	
* UNKNOWN ALKANE(27.52)							
* UNKNOWN HYDROCARBON(22.59)							
* UNKNOWN HYDROCARBON(29.51)							
* UNKNOWN HYDROCARBON(29.87)		34000 J		120000 J			
* UNKNOWN HYDROCARBON(33.32)							
* UNKNOWN HYDROCARBON(33.41)		130000 J		56000 J			
* UNKNOWN HYDROCARBON(34.04)							
* UNKNOWN HYDROCARBON(34.44)		80000 J					
* UNKNOWN HYDROCARBON(34.56)		54000 J		160000 J			
* UNKNOWN HYDROCARBON(35.12)							
* UNKNOWN HYDROCARBON(35.52)		93000 J		160000 J			
* UNKNOWN HYDROCARBON(35.94)							
* UNKNOWN HYDROCARBON(36.39)							
* UNKNOWN HYDROCARBON(36.42)							
* UNKNOWN HYDROCARBON(38.49)							

TABLE 4.3.3 ANALYTICAL DATA SUMMARY BY MEDIUM FOR ENVIRONMENTAL PROBLEM 3 DRAFT DO NOT CITE
HISTORICAL WASTE & SCRAP ACCUMULATION AREAS

S&A REQUEST: 801
LOCATION: WASTE ACCUMULATION AREA SW OF BLDG B-24
MEDIUM: SOIL

EXTRACTABLE ORGANICS (UG/KG)	SAMP NO:	ME801079A	ME801080A	ME801091A	ME801104A	ME801115A	ME801126A
	SDG NO:	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A	ME800012A
	TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
* UNKNOWN HYDROCARBON(38.66)							
* UNKNOWN HYDROCARBON(38.96)		83000 J					
* UNKNOWN HYDROCARBON(39.81)							
* UNKNOWN HYDROCARBON(40.67)		180000 J					
* UNKNOWN HYDROCARBON(41.74)							
* UNKNOWN HYDROCARBON(42.09)		140000 J					
* UNKNOWN HYDROCARBON(42.74)							
* UNKNOWN HYDROCARBON(47.08)		85000 J					
* UNKNOWN HYDROCARBON(47.09)							
* UNKNOWN HYDROCARBON(47.11)							
* UNKNOWN(27.52)							8400 J
* UNKNOWN(38.52)							
* 11H-BENZO[A]FLUORENE(35.19)							
* 4H-CYCLOPENTA[DEF]PHENA(31.44)							
* 9,10-ANTHRACENEDIONE(32.19)							

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5.0 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

This section covers quality assurance and quality control requirements addressed by QA/QC plans for the METC Site. Section 5.1 reviews the QA/QC plan for the METC Site and provides a summary of the quality control samples generated and collected in the field. An analysis of results, a summary of laboratory QA/QC procedures for stable and radioactive contaminants, and a discussion of audits conducted by the EPA and others are also provided. (Please refer to specific environmental problems in Sect. 4.0 for data limitations.) Section 5.2 addresses stable chemistry, laboratory radiological chemistry, and field radiological chemistry, as well as audits conducted by the EPA and others.

Table 5.1 provides a cross-reference for correlating and locating QA/QC information in the METC Sampling and Analysis Data Document, ORNL's METC Sampling and Analysis Plan, and the August 1987 version of the DOE Environmental Survey Manual.

5.1 Field QA/QC

The METC Sampling and Analysis Plan was reviewed by EMSL-LV and approved by DOE. Items 5, 8, 11, and 12 from the QA/QC plan (see Table 5.1) are addressed in the paragraphs that follow.

Item 5. QA Objectives for Completeness. The goal for completeness of field measurements was 100%, although 90% was acceptable. The objective for sampling completeness for effluent and groundwater samples was 95%.

Table 5.2 summarizes sampling completeness for the METC effort. The overall completeness for this sampling effort was 97% before correcting for deletions and 100% after deletion corrections. There was no groundwater sampling effort

Table 5.1. Quality Assurance/Quality Control Project Plan Locator

	Essential Elements**	Data Document	METC S&A Plan	Survey Manual*
1.	TITLE PAGE WITH APPROVAL SIGNATURES	COVER PAGE	COVER PAGE	COVER PAGE
2.	TABLE OF CONTENTS	iii		APPEND F
3.	PROJECT DESCRIPTION	1.0	1.2.1	
4.	PROJECT ORGANIZATION AND RESPONSIBILITIES	1.1	6.2	Sect. 2
5.	QA OBJECTIVES FOR MEASUREMENT DATA (Precision, accuracy, completeness, representativeness, and comparability)	5.1	6.3	APPEND F
6.	SAMPLING PROCEDURES	3.1	4.0	APPEND E
7.	SAMPLING CUSTODY	3.0	5.11	APPEND I
8.	CALIBRATION PROCEDURES AND FREQUENCY	5.1	6.6.4	APPEND E
9.	ANALYTICAL PROCEDURES	3.2	6.6.5	APPEND D
10.	DATA REDUCTION, VALIDATION, AND REPORTING	4.0	6.6.6	APPEND H
11.	INTERNAL QC CHECKS AND FREQUENCY	5.1	6.10	APPEND F
12.	PERFORMANCE AND SYSTEM AUDITS AND FREQUENCY	5.1 and APPEND C	6.11, 6.15	APPEND F
13.	PREVENTIVE MAINTENANCE PROCEDURE AND SCHEDULE		6.6.4	
14.	ROUTINE PROCEDURES FOR DATA ASSESSMENT (Precision, accuracy, and completeness of measurement parameters involved)	5.2 APEND D	6.6.6	APPEND H
15.	CORRECTIVE ACTION	5.1	6.12	APPEND F
16.	QUALITY ASSURANCE REPORTS TO MANAGEMENT	5.0	6.14	APPEND F

* Please refer to the August 1987 DOE Environmental Survey Manual.

** Reference EPA's "Interim Guidelines and Specifications for Preparing Quality Assurance Plans" (EPA 1983).

Table 5.2. Field Sampling Completeness for the METC Site
Number of Samples[a]

Media Type	Planned	Collected	Deleted	Not Collected
Groundwater[b]	0	0	0	0
Surface Water[c]	30	30	0	0
Sediment[d]	9	7	2	0
Sludge	9	9	0	0
Soil	18	18	0	0
Total	66	64	2	0

(a) The samples in this table do not represent blank or rinsate samples for QC purposes.
(b) No ground water sampling effort was planned for the METC site.
(c) Includes effluent in tanks, sumps, pipes and pools.
(d) Two samples deleted because sampling site was small. Refer to Environmental Problem 1, Request 308 text.

planned for the METC site and no samples were obtained. The surface water sample collection effort was 100%.

Item 8. Calibration Procedures and Frequency. An important factor in the collection of accurate field data is instrument calibration. The guidance provided in Table 6.1 of the METC Sampling and Analysis Plan was followed; dates, standards, and problems were recorded in the field logbooks. In some cases, there were problems with instrument stabilization; and where data are suspect, it is noted in the tables or text associated with each environmental problem (see Sect. 4.0).

Item 11. Internal Quality Control Checks. The METC QA/QC plan called for the collection of trip blanks for volatile organic samples and rinsate samples to check on equipment decontamination. The frequency of use for each of these types of QC samples is shown in Table 5.3. However, the guidance in the final version of the DOE Environmental Survey Manual was changed. Table 5.4 lists the field QC samples collected at METC. Analytical results are discussed in Sect. 4.2.1.

Item 12. Performance and System Audits. The complete text of EPA's audit of field sampling activities at METC can be found in Appendix C of this data document. (The EPA audit applied to field sampling at both METC and the Pittsburgh Energy Technology Center [PETC] because the sites were consecutively sampled by the same ORNL sampling team.)

5.2 Analytical QA/QC

Analytical QA/QC is divided into four major sections: analytical chemistry (5.2.1), radiological quality assurance (5.2.2), data management QA/QC (5.2.3), and the analytical QC summary (Appendix D).

Table 5.3. Field QC Samples Planned for the METC Site

Type QC Sample	Analysis	Solids	Water	Air
Field Preservation Blanks[b]	Organics	NA	NA	NA
	Metals	NA	1/20	NA
	Rads	NA	NA	NA
Rinsate Samples[b]	Organics	1/20	1/20	1/20
	Metals	1/20	1/20	1/20
	Rads	NR[a]	NR	NR
Trip Blanks[b]	Organics	NR	1/20	1/20
	Metals	NR	NR	NR
	Rads	NR	NR	NR

NA = Not applicable or not available.
NR = Not required or not recommended.
1/20 = One QC sample for 1 to 20 samples, 2 for 20 to 40, 3 for 40 to 60, etc.

(a) Hand-held instrument used to detect any potential radiological contamination.
(b) All samples checked with hand-held instrument to detect radioactive contamination.

TABLE 5.4 METC SITE ENVIRONMENTAL SURVEY FIELD QC SAMPLES

SAMPLE NUMBER	SAMPLE TYPE	TYPE LOCATION	MEDIUM	NUMBER ANALYSES REQUESTED	PCBS& OTHER EXTRA	PET HYDRO	RADS	SEMI-VOLS	SOIL GAS	VOLS
MEN04012A	TRIP BLANK	TRIP BLANK	WATER	1	0	0	0	0	0	1
MEN04012B	TRIP BLANK	TRIP BLANK	WATER	1	0	0	0	0	0	1
MEN07015A	TRIP BLANK	TRIP BLANK	WATER	1	0	0	0	0	0	1
MEN09017A	TRIP BLANK	TRIP BLANK	WATER	1	0	0	0	0	0	1
ME302100A	QC RINSATE	SEWER	SURF WATER	1	0	0	0	1	0	0
ME302100B	QC RINSATE	SEWER	SURF WATER	1	0	0	0	1	0	0
ME302100C	QC RINSATE	SEWER	SURF WATER	1	0	0	0	1	0	0
ME302100D	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	0	0
ME302100E	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	0	0
ME303043A	FIELD BLNK	SEWER	SURF WATER	1	0	0	0	0	0	0
ME303043B	FIELD BLNK	SEWER	SURF WATER	1	0	0	0	0	0	0
ME306046A	QC RINSATE	SEWER	SURF WATER	1	0	0	0	1	0	0
ME306046B	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	0	0
ME306046C	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	0	0
ME800078A	QC RINSATE	WASTE	SURF WATER	2	1	0	0	1	0	0
ME800078B	QC RINSATE	WASTE	SURF WATER	1	0	0	0	0	0	0
ME800078C	QC RINSATE	WASTE	SURF WATER	1	0	0	1	0	0	0

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TABLE 5.4 METC SITE ENVIRONMENTAL SURVEY FIELD QC SAMPLES

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SAMPLE NUMBER	SAMPLE TYPE	TYPE LOCATION	MEDIUM	NUMBER ANALYSES REQUESTED	ANIONS	EXOTC	HAZ WAS	HE	METALS	O&G
MEN04012A	TRIP BLANK	TRIP BLANK	WATER	1	0	0	0	0	0	0
MEN04012B	TRIP BLANK	TRIP BLANK	WATER	1	0	0	0	0	0	0
MEN07015A	TRIP BLANK	TRIP BLANK	WATER	1	0	0	0	0	0	0
MEN09017A	TRIP BLANK	TRIP BLANK	WATER	1	0	0	0	0	0	0
ME302100A	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	0	0
ME302100B	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	0	0
ME302100C	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	0	0
ME302100D	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	1	0
ME302100E	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	1	0
ME303043A	FIELD BLNK	SEWER	SURF WATER	1	0	0	0	0	1	0
ME303043B	FIELD BLNK	SEWER	SURF WATER	1	0	0	0	0	1	0
ME306046A	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	0	0
ME306046B	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	1	0
ME306046C	QC RINSATE	SEWER	SURF WATER	1	0	0	0	0	1	0
ME800078A	QC RINSATE	WASTE	SURF WATER	2	0	0	0	0	0	0
ME800078B	QC RINSATE	WASTE	SURF WATER	1	0	0	0	0	1	0
ME800078C	QC RINSATE	WASTE	SURF WATER	1	0	0	0	0	0	0

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Revision: 00

Design and implementation of analytical QA plans for the DOE Environmental Survey have been based on the fundamental principle of "data of known quality." Although a Survey program such as this can effectively use data of varying quality levels, it is important that data users be provided with a data quality assessment for any given sample set. In this way, the Survey Team can interpret the analytical data from a programmatic perspective, while considering the analytical limitations imposed on the data. Data quality assessments require that all phases of laboratory support be designed to address the fundamental principals of precision, representativeness, accuracy, comparability, and completeness. The analytical QA program plan has accomplished this through the use of standard procedures, quality control practices, data reporting requirements, and data quality evaluations. A brief summary of some of the major analytical QA components follows.

Sampling and analysis support to the DOE Environmental Survey is a very large scale effort, requiring the contributions of a number of laboratories. From an analytical perspective, data comparability is ensured by adopting a program-wide set of standard analytical procedures, quality control practices, and reporting requirements. These procedures, which are documented in Appendix D to the DOE Environmental Survey Manual, are based on a number of well-documented, EPA-approved methods. In cases where a standard EPA method had not been developed for a given analyte, procedures that have been fully tested and documented were selected. All analytical procedures used for the laboratory analysis of METC samples are described in Sect. 3.0 and cited in Sect. 6.0 of this data document. The majority of the nonradiological determinations for this program use the EPA CLP protocols. Radiological determinations use a series of procedures which have been developed and/or tested within the DOE national laboratory system. In this way, all of the participating laboratories are required to meet standard performance criteria regarding the precision and accuracy of their analyses. A summary of data quality objectives, as described in the defined EPA method, is presented in Table 5.5 for METC samples.

Table 5.5. Data Quality Objective

Analyte(s)	Method	Precision	Accuracy
Volatile organics	7/87 CLP S.O.W.	As specified in protocol	As specified in protocol
Semivolatile organics	7/87 CLP S.O.W.	As specified in protocol	As specified in protocol
Pesticides/PCBs	10/86 CLP S.O.W.	As specified in protocol	As specified in protocol
Inorganic Metals, CLP	7/87 CLP S.O.W.	As specified in protocol	As specified in protocol
Gamma Emitting Nuclides	Survey Manual	as low as 1%	± 6%

All participating laboratories have developed a series of Standard Operating Procedures (SOPs) which establish policies and practices for all phases of laboratory operations. The SOPs provide the basis for day-to-day operation of the laboratory and serve as the foundation for a technical systems audit.

At a minimum, quality control practices adopted by the individual laboratories must include items mandated by the analytical protocols. In the case of inorganic determinations, these include the use of preparation blanks, calibration blanks, laboratory duplicate samples, laboratory control samples, matrix spikes, analytical spikes, interference check samples, and calibration verification solutions. For organic determinations, these include rigorous tuning criteria, matrix spike samples, matrix spike duplicate samples, method blanks, internal standards, and surrogates. In addition to these requirements, which are imposed by the analytical protocols, the laboratory is required to monitor method performance over time.

Data reporting procedures for the DOE Environmental Survey program were established with the objective of providing a technically defensible, legally admissible data set. Deliverables include CLP reporting forms for organics and inorganics and reporting forms which provide appropriate levels of QC data for non-CLP analyte parameters. Data comparability is provided by the adoption of a program-wide set of defined deliverables. ORNL will be responsible for a comprehensive case archive file for the METC Site. These case files include all of the raw data and documentation associated with a site in an auditable structure.

Evaluations of the quality of an analytical support effort to the DOE Environmental Survey were made externally to provide an independent assessment of performance and technical systems. These external assessments of analytical performance include participation in EPA round robins. Organic and inorganic

laboratories received regular sets of performance evaluation samples from the EPA during the time METC samples were being analyzed. These include quarterly blinds (CLP analytes) from EMSL-LV, water pollution series samples (classical analytes) from EMSL-Cincinnati, and quarterly round-robin samples (radiological determinations) from EMSL-LV. A summary of performance results pertinent to the METC sampling and analysis time period appears in Appendix C. A related, but distinctly different, function is served by the technical systems audits performed by EPA (and NEIC). In this case, on-site evaluation of the laboratory operation is performed during and following the sampling and analysis period. These audits are a qualitative evaluation of the overall laboratory operation, including facilities, equipment, documentation, data validation, and quality control procedures.

5.2.1 Analytical Chemistry QA

Analytical support to the majority of the METC sampling and analysis effort was provided by Argonne National Laboratory.

Detailed data quality assessments are presented for the samples associated with a given environmental problem/location in Sect. 4.0. The organic data were reviewed according to protocol defined in revision 3 of the SOP for Oak Ridge Data Validation. (A copy of this document appears in Appendix D.) The usability of "validated" organic data, organized by environmental problem, is based on the following criteria:

1. Holding times
2. Initial calibrations
3. Continuing calibrations
4. Blanks
5. GC/MS tunes
6. Surrogate recovery

7. Internal standards
8. Tentatively identified compounds
9. Pesticide retention standard
10. Analyte retention time (pesticide fraction)

According to the SOP, compliance to holding time requirements was calculated from the validated time of sample receipt (VTSR). All sample results were assigned a Quality Level of I, II, or III, depending upon compliance with requirements for each of the ten review criteria.

Data quality assessment/data usability determination for ICP metals analyses performed at METC was determined using a procedure similar to that developed by the EPA for use in EPA contract compliance determinations. The ORNL protocol used for ICP metals, "Data Quality Evaluation--Preliminary Operating Procedure ICP (Including K)," appears in Appendix D. The preliminary protocol is designed to allow the determination of the utility or quality level for DOE Site Survey ICP and CLP analyses. The format for this procedure also provides a summary of all QC problem areas. The following QC areas are reviewed:

1. Calibration verification
2. Preparation blank
3. Calibration blank
4. Spike recovery
5. Serial dilution
6. Interference check standard
7. Laboratory control standard
8. Duplicate analyses
9. Holding time

Each element in a given SDG is assigned a Quality Level of I, II, or III, according to compliance with CLP limits in the above QC areas. Holding time compliance is calculated from the date of sample collection.

Data quality assessment/data usability determination for all other analytical methods was made using a modification of a checklist developed by the Idaho National Engineering Laboratory and documented in Volume I of the April 1988 issue of the Hanford Site Sampling and Analysis Data Document. The checklist, "Analysis Quality Level Evaluation," used to evaluate the quality of METC results can be found in Appendix D. The checklist addresses the same QC areas as the previously described assessments, but in a less rigorous manner. The checklist was used to verify that the components essential to sampling, analysis, and quality control were integrated into the environmental problem evaluation. Data were evaluated on an SDG basis for those analytical methods in which multiple analyte concentrations were determined (e.g., CLP organics, ICP metals). The exception to this is when an analyte did not conform to the majority of the analytes in a given analytical method. Data quality of this analyte was then assessed separately and entered in the exception portion of the checklist. For those analytical methods in which a single analyte was determined or only a few sample requests were received, all data were combined to determine the quality of the analytical method.

To perform the evaluation, the pertinent information was included in the allowed space or attached to the checklist and referenced. The level of quality for a given determination was assessed according to the compliance of sample results to six performance criteria specified in the checklist. These performance criteria

include determination of compliance to CLP requirements in the following categories:

1. Holding time
2. Duplicates
3. Blanks
4. Laboratory control standards
5. Calibration verification
6. Spike recovery

Holding time compliance was calculated from the date of sample collection. Data in compliance with all six performance criteria were assigned a Quality Level of I. A data Quality Level of II was assigned to SDGs in which the numerical average of non-compliance results for the six performance criteria was less than or equal to 20% of the required limits. A Quality Level of III was assigned to any data in which the average deviation from compliance was greater than 20%. Data quality results associated with the overall METC data set are located in Sect. 4.0 of this data document.

In subsequent discussion, overall data quality for the METC data set is presented in two formats:

1. Accomplishment of data quality objectives, and
2. Data quality by type of analysis.

5.2.1.1 Accomplishment of Data Quality Objectives

Objectives for the overall data quality for the METC data set were established in five data quality categories. The categories are completeness, representativeness, comparability, precision, and accuracy. Evaluations of the program's accomplishments within each category follow.

5.2.1.1.1 Completeness

The characteristic of completeness measures the amount of data obtained compared to the amount expected or planned. The program objective was to obtain data for 90% of all samples planned for collection and not deleted. Analytical data were generated for 97% of all samples planned for collection. By general types of analysis, the percentage of samples for which analytical data were obtained for the METC site is as follows:

- Volatile organic compounds, 100%
- Semivolatile organic compounds, 100%
- Pesticides/PCBs, 100%
- Inorganic metals, 100%
- Radiological parameters, 100%

5.2.1.1.2 Representativeness

Sampling and measurements were carefully conducted so that results were as representative as possible of the media (e.g., soil, water) and conditions being measured. Sampling protocols were selected and developed where necessary to meet those objectives. Sample-handling protocols (e.g., splitting into aliquots, field and travel blanks, preservation, storage, transportation) were selected to evaluate and protect the representativeness of collected samples.

Recording procedures were used to document adherence to proper protocols for sampling, identifying samples, and maintaining sample integrity. Coolers containing samples to be analyzed by ANL were shipped by Federal Express and delivered to the ANL Analytical Chemistry Laboratory. At the laboratory, the air bills were removed and retained. Coolers were opened and inventoried in the secure specimen storage area. Two sets of forms filled out by the sampling team

were received with each sample cooler: the "DOE Environmental Survey Chain of Custody for Inorganics/Organics" and the "Request for Analytical Services, Department of Environmental Management." Coolers were inventoried upon opening, and a "Shipping Container Login Form" was completed that listed the contents of the cooler, noting METC identification numbers, sample tag numbers, and discrepancies, if any. Internal sample identification (ID) labels were attached to all samples. At ANL a "folder" was created to permanently file the packing lists, chain-of-custody (COC) sheets, login sheets, and sample tags. An ANL "Internal Sample Chain of Custody Record" form was used when transferring samples outside the custody of the respective Sample Login Rooms. Samples designated for specific chemical analyses were delivered on either the same or the following day to the appropriate analyses groups where they were retained under appropriate storage conditions.

No irregularities in sample identification were noted in case narratives supplied by the individual analysis groups at ANL.

Field and travel blank results indicate that contamination of target analytes during sampling or sample transportation was minor. For all analytes, field and transportation contamination occurred in less than 10.7% of the individual batches of samples collected and shipped to the laboratories. The levels of contamination that did infrequently occur were low and did not require rejection of analytical data.

Analytical program objectives for representativeness were established for each analysis type. The quality control requirements monitored to evaluate representativeness were analyte-specific holding times. Table 5.6 shows the actual adherence to required extraction and analysis holding times and program objectives as percentages of samples analyzed. Holding times are calculated from the date of sample collection for all regular samples. Values appearing within

Table 5.6. Adherence to Holding Time Requirements

	Analyses Within Holding Time Requirements (%)			
	Extraction Time		Analysis Time	
Analysis Type	Analyses	Objective	Analyses	Objective
Volatiles	NA		100 (9 of 9)	90
Semivolatiles	100 (46 of 46)	85	30 (14 of 46)	85
Pesticide/PCB	100 (19 of 19)	85	0 (0 of 19)	85
Inorganic Metals +	100 (85 of 85)	98	NA	
Mercury	NA		39 (16 of 41)	90
Rads	NA		100 (7 of 7)	90

+ = Calculation based on total results of ICP, FAA, and CVAA analytes.

NA = Not applicable.

the parentheses denote the actual number of samples in compliance compared to the total number of samples analyzed.

Objectives for adherence to CLP requirements were not met for the analysis holding times in semivolatile, and pesticide/PCB, organic analyses (40 days from validated time of sample receipt). The holding times for extraction were met. Exceeding the holding times may have allowed degradation or transformation of the target analytes. The usual result of noncompliance to holding times is that the measured and reported concentrations may underestimate the true value of the analyte.

5.2.1.1.3 Comparability

The characteristic of comparability reflects both internal consistency of measurements and the expression of results in units consistent with other organizations reporting similar data. Generating comparable data requires utilizing methodologies which produce comparable results (e.g., metals data obtained by total dissolution of soil is not comparable to data obtained by incomplete dissolution of soil, such as the normally used acid leaching methods) and conducting analyses with calibrated analytical instruments within the proper calibration ranges. To ensure comparability of analytical results, all program laboratories utilized only analytical methods specified in the experimental plan. A documented analytical procedure was selected for those determinations not specified in the environmental plan. Additionally, appropriate standard units were utilized for each measurement system, which yielded internally and externally comparable results, assuming other comparability criteria were met.

To monitor the ability of the laboratories to generate comparable data, quarterly blind (QB) performance samples from the EPA (EMSL-LV) were analyzed for CLP analytes during the METC analytical program. Similarly, EPA quarterly round robin samples were used to assess comparability for radiological samples. The

analytical program objective for comparability was to generate acceptable results for the CLP QB samples. This objective was satisfactorily accomplished for ORNL inorganic and non-target list parameters and for all of the organic samples. A table summarizing the ANL performance scores and copies of the respective EPA QB evaluation reports are provided in Appendix C.

5.2.1.1.4 Precision

Precision, the ability to replicate an analytical value, was evaluated through duplicate analysis of 5% to 10% of the samples analyzed. The program objectives for the precision of analytical measurements were to satisfy CLP precision control limits for 80% of all aqueous analyses and 70% of all soil analyses. The reported data meet CLP precision criteria (RPD) for all aqueous measurements and for all soil measurements. The adherence to precision requirements is summarized for each analysis method according to the sample matrix in Table 5.7. The values appearing within the parentheses denote the actual number of analytes in compliance with CLP requirements in comparison to the total number of analytes measured. The data quality objective was met for all analyses.

5.2.1.1.5 Accuracy

Accuracy, the ability to obtain a true value, is optimized and evaluated for an analytical system through specific quality control (QC) procedures and measurements. The exact QC procedures and measurements required to ensure acceptable accuracy depend on the method, but all chemical methods generally require instrument calibration, method blank analysis, check standard or laboratory control sample analysis (i.e., analysis of sample of known analyte concentration), and matrix spike. Organic analyses usually incorporate additional QC procedures to optimize accuracy; the additional procedures referred to are internal standards and surrogate compounds added to every sample. Analytical determinations based on CLP protocol incorporated the required QC

Table 5.7. Adherence to Precision Requirements

Analysis Type	Analyses Within CLP Precision Requirements (%) Water Samples Analyses		Water Samples Objective	Soil Samples Analyses		Soil Samples Objective
Volatiles	100	(5 of 5)	80		**	70
Semivolatiles	95	(21 of 22)	80	100	(22 of 22)	70
Pesticide/PCB	100	(1 of 1)	80	100	(18 of 18)	70
Inorganic Metals +	100	(64 of 64)	80	80	(41 of 51)	70
Rads	0	(0 of 0)	80	83	(5 of 6)	70

** = No sample of this matrix type analyzed.

+ = Calculation based on total results of ICP, FAA, and CVAA analytes.

Note: All calculations are based on the number of analytes in compliance for a given analytical method.

samples to assess the accuracy of analytical results. Similar QC samples were also included in all non-CLP procedures; QC results were calculated, but no determination of compliance was made because CLP requirements are not established for these methods.

The program objectives for accuracy of analytical measurements were to meet the following criteria: CLP tuning criteria for 90% of all GC-MS analyses; inorganic CLP continuing calibration criteria for 90% of all ICP and GFAA analyses; volatile water surrogate recoveries for 85% of all analyses; semivolatile water surrogate recoveries for 75% of all analyses; and pesticide/PCB water surrogate recoveries for 75% of all analyses.

Evaluation of tuning criteria for volatiles and semivolatiles was performed by using the CLP Form V (GC-MS Tuning and Mass Calibration Form) for both the volatile and semivolatile fractions. Instrument tuning criteria were met for 100% of volatile and semivolatile organic data.

The remaining results of accuracy of QC measurements associated with the METC data are summarized in the categories of calibration (Table 5.8), blanks (Table 5.9), control samples (Table 5.10) and matrix spikes (Table 5.11). Also listed in the summaries for comparison are program objectives, where objectives have been established.

Entries for percentage compliance for initial and continuing calibration results are summarized in Table 5.8. Percentage compliance for pesticide/PCB analysis is based on results tabulated from Form 8 D (Check for Linearity), Form 8 E (Retention Time Shift of DBC), and Form 9 (Standard Summary). Radiometric continuing calibrations were assumed to be in compliance if results fell within $\pm$10% of that observed for the initial calibration of the instrument. All calibration data met program objectives.

Table 5.8 Adherence to Calibration Requirements

	Analyses With Acceptable Calibrations (%)			
	Water Samples		Soil Samples	
Analysis Type	Analyses	Objective	Analyses	Objective
Volatiles	100 (33 of 33)	90	NS	90
Semivolatiles	100 (153 of 153)	90	100 (221 of 221)	90
Pesticides/PCB	100 (38 of 38)*	90	100 (38 of 38)*	90
Inorganic Metals+	100 (249 of 249)	90	98 (205 of 209)	90
Rads	100 (1 of 1)*	90	100 (1 of 1)*	90

+ = Calculations based on total of ICP, FAA, and CVAA analytes.
* = Instrument calibration used for both water and soil samples.
NS = No samples of this matrix type submitted for analysis.

Note: All calculations are based on the number of analytes in compliance for a given analytical method.

Table 5.9. Adherence to Method Blank Requirements

Analysis Type	Analyses With Method Blanks Below CRQL (%) Water Samples Analyses	Water Samples Objective	Soil Samples Analyses	Soil Samples Objective
Volatiles	100 (135 of 135)	95	NS	95
Semivolatiles	100 (195 of 195)	95	100 (260 of 260)	95
Pesticides/PCB	100 (54 of 54)*	95	100 (54 of 54)*	95
Inorganic Metals +	100 (79 of 79)	95	100 (51 of 51)	95
Rads	100 (1 of 1)	95	100 (1 of 1)	95

+ = Calculations based on total of ICP, FAA, and CVAA analytes.

NS = No samples of this matrix submitted for analysis.

* = Reagent blank used for both soil and water SDGs.

Note: All calculations are based on the number of analytes in compliance for a given analytical method.

Table 5.10. Adherence to Control Sample Requirements

	Analyses With Acceptable Control Sample Analyses (%)			
	Water Samples		Soil Samples	
Analysis Type	Analyses	Objective	Analyses	Objective
Volatiles	*	80	NS	80
Semivolatiles	*	80	*	80
Pesticide/PCB	*	80	*	80
Inorganic Metals+	100 (61 of 61)	80	84 (43 of 51)	80
Rads	*	80	*	80

+ = Calculations based on total of ICP, FAA, and CVAA analytes.
* = Not applicable.
NS = No samples of this matrix submitted for analysis.

Note: All calculations are based on the number of analytes in compliance for a given analytical method.

Table 5.11 Adherence to Matrix Spike Requirements

Analysis Type	Analyses With Acceptable Matrix Spike Analyses (%) Water Samples Analyses	Water Samples Objective	Soil Samples Analyses	Soil Samples Objective
Volatiles (TC)	100 (80 of 80)	80	NS	70
Volatiles (IS/SC)	100 (84 of 84)	80	NS	70
Semivolatiles (TC)	95 (21 of 22)	80	100 (44 of 44)	70
Semivolatiles (IS/SC)	100 (216 of 216)	80	98 (482 of 492)	70
Pesticide/PCB (TC)	NS	80	67 (8 of 12)	70
Pesticide/PCB (SC)	NS	80	91 (21 of 23)	70
Inorganic Metals +	96 (54 of 56)	80	74 (29 of 39)	70
Rads	NA	80	NA	

+ = Calculations based on total of ICP, FAA, and CVAA analytes.
NA = Matrix spikes not analyzed for this matrix.
NS = No samples of this matrix submitted for analysis.
TC = Calculation based on the results of target compound recovery.
IS/SC = Combined calculations based on the results of internal standard compound recovery and of surrogate compound recovery.
SC = Calculations based on the results of surrogate compound recovery.

Note: All calculations are based on the number of analytes in compliance for a given analytical method.

The results in Table 5.9 demonstrate that all blank measurements satisfied the program objectives and imply relatively contamination-free analyses.

Laboratory control sample analyses were not conducted for most types of analyses. Such analyses were reported for CLP metals. Results for laboratory control samples were considered to be in control for CLP metals analysis if they were within ±20% of the true value. Results presented in Table 5.10 indicate excellent accuracy.

The performance of matrix spike organic samples was based on the recovery of target compounds (TC), internal standard compounds (IS), and surrogate compounds (SC). The performance objective for matrix spike samples was realized for all analytical procedures in which matrix spike compounds were analyzed in soil samples.

5.2.1.2 Data Quality by Type of Analysis

General observations and facts that should be considered when interpreting data from the METC Site are provided in this section. Also included is a summary of QA/QC protocol used for non-CLP methods. The discussions are presented by general type of analysis in the following order: volatiles, semivolatiles, pesticides/PCBs, inorganic metals and radiochemical analytes.

5.2.1.2.1 Volatile Organic Compounds

A number of analytes and tentatively identified compounds (TICs) are often introduced to the samples rather than originating from the samples themselves. However, no TICs or TCLs above the CLP limit were found in any of the blanks analyzed by ANL.

5.2.1.2.2 Semivolatile Organic Compounds

Semivolatile organic compound analyses are prone to their own unique set of contamination problems. Phthalates are a very common contaminant in semivolatile analyses. These compounds are used as plasticizers and are easily extracted with organic solvents and often introduced to samples or their associated extracts at numerous points in the sample analysis process. No compounds were observed above CLP limits in the blanks prepared by ANL.

5.2.1.2.3 Pesticides and Polychlorinated Biphenyls

All sample preparations were carried out according to the 7/87 revision of the EPA CLP SOW for Organic Analysis.

5.2.1.2.4 Inorganic Metals

In general, inorganic analyses were performed according to EPA CLP protocol. A brief discussion of the analytical method used to determine inorganic metal concentration follows.

ICP Analyses. The metals determined at ANL by ICP optical emission spectrometry include all those specified in the DOE protocol. ICP metal determinations were based on a two-point calibration performed prior to initiating analyses of reference standard and sample solutions. Off-peak background correction was applied. Noncompliance in duplicate and spike results probably reflect the inhomogeneity common in soil samples.

5.2.2 Radiological Quality Assurance

The majority of samples requiring radiological analysis were analyzed by ANL. The basic purpose of the Quality Assurance (QA) program is to ensure that the

data produced are of sufficient quality, accuracy, and completeness so that valid interpretations can be made. This purpose is accomplished by assuring that (a) proper sample procedures are followed; (b) the instruments yield accurate and reproducible results; and (c) adequate information is available concerning each sample. All aspects of the work carried out by the ANL are thoroughly documented.

The basic QA program for ANL has many aspects. Only the Quality Control (QC) aspects of the QA program that concern accuracy and reproducibility of measurements, however, are summarized in this data report. These aspects include results of routine standards (both primary and secondary), blanks for background measurements), and analysis of interlaboratory comparison standards.

Approximately 5% of the total number of samples analyzed for the study were control samples. A control sample could be any of the following:

- Spike - A sample aliquot with a known amount of analyte added.
- In-house - An in-house sample with a known concentration of analyte.
- EMSL - A control sample from the EPA laboratory in Las Vegas (EMSL-LV).

Appendix E, Table E.1 shows the laboratory performance of these samples, identifying the sample type, the type of control, the nuclide measured, the result obtained, and the known value or expected result. The "R" value in the table is the ratio of the result obtained; the expected result is expressed as a percent and indicates the level of performance. For the DOE Survey, an R value between 80 and 120 is considered acceptable.

5.2.2.1 Gamma Spectral Measurements

To ensure accuracy and reproducibility of results obtained by the gamma spectral measurements (gamma scans), a secondary standard consisting of cesium-137 and

cobalt-60 was counted daily; a mixed-radionuclide standard traceable to NBS was counted routinely; and backgrounds (i.e., blanks) were counted routinely. The gamma standards are used to check that the energy calibration and efficiency of the instrument remains constant. The mixed-radionuclide standard is used as an additional verification of proper instrument operation and a check of the energy and efficiency calibration.

ANL used six gamma-ray detectors attached to a common computer (VAX) for data collection and analysis. Appendix E Table E.2 presents the results of the daily checks with the gamma standards for each of the six detectors. The count rates, centroids, and peak widths for the cesium-137 661 keV and cobalt-60 1332 keV peaks are used in the QC check. Examination of the data in these tables indicates that peak widths were very constant during the METC measurements. The centroids exhibited only slight variations, and these variations were accounted for by the analyzer system which provided an energy calibration for each gamma-ray spectrum. The count rates for each of the gamma rays were also relatively constant, showing a range (minimum-to-maximum value) of $\pm 3\%$ or less. The results indicate that the efficiency of each detector was constant during the period of the METC Site measurements.

Results of the QC checks using the mixed-radionuclide standard are also included in Appendix E Table E.2 for the six gamma-ray detectors. The results for each detector indicate that the differences between the measured and true values were all less than the 6% uncertainty in the true values.

Appendix E Table E.3 presents a summary of the measured intensities of all the gamma rays observed in the background (i.e., blanks) for the six gamma-ray detectors. The data indicate that the background was low and relatively constant.

5.2.2.2 Interlaboratory Comparisons by ANL

During the period of the METC Site measurements, ANL participated in the EPA Cross Check Program for gamma isotopics in water. The results, presented in Appendix E Table E.4, measured by ANL did not exceed the warning limits, indicating that sufficiently accurate results were being obtained by ANL procedures and instruments.

5.2.3 Data Management QA/QC

All analytical data entered into the Data Management System (DMS) goes through a series of verification and validation (V&V) routines to ensure that the data are of the highest quality possible. These V&V routines are designed to capture two potential types of data errors: transcription and consistency.

Data transcription problems (i.e., data entry errors) can be eliminated through the use of electronic data transfer techniques. For METC Site data, all ICP data and most organic data were electronically transferred from the instruments to the data base. The remaining, manually-entered data were initially reviewed for legibility, entered, and then 100% visually checked for accuracy. All transcription errors are corrected at the time of discovery and are not documented.

Data consistency problems consist of miscoded information, missing data, incomplete data, and conflicting sample identification codes. After the information has been entered into the data base and all transcription problems corrected, the data is then printed and returned to the field team supervisor or analytical chemist for review. During this review, any missing or incomplete data is corrected and sent back for addition to the data base. Miscoded information is corrected and documented. Conflicting sample identification codes

are reviewed and resolved by data management personnel working with field and analytical staff.

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6.0 REFERENCES

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1-2. The Environmental Survey Manual; U.S. Department of Energy. Office of the Assistant Secretary Environment, Safety, and Health. Office of Environmental Audit. National Technical Information Service, U.S. Department of Commerce: Springfield, VA, August 1987; DOE/EH-0053, Vol. 1-4.

1-3. Environmental Survey Preliminary Report - Morgantown Energy Technology Center, Morgantown, West Virginia; U.S. Department of Energy. Office of Environmental Audit. Washington, D.C. June 1988. DOE/EH/OEV-21-P.

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Gamma-Ray Emitting Nuclides in Water and Soil

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Appendix A

UPDATED LIST OF SAMPLING AND ANALYTICAL REQUESTS

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TABLE A.1
METC SITE ENVIRONMENTAL SAMPLES
WITH FIELD QC SAMPLES
SORTED BY ENVIRONMENTAL PROBLEM AND REQUEST NUMBER

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REQ NUMB	PROB NUMB	ST	DATE COLL. DD/MM/YY	LOCATION	TYPE LOCATION	MEDIA	NUMB SAMP ACTUAL	NUMB SAMP PLANNED	TYPE	METALS ACTUAL	METALS PLANNED	PES/H/PCB ACTUAL	PES/H/PCB PLANNED	SEMIVOLS ACTUAL	SEMIVOLS PLANNED	VOLS ACTUAL	VOLS PLANNED	RADS ACTUAL	RADS PLANNED
ME300	1		23/08/88	BURROUGHS	SEWER	SEDIMENT	3	3	GRAB	3	3	0	0	3	3	0	0	0	0
ME301	1		23/08/88	BURROUGHS	SEWER	SEDIMENT	9	9	GRAB	9	9	0	0	9	9	0	0	0	0
ME302	1		24/08/88	BURROUGHS	SEWER	SUR WATER	2	2	GRAB	0	0	0	0	0	0	2	2	0	0
ME302	1		24/08/88	BURROUGHS	SEWER	SUR WATER	1	1	T COM	1	1	0	0	1	1	0	0	0	0
ME302	1		25/08/88	BURROUGHS	SEWER	SUR WATER	2	2	GRAB	0	0	0	0	0	0	2	2	0	0
ME302	1		25/08/88	BURROUGHS	SEWER	SUR WATER	1	1	T COM	1	1	0	0	1	1	0	0	0	0
ME302	1		26/08/88	BURROUGHS	SEWER	SUR WATER	2	2	GRAB	0	0	0	0	0	0	2	2	0	0
ME302	1		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	QC RN	1	1	0	0	1	1	0	0	0	0
ME303	1		24/08/88	BURROUGHS	SEWER	SUR WATER	1	1	T COM	1	1	0	0	1	1	0	0	0	0
ME303	1		25/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME303	1		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME303	1		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	QC FL	1	1	0	0	0	0	0	0	0	0
ME304	1		25/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME304	1		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME304	1		27/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME305	1		24/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME305	1		25/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME305	1		26/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME306	1		23/08/88	BURROUGHS	SEWER	SEDIMENT	3	3	GRAB	3	3	0	0	3	3	0	0	0	0
ME306	1		23/08/88	BURROUGHS	SEWER	SUR WATER	1	1	QC RN	1	1	0	0	1	1	0	0	0	0
ME307	1		23/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME307	1		24/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME307	1		25/08/88	BURROUGHS	SEWER	SUR WATER	1	1	GRAB	1	1	0	0	0	0	0	0	0	0
ME308	1		23/08/88	BURROUGHS	SEWER	SEDIMENT	1	1	S COM	1	1	0	0	0	0	0	0	0	0
ME309	2		23/08/88	NH B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME309	2		24/08/88	NH B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME309	2		25/08/88	NH B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME310	2	DELETED		NH B. B-17	STORMWATER	SUR WATER	0	2	GRAB	0	2	0	0	0	2	0	0	0	0
ME310	2		23/08/88	NH B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME311	2		23/08/88	NH B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME311	2		24/08/88	NH B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME311	2		25/08/88	NH B. B-17	STORMWATER	SUR WATER	1	1	GRAB	1	1	0	0	1	1	0	0	0	0
ME800	3		24/08/88	B. B-11	WASTE	SOIL	6	6	GRAB	6	6	6	6	6	6	0	0	6	6
ME800	3		24/08/88	B. B-11	WASTE	SUR WATER	1	1	QC RN	1	1	1	1	1	1	0	0	1	1
ME801	3		24/08/88	B. B-11	WASTE	SOIL	6	6	GRAB	6	6	6	6	6	6	0	0	0	0
ME801	3		25/08/88	B. B-11	WASTE	SOIL	6	6	GRAB	6	6	6	6	6	6	0	0	0	0
MEN04	99		25/08/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	1	1	0	0
MEN07	99		26/08/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	1	1	0	0
MEN09	99		27/08/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	1	1	0	0
						TOTAL	69	71		60	62	19	19	46	48	9	9	7	7

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Appendix B

BACKGROUND CONCENTRATION LEVELS OF ANALYTES

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Appendix B

BACKGROUND CONCENTRATION LEVELS OF ANALYTES

B.1 Radionuclides

No background data, as such, are available. However, some site monitoring data are available which may be useful for various types of comparisons. The following material is taken from the Morgantown Energy Technology Center (METC) Environmental Monitoring Report for Calendar Year 1987.

B.1.1 Surface Water

Table B.1 contains effluent data on wastewater and stormwater runoff which has passed through a stabilization pond and into Burroughs Run (Figure B.1). Burroughs Run is a tributary of West Fork Run which flows into the Monongahela River.

B.1.2 Groundwater

Groundwater is monitored at several wells on-site. Locations of these wells are indicated in Figure B.2. Data for 1986 and 1985 are given in Tables B.2 and B.3, respectively. Also given were graphs of trends in various parameters, compared to their "baseline" averages. These "baseline" averages were derived by the site from data from the first four quarters of sampling (April 1985 - March 1986). Baseline average values are as follows:

Variable	Baseline Average Value
Specific Conductivity	200 micromhos/cm
Total Dissolved Solids	150 mg/L
Total Organic Carbon	5 mg/L
Chloride	29 mg/L
Total Phenolics	0.002 mg/L
Total Organic Halides	$\leq$ 0.04 mg/L
pH	5.95 standard units

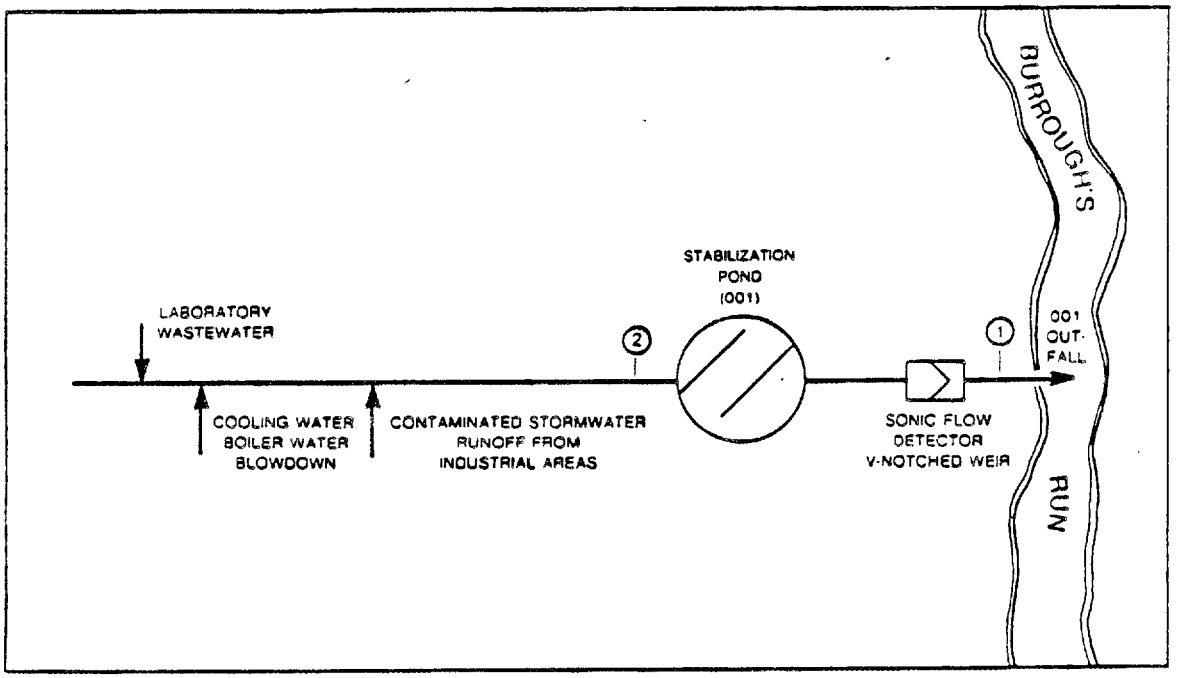

Figure B.1. Schematic of the Industrial and Contaminated Wastewater Treatment System

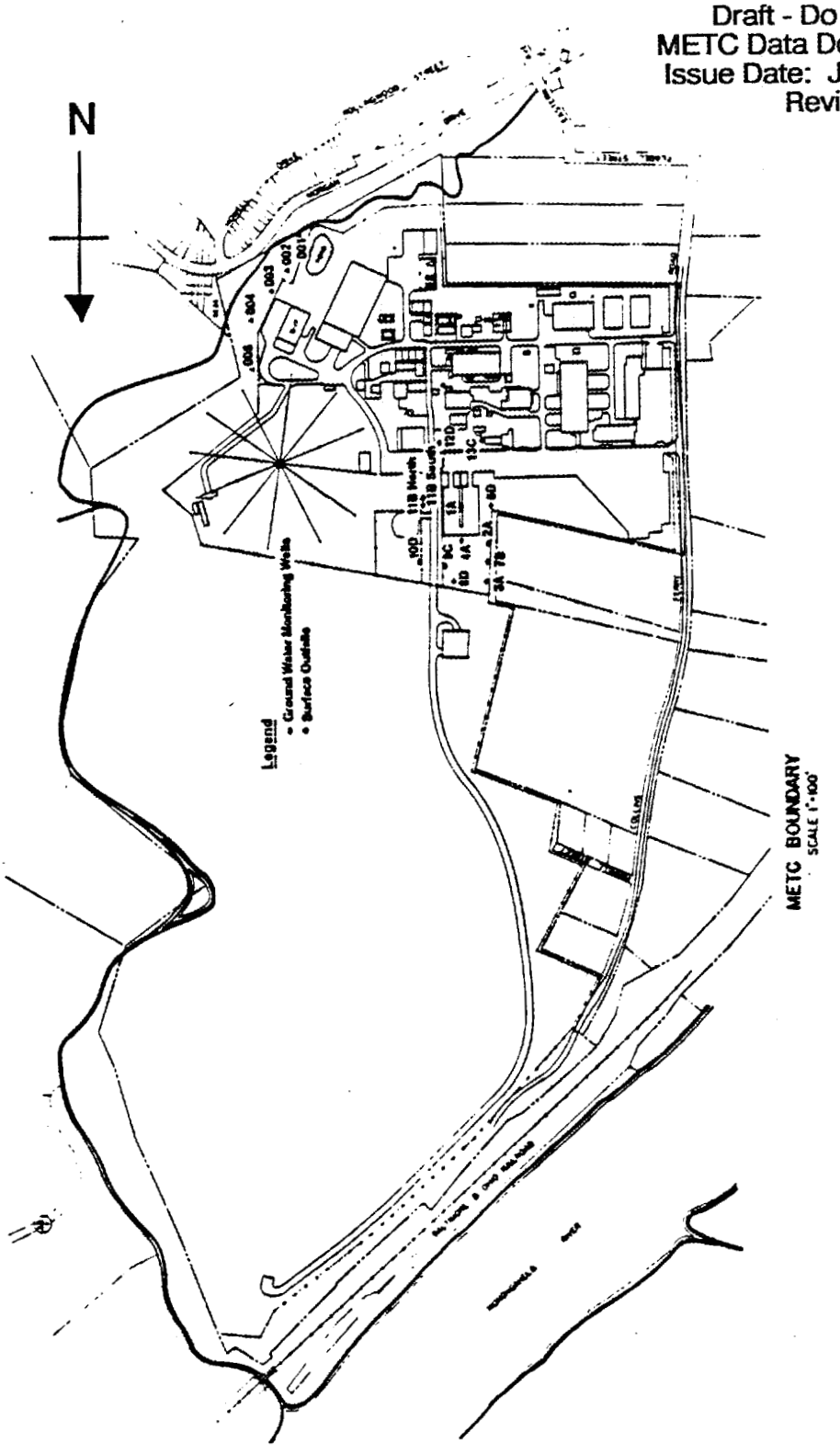

Figure B.2. METC Site Plan (December 1986) -- Groundwater Monitoring Well Locations

B.1.3 Sanitary Wastewater

Sanitary wastewater effluent results are also presented (Table B.4). Dissolved oxygen data were collected at the 001 outfall, and all other data were collected from the sanitary effluent discharged from the 001 stabilization pond. Locations of these features are shown in Figure B.1. Burroughs Run is a tributary of West Fork Run which flows into the Monongahela River.

B.1.4 Radiochemistry

No data on radioactive isotopes were given.

Table B.1. Wastewater and Stormwater Runoff in Burroughs Run, 1987

	Total Suspended Solids (mg/L)	Total Dissolved Solids (mg/L)	Total Cadmium (mg/L)	Hexavalent Chromium (mg/L)	Total Residual Chlorine (mg/L)	Phenolics (mg/L)	pH (s.u.)
Permit Limitation	60	--	0.01	0.05	0.5	0.005	6.0-8.5
January	< 5	160	< 0.005	< 0.01	< 0.1	0.015	7.1
February	7	170	< 0.005	< 0.01	< 0.1	<0.002	7.0
March	< 5	190	< 0.005	< 0.01	< 0.1	0.005	6.9
April	18	200	< 0.005	< 0.01	0.3	< 0.002	6.9
May	16	190	< 0.005	< 0.01	0.9	0.008	7.4
June	11	175	< 0.005	< 0.01	< 0.1	< 0.002	8.5
July	12	170	< 0.005	< 0.01	< 0.1	< 0.002	7.1
August	20	160	< 0.005	< 0.01	< 0.1	< 0.002	8.1
September	10	160	< 0.005	< 0.01	< 0.1	< 0.002	8.2
October	< 5	290	< 0.005	< 0.01	0.6	< 0.002	7.7
November	8	410	0.009	< 0.01	1.3	0.014	7.7
December	22	390	0.005	< 0.01	0.5	0.018	7.7
Average	12	222	< 0.005	< 0.01	0.4	0.006	7.5

All monthly values are averages.

Table B.2. Radionuclides in Groundwater 1986

Sample Source	Date	pH (s.u.)	Chloride (mg/L)	Total Dissolved Solids (mg/L)	Chemical Oxygen Demand (mg/L)	Specific Conductivity (mmho/cm)	Total Organic Halides (mg/L)	Total Organic Carbon* (mg/L)	Total Phenolics (mg/L)	Napthalene (mg/L)	Xylene (mg/L)
6-D	02/26/87	5.62	52	200	3	287	0.03	6	< 0.002	< 0.005	< 0.002
	06/11/87	6.05	57	210	2	289	0.04	< 10	< 0.002	< 0.005	< 0.002
	09/10/87	6.00	36	150	7	223	< 0.02	< 4	< 0.002	< 0.005	< 0.002
	12/03/87	4.12	30	150	110	278	0.13	3	< 0.002	< 0.005	< 0.002
8-D	02/26/87	5.05	55	190	7	284	0.04	4	< 0.002	< 0.005	< 0.002
	06/11/87	5.38	57	225	1	290	< 0.02	< 10	< 0.002	< 0.005	< 0.002
	09/10/87	5.68	34	140	6	184	< 0.02	< 4	< 0.002	< 0.005	< 0.002
	12/03/87	3.71	27	120	80	223	0.04	2	0.008	< 0.005	< 0.002
10-D	02/26/87	5.86	36	140	2	169	< 0.02	8	< 0.002	< 0.005	< 0.002
	06/11/87	6.23	42	130	2	166	< 0.02	< 10	< 0.002	< 0.005	< 0.002
	09/10/87	6.15	32	110	3	146	< 0.02	< 4	< 0.002	< 0.005	< 0.002
	12/03/87	5.31	23	150	23	160	0.08	2	0.008	< 0.005	< 0.002
11-B	02/26/87	5.81	26	160	2	232	0.02	8	< 0.002	< 0.005	< 0.002
	06/11/87	6.39	22	210	2	262	0.23	< 10	< 0.002	< 0.005	< 0.002
	09/10/87	6.15	19	160	6	210	< 0.02	< 4	< 0.002	< 0.005	< 0.002
	12/03/87	5.76	23	210	170	260	< 0.02	3	0.008	< 0.005	< 0.002
12-D	02/26/87	6.47	14	170	5	227	0.04	6	< 0.002	< 0.005	< 0.002
	06/11/87	6.69	17	145	2	180	0.03	< 10	< 0.002	< 0.005	< 0.002
	09/10/87	6.50	9	110	6	153	< 0.02	< 4	< 0.002	< 0.005	< 0.002
	12/03/87	6.50	5	94	140	190	0.14	4	< 0.002	< 0.005	< 0.002
1-A	02/26/87	*^	*	*	*	*	*	*	*	*	*
	06/11/87	*	*	*	*	*	*	*	*	*	*
	09/10/87	*	*	*	*	*	*	*	*	*	*
	12/03/87	*	*	*	*	*	*	*	*	*	*

* Lower detection limit dependent on laboratory standards.
^ Dry well.

Table B.3. Radionuclides in Pond Water and Groundwater 1985

Sample Source	Date	pH (s.u.)	Chloride (mg/L)	Total Dissolved Solids (mg/L)	Chemical Oxygen Demand (mg/L)	Specific Conductivity (mmho/cm)	Total Organic Halogen (mg/L)	Total Organic Carbon (mg/L)	Total Phenolics (mg/L)	Napthalene (mg/L)	Xylene (mg/L)
005	01/10/85	6.95	47.5	380	--*	637	3.20	118	5.4	----	----
	04/04/85	8.74	57.6	260	82	333	< 0.05	24	< 0.002	< 0.005	< 0.002
	07/08/85	6.34	1.0	660	320	726	< 0.05	177	14.1	< 0.007	0.019
	10/03/85	(005 Industrial Pond Closed)									
6-D	01/10/85	5.89	40.7	150	--	363	0.07	< 4.0	< 0.002	----	----
	04/04/85	5.94	45.2	250	35.4	237	< 0.05	< 4.0	< 0.002	< 0.005	< 0.002
	07/08/85	5.98	43.7	160	21	285	< 0.05	5.0	< 0.002	< 0.005	< 0.002
	10/03/85	5.14	31.7	160	9.4	215	< 0.05	6.0	< 0.002	< 0.005	< 0.002
8-D	01/10/85	5.68	37.7	125	--	268	< 0.02	< 4.0	< 0.002	----	----
	04/04/85	5.57	31.8	120	16.5	174	< 0.05	< 4.0	< 0.002	< 0.005	< 0.002
	07/08/85	5.56	34.7	130	19	215	< 0.05	5.0	< 0.002	< 0.005	< 0.002
	10/03/85	6.03	38.7	230	4.7	285	< 0.05	< 4.0	< 0.002	< 0.005	< 0.002
10-D	01/10/85	6.01	24.3	125	--	177	0.03	< 4.0	< 0.002	----	----
	04/04/85	6.15	28.3	100	24.5	120	< 0.05	< 4.0	< 0.002	< 0.005	< 0.002
	07/08/85	5.98	22.8	130	20	150	< 0.05	4.7	< 0.002	< 0.005	< 0.002
	10/03/85	6.27	26.8	120	< 1.0	163	< 0.05	< 4.0	< 0.002	< 0.005	< 0.002
11-B	01/10/85	6.12	12.4	100	--	234	< 0.02	< 4.0	< 0.002	----	----
	04/04/85	6.64	7.94	140	41	170	< 0.05	28.5	< 0.002	< 0.005	< 0.002
	07/08/85	6.35	7.9	145	10	184	< 0.05	4.0	< 0.002	< 0.005	< 0.002
	10/03/85	6.35	4.96	170	1.8	214	< 0.05	< 4.0	< 0.002	< 0.005	< 0.002
12-D	01/10/85	6.24	7.94	160	--	236	< 0.02	< 4.0	< 0.002	----	----
	04/04/85	6.61	37.7	145	30.4	179	< 0.05	4.5	< 0.002	< 0.005	< 0.002
	07/08/85	6.61	5.9	130	14	176	< 0.05	< 4.0	< 0.002	< 0.005	< 0.002
	10/03/85	6.35	1.98	135	9.1	225	< 0.05	6.46	< 0.002	< 0.005	< 0.002

* Missing data.

Table B.4. Monthly Sanitary Wastewater Effluent Results

MONTH	BOD (mg/L)	TSS (mg/L)	TKN (mg/L)	pH (std. units)	Fecal Coliform (counts/100 mL)	Dissolved Oxygen (mg/L)	Total Residual Chlorine (mg/L)
Permit Limitation	5^	30	18	6.0-9.0	200	≥ 6.0	N.A.
January	14	21	16	7.3	10	10.5	2.0
February	10	8	32	7.5	< 10	12.1	2.7
March	9	9	18	7.6	< 10	9.6	0.5
April	14	9	24	7.6	< 10	10.2	2.9
May	11	10	18	7.5	< 10	8.4	3.3
June	4	5	14	7.7	< 10	8.7	2.8
July	5	5	9	8.0	< 10	6.5	3.3
August	4	6	8	7.3	< 10	6.5	3.0
September	2	6	3	7.3	< 10	7.0	> 3.5
October	10	5	3	7.2	15	9.5	> 3.0
November	4	5	23	7.5	< 10	8.0	3.3
December	9	14	7	6.9	< 10	9.4	3.5
Average	8	9	15	7.5	10	8.9	2.8

All values represent monthly averages.

^ The permit limitation was 30 mg/L during January and February.

Appendix C

AUDITS

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ANL Results of Inorganic and Organic Performance Evaluation Studies	C-1
- Performance Evaluation Scores for ANL.	C-3
- Letter dated April 6, 1989, from Fredric J. Martino to Renee Tucker stating that corrective actions for QB2,FY89 inorganics will be forthcoming.	C-5
- EMSL-LV second quarter Inorganic Performance Evaluation Study (QB2,FY89).	C-7
- Letter dated March 28, 1989, from Harold A. Vincent to Peter C. Lindahl. Subject: Results of ANL participation in the EMSL-LV second quarter Inorganic Performance Evaluation Study (QB2, FY89, Inorganic).	C-9
- Letter dated February 7, 1989, from Harold A. Vincent to Peter C. Lindahl. Subject: Results of ANL participation in the EMSL-LV first quarter Inorganic Performance Evaluation Study (QB1, FY89, Inorganic).	C-11
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- Letter dated October 21, 1988, from Harold A. Vincent to Peter C. Lindahl. Subject: Results of ANL participation in the EMSL-LV fourth quarter Inorganic Performance Evaluation Study (QB4,FY88, Inorganic).	C-17
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- Corrective actions letter for QB4, FY88, Inorganic.	C-21
- Letter dated April 6, 1989, from Fredric J. Martino to Renee Tucker stating QB2,FY89 organic sample sets have not yet been scored, and corrective actions for QB2,FY89 Organics will be forthcoming.	C-23

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- Letter dated February 7, 1989, from Harold A. Vincent to Peter C. Lindahl. Subject: Results of ANL participation in the EMSL-LV first quarter Organic Performance Evaluation Study (QB1, FY89, Organic). C-25

- EMSL-LV first quarter Organic Performance Evaluation Study (QB1, FY89). C-27

- Corrective actions letter for QB1, FY89, Organic. C-29

- Letter (with attachments) dated October 28, 1988, from Harold A. Vincent to Peter C. Lindahl. Subject: Results of ANL participation in the EMSL-LV fourth quarter Organic Performance Evaluation Study (QB4, FY88, Organic). C-31

- EMSL-LV fourth quarter Organic Performance Evaluation Study (QB4, FY88). C-33

- Corrective actions letter for QB4, FY88, Organic. C-37

DOE Environmental Survey Field Sampling Activity Audit of ORNL Personnel at Pittsburgh Energy Technology Center C-39

- **NOTE:** The PETC and METC sites were sampled consecutively by the same ORNL Sampling Team. Per conversation with the ORNL Field Team Leader for the PETC and METC sites, Keith Owenby, the PETC audit information is applicable to the METC site as well.

ANL Results of Inorganic and Organic Performance Evaluation Studies

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PERFORMANCE EVALUATION SCORES FOR ANL

Code	Score
QB2FY89 Inorganic	88.4
QB1FY89 Inorganic	94.8
QB4FY88 Inorganic	95.8
QB2FY89 Organic	*
QB1FY89 Organic	71.6
QB4FY88 Organic	91.7

*Reported on schedule - no score received as of April 1989.

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ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439

April 6, 1989

FEDERAL EXPRESS

Ms. Renee Tucker
Oak Ridge National Laboratory
Martin Marietta Energy Systems, Inc.
P.O. Box 2008
Oak Ridge, TN 37831

Dear Renee,

Please find enclosed a copy of our scored results for the U.S. Environmental Protection Agency Inorganic Quarterly Blind (QB) Performance Evaluation sample set for the second fiscal quarter of 1989, i.e., QB2FY89. The Inorganic QB2FY89 results cover (1) that period immediately after completion of our analysis of samples received from the Morgantown Energy Technology Center site, and (2) that period during which analyses were performed on samples received from the Lawrence Livermore National Laboratory site. Our scored Organic QB2FY89 analytical results will be forwarded to you as soon as we receive them from the U.S. EPA Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV).

Corrective action responses for our Inorganic QB2FY89 results, and for our Organic QB2FY89 results, if required, will be forwarded to you after being judged acceptable by EMSL-LV.

I believe the enclosed, the forthcoming scored results for Organic QB2FY89, and our subsequent corrective action statements for each of the QB2FY89 sample sets will complete the QB information owed you for all sites. If I am incorrect, or if you require additional information or have any questions, please call me at (312)972-3173.

Sincerely,

Fred

Fredric J. Martino
Analytical Chemistry Laboratory
Chemical Technology Division

FJM/vaa

cc: (w/enc.)
M. Steindler (2)
(w/o enc.)

P. Nelson	E. Palys - QES
D. Green	V. Fayne - DOE
P. Lindahl	R. Scott - DOE
M. Erickson	A. Crockett - INEL
D. Graczyk	H. Vincent - EMSL-LV
DES File	R. Fitts - ORNL

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INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 2 FY 89

LABORATORY NAME: Argonne National (IL) [V1]
PERFORMANCE LEVEL: ACCEPTABLE - Corrective Actions Necessary
LABORATORY RANK: Above = 22 Same = 0 Below = 7

% Score: 88.4
REPORT DATE: 3/15/1989
MATRIX: WATER

ELEMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	#LABS NOT-ID	#LABS MIS-QUANT	PROGRAM DATA #LABS FALSE POS	PROGRAM DATA #LABS MSPK OUT	PROGRAM DATA #LABS DUP OUT	TOT. #LA
ALUMINUM	1000	1160	1030		0	5	0	0	0	3(
ANTIMONY	66.7	113	85.9		0	2	0	2	1	3(
ARSENIC	28.9	44.2	35		0	1	0	1	1	3(
BARIUM	4060	4880	4210		0	0	0	0	0	3(
BERYLLIUM	23.0	28.6	27.3		0	1	0	0	0	30
CADMIUM	53.8	66.5	61.3		0	3	0	0	0	30
CALCIUM	7180	8470	7120	X	0	2	0	0	0	30
CHROMIUM	38.0	52.0	46.3		0	3	0	0	0	30
COBALT	57.2	80.0	66.7		0	3	0	0	0	30
COPPER	37.3	67.0	53.4		0	2	0	0	0	30
IRON	323	402	374		0	2	0	0	0	30
LEAD	14.9	25.2	22.4		0	1	0	1	0	30
MAGNESIUM	5000.0	5350	4980	B	1	2	0	0	0	30
MANGANESE	57.4	73.3	66.5		0	3	0	0	0	30
MERCURY	6.0	10.6	8.9		0	3	0	0	0	30
NICKEL	66.4	90.9	90.2	$	0	0	0	0	0	30
POTASSIUM	10600	13000	11600		0	4	0	0	0	30
SELENIUM	12.6	22.9	18		0	1	0	5	1	30
SILVER	10.0	18.2	5.7	B	11	1	0	1	0	30
SODIUM	d	d	1230	BE	0	0	0	0	0	30
THALLIUM	33.2	59.6	40.9		0	2	0	4	0	30
VANADIUM	50.0	70.3	61.6		0	1	0	0	0	30
ZINC	20.0	41.2	30		0	1	0	0	0	30

OF ELEMENTS NOT-IDENTIFIED: 0
OF ELEMENTS MIS-QUANTIFIED: 1
OF FALSE POSITIVES: 0

OF MATRIX SPIKES OUT: 1
WATER : Ag

OF DUPLICATES OUT: 0
WATER :

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 2 FY 89

ABORATORY NAME: Argonne National (IL) [V1]
ERFORMANCE LEVEL: ACCEPTABLE - Corrective Actions Necessary
ABORATORY RANK: Above = 22 Same = 0 Below = 7

% Score: 88.4
REPORT DATE: 3/15/1989
MATRIX: SOIL

LEMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	#LABS NOT-ID	#LABS MIS-QUANT	PROGRAM DATA #LABS FALSE POS	PROGRAM DATA #LABS MSPK OUT	PROGRAM DATA #LABS DUP OUT	TOTAL #LABS
LUMINUM	7280	12200	7510	S	0	1	0	0	0	30
NTIMONY	c	c	1.2	U	0	0	0	24	0	30
RSENIC	2.4	5.6	3.1		0	2	2	1	0	30
ARIUM	40.0	53.1	46.7		0	0	0	0	0	30
ERYLLIUM	c	c	0.48	B	0	0	0	0	0	30
ADMIUM	c	c	0.31	B	0	0	0	1	1	30
ALCIUM	40500	49400	38600	X	0	5	0	0	0	30
HROMIUM	11.4	29.6	20.3		0	2	0	1	1	30
OBALT	d	d	5.5	B	0	0	0	0	0	30
OPPER	19.5	35.8	24.6	E	0	2	0	0	1	30
RON	11700	18900	12100	S	0	1	0	0	0	30
EAD	18.0	24.6	19.9		0	4	0	0	0	30
AGNESIUM	22600	28100	22600	S	0	2	0	0	0	30
ANGANESE	271	338	275	S	0	2	0	1	0	30
ERCURY	c	c	0.04	U	0	0	0	1	1	30
ICKEL	19.8	31.4	24.6		0	2	0	0	0	30
OTASSIUM	1000.0	1270	577	B	1	1	0	0	0	30
ELENIUM	c	c	0.21	U	0	0	0	11	1	30
ILVER	c	c	5.7	#	0	0	0	5	1	30
ODIUM	d	d	128	BE	0	0	0	0	0	30
HALLIUM	c	c	0.98	U	0	0	0	3	0	30
ANADIUM	15.2	51.3	24.8		0	0	0	0	0	30
INC	52.6	71.5	58		0	1	0	0	1	30

OF ELEMENTS NOT-IDENTIFIED: 0
OF ELEMENTS MIS-QUANTIFIED: 1
OF FALSE POSITIVES: 1

OF MATRIX SPIKES OUT: 1
OIL : Sb

OF DUPLICATES OUT: 0
OIL :

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS
P.O. BOX 93478
LAS VEGAS, NEVADA 89193-3478
(702/798-2100 • FTS 545-2100)

MAR 28 1989

Mr. Peter C. Lindahl
Analytical Chemistry Division, BLD 205
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, IL 60439

Dear Mr. Lindahl:

The results of the participation of your laboratory in the Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV) second quarter Inorganic Performance Evaluation study (QB2, FY89 Inorganic) are enclosed. This includes copies of the statistical information on the numbers of laboratories in the program that had difficulties with specific analytes.

For scores of less than 100 for each quarterly blind performance evaluation sample, the Department of Energy (DOE) Environmental Survey requires that the laboratory provide a formal response which would describe any changes or corrective actions that have been taken to improve analytical performance and eliminate deficiencies. That response will become a part of the quality assurance record for analytical work completed by the laboratory for sites in the DOE environmental survey. In order to meet delivery times for data Document publication, please send your corrective action responses to Vincent Fayne at DOE headquarters with copies sent to me at the EMSL-LV within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc: (w/Enclosures)
Vincent Fayne, DOE HQ
Alan Crockett, INEL

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS
P.O. BOX 93478
LAS VEGAS, NEVADA 89193-3478
(702/798-2100 - FTS 545-2100)

FEB 07 1989

Mr. Peter C. Lindahl
Analytical Chemistry Division, Bldg. 205
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, IL 60439

Dear Mr. Lindahl:

The results of the participation of your laboratory in the Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV) first quarter Inorganic Performance Evaluation Study (QB17, FY89, Inorganic) are enclosed. This includes copies of the statistical information on the numbers of laboratories in the program that had difficulties with specific analytes.

For scores of less than 100 for each quarterly blind performance evaluation sample, the Department of Energy (DOE) Environmental Survey requires that the laboratory provide a formal response which would describe any changes or corrective actions that have been taken to improve analytical performance and eliminate deficiencies. That response will become a part of the quality assurance record for analytical work completed by the laboratory for sites in the DOE environmental survey. In order to meet delivery times for data document publication, please send your corrective action responses to Vincent Fayne at DOE Headquarters with copies sent to me at the EMSL-LV within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent,
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc: (w/Enclosures)
Vincent Fayne, DOE HQ
Alan Crockett, INEL

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INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 1 FY 89

LABORATORY NAME: Argonne National (IL) [B2]
PERFORMANCE LEVEL: ACCEPTABLE
LABORATORY RANK: Above = 13 Same = 1 Below = 26

% Score: 94.8
REPORT DATE: 12/15/1988
MATRIX: WATER

ELEMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	PROGRAM DATA #LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	PROGRAM DATA #LABS FALSE POS	PROGRAM DATA #LABS MSPK OUT	PROGRAM DATA #LABS DUP OUT	PROGRAM DATA TOTAL #LABS
ALUMINUM	433	617	521		0	3	0	0	0	41
ANTIMONY	60.0	67	45.9	B	12	4	0	1	0	41
ARSENIC	66	95	95.1	S	0	1	1	5	0	41
BARIUM	340	425	361	E	0	1	0	0	0	41
BERYLLIUM	135	162	154		0	2	0	1	0	41
CADMIUM	151	184	160		0	5	0	1	0	41
CALCIUM	d	d	977	B	0	0	0	0	0	41
CHROMIUM	62	79	72		0	1	0	0	1	41
COBALT	172	225	198		0	0	0	0	0	41
COPPER	171	208	187		0	3	0	0	0	41
IRON	100.0	158	99.1	B	0	3	0	1	0	41
LEAD	46	74	67.3		0	0	0	4	0	41
MAGNESIUM	d	d	1190	B	0	0	0	0	0	41
MANGANESE	149	185	166		0	2	0	1	0	41
MERCURY	12	23	16.9		0	6	0	1	0	41
NICKEL	100	141	125		0	0	0	0	0	41
POTASSIUM	16200	20400	17700		1	5	0	0	0	41
SELENIUM	26	40	33.6		0	2	0	3	1	41
SILVER	c	c	5.8	B	0	0	0	6	1	41
SODIUM	11700	14200	12700		1	3	0	0	0	41
THALLIUM	51	77	56.1		0	4	1	2	1	41
VANADIUM	101	127	130	X	0	2	0	0	0	41
ZINC	56	93	61.3		0	2	0	1	0	41

OF ELEMENTS NOT-IDENTIFIED: 0
OF ELEMENTS MIS-QUANTIFIED: 1
OF FALSE POSITIVES: 0

OF MATRIX SPIKES OUT: 2
WATER : As, Mn

OF DUPLICATES OUT: 0
WATER :

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 1 FY 89

LABORATORY NAME: Argonne National (IL) [B2]
PERFORMANCE LEVEL: ACCEPTABLE
LABORATORY RANK: Above = 13 Same = 1 Below = 26

% Score: 94.8
REPORT DATE: 12/15/1988
MATRIX: SOIL

ELEMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	PROGRAM DATA #LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	PROGRAM DATA #LABS FALSE POS	PROGRAM DATA #LABS MSPK OUT	PROGRAM DATA #LABS DUP OUT	TOTAL #LABS
ALUMINUM	6290	19500	8970		0	1	0	0	1	41
ANTIMONY	c	c	0.78	B	0	0	0	27	1	41
ARSENIC	3.8	10	8	S	0	5	0	9	2	41
BARIUM	164	209	177		0	1	0	0	0	41
BERYLLIUM	1.0	1.4	0.97		8	2	0	0	0	41
CADMIUM	c	c	1		0	0	0	0	3	41
CALCIUM	42100	49700	43800		0	2	0	0	0	41
CHROMIUM	10	22	16.3		0	2	0	1	1	41
COBALT	10.0	14	10.5		1	1	0	0	0	41
COPPER	16	30	20		0	2	0	1	3	41
IRON	14600	20300	16100		0	0	0	0	0	41
LEAD	85	220	215	S	0	0	0	6	16	41
MAGNESIUM	2870	4570	3260		0	0	0	0	0	41
MANGANESE	567	698	622		0	4	0	0	0	41
MERCURY	c	c	0.07	B	0	0	0	3	3	41
NICKEL	13	27	18.7		0	1	0	0	0	41
POTASSIUM	1080	3500	1800		1	2	0	0	0	41
SELENIUM	c	c	0.26	B	0	0	0	21	0	41
SILVER	c	c	1.5	B	0	0	0	7	0	41
SODIUM	d	d	185	BE	0	0	0	0	0	41
THALLIUM	c	c	1.1	U	0	0	0	3	0	41
VANADIUM	15	39	21.3		0	1	0	1	0	41
ZINC	109	147	116		0	0	0	0	1	41

OF ELEMENTS NOT-IDENTIFIED: 0
OF ELEMENTS MIS-QUANTIFIED: 0
OF FALSE POSITIVES: 0

OF MATRIX SPIKES OUT: 1
SOIL : Sb

OF DUPLICATES OUT: 0
SOIL :

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439

February 20, 1989

Mr. Vincent Fayne
U.S. Department of Energy
Office of Environmental Audit
Forrestal Building, EH-24
1000 Independence Avenue, SW
Washington, DC 20585

Dear Vince,

As Harold Vincent, U.S. EPA EMSL-LV, has reported, the Argonne National Laboratory/Analytical Chemistry Laboratory's score on the Inorganic Performance Evaluation (PE) Study (QB1 FY89, Case No. 10589) was 94.8%. In accordance with DOE Environmental Survey policy on addressing PE sample results, the following clarifications are presented:

Water Matrix

CVAA - Reported value within acceptance range; no corrective action required.

FAA - As matrix spike outside of acceptance range.

ICP - Mn matrix spike outside of acceptance range; V value outside of acceptance range.

CVAA = Cold vapor atomic absorption for mercury, FAA = Furnace atomic absorption, and ICP = Inductively coupled plasma emission spectroscopy.

FAA As and ICP Mn matrix spike data reviewed prior to submission indicated for the water sample that these two matrix spikes were outside the recovery criteria acceptance limits of 75-125%, and these data were flagged according to CLP protocol. Assessment by Don Graczyk, the Inorganic Coordinator, and me resulted in the conscious decision to accept the one point penalty (0.5 x 2 values outside the control limit) to our score rather than spend the extra two or three days of effort to redigest and reanalyze another set of samples for these two elements. The required post-digestion spike recovery for Mn of 98.6% was within the acceptance limits of 75-125%. It is also worth noting in the case of As that five of the forty-one participating laboratories had the As matrix spike outside the acceptance window. No corrective actions are planned since this appears to be a method problem.

Our reported value for V (130 µg/L) is just outside the upper limit of the 101-127 µg/L acceptance range. Review of our ICP quality control results for V, including the ICB, ICV, CCB, CCV, PB, and aqueous LCS data, showed all results within the CLP acceptance limits. Further examination of the blank data showed that the ICB, CCB, and PB results ranged from 17.4 to 26.2 µg/L and, while they are all less than the V CRDL of 50 µg/L, suggest a upward drift of the V baseline signal. This baseline/blank contribution is the most likely reason that the reported V value is slightly high. Review

of the results for the analysis of an ICP standard at two times the CRDL showed that these values were within the CRDL, but also biased high by the blank value (e.g., found values of 123 µg/L and 117 µg/L vs. the true value of 100 µg/L). Since all results were within the CRDL and within the CLP guidelines, it appears that corrective actions are not necessary; hence none are planned.

Soil Matrix

CVAA - No confidence interval set; no corrective action required.

FAA - Sb matrix spike outside of acceptance range.

ICP - Reported values within acceptance range; no corrective actions required.

Review of the FAA Sb matrix spike result prior to its submission indicated that it was outside the recovery criteria acceptance limits of 75-125% and it was flagged accordingly. Again, review and assessment resulted in the decision that since this was a method problem we would accept the one-half point penalty to our score. It is notable that 27 of the forty-one participating laboratories reported an Sb matrix spike result outside the acceptance window.

We presume our decision not to spend the additional time required to reprepare and reanalyze the PE samples for the matrix spikes was prudent and presents no problem. In addition, I trust our score of 94.8% on the inorganic PE sample analysis is consistent with the DOE Environmental Survey's goals of providing data of high quality. Should you have any questions regarding our inorganic PE sample results or this corrective action response, please contact me at FTS 972-3490 or Don Graczyk at FTS 972-3489.

Sincerely,

Pete

Peter C. Lindahl
Analytical Chemistry Laboratory
Chemical Technology Division

PCL:amb

cc: M. Steindler (2)
P. Nelson
D. Green
D. Graczyk
R. Heinrich
M. Erickson
F. Martino
E. Palys
R. Scott (DOE-OEA)
H. Vincent (EPA EMSL-LV)
A. Crockett (INEL)
DES File

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS
P.O. BOX 93478
LAS VEGAS, NEVADA 89193-3478
(702/798-2100 - FTS 545-2100)

OCT 24 1988

Mr. Peter C. Lindahl
Analytical Chemistry Division, BLD 205
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, IL 60439

Dear Mr. Lindahl:

The results of the participation of your laboratory in the EMSL-LV fourth quarter Inorganic Performance Evaluation study (QB4,INORGANIC, FY88) are enclosed. This includes copies of the analysis reports for inorganics in soil and water samples. The reports also present statistical information on the numbers of laboratories program that had difficulties with specific analytes.

Although the score for the effort by the ANL laboratory was very good at 95.8%the DOE environmental survey requires a formal response describing any changes or corrective actions taken to improve the performance and eliminate deficiencies. That response will become a part of the quality assurance record for analytical work completed by your laboratory for sites in the DOE environmental survey. In order to meet delivery times for data Document publication, please send your corrective action responses within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc:
Vincent Fayne, DOE HQ
Alan Crockett, INEL

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INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY NAME: Argonne National (IL) (B2)
PERFORMANCE LEVEL: ACCEPTABLE
LABORATORY RANK: Above = 10 Same = 1 Below = 26

% Score: 95.8
REPORT DATE: 9/26/1988
MATRIX: WATER

ELEMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	PROGRAM DATA #LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	PROGRAM DATA #LABS FALSE POS	PROGRAM DATA #LABS MSPK OUT	PROGRAM DATA #LABS DUP OUT	TOTAL #LABS
ALUMINUM	725	930	783		0	6	0	0	0	38
ANTIMONY	68.0	98	64.6		0	3	0	4	0	38
ARSENIC	26	39	36.2		0	1	0	2	1	38
BARIUM	2790	3260	2940		0	2	0	0	0	38
BERYLLIUM	30	40	34.8		0	0	0	0	0	38
CADMIUM	6.9	13	10.5		0	4	0	1	0	38
CALCIUM	5190	6270	5510	E	0	2	0	0	0	38
CHROMIUM	31	49	41.2		0	4	0	0	0	38
COBALT	72	96	72.5	*	0	1	0	0	0	38
COPPER	60	100	90.5		0	2	0	0	0	38
IRON	1600	1890	1750		0	2	0	2	0	38
LEAD	54	77	66.1		0	2	0	2	2	38
MAGNESIUM	7840	9840	8040	E	0	1	0	0	0	38
MANGANESE	46	57	53.8	E	0	2	0	0	0	38
MERCURY	6.3	10	7.6		0	5	0	0	0	38
NICKEL	113	163	145		0	3	0	0	1	38
POTASSIUM	8380	10700	9700		0	2	0	0	0	38
SELENIUM	11	19	14.5		0	0	0	5	1	38
SILVER	10.0	15	6.9	B	15	1	0	2	1	38
SODIUM	17100	22100	19800		0	3	0	0	0	38
THALLIUM	29	50	41.9		1	4	0	5	3	38
VANADIUM	54	69	52.9	X	0	6	0	0	0	38
ZINC	30	59	56		0	6	0	0	1	38

OF ELEMENTS NOT-IDENTIFIED: 0
OF ELEMENTS MIS-QUANTIFIED: 1
OF FALSE POSITIVES: 0

OF MATRIX SPIKES OUT: 0
WATER :

OF DUPLICATES OUT: 0
WATER :

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

.BORATORY NAME: Argonne National (IL) (B2)
.ERFORMANCE LEVEL: ACCEPTABLE
.BORATORY RANK: Above = 18 Same = 1 Below = 26

% Score: 95.8
REPORT DATE: 9/26/1988
MATRIX: SOIL

.EMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	PROGRAM DATA #LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	PROGRAM DATA #LABS FALSE POS	PROGRAM DATA #LABS MSPK OUT	PROGRAM DATA #LABS DUP OUT	PROGRAM DATA TOTAL #LABS
.UMINUM	4630	17500	9180		0	1	0	0	1	33
ITIMONY	12.0	58	36.1		3	2	0	27	0	33
ISENIC	242	378	292		0	6	0	2	2	33
ARIUM	94	146	123		0	3	0	1	0	33
ERYLLIUM	4.4	7.7	6.5	E	1	2	0	2	0	33
ADMIUM	13	20	15.2		0	7	0	2	0	33
ALCIUM	49000	61300	50300		0	4	0	0	0	33
HROMIUM	42	63	61.7	E	0	2	0	1	0	33
OBALT	35	58	48.4		0	4	0	1	0	33
OPPER	1710	2100	1850		0	4	0	0	0	33
ON	13500	26000	19700		0	4	0	0	0	33
EAD	392	412	387		0	5	0	2	1	33
AGNESIUM	29900	37900	33800		0	3	0	0	0	33
ANGANESE	4310	5660	5200		0	4	0	1	0	33
ERCURY	1.9	4.4	3		0	2	0	0	1	33
ICKEL	20	50	35.1		0	2	0	1	0	33
OTASSIUM	1000.0	1440	869	B	0	5	0	0	0	33
ELENIUM	4.8	16	10.6		1	3	0	4	2	33
ILVER	3.8	10	6.6		0	4	0	5	2	33
ODIUM	d	d	247	BE	0	0	1	0	0	33
HALLIUM	6.5	14	10.9		1	3	0	6	0	33
ANADIUM	24	58	36.6		0	2	0	1	0	33
INC	206	330	269		0	3	0	5	0	33

OF ELEMENTS NOT-IDENTIFIED: 0
OF ELEMENTS MIS-QUANTIFIED: 0
OF FALSE POSITIVES: 0

OF MATRIX SPIKES OUT: 2
OIL : Sb, Zn

OF DUPLICATES OUT: 0
OIL :

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439

October 31, 1988

Mr. Vincent Fayne
U.S. Department of Energy
Office of Environmental Audit
Forrestal Building, EH-24
1000 Independence Avenue, SW
Washington, DC 20585

Dear Vince,

As Harold Vincent, U.S. EPA EMSL-LV, has reported, the Argonne National Laboratory/Analytical Chemistry Laboratory's score on the EMSL-LV's Inorganic Performance Evaluation (PE) Study (QB4 FY88, Case No. 10017) was 95.8. In accordance with DOE Environmental Survey policy on addressing PE sample results, the following clarifications are presented:

Water Matrix

CVAA - Reported value within acceptance range, no corrective action required.

FAA - Reported values within acceptance range, no corrective action required.

ICP - Vanadium value outside acceptance range.

Our reported value of 52.9 µg/L was just outside the lower limit of the acceptance range of 54-69 µg/L for the water sample. Review of our ICP quality control results, including ICB, ICV, CCB, CCV, and aqueous LCS data shows no bias in the data that would result in reporting low V concentrations. In fact, the reported value for V in the soil sample, 36.6 mg/kg, is close to the middle of the 24-58 mg/kg acceptance range. In light of this information, it appears that extensive corrective actions will not be necessary, but we do plan to review our vanadium QC data thoroughly to see if a minor trend has recently occurred that would lead to biased low V results.

CVAA = Cold vapor atomic absorption for mercury, FAA = Furnace atomic absorption, and ICP = Inductively coupled plasma emission spectroscopy.

Soil Matrix

CVAA - Reported value within acceptance range, no corrective action required.

FAA - Sb matrix spike outside of acceptance range.

ICP - Zn matrix spike outside of acceptance range.

Review of the FAA Sb and ICP Zn matrix spike results for the soil sample prior to submission of the data to the U.S. EPA EMSL-LV indicated that these two matrix spikes were outside the recovery criteria acceptance limits of 75-125% and the data were flagged accordingly. Assessment by Don Graczyk, the inorganic coordinator, and me resulted in the conscious decision that we would accept the one point penalty (0.5 x 2 values outside) to our score rather than spend the two to three days of effort to redigest and reanalyze a new set of samples for these two elements, since this was a method defect and redigestion and reanalysis would probably not result in an improved score. Additional information indicating a method defect is that these two elements in the soil matrix presented matrix spike problems for many of the participating laboratories; twenty-seven of the thirty-one participating laboratories reported Sb matrix spike results outside the acceptance window, and five of the laboratories reported Zn matrix spike results outside the acceptance range. Since this is a method defect, no corrective action(s) will be implemented.

I trust our result of 95.8 out of a possible 100 on the PE samples is consistent with the DOE Environmental Survey's goals of providing data of known quality. Should you have any question regarding our analysis of these PE sample results, please contact me at FTS 972-3490 or Don Graczyk at FTS 972-3489.

Sincerely,

Pete

Peter C. Lindahl
Analytical Chemistry Laboratory
Chemical Technology Division

PCL:amb

cc: D. Green
R. Heinrich
M. Erickson
D. Graczyk
F. Martino
E. Palys
R. Scott (DOE-OEA)
H. Vincent (EPA EMSL-LV)
A. Crockett (INEL)
R. Lugar (INEL)
M. Steindler (2)
P. Nelson
DES File

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439

April 6, 1989

FEDERAL EXPRESS

Ms. Renee Tucker
Oak Ridge National Laboratory
Martin Marietta Energy Systems, Inc.
P.O. Box 2008
Oak Ridge, TN 37831

Dear Renee,

Please find enclosed a copy of our scored results for the U.S. Environmental Protection Agency Inorganic Quarterly Blind (QB) Performance Evaluation sample set for the second fiscal quarter of 1989, i.e., QB2FY89. The Inorganic QB2FY89 results cover (1) that period immediately after completion of our analysis of samples received from the Morgantown Energy Technology Center site, and (2) that period during which analyses were performed on samples received from the Lawrence Livermore National Laboratory site. Our scored Organic QB2FY89 analytical results will be forwarded to you as soon as we receive them from the U.S. EPA Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV).

Corrective action responses for our Inorganic QB2FY89 results, and for our Organic QB2FY89 results, if required, will be forwarded to you after being judged acceptable by EMSL-LV.

I believe the enclosed, the forthcoming scored results for Organic QB2FY89, and our subsequent corrective action statements for each of the QB2FY89 sample sets will complete the QB information owed you for all sites. If I am incorrect, or if you require additional information or have any questions, please call me at (312)972-3173.

Sincerely,

Fred

Fredric J. Martino
Analytical Chemistry Laboratory
Chemical Technology Division

FJM/vaa

cc: (w/enc.)
M. Steindler (2)
(w/o enc.)

P. Nelson	E. Palys - QES
D. Green	V. Fayne - DOE
P. Lindahl	R. Scott - DOE
M. Erickson	A. Crockett - INEL
D. Graczyk	H. Vincent - EMSL-LV
DES File	R. Fitts - ORNL

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS
P.O. BOX 93478
LAS VEGAS, NEVADA 89193-3478
(702/798-2100 - FTS 545-2100)

FEB 07 1989

Mr. Lindahl
Analytical Chemistry Division, Bldg. 205
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, IL 60439

Dear Mr. Lindahl:

The results of the participation of your laboratory in the Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV) first quarter Organic Performance Evaluation Study (QB1, FY89 Organic) are enclosed. This includes copies of the statistical information on the numbers of laboratories in the program that had difficulties with specific analytes.

For scores of less than 100 for each quarterly blind performance evaluation sample, the Department of Energy (DOE) Environmental Survey requires that the laboratory provide a formal response which would describe any changes or corrective actions that have been taken to improve analytical performance and eliminate deficiencies. That response will become a part of the quality assurance record for analytical work completed by the laboratory for sites in the DOE environmental survey. In order to meet delivery times for data document publication, please send your corrective action responses to Vincent Fayne at DOE Headquarters with copies sent to me at the EMSL-LV within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent,
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc: (w/Enclosures)
Vincent Fayne, DOE HQ
Alan Crockett, INEL

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ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 1 FY 89

LABORATORY: Argonne National (IL)
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required
RANK: Above = 42 Same = 1 Below = 20

% SCORE: 71.6
REPORT DATE: 12/22/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QNT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #LABS
TCL VOLATILE										
VINYL CHLORIDE	74	140	64	150	95		1	0	9	9
ACETONE	NU	NU	NU	NU	99		0	1	8	9
1,1-DICHLOROETHENE	23	36	21	37	31		2	0	9	9
1,2-DICHLOROETHENE (TOTAL)	75	110	69	120	95		1	0	9	9
1,1,1-TRICHLOROETHANE	60	87	56	91	74		0	0	9	9
TRICHLOROETHENE	39	52	38	54	45		0	1	8	9
DIBROMOCHLOROMETHANE	15	23	14	24	19		2	0	9	9
2-PENTANONE,4-METHYL-	20	37	17	40	29		1	0	9	9
TETRACHLOROETHENE	40	55	38	57	49		1	0	9	9
ETHYL BENZENE	40	53	39	55	47		1	0	9	9
TCL SEMIVOLATILE										
2-CHLOROPHENOL	21	35	19	42	29		0	2	7	9
1,3-DICHLOROBENZENE	NU	NU	NU	NU	10 U		0	9	0	9
1,4-DICHLOROBENZENE	37	68	33	73	23	X	5	0	9	9
BENZYL ALCOHOL	47	91	41	110	58		2	5	4	9
1,2-DICHLOROBENZENE	20	36	18	44	13	X	5	0	9	9
4-METHYLPHENOL	24	39	22	47	22	S	1	1	8	9
HEXACHLOROETHANE	27	59	22	76	12	X	5	0	9	9
2,4-DIMETHYLPHENOL	33	83	25	110	77		1	0	9	9
BIS(2-CHLOROETHOXY)METHANE	30	49	28	51	36		2	0	9	9
2,4-DICHLOROPHENOL	58	88	54	100	70		2	0	9	9
1,2,4-TRICHLOROBENZENE	20	35	18	43	14	X	5	0	9	9
HEXACHLOROBUTADIENE	27	56	23	71	10	X	7	0	9	9
HEXACHLOROCYCLOPENTADIENE	NU	NU	NU	NU	10 U		0	5	4	9
2,4,6-TRICHLOROPHENOL	23	37	21	45	29		2	0	9	9
2-CHLORONAPHTHALENE	27	45	24	55	26	S	1	0	9	9
2,6-DINITROTOLUENE	50	82	45	87	52		1	0	9	9
ACENAPHTHENE	30	47	27	56	31		0	0	9	9
FLUORENE	64	96	59	100	63	S	1	0	9	9
N-NITROSODIPHENYLAMINE	41	73	36	90	120	X	1	0	9	9
HEXACHLOROBENZENE	44	96	36	100	65		2	0	9	9
PENTACHLOROPHENOL	NU	NU	NU	NU	29		0	0	9	9
ANTHRACENE	30	49	27	52	36		1	0	9	9
3,3'-DICHLOROBENZIDINE	NU	NU	NU	NU	50 U		0	9	0	9
BENZO(B)FLUORANTHENE	34	70	29	88	28	X	2	0	9	9
BENZO(A)PYRENE	44	92	37	120	42	S	2	0	9	9
INDENO(1,2,3-CD)PYRENE	41	93	34	100	42		3	0	9	9
DIBENZ(A,H)ANTHRACENE	40	97	31	100	41		3	0	9	9
TCL PESTICIDES										
ALPHA-BHC	NU	NU	NU	NU	0.05 U		0	7	2	9
BETA-BHC	NU	NU	NU	NU	0.05 U		0	9	0	9
DELTA-BHC	NU	NU	NU	NU	0.24		0	8	1	9
GAMMA-BHC (LINDANE)	NU	NU	NU	NU	0.05 U		0	8	1	9
HEPTACHLOR	0.080	0.19	0.064	0.24	0.17		0	1	8	9
ALDRIN	0.15	0.39	0.11	0.42	0.35		1	1	8	9
HEPTACHLOR EPOXIDE	0.13	0.28	0.100	0.30	0.19		1	0	9	9
ENDOSULFAN I	NU	NU	NU	NU	0.2		0	1	8	9
4,4'-DDE	0.31	0.63	0.26	0.67	0.51		2	0	9	9
ENDOSULFAN II	NU	NU	NU	NU	0.26		0	2	7	9
ENDRIN KETONE	0.26	0.62	0.21	0.67	0.43		0	1	8	9
NON-TCL VOLATILE										
METHANE,ICDO-					710			0	9	9

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 1 FY 89

LABORATORY: Argonne National (IL)
'ERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required
RANK: Above = 42 Same = 1 Below = 20

% SCORE: 71.6
REPORT DATE: 12/22/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QNT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #LABS
IETHANE,DIBROMO-					260			1	8	9
:ENZENE,T-BUTYL-					190			1	8	9
:THER,2-CHLORO-ETHYL-VINYL					23			1	8	9
IETHANE,TRICHLORO-FLUORO-					470			0	9	9
ON-TCL SEMIVOLATILE										
ENZOPHENONE					60			2	7	9
ARBAZOLE					0			4	5	9
ON-TCL SEMIVOLATILE (Contaminants)										
'H-CARBAZOLE,9-NITROSO-					95			7	2	9

' OF TCL COMPOUNDS NOT-IDENTIFIED: 0
OF TCL COMPOUNDS MIS-QUANTIFIED: 7
OF TCL CONTAMINANTS: 0

OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 0
OF NON-TCL CONTAMINANTS: 0

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439

March 9, 1989

Mr. Vincent Fayne
U.S. Department of Energy
Office of Environmental Audit
Forrestal Building, EH-24
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Vince,

As Harold Vincent (U.S. EPA EMSL-LV) has reported, the Argonne National Laboratory/Analytical Chemistry Laboratory's score on the water matrix sample of the EMSL-LV's Organic Performance Evaluation (PE) Study (QB1FY89, Case No. 10582) was 71.6% and in the acceptable performance category. In accordance with DOE Environmental Survey policy on addressing PE sample results, we have identified the problem(s) and enumerated the corrective action(s) below.

A. Volatiles

Identification of Problem(s): No problems identified. All compounds were within the quantitation confidence intervals.

Corrective Action(s): No corrective actions(s) required.

B. Semivolatiles

Identification of Problem(s): No compounds were misidentified. The quantitation of seven compounds was outside the confidence intervals and was classified as "misquantified" in the EPA scoring. These seven misquantifications represented all of the points deducted. Of the misquantified compounds, only one was above the upper limit of the confidence intervals. Thus, two separate problems appear to have caused the compounds to be mis-quantitated.

1. N-Nitrosodiphenylamine (NNDPA). Our NNDPA concentration was well above the action confidence intervals. The problem with the NNDPA quantitation has been identified as a bad calibration standard. The standard used for these samples is the EPA standard (Neutral Extractables "A," Lot No. C-094-02, dated 8/87; note that despite the old dates on these standards, they are the most recently received from the EPA). The area counts for the NNDPA in this standard were inordinately low and we should have noted this as a potential problem. NNDPA is an unstable compound. Problems with EPA's standard have been previously noted ever since they began mixing the NNDPA in with other compounds as part of the "Neutral Extractables A" standard. Apparently, other laboratories are not using this mixed EPA standard.

Operated by The University of Chicago for The United States Department of Energy

2. Other Compounds. The other compounds missed in the QB1 sample were all below the confidence intervals. We have reviewed the EPA's report of our QB score, searched our records, conducted some experiments in the laboratory, and discussed the QB results with EMSL-LV staff as well as with the other DOE laboratories. Based on the information obtained, we believe that the problem is poor extraction efficiency. It is interesting to note that several other laboratories missed a similar suite of compounds also on the low side. All of the DOE laboratories that missed these compounds used separatory funnel extractions.

Corrective Action(s):

1. N-Nitrosodiphenylamine (NNDPA). We will not utilize the mixed EPA standard in future determinations of NNDPA. A separate standard will be prepared for the quantitation.

2. Other Compounds

   In order to improve extraction efficiency, we will monitor the extraction personnel to ensure that all extractions are done for at least the full required two minutes. We are also considering implementing continuous liquid-liquid extractors if sufficient space can be identified to set them up.

C. Pesticides/PCBs

Identification of Problem(s): No problems identified. All compounds were within the quantitation confidence intervals.

Corrective Action(s): No corrective action(s) required.

I trust you will find that our Organic Performance Evaluation Study score and our corrective action response are in accord with the DOE Environmental Survey's Action Plan for quality assurance audits. Should you have questions or comments regarding these results or our response to them, please call me at FTS 972-3490, or the ACL Organic Analysis Group Leader, Mitch Erickson, at FTS 972-7772.

Sincerely,

Peter C. Lindahl
Analytical Chemistry Laboratory
Chemical Technology Division

PCL/vaa

cc: M. Steindler (2)
P. Nelson
D. Green
M. Erickson
A. Boparai
J. Demirgian
F. Martino
E. Palys
R. Scott - DOE
A. Crockett - INEL
H. Vincent - EMSL-LV
DES File

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS
P.O. BOX 93478
LAS VEGAS, NEVADA 89193-3478
(702/798-2100 - FTS 545-2100)

OCT 28 1988

Mr. Peter C. Lindahl
Analytical Chemistry Division, BLD 205
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, IL 60439

Dear Mr. Lindahl:

The results of the participation of your laboratory in the EMSL-LV fourth quarter Organic Performance Evaluation study (QB4,ORGANIC, FY88) are enclosed. This includes copies of the analysis reports for organics in water samples as well as statistical information on the numbers of laboratories in the program that had difficulties with specific analytes.

Although the score for the effort by the ANL laboratory was good at 91.7% the DOE environmental survey requires a formal response describing any changes or corrective actions taken to improve the performance and eliminate deficiencies. That response will become a part of the quality assurance record for analytical work completed by your laboratory for sites in the DOE environmental survey. In order to meet delivery times for data document publication, please send your corrective action responses within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc:
Vincent Fayne, DOE HQ
Alan Crockett, INEL

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ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Argonne National (IL)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 11 Same = 4 Below = 54

% SCORE: 91.7
REPORT DATE: 10/15/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QUANT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #LABS
TCL VOLATILE										
METHYLENE CHLORIDE	NU	NU	NU	NU	140		0	0	90	90
ACETONE	NU	NU	NU	NU	140		0	13	77	90
CARBON DISULFIDE	93	160	83	170	130		11	0	90	90
1,1-DICHLOROETHENE	110	170	99	180	110		9	0	90	90
1,1-DICHLOROETHANE	120	170	120	180	130		5	0	90	90
1,2-DICHLOROETHENE (TOTAL)	110	160	99	160	120		8	0	90	90
CHLOROFORM	120	160	110	170	130		8	0	90	90
1,2-DICHLOROETHANE	130	170	120	180	140		4	0	90	90
2-BUTANONE	16	120	10	170	48		3	25	65	90
1,1,1-TRICHLOROETHANE	110	170	100	180	150		9	0	90	90
CARBON TETRACHLORIDE	57	110	49	140	87		2	0	90	90
VINYL ACETATE	NU	NU	NU	NU	10	U	1	82	8	90
BROMODICHLOROMETHANE	130	170	120	180	160		3	0	90	90
1,2-DICHLOROPROPANE	140	190	130	190	160		5	0	90	90
CIS-1,3-DICHLOROPROPENE	23	45	20	57	36		8	7	83	90
TRICHLOROETHENE	120	170	110	180	150		4	0	90	90
DIBROMOCHLOROMETHANE	130	180	120	190	180		4	0	90	90
1,1,2-TRICHLOROETHANE	130	170	120	180	160		7	0	90	90
BENZENE	120	160	110	170	130		1	0	90	90
BROMOFORM	120	180	110	190	170		3	0	90	90
2-PENTANONE,4-METHYL-	61	150	48	160	150		10	1	89	90
2-HEXANONE	20	100	10	140	100		1	8	82	90
TETRACHLOROETHENE	92	130	87	150	120		5	1	89	90
TOLUENE	120	150	110	160	130		4	0	90	90
1,1,2,2-TETRACHLOROETHANE	110	160	100	170	150		7	1	89	90
CHLOROBENZENE	120	160	120	170	150		7	0	90	90
ETHYL BENZENE	84	140	75	150	130		4	0	90	90
STYRENE	77	130	69	160	130		3	0	90	90
XYLENES (TOTAL)	110	150	100	160	140		8	0	90	90
TCL SEMIVOLATILE										
PHENOL	15	72	10	100	31		0	1	89	90
BIS(2-CHLOROETHYL)ETHER	23	38	21	45	36		4	2	88	90
1,4-DICHLOROBENZENE	22	37	20	45	33		5	1	89	90
1,2-DICHLOROBENZENE	23	38	21	45	35		5	1	89	90
2-METHYLPHENOL	32	87	25	120	33		2	4	86	90
BIS(2-CHLOROISOPROPYL)ETHER	42	72	38	88	70		3	0	90	90
N-NITROSO-DI-N-PROPYLAMINE	28	45	26	54	43		4	0	90	90
HEXACHLOROETHANE	17	32	15	40	27		4	2	88	90
NITROBENZENE	13	22	12	23	20		12	2	86	90
ISOPHORONE	11	18	10	22	18		2	2	88	90
2-NITROPHENOL	85	140	77	160	150	*	7	0	90	90
BENZOIC ACID	NU	NU	NU	NU	50	U	0	50	40	90
BIS(2-CHLOROETHOXY)METHANE	37	57	34	60	55		11	0	90	90
1,2,4-TRICHLOROBENZENE	10	16	10	19	14		7	2	83	90
NAPHTHALENE	11	19	10	23	17		3	1	89	90
4-CHLOROANILINE	97	230	78	250	500	X	14	2	88	90
2-METHYLNAPHTHALENE	49	87	44	110	80		4	0	90	90
2,4,6-TRICHLOROPHENOL	44	72	39	76	65		5	1	89	90
2-NITROANILINE	130	210	120	230	200		0	1	89	90
DIMETHYL PHTHALATE	NU	NU	NU	NU	50		0	13	77	90
3-NITROANILINE	110	260	91	280	280		10	0	90	90
2,4-DINITROPHENOL	100	250	82	270	220		0	3	87	90
4-NITROPHENOL	50	190	50	210	98		1	4	86	90
DIBENZOFURAN	120	180	110	220	180		6	0	90	90
2,4-DINITROTOLUENE	17	64	10	89	35		3	11	79	90

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Argonne National (IL)
ERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 11 Same = 4 Below = 54

% SCORE: 91.7
REPORT DATE: 10/15/88
MATRIX: WATER

OMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QUANT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #LABS
IETHYLPHTHALATE	15	83	10	120	82		0	11	79	90
-CHLOROPHENYL PHENYL ETHER	65	99	60	100	96		7	0	90	96
LUORENE	68	96	64	110	88		8	0	90	99
-NITROANILINE	62	140	51	140	98		13	1	89	90
,6-DINITRO-2-METHYLPHENOL	54	110	50	120	100		3	1	89	90
-BROMOPHENYL PHENYL ETHER	31	46	29	54	45		9	0	90	90
EXACHLOROBENZENE	25	46	22	56	44		8	1	89	90
I-N-BUTYLPHTHALATE	12	80	10	120	64		0	4	86	90
LUORANTHENE	31	51	28	54	45		7	0	90	99
YRENE	28	48	25	51	44		10	0	90	99
YTYL BENZYL PHTHALATE	NU	NU	NU	NU	34		0	22	68	90
ENZO(A)ANTHRACENE	52	110	44	120	110		3	0	99	90
HRYSENE	14	33	11	35	28		13	0	99	99
IS(2-ETHYLHEXYL)PHTHALATE	18	91	10	100	110	X	4	1	89	99
-N-OCTYL PHTHALATE	22	92	12	100	75		7	1	89	90
ENZO(K)FLUORANTHENE	37	100	27	110	76		5	5	85	90
BENZ(A,H)ANTHRACENE	36	120	24	130	95		2	0	90	99
ENZO(G,H,I)PERYLENE	38	120	26	130	94		6	0	90	99
L PESTICIDES										
PHA-BHC	NU	NU	NU	NU	0.05	U	0	63	27	99
TA-BHC	NU	NU	NU	NU	0.05	U	1	54	36	90
LTA-BHC	NU	NU	NU	NU	0.05	U	0	50	40	99
MMA-BHC (LINDANE)	NU	NU	NU	NU	0.05	U	0	37	53	99
PTACHLOR	0.068	0.25	0.05	0.35	0.081		4	12	78	90
DRIN	0.16	0.51	0.11	0.57	0.41		13	1	89	90
PTACHLOR EPOXIDE	0.12	0.37	0.087	0.40	0.32		6	4	86	90
DOSULFAN I	NU	NU	NU	NU	0.05	U	0	78	12	99
ELDRIN	0.30	0.70	0.24	0.76	0.37		6	0	90	99
DRIN	0.21	0.45	0.17	0.49	0.47	S	7	4	86	99
4'-DDD	2.8	5.5	2.5	5.9	4.98		12	2	88	90
DOSULFAN SULFATE	NU	NU	NU	NU	0.1	U	0	42	48	90
4'-DDT	1.2	3.4	0.85	3.8	0.87	X	11	3	87	90
THOXYCHLOR	NU	NU	NU	NU	0.8	U	0	19	71	99
MMA-CHLORDANE	0.80	2.1	0.62	2.2	1.41		5	5	85	90
N-TCL VOLATILE										
HER,2-CHLORO-ETHYL-VINYL					19			20	70	90
THANE,TRICHLORO-FLUORO-					230			10	80	99
N-TCL SEMIVOLATILE										
LATHION					0			90	0	99
NZOPHENONE					40			19	71	99
NZIDINE					21			50	40	90
L SEMIVOLATILE (Contaminants)										
NZYL ALCOHOL					16	CO		24	66	90
N-TCL VOLATILE (Contaminants)										
HANE,1,1'-OXYBIS-					16	CO		87	3	90
HANE,1,1,2-TRICHLORO-1,2,2-TRIFL					14	CO		89	1	90
N-TCL SEMIVOLATILE (Contaminants)										
T,p,p'-					2.5			89	1	90

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Argonne National (IL)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 11 Same = 4 Below = 54

% SCORE: 91.7
REPORT DATE: 10/15/8
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QUANT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #LABS
PHENOL,4-METHYL-2-NITRO-					18	C		77	13	90

OF TCL COMPOUNDS NOT-IDENTIFIED: 0
OF TCL COMPOUNDS MIS-QUANTIFIED: 3
OF TCL CONTAMINANTS: 0

OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 0
OF NON-TCL CONTAMINANTS: 1

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ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439

November 23, 1988

Mr. Vincent Fayne
U.S. Department of Energy
Office of Environmental Audit
Forrestal Building, EH-24
1000 Independence Avenue, SW
Washington, DC 20585

Dear Vince,

As Harold Vincent, U.S. EPA EMSL-LV, has reported, the Argonne National Laboratory/Analytical Chemistry Laboratory's score on the water matrix sample of the EMSL-LV's Organic Performance Evaluation (PE) Study (QB4 FY88, Case No. 10015) was 91.7% and in the acceptable performance category. In accordance with DOE Environmental Survey policy on addressing PE sample results, we have identified the problem(s) and enumerated the corrective action(s) below.

A. Volatiles

Identification of Problem(s): No problems identified. All compounds were within the quantitation confidence intervals.

Corrective Action(s): No corrective action(s) required.

B. Semivolatiles

Identification of Problem(s): The concentrations of two TCL compounds were misquantified with our reported values above the upper limit of the action confidence interval.

	Reported	Upper Limit
4-Chloroaniline	580 µg/L	250 µg/L
bis(2-ethylhexyl)phthalate	110 µg/L	100 µg/L

In addition, the compound 4-methyl-2-nitrophenol was reported as a TIC with concentration at 18 µg/L. We received a deduction because according to EMSL-LV it was not present in the sample.

Corrective Action(s): Our reported value for 4-chloroaniline was above the calibration range, requiring sample dilution and reanalysis. Review of our QB4 data confirmed the value. The area counts for this compound in the daily standard used to quantitate QB4 have been compared to those from other daily standards run around the time QB4 was analyzed, and with standards run with QB1 FY89. The RRF values from the standard used to quantitate QB4 has similarly been compared with those from other standards. They all compare reasonably well, indicating that our system is producing data relatively consistent from day to day. We have also ordered a new standard to check our daily calibration standard to determine if the daily calibration standard was the source of the problem.

While we feel that these corrective actions will resolve the misquantification of 4-chloroaniline in the future, it should be noted that a considerable number (14) of laboratories misquantified this compound and also that the confidence interval is large (78-250 µg/L). This leads us to believe there may also be a problem such as inhomogeneity of this compound in the PE sample vials distributed.

We have reevaluated the bis(2-ethylhexyl)phthalate data and find no errors in the analysis which could have led to the high value relative to the confidence intervals. Although this compound was not detected in the blank, the reason it is high is most likely due to contamination of the sample during workup by this ubiquitous compound. We have been consistently attempting to minimize this type of intermittent contamination. Efforts will continue to reduce contamination.

We have also reviewed our data regarding the TIC, 4-methyl-2-nitrophenol. It was definitely in the sample. Since it is not a TIC added by EMSL, it is then a contaminant. Review of current data packages showed that 4-methyl-2-nitrophenol has not been identified. Hence, we believe that what we reported was the result of spurious contamination of unknown origin and no additional corrective actions are planned.

C. PCB/Pesticides

Identification of Problem(s): Quantitation of 4,4'-DDT was high relative to the confidence interval. DDT is subject to degradation. In this case, the standard solutions used had degraded, giving low areas for the standard chromatograms and high values for the quantitation of the peaks in the QB sample. Although the ages of the solutions were within the CLP-allowable one year time, clearly they were too old for quantitative accuracy.

Corrective Action(s): Procedures have been implemented to prevent use of old standards, especially for compounds susceptible to degradation such as DDT. Specifically, new stock standard vials will be opened each time dilute working standards are prepared, and the residual stock will not be saved for further use.

I trust you will find that our Organic Performance Evaluation Study score and our corrective action response are in accord with the DOE Environmental Survey's Action Plan for quality assurance audits. Should you have questions or comments regarding these results or our response to them, please call me at FTS 972-3490 or the ACL Organic Analysis Coordinator, Mitch Erickson at FTS 972-7772.

Sincerely,

Pete

Peter C. Lindahl
Analytical Chemistry Laboratory
Chemical Technology Division

PCL:amb

cc: D. Green
M. Erickson
A. Boparai
J. Demirgian
J. Schneider
R. Wingender
F. Martino
E. Palys
M. Steindler (2)
P. Nelson
R. Scott (DOE-OEA)
A. Crockett (INEL)
H. Vincent (EMSL-LV)
DES File

DOE Environmental Survey Field Sampling Activity audit of ORNL Personnel at Pittsburgh Energy Technology Center

NOTE: The PETC and METC sites were sampled consecutively by the same ORNL Sampling Team. Per conversation with the ORNL Field Team Leader for the PETC and METC sites, Keith Owenby, the PETC audit information is applicable to the METC site as well.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS
P.O. BOX 93478
LAS VEGAS, NEVADA 89193-3478
(702/798-2100 - FTS 545-2100)

OCT 11 1988

Mr Keith Owenby
Oak Ridge National Laboratory
P. O. Box 2008, 4500S, MS-102
Oak Ridge, TN 37831-6102

Dear Mr. Owenby,

Final reports describing the on-site evaluation audit for the field sampling at the PITTSBURGH ENERGY TECHNOLOGY CENTER (PETC) are enclosed. Included are the completed check list and comments by Kevin Cabble of Lockheed Engineering and Sciences Company, (LESC), and the field evidence report from CEAT-Techlaw by Betty Malone. The items of comment should be identical to those items used for comments during the August 18th debriefing by the EPA audit team Techlaw team members. Some change in the text from the preliminary field notes to final draft may have been introduced for clarity.

The consensus of the audit team was that the sampling effort was technically a good effort. Most of the comments were minor and only a few were with regard to actions which might compromise sample quality and integrity. Several comments regarded safety issues. The actions drawing those comments may have been caused by the discomfort of the high heat and humidity during the sampling period.

The sampling audit reports and the response by the ORNL sampling team, with reports of corrective actions instituted as a result of the audit, will become part of the quality assurance record for the DOE environmental survey for the PETC site. In order that we may meet scheduling requirements, please respond to the comments by the auditing team within 30 days of your receipt of these reports. We can then review and assemble a package to be included in the data document report for the PETC site. The response should be addressed to this office (Attn: H. A. Vincent) with copies to Randy Scott at DOE headquarters, Alan Crockett at the INEL, Acting Sampling and Analysis Manager for the DOE environmental survey, and to the ORNL program manager, R. B. Fitts).

If you have any questions regarding this matter, you can call me at FTS 545-2129 or (702)798-2129.

Sincerely,

Harold A. Vincent
Analytical Chemist
Quality Assurance Research Branch
Quality Assurance Methods and Development Division

Enclosures

cc:
Vince Fayne, DOE HQ
Alan Crockett, INEL
Robert B. Fitts, ORNL

cc: (w/o enclosures)
Kevin Cabble, LESC
Betty Malone, Techlaw

U.S. DEPARTMENT OF ENERGY
Environmental Survey

FIELD EVIDENCE AUDIT REPORT

PITTSBURGH ENERGY TECHNOLOGY CENTER
Pittsburgh, Pennsylvania

August 7-18, 1988

National Enforcement Investigations Center
Compliance Audit Team
Denver Federal Center, Building 53
Lakewood, Colorado 80215

This work was conducted on behalf of the Environmental Protection Agency's (EPA) National Enforcement Investigations Center (NEIC) under EPA Contract 68-01-[illegible]

FIELD EVIDENCE AUDIT REPORT

U.S. Department of Energy
Office of Environmental Audit & Compliance

Pittsburgh Energy Technology Center
Pittsburgh, Pennsylvania

August 17-18, 1988

Oak Ridge National Laboratory
Martin Marietta Energy Systems
Building 4500-S, M/S 6102
P.O. Box 2008
Oak Ridge, TN 37831-6102
(615) 576-5256

Keith Owenby - Field Team Leader
Wayne Parsons - Team 1 Leader
Betty Hensley - Team 1 Sampler
J. B. Watson - Team 1 Sampler
Leslie Barker - Team 2 Leader
Peggy Tiner - Team 2 Sampler
Cindy Wear - Data Management, Document Control
Donna Pickel - Sample Control

Martin Marietta Energy Systems
Grand Junction, CO 81501
(303) 242-8621

Dean Herrera - Team 2 Sampler

U.S. Department of Energy
Office of Environmental Audit and Compliance
Forrestal Building EO-
1000 Independence Avenue, S
Washington, DC 20585
(202) 586-4408

George Detsis - Assistant Team Leader
Environmental Auditor

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Mark Notich - Senior Chemist

USEPA - Environmental Monitoring Systems Laboratory (EMSL)
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Las Vegas, NV 89114
(702) 798-2129

Harold Vincent - EPA Program Manager
DOE Environmental Survey

Lockheed Engineering & Management Services, Inc.
P.O. Box 15027
Las Vegas, NV 89114
(702) 734-3268

Kevin Cabble - Senior Scientist

USEPA - NEIC
CEAT-TechLaw, Inc.
12600 West Colfax Avenue
Suite C-310
Lakewood, Colorado 80215
(303) 233-1248

Betty Malone - Technical Specialist

INTRODUCTION

On August 17-18, 1988, NEIC's Contract Evidence Audit Team (CEAT-Techlaw) personnel conducted a field audit of the document control, chain-of-custody, and sample handling procedures followed by the Oak Ridge National Laboratory (ORNL) during sampling conducted at the Pittsburgh Energy Technology Center (PETC) located in Pittsburgh, Pennsylvania. Present were those personnel listed on the cover page of this report.

The PETC Sampling and Analysis Plan was provided to the CEAT personnel by ORNL prior to the audit. Field sampling activities were reviewed for conformance to the Sampling and Analysis Plan and NEIC's Policies and Procedures Manual.

This field evidence audit report contains a description of the audit activities conducted by the CEAT during the August 17-18, 1988 sampling episode. The report of these activities is arranged into the following sections: Sampling Plan, Audit Sequence, Accountable Field Documents, Field Observations, and Summary.

SAMPLING PLAN

A Sampling and Analysis Plan was written for the sample collection effort by the Department of Energy (DOE) Environmental Survey and ORNL. The Sampling and Analysis Plan was reviewed and approved by the DOE, ORNL, and EPA/EMSL-LV.

The sampling plan included the following:

- o Introduction describing purpose and goals of the DOE Environmental Survey
- o PETC site background information
- o Sampling and analysis strategy
- o Field sampling guidelines and sample control
- o Quality assurance/quality control
- o Data management and analysis
- o Logistics, schedule, and cost
- o Health, safety, and security

Applicable sections of this Sampling and Analysis Plan were used by the auditor as part of the basis for the field evidence audit.

AUDIT SEQUENCE

On August 17-18, 1988, sampling of sediment, soil, and water took place. Sampling-related documents were examined by the CEAT auditor in the field during sampling activities and at the [illegible] Environmental Survey on-site office. On the morning of August 18, 1988, the CEAT auditor observed packing of samples for [illegible] shipment.

A debriefing was held at the conclusion of the audit on August 18, 1988. Recommendations and comments concerning the overall performance of the sampling teams were made at this time by the EMSL and CEAT auditors.

ACCOUNTABLE DOCUMENTS

An accountable document system was used. As specified in the Sampling and Analysis Plan, field logbooks, custody records and sample tags contained document control numbers. Custody of the documents was maintained by C. Wear. Control numbers and disposition of the documents were recorded in a Document Control Logbook, which remained in the on-site survey office.

Project Logbook

A Project Logbook was maintained by K. Owenby, the field sampling team leader. The following information was recorded in this logbook:

- o Signature List of Sampling Team Members
- o Sampling Team Member Assignments
- o Record of Activities of Sampling Team Members
- o Sample Collection and Shipping Records

The logbook was maintained, written, well organized, and appeared to contain all required information, with the following exceptions:

- o Blank areas of logbook pages were not lined through or crossed out.

The CEAT auditor recommended that blank portions of [illegible] pages be lined through to [illegible] the [illegible].

Field Logbook

General field logbook [illegible] used by sampling team members [illegible] record [illegible] sediment, soil, and water samples [illegible] the collection [illegible] pertinent [illegible] field logbooks contained [illegible] numbers. The information was recorded in the following for[illegible]

- o Table of Contents
- o Task Team Activity Log Sheet
- o Sample Log Sheet

Forms for each day's sampling activities were stapled and inserted into report folders, with separate folders for each media team. The forms in each folder were numbered, beginning with page 1, prior to the sampling team entering the field.

Following sample collection, data was entered into the computer from the logbook forms. The forms were then grouped by media (water, soil, air, etc.) into "three-ring" binders.

Field sampling observations were recorded in the General Field Logbooks and appeared to contain all required information, with the following exceptions:

- o Blank sections of pages containing narrative entries and field measurements were not lined through.
- o Page numbers were often used as references for sketches. Since page numbers were not unique, it was suggested that a more detailed reference should be given, such as "See Page 3, Request No. [illegible]."
- o One detailed sketch was not signed or dated, although the previous page referring to the sketch was signed.

(The auditor made the following recommendations:

- o Blank portions of logbook entries and unused lines for data should be lined through.
- o If logbook pages are not uniquely numbered, references to sketches and other information should contain more detailed identification.
- o Each logbook page should be signed and dated.)

Instrument Calibration/Quality Assurance Logbooks

A separate instrument calibration logbook was used to record unique instrument identification numbers and calibration data. The logbook was signed, dated, and contained completed field calibration/standardization log sheets for temperature, pH, and conductivity measurements.

The instrument calibration logbook data was neatly recorded and appeared to contain all required information. All forms were completed, signed, and dated. No recommendations were made concerning this logbook.

Document Control Logbook

A Document Control Logbook maintained by C. Wear was used to record control numbers and disposition of the documents. The Document Control Logbook contained information pertaining to the assignment and status of chain-of-custody (COC) records, sample tags, field logbooks, and Request for Analytical Services forms, calculation of trip blanks, and daily dosimeter readings.

The logbook was well organized and neatly written. No recommendations were made concerning this logbook.

Shipping Logbook

A Shipping Logbook maintained by D. Pickel was also examined by the auditor. The logbook contained shipping addresses and laboratory contacts; cooler, sample request, and airbill numbers; shipment dates and dates received; cooler temperatures before and after shipment; and comments concerning the condition of the samples.

Entries in the logbook were legible and organized. The auditor had no recommendations concerning this logbook.

Sample Tags/Labels

Sample tags were affixed to each sample container. These were examined by the CRAT auditor during field collection activities and prior to the packaging of samples into coolers.

Sample tags were pre-printed with sequential document control numbers to uniquely identify each sample. The tags included the following information:

- Sample identification number
- Date and time of sample collection
- Preservative
- Parameter for testing results
- Sampler name

Throughout the [illegible] sample tags were examined by the CRAT auditor. Sample tags contained the following information:

- [illegible]
- [illegible] sample collection
- [illegible]
- [illegible]

The [illegible] examined by the auditor were completed correctly. [illegible] no recommendations were made.

Chain-of-Custody (COC) Records

EPA-type COC records were used during the sampling episode. All sample numbers were listed on the COC records. Samples were arranged on the records according to organic or inorganic analysis parameters.

FIELD OBSERVATIONS

Collection of samples by Team 1 and Team 2 was observed by the CEAT auditor on August 17-18, 1988.

Sediment, soil, and water samples were obtained by Sampling Team 1 on August 17-18, 1988. Samples were collected by N. Parsons and J. B. Watson. B. Hensley and J. B. Watson completed documentation associated with sample collection.

The CEAT auditor observed that the automated Manning sampler used to obtain water samples was locked only on one side, so that the top portion of the sampling device could still be raised, exposing the sample container.

(It was recommended by the auditor that both sides of the sampling device be locked, or that a custody seal be placed on the unlocked side.)

Sampling Team 2 collected water samples from seeps during the two-day audit. D. Herrera, T. Barber, and P. Tiner alternated tasks for the collection of samples and completion of associated documentation.

Sample Shipment Procedures

Procedures for preparing samples for shipment were observed by the CEAT auditor. Samples were prepared by D. Arckall. Labels, tags, and COC records accompanying several coolers were examined for completeness and were compared to ensure that tag numbers and sample information were consistent.

Samples were prepared for shipment according to specifications in the sampling plan. No recommendations were made by the CEAT auditor concerning sample shipment.

SUMMARY

A debriefing was held on August 18, 1988 at the on-site office. Present were all personnel listed on the cover of this report.

The following comments and recommendations were made regarding logbooks, sample tags/labels, COC records, and shipping procedures:

Project Logbook

- Blank portions of logbook entries should be lined through to prevent unauthorized entries and to eliminate confusion of whether data was omitted.

Field Logbooks

- Because logbook pages are not uniquely numbered, references to sketches and other information should contain unique identification.
- Blank portions of logbook entries and unused data fields should be lined through to prevent unauthorized entries and to eliminate confusion of whether data was omitted.
- Each logbook page should be signed as well as dated.

Sample Security

- Automated sampling devices, such as Manning samplers, should be locked securely or custody sealed.

The field evidence audit of QHNL's sampling team at the Pittsburgh Energy Technology Center site was concluded on August 18, 1988.

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Lockheed

Environmental Programs Office
1050 E. Flamingo Road, Suite 120, Las Vegas, Nevada 89119

September 1, 1988

U.S. Environmental Protection Agency
P.O. Box 3478
Las Vegas, Nevada 89193-3478

Attention: Mr. W.L. Kinney

Via: R.D. Flotard R.D. Flotard

Subject: Field Sampling Audit of Oak Ridge National Laboratory (ORNL) Personnel at the Pittsburgh Energy Technology Center

Dear Mr. Kinney,

On August 17-18, 1988 a field sampling audit of Oak Ridge National Laboratory (ORNL) personnel was conducted at the Pittsburgh Energy Technology Center in Pittsburgh, Pennsylvania. The audit was conducted in support of the DOE Environmental Survey by Kevin Cabble (Lockheed-LESC), Betty Malone (Techlaw), and Harold Vincent (USEPA).

Attached comments and checklist are those of Kevin Cabble only. Comments from Betty Malone will be sent under separate cover.

If you have any questions, I can be contacted at 734-3268.

Very truly yours,

Kevin J. Cabble

Kevin J. Cabble
Senior Scientist
DOE Environmental Survey

cc: H.A. Vincent
J.T. Gerard
D.W. Bottrell
R.D. Flotard
J.O. 70.23
QA-9-1

Comments for the ORNL Field Sampling Activity at the Pittsburgh Energy Technology Center on August 17-18, 1988

Soil/Sediment

1. PID not used while augering holes. Only used previous to augering hole at request 804. Recommend PID for all subsurface soil sampling.

2. Field Log Book - Put TIP information next to PID/FID description instead of next to other.

3. Decontamination procedure not correct. Methanol was used prior to final rinse instead of after final rinse. HCL was not used. This was corrected after Request #304.

4. Gloves not changed between samples in one case at request #304.

5. Safety goggles or glasses not worn by team members.

Water

1. When pouring modified dipper, use pan to catch spilled sample.

2. Goggles or safety glasses not worn by team members.

3. Funnel placed on plastic instead of aluminum foil between aliquots.

4. Put two locks on Manning sampler instead of one to prevent removal of cover.

5. Place blue ice packs around sample container inside the Manning sampler for all time composites.

6. Samples requiring preservation and filtration should be taken back to preparation area after each request.

General

1. In hot weather use sweat bands or hats to prevent sweat from being wiped from face with gloved hands while sampling.

2. Sampling plan requires that dosimeters be worn by all sampling personnel. This should be deleted.

3. Error in calibration log book on page 104. Horiba unit was 9.8 instead of 10.0. This should have been adjusted to 10.0.

4. Most comments are minor. The sampling effort at this site was rated good.

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ON-SITE SAMPLING EVALUATION FOR
Pittsburgh Energy Technology Center
Pittsburgh, Pennsylvania

This checklist was compiled utilizing the
Sampling Plan for the Pittsburgh Energy Technology Center
Dated July 15, 1988

by

Kevin J. Cabble
Lockheed Engineering and Sciences Company
Las Vegas, Nevada 89119

ENVIRONMENTAL MONITORING SYSTEMS LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
LAS VEGAS, NEVADA 89193-3478

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SAMPLING FIELD AUDIT

I. GENERAL INFORMATION

Purpose: The purpose of this sampling evaluation is to document the extent to which procedures identified in the sampling protocol and/or quality assurance plan are being followed with respect to implementing specified field tests, chain-of-custody, record keeping, quality assurance, and sampling procedures and techniques, and sample handling methods.

Audit Dates: 8/17/88 to 8/18/88

Facility/Site Information

Facility/Site Name: Pittsburgh Energy Technology Center

Facility/Site Address or Location: U.S. DOE, Pittsburgh Energy Technology Center, Cochran Mill Rd., Pittsburgh, PA 15236-0940

Facility/Site Telephone No.: (412) 892-4497 [ ] N/A

Facility Contact (Name/Title): Jerry Hebb

[ ] N/A

Function/Description of Facility/Site: Basic and applied research and development coal science, coal preparation, coal conversion and direct utilization is conducted at PETC

Media Being Sampled:

[X] Soil

[X] Sediment

[X] Surface Water

Sampling Team Information

Team Contact (Name/Title/Affiliation): Keith Owenby, Field Team Leader, ORNL-Oak Ridge

Team Members (Name/Title/Affiliation):

1. Wayne Parsons, Team 1 Leader, ORNL-Oak Ridge
2. Betty Hensley, Sampler, ORNL-Oak Ridge
3. Donna Pickel, Sample Control, ORNL-Oak Ridge
4. J.B. Watson, Sampler and Health and Safety, ORNL-Oak Ridge
5. Leslie Barker, Team 2 Leader and Health and Safety, ORNL-Oak Ridge
6. Cindy Wear, Data Management, ORNL-Oak Ridge
7. Dean Herrera, Sampler, ORNL-Grand Junction
8. Peggy Tiner, Sampler, ORNL-Oak Ridge
9.
10.
11.
12.
13.
14.
15.

Permanent Contact Telephone No.: (615) 576 - 5256 FTS 626 - 5256.

Permanent Contact Address: Oak Ridge National Laboratory
Building 4500-S MS 6102
P.O. Box 2008, Oak Ridge, TN 37831-6102

Audit Team Information

Team Leader (Name/Title/Affiliation): Kevin Cabble, Senior Scientist, Lockheed-ESC

Team Members (Name/Title/Affiliation):

1. Harold Vincent, Project Manager, U.S. EPA
2. Betty Malone, Technical Specialist, TechLaw
3. George Detsis, Assistant Team Leader, DOE Headquarters
4. Mark Notich, Senior Chemist, NUS
5.
6.
7.
8.
9.
10.

Team Contact Telephone No.: (702) 798 - 2129 FTS 545 - 2129.

Team Contact Address: U.S. EPA c/o Harold Vincent
944 E. Harmon Avenue
Las Vegas, NV 89114

Debriefing

A debriefing will be conducted onsite with sampling personnel.

Date/time and location of debriefing: August 18, 1988 at 1700 hours.

Debriefing took place in the ORNL Data Management room at PETC

Names of those attending debriefing:

1. Keith Owenby
2. Wayne Parsons
3. Betty Hensley
4. Donna Pickel
5. J.B. Watson
6. Leslie Barker
7. Cindy Wear
8. Dean Herrera
9. Peggy Tiner
10. Harold Vincent
11. Kevin Cabble
12. Betty Malone
13.
14.
15.
16.
17.
18.
19.
20.

II. ORGANIZATION AND PERSONNEL - MANAGEMENT STRUCTURE

Project Manager: Bob Fitts

Sample Team Leaders: Keith Owenby

QA Officer: Keith Owenby, J. B. Watson

Data Management: Cindy Wear

Sediment Sampling: Wayne Parsons

Surface Water Sampling: Leslie Barker

Soil Sampling: Wayne Parsons

Sample Control Officer: Donna Pickel

Health and Safety Officer: J. B. Watson, Leslie Barker

1. Sample Preparation: (Individual(s) responsible for preparing samples for analysis). Name, Media, and Experience.

   Donna Pickel - Shipping

   Dean Herrera - Filtering + Preservation

   Both have previous DOE site experience

2. Do personnel assigned to this project have the appropriate education and/or experience to successfully accomplish the objectives of this program?

   [X] Yes [ ] No Comments:

3. Are resumes available for all sampling personnel?

|_| Yes |X| No Comments: _____

4. Is the sampling organization adequately staffed to meet project commitments in a timely manner?

|X| Yes |_| No Comments: _____

5. Was the Project Director and/or Manager available during the evaluation?

|X| Yes |_| No Comments: George Detsis acting for Karen Knight

6. Are the same personnel performing on-site sampling procedures as those described in the Sampling Plan and/or QA plan?

|X| Yes |_| No Comments: _____

III. GENERAL FACILITIES

The sampling field work is headquartered at the Pittsburgh Energy Technology Center, Pittsburgh, Pennsylvania. Sample team personnel and the on-scene manager work out of this facility.

1. Do the sampling and/or sample preparation facilities have adequate workspace?

   |X| Yes |_| No Comments: Separate rooms for sample preparation, equipment storage, data management

2. Is the sampling and/or sample preparation facility maintained in a clean and organized manner?

   |X| Yes |_| No Comments: _____

3. Are hoods provided for work with dusty, volatile or radioactive materials?

   |X| Yes |_| No Comments: _____

4. Are adequate facilities (including cold storage) provided for storage of samples?

   |X| Yes |_| No Comments: Refrigerator truck for samples
   Freezer in preparation room

5. Are the temperatures of the cold storage units recorded daily in logbooks?

   |X| Yes |_| No Comments: _____

6. Are contingency plans available if freezers malfunction?

|X| Yes |_| No Comments: Site freezers

7a. ASTM Type II water is produced by distillation or deionization so that its conductivity is less than 1 mho/cm. Is the sampling facility utilizing ASTM Type II water?

|X| Yes |_| No Comments: _____

7b. If yes, is the conductivity of the ASTM Type II water routinely checked and recorded?

|X| Yes |_| No Comments: _____

7c. Can the sampling supervisor document that ASTM Type II water is available for preparation of standards and blanks?

|X| Yes |_| No Comments: _____

7d. What is the source of the ASTM Type II water? Millipore System

Comments: _____

8. Are waste disposal policies/procedures adequate?

|X| Yes |_| No Comments: Site will dispose (PETC)

9. Is the sampling and/or sample preparation facility secure?

|X| Yes |_| No Comments: Locked doors when unoccupied

IV. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PLAN-SAMPLING PROTOCOLS

1. Is a QA/QC Plan available for review?

|X| Yes |_| No Comments: ORNL S & A Plan Revision 02 dated 7/15/88 for PETC

2. Does the QA/QC Plan and/or sampling protocol discuss the objectives of the sampling program and how the sampling approach(es) will satisfy program requirements?

|X| Yes |_| No Comments: Section 1 of ORNL S & A Plan

3. Are levels of precision and confidence levels identified in the QA/QC Plan?

|X| Yes |_| No Comments: Section 1 of ORNL S & A Plan

4. Does the QA/QC Plan and/or sampling protocol describe documentation and sample control procedures, i.e. the system to be used for chain-of-custody identifying, logging and tracking all samples?

|X| Yes |_| No Comments: Sections 5 and 6 of ORNL S & A Plan

5. Are sampling methods, and sampling equipment discussed in the QA/QC Plan and/or sampling protocol?

|X| Yes |_| No Comments: Sections 3 and 4 of ORNL S & A Plan

6. Does the QA/QC Plan and/or sampling protocol identify criteria used for selecting the media (e.g., soil, etc.) to be sampled?

|X| Yes |_| No Comments: Section 3 of ORNL S & A Plan

7. Does the sampling protocol identify criteria for selecting sampling sites for each media?

|X| Yes |_| No Comments: Section 3 of ORNL S & A Plan

8. Does the QA/QC Plan and/or sampling protocol identify the size, number, locations, and types of samples to be collected?

|X| Yes |_| No Comments: Sections 3 and 4 of ORNL S & A Plan

9. Does the QA/QC Plan and/or the sampling protocol describe procedures, for compositing or other sample reduction methods?

|X| Yes |_| No Comments: Section 3 of ORNL S & A Plan

10. Are the type of sample containers identified in the sampling plan?

|X| Yes |_| No Comments: Section 4 of ORNL S & A Plan

11. Are methods and materials used to clean sample containers identified in the sampling plan?

|X| Yes |_| No Comments: Containers cleaned by I-Chem

12. Are procedures and materials for field decontamination of sampling equipment discussed in the sampling plan?

|X| Yes |_| No Comments: Section 4.3 of ORNL S & A Plan

13. Has a Health and Safety Project Plan been prepared?

|X| Yes |_| No Comments: Section 9 of ORNL S & A Plan

14a. For all instruments, is the date of each calibration or inspection recorded in the instrument's logbook?

|X| Yes |_| No Comments: _____

14b. If yes, does the information include date, person performing the activity, type of inspection, and a list of any discovered defects?

|X| Yes |_| No Comments: _____

15. Are the results of routine calibration checks recorded in the field sampling logbook?

|X| Yes |_| No Comments: Calibration logbook page referenced

16. Are the date, time, standards used, and the name of the person conducting the calibration recorded in the field sampling logbook?

|_| Yes |X| No Comments: This is recorded in the calibration log book

17. Are direct radiation instruments only used by personnel trained in their use?

|_| Yes |_| No Comments: N/A

18. Are blanks prepared and packaged by the appropriate personnel, at the appropriate time?

|X| Yes |_| No Comments: On-site in preparation room by Keith Owenby

V. SAMPLING PROCEDURES

1. Have any changes (additions or deletions) to the above listed media been made?

|X| Yes |_| No Comments: Request #306 will not be collected

Are these changes noted in the program's logbook?

|X| Yes |_| No Comments: _____

2. The number of subsamples collected for a composite should be recorded in the field logbook; is this being done?

|X| Yes |_| No Comments: _____

3. Are sampling depths being documented?

|X| Yes |_| No Comments: _____

4. Are samples being preserved and stored in ice chests?

|X| Yes |_| No Comments: _____

Table V-1. The following soil samples will be collected during the period of August 15 to 20 at the Pittsburgh Energy Technology Center, Pittsburgh, Pennsylvania.

Env. Prob.	Req #	Location	Sampling Method	Sample Type	Other
5	800	2.2 acre property	Auger or drive tube	15 grab (5 locations/ 3 depths	TIP
5	801	2.1 acre property	Auger or drive tube	10 grab (5 locations/ 2 depths	TIP
5	802	Synthane plant area	Auger or drive tube	6 grab at 0-2 ft from 120 segment grid	TIP
5	803	Substation 6 area	Auger or drive tube	3 grab at 0-2 ft from 60 segment grid	TIP
5	804	Bldg B-65, cylinder storage area	Surface soil and auger or drive tube	4 grab at surface 4 grab at 3 in. to 2 ft	TIP

V.1 Soils

1. For 800:

1a. Are two segments sampled from a 60 segment grid in the marshy area?

[ ] Yes [ ] No Comments: Not Observed

1b. Are three segments sampled from a 60 segment grid in the rest of the area?

[ ] Yes [ ] No Comments: Not Observed

1c. Are soil cores collected at depths of 0-2, 2-4, and 4-6 ft?

[ ] Yes [ ] No Comments: Not Observed

2. For 801:

2a. Are two segments sampled from a 40 segment grid in the ditch/marshy area?

[ ] Yes [ ] No Comments: Not Observed

2b. Are three segments sampled from a 60 segment grid in the rest of the area?

[ ] Yes [ ] No Comments: Not Observed

2c. Are soil cores collected at depths of 0-3 and 3-6 ft?

|_| Yes |_| No Comments: Not Observed

3. For 802:

3a. Are six segments sampled from a 120 segment grid?

|_| Yes |_| No Comments: Not Observed

3b. If the segment to be sampled is paved, is the next highest unpaved segment sampled?

|_| Yes |_| No Comments: Not Observed

3c. Are soil cores collected at a depth of 0-2 ft?

|_| Yes |_| No Comments: Not Observed

4. For 803:

4a. Are three segments sampled from a 60 segment grid?

|_| Yes |_| No Comments: Not Observed

4b. Are the several inches of gravel above the soil removed prior to sampling?

|_| Yes |_| No Comments: Not Observed

4c. Are samples collected at a depth of 0-2 ft?

|_| Yes |_| No Comments: Not Observed

5. For 804:

5a. Are four segments sampled from an 80 segment grid?

|X| Yes |_| No Comments:

5b. Is all compacted gravel removed prior to sampling?

|X| Yes |_| No Comments:

5c. Are additional soil cores collected from visibly stained areas?

|_| Yes |X| No Comments:

5d. Are samples collected at depths of surface to three inches and three inches to two feet?

|X| Yes |_| No Comments: _____

_____

_____

6. Is a photoionization detector (TIP) used during all subsurface sampling?

|_| Yes |X| No Comments: Ground was surveyed prior to drilling with a PID at Request #804. PID not used during augering.

_____

7. If an auger is used:

7a. Is the exhaust of the auger motor vented away from the sampling area?

|X| Yes |_| No Comments: _____

_____

_____

7b. Is care taken to prevent cross contamination between soil cores?

|X| Yes |_| No Comments: Drive tube decontaminated between holes

_____

7c. Are accumulated soils periodically removed to prevent loose materials from falling back into the bore hole?

|X| Yes |_| No Comments: _____

_____

_____

7d. After reaching the desired depth, is the auger removed slowly and carefully?

|X| Yes |_| No Comments: _____

_____

_____

7e. Is the surface area cleared of debris?

|X| Yes |_| No Comments: _____

_____

_____

8. Are the sample containers wiped clean using disposable towels?

|X| Yes |_| No Comments: _____

_____

_____

9. Are the sample jar threads also cleaned prior to screwing on the cap?

|X| Yes |_| No Comments: _____

_____

_____

10. Are QA, rinsate samples collected after the final methanol rinse?

|X| Yes |_| No Comments: _____

_____

_____

11. Are sample containers placed in individual plastic bags before being placed in ice chest?

|X| Yes |_| No Comments: _____

12. Do sample labels include date, time of collection, and the preservative?

|X| Yes |_| No Comments: _____

13. Are samples requiring refrigeration immediately placed in a 4°C environment?

|X| Yes |_| No Comments: _____

14. Are the sample jar lids retightened after initial cool down or immediately prior to shipping?

|X| Yes |_| No Comments: At the preparation area

15. For volatile organic samples:

15a. Are the volatile organic samples collected first?

|X| Yes |X| No Comments: Volatile collected last at end of 2 foot depth with drive tube after augering to 1'6". Volatile for surface sample collected first.

15b. Is the headspace in the sample container minimized?

|X| Yes |_| No Comments: _____

_____

_____

16. Is the sampling equipment decontaminated as described?

|X| Yes |_| No Comments: _____

_____

_____

17. Are the decontamination liquids contained for disposal?

|X| Yes |_| No Comments: _____

_____

_____

18. Is the decontamination procedures performed at or near the sampling location?

|X| Yes |_| No Comments: _____

_____

_____

Table V-2. The following sediment samples will be collected during the period of August 15 to 20 at the Pittsburgh Energy Technology Center, Pittsburgh, Pennsylvania.

Env. Prob.	Req #	Location	Sampling Method	Sample Type	Other
1	300	Lick Run approx. 50 ft from McElheny Creek	scoop	3 grab 60 1-ft segments	
1	303	North Outfall	TURCO	3 grab 60 1-ft segments	
1	304	Lick Run (downstream of North Outfall)	scoop	3 grab 60 1-ft segments	

V.1 Sediment

1. For 300:

1a. Are samples for 304 collected prior to collection of samples for 300?

[ ] Yes [ ] No Comments: Not Observed

1b. Are three segments sampled from a 60 segment grid starting 30 ft from the confluence of Lick Run and McElheny Creek?

[ ] Yes [ ] No Comments: Not Observed

2. For 303:

2a. Are samples for 303 collected after samples for 304?

[ ] Yes [ ] No Comments: Not Observed

2b. Are three segments sampled from a 60 segment grid behind the grating in the oil skimmer box?

[ ] Yes [ ] No Comments: Not Observed

3. For 304:

3a. Are three segments sampled from 60 1-ft segments beginning 30 ft downstream of the North Outfall and ending 30 ft prior to the point of entry of the pipe originating on the east side of Lick Run?

[X] Yes [ ] No Comments:

3b. Are samples collected on the same day and prior to collection of samples for 300?

[X] Yes [ ] No Comments: _____

4. TURCO method for sediment sampling:

4a. Was the sampler lowered slowly, allowing a very slow contact with the bottom?

[ ] Yes [ ] No Comments: TURCO not used

4b. Was there a sufficient sediment layer to collect a sample?

[ ] Yes [ ] No Comments: N/A

4c. Was the depth of sample recorded in the field logbook?

[ ] Yes [ ] No Comments: N/A

4d. Is the sampler placed in a stainless steel or Teflon® tray for extraction of sample?

[ ] Yes [ ] No Comments: N/A

4e. Is the sample transfer accomplished using a stainless steel or Teflon® spoon?

[ ] Yes [ ] No Comments: N/A

5. Are all sampling tools non-plated stainless steel?

[X] Yes [ ] No Comments:

6. Do sample labels include date, time of collection, and preservative?

[X] Yes [ ] No Comments:

7. For volatile organic samples:

7a. Are volatile organic samples collected first?

[ ] Yes [ ] No Comments: No volatiles collected

7b. Is the headspace in the sample containers minimized?

[ ] Yes [ ] No Comments: N/A

7c. Are the samples immediately placed in a 4°C environment?

[ ] Yes [ ] No Comments: N/A

8. Are sample jar lids retightened after initial cool down or immediately prior to shipping?

|X| Yes |_| No Comments: At sample preparation area

9. Is the sample equipment decontaminated as described?

|_| Yes |X| No Comments: At 304 methanol rinse was used before deionized water rinse. This was corrected for future sampling.

10. Are the decontamination liquids contained for disposal?

|X| Yes |_| No Comments:

11. Is the decontamination procedures performed at or near the sampling location?

|X| Yes |_| No Comments:

Table V-3. The following water samples will be collected during the period of August 15 to 20 at the Pittsburgh Energy Technology Center, Pittsburgh, Pennsylvania.

Env. Prob.	Req #	Location	Sampling Method	Sample Type	Other
1	301	Storm water manhole 4 adjacent to entry road	Sample container immersion	3 grab	pH, conductivity temp.
1	302	North Outfall	Sample container immersion	3 grab	pH, conductivity temp.
2	305	Underground tank SE of Bldg. B-141	Dipper	3 grab	pH, conductivity temp.
2	306	Limestone Pit east of Bldg. B-94	Dipper	3 gram 60 segments	pH, conductivity temp.
2	307	Sanitary sewer manhole south of Bldg. B-58	Automated composite sampler	3 6-hr time composites	pH, temp.
2	308	Wastewater treatment plant effluent	Automated composite sampler	3 6-hr time composites	pH, conductivity temp.
3	400	Springs on hillside above Bldg B-62	Dipper	3 grab	pH, conductivity temp.

Table V-3. (Continued)

Env. Prob.	Req #	Location	Sampling Method	Sample Type	Other
3	401	Spring north of main plateau area	Dipper	3 grab	pH, conductivity temp.
4	402	Spring at NW end of 2.1 acre field	Dipper	3 grab	pH, conductivity temp.
4	403	Stream/ seep area SE of 920 area	Sample container immersion	3 grab 20 segment grid	pH, conductivity temp.

V.3 Water

1. For 301 and 302:

1a. Are samples collected as follows: one set Friday afternoon after 4:00 p.m. and two sets of samples at different times on Saturday?

|_| Yes |_| No Comments: Not Observed

1b. Is an operating log of the laboratory wastewater collection system included as permanent record of the site sampling effort?

|_| Yes |_| No Comments: Not Observed

2. For 305:

2a. Is the tank aerated for five minutes prior to collection of the sample?

|X| Yes |_| No Comments:

2b. Is a copy of the site logbook included as part of the permanent record for the site sampling effort covering the number and type of pH adjustments and the number of times the tank was mixed since last being discharged?

|X| Yes |_| No Comments:

2c. Is the fullness of the tank recorded in the field logbook (preferably at least 40% full)?

|X| Yes |_| No Comments: Approximately 70% full

2d. Are samples collected at three separate times (preferably three separate days)?

|X| Yes |_| No Comments: Three separate days

3. For 306:

3a. Are the samples collected during discharge or shortly thereafter?

|_| Yes |_| No Comments: No discharge, sample not collected

3b. Are the three samples collected consecutively (not at separate times)?

|_| Yes |_| No Comments: N/A

3c. Are samples collected from three segments of a 60 segment grid?

|_| Yes |_| No Comments: N/A

4. For 307:

4a. Is one set of samples collected after 4:00 p.m. on Friday and the other two sets at different times on Saturday?

|_| Yes |_| No Comments: Not Observed

4b. Are the three sets of samples 6-hr time composites?

|_| Yes |_| No Comments: Not Observed

4c. Are pH and temperature readings taken on the composite samples and in situ readings from the manhole at the beginning and end of each 6-hour sample?

|_| Yes |_| No Comments: Not Observed

5. For 308:

5a. Are samples collected on three separate days from approximately 8:00 a.m. to 2:00 p.m. each day?

|X| Yes |_| No Comments: 0800 - 1400 hrs

5b. Are pH, conductivity and temperature measurements taken on the composite samples and in situ from the effluent weir box at the beginning and end of each compositing period?

|X| Yes |_| No Comments:

5c. Is the composite sampler set to collect 200 to 300 mL each 10 minutes?

|X| Yes |_| No Comments:

5d. Is a copy of the daily operating log of the wastewater treatment plant obtained on the days the samples are collected for permanent record of the site sampling effort?

|X| Yes |_| No Comments: _____

6. For 400, 401, 402, and 403:

6a. Are samples collected on three separate days?

|X| Yes |_| No Comments: Tuesday, Wednesday, Thursday

6b. Are the samples for metal analyses filtered prior to preservation?

|X| Yes |_| No Comments: _____

6c. Are pH, conductivity and temperature measurements taken?

|X| Yes |_| No Comments: _____

6d. For 402; if surface flow is not present, is a pipe placed in the ground up to 6-ft deep at the deep hole nearest the spring that is drilled for 801 (2.1 acre property) in order to collect ground water?

|_| Yes |_| No Comments: Not Observed

6e. For 403; is one segment selected for sampling from a 20 segment grid?

|_| Yes |X| No Comments: There was only one spot deep enough to collect water

7. If an automated composite sampler was used:

7a. Is clean medical grade silicone tubing used?

|X| Yes |_| No Comments: _____

7b. Was the sample line purged prior to collection of the sample?

|X| Yes |_| No Comments: _____

7c. Was the purged volume returned to its source?

|X| Yes |_| No Comments: _____

8. If container immersion used:

8a. Is the container tilted properly to fill the container with the least amount of disturbance?

|X| Yes |_| No Comments: _____

9. If a dipper was used:

9a. Was the dipper allowed to fill slowly and continuously?

|X| Yes |_| No Comments: _____

_____

_____

9b. Does the dipper have a volume of at least 500 ml?

|X| Yes |_| No Comments: _____

_____

_____

9c. Was the dipper emptied slowly to minimize entry disturbance?

|X| Yes |_| No Comments: _____

_____

_____

9d. Was the sample container tilted slightly to fill with the least amount of disturbance?

|X| Yes |_| No Comments: _____

_____

_____

10. For volatile organic samples:

10a. Are volatile organic samples collected first?

|X| Yes |_| No Comments: _____

_____

_____

10b. Is the headspace in the sample containers minimized?

|X| Yes |_| No Comments: No headspace

10c. Are samples immediately placed in a 4°C environment?

|X| Yes |_| No Comments:

11. Are sample jar lids retightened after initial cool down or immediately prior to sampling?

|X| Yes |_| No Comments: At sample preparation area

12. Is the sample equipment decontaminated as described?

|X| Yes |_| No Comments:

13. Are the decontamination liquids contained for disposal?

|X| Yes |_| No Comments:

14. Are the decontamination procedures performed at or near the sampling location?

|X| Yes |_| No Comments:

15. Are samples preserved immediately after collection?

[ ] Yes [X] No Comments: At base site (approximately 30 minutes to preservation)

16. Did sample labels include date, time of collection and the preservation?

[X] Yes [ ] No Comments:

VI. SAMPLE PREPARATION FIELD PROCEDURES

1. Sample size, container, preservatives, holding times and other comments are identified in the Sampling Plan. Are these procedures being followed?

|X| Yes |_| No Comments: _____

2. If no, are different procedures identified and documented?

|_| Yes |_| No Comments: N/A

3. Are all solid volatiles stored in 125 ml glass jars?

|X| Yes |_| No Comments: _____

4. Are all liquid volatiles stored in 40 ml septum capped glass bottles?

|X| Yes |_| No Comments: _____

5. Are aqueous Total PNAs samples collected in 1000 ml amber glass containers?

|_| Yes |X| No Comments: Total PNAs not collected at site to cut costs

6. Are solid Total PNAs collected in 125 ml wide mouth glass jars?

|_| Yes |X| No Comments: Total PNAs not collected at site to cut costs

7. Are ICP metals aqueous samples collected in 500 ml HDPE bottles?

|X| Yes |_| No Comments: _____

8. Are ICP metals solid sample collected in 250 ml HDPE wide mouth bottles?

|X| Yes |_| No Comments: _____

9. Are semivolatiles aqueous samples collected in glass 1000 ml amber bottles?

|X| Yes |_| No Comments: _____

10. Are solid semivolatile/PCB samples collected in 125 ml glass wide mouth jars?

|X| Yes |_| No Comments: _____

11. Are anion aqueous samples stored in 500 ml wide mouth HDPE bottles?

|_| Yes |_| No Comments: N/A

12. Are anion solid samples stored in 250 ml wide mouth HDPE bottles?

|_| Yes |_| No Comments: N/A

13. If a sample requires refrigeration, is a sufficient quantity of freezer packs being used to maintain the sample at 4°C?

|X| Yes |_| No Comments: _____

14. Are all samples sealed in plastic bags?

|X| Yes |_| No Comments: _____

15. Are all samples placed in a plastic bag lined ice chest and packed in vermiculite?

|X| Yes |_| No Comments: _____

16. Are all sample preparation procedures filled out and up-to-date in the sample logbook?

|X| Yes |_| No Comments: Calibration logbook pg 104 calibration check for pH buffer 10.0 not adjusted

17. Are sample preparation equipment being stored in a secure, non-contaminatory environment?

|X| Yes |_| No Comments: _____

18. Are all disposable sample preparation equipment being properly disposed of?

|X| Yes |_| No Comments: Site will accept it (PETC)

19. Are swipes being conducted to check for contaminated equipment in the sample preparation area?

|_| Yes |_| No Comments: N/A

20. Are all concentrated acids used for preserving the samples stored in a vented storage cabinet?

|X| Yes |_| No Comments:

21. Are any food, drink, tobacco or lotions being used in the sample preparation area?

|_| Yes |X| No Comments:

22. Are volatile organic samples shielded from light?

|X| Yes |_| No Comments:

23. Are the appropriate number of shipping blanks packed in each cooler?

|X| Yes |_| No Comments:

VII. HEALTH AND SAFETY

1. Is a Health and Safety Coordinator (HSC) on site during the entire Survey?

|X| Yes |_| No Comments: J. B. Watson (Team 1), Leslie Barker (Team 2)

2. Is appropriate protective clothing and equipment made available to the sampling teams by the site contractor or ORNL?

|X| Yes |_| No Comments: By ORNL

3. Are all members of the sampling team formally trained in appropriate health and safety considerations?

|X| Yes |_| No Comments: INEL Health and Safety (16 hour), Most had 40 hr. SARA, Some have First Aid and CPR

4. For sampling sites where routine operations do not occur and there is no established protocol, are the principal hazards and the protective measures taken determined by document review by the team leader, and the contractor H&S representative?

|X| Yes |_| No Comments:

5. Are acid/base spill kits and eye wash kits available in each sampling vehicle?

|X| Yes |_| No Comments:

6. Are all normal on-site field sampling activities conducted in at least Level-D-protection? (Coveralls, steel toed boots, latex surgical gloves, safety glasses, and hard hats where required).

|_| Yes |X| No Comments: Safety glasses not worn at many locations

7. Are any food, drink, tobacco or lotions being used during sampling activities?

|_| Yes |X| No Comments:

8. Are sampling personnel fit-tested, and trained in the use of respiratory protection?

|X| Yes |_| No Comments:

9. Are any members of the sampling team trained in First Aid/CPR?

|X| Yes |_| No Comments: At least one member of each team

10. Have all sampling personnel undergone medical examination?

|X| Yes |_| No Comments: Medical surveillance at least once per year

11. Do all sampling personnel have their radiation exposure histories completed prior to beginning sampling?

|X| Yes |_| No Comments: Radiation history documented

No whole body counts

12. Is the HSC a professional Industrial Hygienist?

|_| Yes |X| No Comments:

13. Are Material Safety Data Sheets available at all times for inspection by the Field Sampling Team?

|X| Yes |_| No Comments:

14. Are sample locations surveyed for radiation and vapor hazards using portable instruments?

|X| Yes |_| No Comments: As indicated in Sampling Plan (ORNL)

15. When augering, is the sample media surveyed for radiation and vapor hazards?

|_| Yes |X| No Comments: While augering, a PID was not used to

monitor vapor hazards

16. If any of the following instruments is used (Portable Oxygen Monitor, Portable Combustible Gas Indicator, Portable Flame Ionization Detector, Photoionization Detector):

16a. Is the instrument clean and serviceable?

|X| Yes |_| No Comments: _____

16b. Is the battery checked and sufficiently charged?

|X| Yes |_| No Comments: PID was charged. The battery on the Horiba used for temp, pH, conductivity was not charged. Both teams had to share the other unit.

16c. Has the instrument been properly calibrated?

|X| Yes |_| No Comments: Calibrated prior to survey at ORNL

16d. Has the instrument been allowed to warm up properly before measurement begins?

|X| Yes |_| No Comments: _____

16e. Is the operator fully trained and knowledgeable in the use of the instrument?

|X| Yes |_| No Comments: Wayne Parsons, Betty Hensley

16f. Is the intake positioned close to the area in question?

|X| Yes |_| No Comments: _____

_____

_____

16g. Is the intake moved with slow, sweeping motions?

|X| Yes |_| No Comments: _____

_____

_____

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VIII. ON-SITE WORK PERFORMANCE

1. Indicate sampling team performance in the following areas observed during the on-site audit. (NOTE: Identify poor work practices and violations of protocol under comments.)

Work Practice	Good	Fair	Poor
Sampling technique	[X]	[ ]	[ ]
Safety procedures	[X]	[ ]	[ ]
Forbidden personal practices (e.g., smoking, eating in forbidden areas)	[X]	[ ]	[ ]
Equipment use/maintenance/calibration	[X]	[ ]	[ ]

Comments: All team members are complimented on a conscious effort to maintain the integrity of the samples during collection. Most Sampling comments were considered minor. Note: a PID should be used continuously during all augering. Samplers should wear safety glasses in hazard situations. All categories were rated good.

2. Indicate sample preparation performance in the following area observed during the on-site audit. (NOTE: Identify poor work practices and violations of protocol under comments.)

Work Practice	Good	Fair	Poor
Preparation technique	[X]	[ ]	[ ]
Safety procedures	[X]	[ ]	[ ]
Forbidden personal practices (e.g., smoking, eating in forbidden areas)	[X]	[ ]	[ ]
Equipment use/maintenance/calibration	[X]	[ ]	[ ]

Comments: Attention to detail was observed during all phases of sample preparation. All preparation categories were rated good.

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Appendix D

ANALYTICAL CHEMISTRY QC SUMMARY

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Title: DETERMINATION OF OAK RIDGE DATA USABILITY

Background:

A Data Usability Team (DUT) composed of representatives from Department of Energy (DOE), Environmental Protection Agency Environmental Monitoring Services Laboratory - Las Vegas, Nevada (EPA EMSL-LV), and Martin Marietta Energy Systems will determine the usability of organic data generated by ORNL for four DOE ENVIRONMENTAL SURVEY SITES. The four sites are 1) Pantex Site, 2) Lawrence Livermore National Laboratory (LLNL), 3) Sandia National Laboratory (SNLL), and 4) Argonne National Laboratory (ANL).

Purpose:

This standard operating procedure (SOP) describes the review procedure for determining the usability of "validated" organic data for the above sites. Organic data was validated by a Data Quality Assessment Team from EPA EMSL-LV team, which performed the validation process in accordance with the SOP FOR OAK RIDGE DATA VALIDATION (Attachment A).

Applicability:

The Data Usability Team will review files containing "validated" organic data organized by environmental problem for each of the four DOE ENVIRONMENTAL SURVEY SITES. The contents of each environmental problem file is as follows:

1) a list of analytes with data quality summaries described on a form entitled "Organic Data Quality Level Task Volatile Organic Compounds", and

2) a list of trip blank information per sample delivery group (SDG) described on a form entitled "Organic Data Quality Level Task Volatile Organic Compounds".

To assist the team, a master sheet (Attachment B) summarizing the data usability screening products for each specific type of organic class (i.e. Volatiles, Semivolatiles, Pesticides/PCBs) will be used. The master sheet and the contents of the environmental problem file represent the products produced by the Data Quality Assessment Team performing the data validation process described in Attachment B.

The review procedure to be used by the Data Usabilty Team will involve the following steps:

1. review of each environmental problem from the Sampling and Analysis Plan for each site,

2. review of the master sheet (Attachment B),

3. review of the contents of the individual files for each environmental problem,

4. performance of an evaluation for usability, and

5. production of a summary table which outlines the conclusions.

Attachment C contains an example file for one environmental problem at the Pantex Site. Attachment D contains the guidelines for the evaluation for usability. Attachment E contains an example of the type of summary table which outlines the conclusions from the review procedure.

ATTACHMENT A

SOP FOR OAK RIDGE DATA VALIDATION

(WITH ATTACHMENT 1.0)

ATTACHMENT A

SOP FOR OAK RIDGE DATA VALIDATION

EMSL-LV will be qualifying all data associated with four data packages produced by Oak Ridge National Laboratory (ORNL). The four data packages are from the following sampling sites: 1) Pantex; 2) LINL; 3) SNLL; and 4) ANL.

This SOP is designed to aid the evaluator in organizing and performing the validation procedure. This procedure involves qualifying all data according to Contract Laboratory Program Equivalency (CLPE). CLPE is based on the CLP Organics Statement of Work, 7/87

The validation procedure will involve review of ten data quality areas. These areas are as follows and are listed in the order in which evaluators may proceed.

1. Holding Times
2. Initial Calibrations
3. Continuing Calibrations
4. Blanks
5. Tunes
6. Surrogate
7. Internal Standards
8. Tentatively Identified Compounds
9. Pesticide Retention standard
10. Analyte Retention Time (Pest. fraction)

Due to the large number of samples and limited auditing time, the order of the validation procedure above has been set up to qualify as many samples, as quickly as possible. Proceeding with the validation in the order listed above may permit the auditor to validate batches of samples as a unit, thus saving time.

The auditors will be evaluating only the data submitted in the Case Narrative and on Forms I through VIII for the volatile and semi-volatile fractions and Forms I through X for the pesticide fraction. The auditors will be under a rigid time constraint and will not have sufficient time to search through the raw data to check for errors (transcription, rounding, etc.) found on these forms. The evaluators will examine raw data as needed.

There are two types of auditing forms that the evaluators will use for the Organic Data Quality Level Task. The first form (Attachment II) is a Data Usability Screening form for each fraction. On this form, 10 samples can be summarized according to the ~~eight~~ QC areas listed above. This form has also been provided with space enough for any pertinent comments and an overall data quality rating (to be discussed later). The second type of auditing form, Organic Data Quality Level Task (Attachment III), breaks the sample down into its specific compounds and will qualify each compound individually for blank contamination, initial and continuing calibration conformance, and internal standard area and retention time conformance. This form is also provided for each fraction and requires each compound listed to receive an overall data quality level to be used later for determining data usability by the Survey Team.

All spaces on the auditing forms are to be filled in with a number corresponding to level 1, 2, or 3. Any blank spaces left, for any reason, are to be filled in with a dash (-). Arrows may be used to indicate repeat entries.

Oak Ridge will provide a listing of all samples to be audited. During the validation, the auditor will check off all samples completed. These sample identifications will then be run against a master list (provided and performed by Oak Ridge) to monitor EMSL-LV's progress.

HOLDING TIMES

Expedient extraction and analysis of samples is necessary in order to ensure valid results. Any sample outside the established holding time criteria will automatically be qualified level 3, as exceeding the holding time criteria compromises the data quality. Holding times will be evaluated through the use of the laboratory's sample receipt logs, extraction logs, and from the analysis date located on the Form I (run logs will be used if the analysis date is not listed on the Form I). Addressing holding times first insures that affected samples are qualified level 3 before further validation is performed. If holding times are exceeded, all negative analyte values will be assigned level 3. Positive analyte values may be level 2. All samples will continue through the validation process.

See Attachment I, Holding Time sections.

INITIAL CALIBRATION

The initial calibration documents the linearity of the instrument within the calibaration range of the method, establishes the relative response factors on which the continuing calibration criteria is based, and verifies the performance of the column before samples are analyzed. The initial calibration reflects the conditions of analysis and designates the quality of all the samples analyzed until the next initial calibration. Any samples not run under an initial calibration are considered suspect and qualified level 3. A continuing calibration found within criteria does not alter the quality level established by the preceeding initial calibration found outside criteria. All assignment of quality levels based on the calibrations will be on an analyte-specific basis.

The evaluators will use the data [percent relative standard deviation (%RSD) and average relative response factors (AV-RRF)] listed on the Form VI, Organics Initial Calibration Data Form for the determination of criteria compliance of volatiles and semi-volitiles. Form VIIIs, Pesticide Evaluation Standards Summary, will be used for the pesticide fraction where Evals A, B, C, and Individual A and B will be evaluated for correct sequencing. The Form VIIIs will also be used to evaluate the linearity of the analytical system and the breakdown of 4,4'-DDT and Endrin. Data Quality levels will be assigned as described in Attachment I.

See Attachment I, Initial Calibration sections.

CONTINUING CALIBRATION

The continuing calibration determines if an instrument is still within the linear calibration range established by the preceeding initial calibration. The continuing calibration affects all those samples run until the next calibration. Any samples run under a continuing calibration outside criteria, or not run under any calibration, are questionable and will be qualified level 3. All samples will be carried through the established validation process. All assignment of quality levels based on the continuing calibrations will be on an analyte-specific basis.

The validation of the continuing calibration data [percent deviations (%D) and response factors (RF)] will be done using the Form VIIs, Continuing Calibration Check Form, for both the volatile and semi-volatile fractions. The Form VIIIs will be used to evaluate the Individual A/B run and the breakdown of 4,4'-DDT and Endrin for the pesticide fraction. Data Quality levels will be assigned as described in Attachment I.

See Attachment I, Continuing Calibration sections.

METHOD BLANK ANALYSIS

Method blanks are carried through the entire sample analysis and are instrumental in evaluating the type and magnitude of laboratory contamination. Blank contamination is found in two forms; Common Laboratory Contaminants and other TCL compounds at contamination levels. The Common Laboratory Contaminants are: VOLATILE FRACTION- Methylene Chloride, Acetone, Toluene, and 2-Butanone; SEMI-VOLATILE FRACTION- Phthalate esters; PESTICIDE FRACTION-None. Blanks are to run at least once per day of extraction for semi-volatiles and pesticides and once per day of analysis for volatiles.

The validation of the method blank analysis will be done utilizing the information given on the Form Is, Organics Analysis Data Sheet, of the blank and the Form IVs, Method Blank Summary, which summarizes all samples associated with that blank. Data Quality levels will be assigned as described in Attachment I.

See Attachment I, Method Blank sections.

TUNING

Tuning establishes that a GC/MS system meets the established mass spectral criteria before beginning calibrations or sample analysis. The compounds used for tuning are 50ng p-Bromofluorobenzene (BFB) for the volatile fraction and 50ng Decafluorotriphenylphosphine (DFTPP) for the semi-volatile fraction.

Tuning evaluation will be performed by use of the Form V, GC/MS Tuning and Mass Calibration Form, for both the volatile and semi-volatile fractions. The Form V lists all samples associated with the tune, as well as showing ion percent relative abundance. Data Quality levels will be assigned as described in Attachment I.

See Attachment I, Tuning Criteria sections.

SURROGATES

Surrogates are necessary in monitoring the preparation and analysis of all samples and blanks. Surrogate recovery may be affected due to sample interference, high concentrations of analytes, and poor extraction techniques. Surrogate recovery acceptance limits are as follows:

FRACTION	SURR. CMPD	% RECOVERY LIMITS WATER	LOW/MED SOIL
VOLATILE	Toluene-d8	88-110	81-117
	4-Bromofluorobenzene	86-115	74-121
	1,2-Dichloroethane-d4	76-114	70-121
SEMI-VOLATILE	Nitrobenzene-d5	35-114	23-120
	2-Fluorobiphenyl	43-116	30-115
	p-Terphenyl-d14	33-141	18-137
	Phenol-d5	10-94	24-113
	2-Fluorophenol	21-100	25-121
	2,4,6-Tribromophenol	10-123	19-122
PESTICIDE	Dibutylchlorendate	Advisory limits	
		24-154	20-150

Surrogate recoveries will be validated through use of the Form II, Surrogate Recovery Form. Data Quality levels will be assigned as described in Attachment I.

See Attachment I, Surrogate Sections.

INTERNAL STANDARDS

Internal standards and retention times are used to check system performance for quantitative purposes of the volatile and semi-volatile fractions. Internal standard responses and retention times in all standards must be evaluated during or immediately after data aquisition. For the purposes at Oak Ridge, there will only be two levels of qualification (levels 1 and 3). The data will either be level 1 - within criteria or level 3 - outside criteria. The auditors will use the volatile and semi-volatile Form VIIIs, Internal Standard Summary, for validation of the internal standards associated with that fraction.

See Attachment I, Internal Standards sections.

PESTICIDE RETENTION STANDARD

The retention time shift for Dibutylchlorendate (DBC) or Mirex must be verified for each sample due to the fact that excessive shift in RT indicates instability of the system (ie. carrier gas leaks, uncontrolled oven temperature).

Data which uses only Mirex as a retention time standard is not considered comparable to that which uses DBC as a retention time standard. Therefore, data using only Mirex will be classified no better than level 2.

Pesticide Form VIII will be used by the evaluators to determine criteria conformance. Data Quality levels will be assigned as described in Attachment I

See Attachment I, Pesticide Retention Standard section.

ANALYTE RETENTION TIME

According to the Organic Statement of Work, the analyte retention time windows are set by calculating the standard deviation of the three absolute retention times for each single component pesticide. For multiresponse pesticides or PCBs, choose one major peak from the envelope and calculate the standard deviation of the three retention times for that peak.

The standard deviations determined above shall be used to determine the retention time windows for a particular 72-hour sequence. Apply plus or minus three times the standard deviations above to the retention time of each pesticide/PCB determined for the first analysis of the pesticide/PCB standard in a given 72-hour sequence. This range of retention times defines the retention time window for the compound of interest for that 72-hour sequence.

If a peak is found within a retention time window for a primary column, a tentative hit is established for that analyte. A true pesticide hit must be confirmed on a dissimilar column using the same procedure followed for the primary column.

If the analyte was quantitated on a narrow-bore capillary column, the data can be assigned a quality level no better than level 2.

Data Quality levels will be assigned as described in Attachment I.

See Attachment I, Analyte Retention Time section.

TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

Non-target compounds (TICs) will begin the validation proceedure at level 2 due to their estimated nature. They will be examined further for blank contamination and mass spectral interpretation. Blank contamination will be assessed by the same criteria as TCL compounds.

The mass spectra of the TIC hits will be examined by the evaluators for goodness of fit as compared to the reported NBS library spectra. If a compound has been reported by the laboratory as unknown and the evaluator feels, in his or her professional judgement, that one of the library hits is more appropriate, the corrected identification will be reported, and the comment "TIC Mis-id", will be written in the comment section of the summary form.

Data Quality levels will be assigned as described in Attachment I.

See Attachment I, Tentatively Identified Compounds section.

OVERALL QUALITY LEVEL

The overall quality level of a sample is determined by the lowest degree of usability found over the course of that sample's validation. The overall data quality level of a sample is determined by the lowest degree of quality found over the course of that sample's evaluation. Overall data quality levels are not assigned to samples for which individual analyte qualifiers were used. In this case, the overall quality level column on the summary data form will contain the 'A' flag.

The summary data qualifier on the individual analyte form may also include qualifiers from the summary form. The value in the summary column on the individual analyte form is the overall qualifier for that analyte in that sample. If the summary data qualifier is level 3, there may still be usable data reported on the individual analyte form.

All analytes with reported values which exceed the initial calibration range will be assigned a quality level no better than level 2. All analytes with reported values lower than the CLP quantitation limits will be assigned a quality level no better than level 2.

FLAGS and ABBREVIATIONS

The following flags and abbreviations are used by the data evaluation team.

A - Analyte specific. Refer to the analyte specific form for the quality levels assigned to the sample. Quality levels are assigned on an analyte-by-analyte basis for this sample.

C - See comments. Alerts the user to a comment on the summary form which must be used when interpreting usability for this sample.

E - Analyte result exceeds the method initial calibration range.

HA- Holding time from extraction to analysis exceeded.

HE- Holding time from receipt of sample to extraction exceeded.

M - Mirex used for retention time standard. The data is assigned a level no better than 2.

Q - Quantitation limit was not adjusted for sample percent moisture and/or sample amount. The data is assigned a level no better than 2. The sample percent moisture and amount follow this flag.

Q1- Sample result was not adjusted for sample percent moisture and/or sample amount. The data is assigned a level no better than 2. The sample percent moisture and amount follow this flag.

TIC ID - Usable qualitative TIC information is on the individual analyte form.

TIC MIS-ID - The original laboratory identification on TIC is in error. Usable qualitative TIC information is on the individual analyte form.

UNK- Unknown. Used on the individual analyte form when reporting TICs.

HC - Hydrocarbon. Used on the individual analyte form when reporting unknown Hydrocarbon TICs.

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MATRIX ABBREVIATIONS

S - Soil. The sample matrix was soil or sediment.

W - Water. The sample matrix was water.

O - Other. The sample matrix was not soil/sediment or water. The matrix may be biota, vegetation, or drum samples.

RE- The reported results are a reanalysis of the indicated sample. The original results may or may not have been reported.

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ATTACHMENT I

Volatile Analysis
Sample Group Defects

Initial Calibration - Affects all samples run until the next Init. Cal.
Affects quantitative results.
Does not affect qualitative results.

1.	Initial calibration not performed before running samples.	Entire sample, + or - results	Level 3
2.	%RSD	30% or less	Level 1
	%RSD	30 to 70 %	Level 2
	%RSD	above 70 %	Level 3
	AV-RRF	0.300 or greater (0.250 for Bromoform)	Level 1
	AV-RRF	0.10 to 0.299 (0.10 to 0.249 for bromoform)	Level 2
	AV RRF	Less than 0.10 (may increase chances for false negative results)	Level 3

Continuing Calibration - Affects all samples until the next calibration.
Affects quantitative results.
Does not affect qualitative results.

%D	25% or less	Level 1
%D	25 to 70 %	Level 2
%D	Above 70 %	Level 3
RRF	0.300 or greater (0.250 for Bromoform)	Level 1
RRF	0.10 to 0.299 (0.10 to 0.249 for Bromoform)	Level 2
RRF	Less than 0.10 (may increase chances of false negative results)	Level 3

1. Instrument calibrated at beginning of 12 hour sequence.	Level 1
2. Instrument calibrated between 12 and 24 hours before analysis of sample.	Level 2
3. Instrument calibrated more than 24 hours before analysis of sample.	Level 3

Tuning Criteria - May affect qualitative identifications.
Does not affect quantitative results.

1. Instrument tuned at beginning of 12 hour sequence; all ions in compliance with expanded criteria (see list). Level 1

2. Tune performed at beginning of 12 hour sequence, any critical ion out of criteria for expanded criteria list
OR
Instrument tuned between 12 and 24 hours of sample analysis Level 2

3. Tune not performed or tuned more than 24 hours before sample analysis Level 3

BFB Expanded Criteria List

m/z	ION ABUNDANCE CRITERIA
50	11.0 - 50.0% of base peak
75	22.0 - 75.0% of base peak
95*	base peak, 100% relative abundance
96*	5.0 - 9.0% of base peak
173	less than 1% of base peak
174*	greater than 50% of base peak
175*	5.0 -9.0% of m/z 174
176*	greater than 95% but less than 101% of m/z 174
177*	5.0 -9.0% of m/z 176

* denotes critical ions or ratios

Method Blank Analysis - Affects quantitative and qualitative results.
False positive results may be indicated.

1. Method performed as required, blank uncontaminated Level 1

2. If a method blank is not performed for a group of samples
All positive hits are Level 3
(May cause false positive results)
All negative results are acceptable Level 1

3. Blank Contamination encountered in the method blank

Common laboratory contaminants

Sample result greater than or equal to 10x amount in the blank	Level 1
Sample result between 5x and 10x amount in the blank	Level 2
Sample result less than 5x the amount in the blank	Level 3

Other TCL compounds

Sample result greater than or equal to 5x amount in the blank	Level 1
Sample result between 2.5x and 5x the amount in the blank	Level 2
Sample result less than 2.5x the amount in the blank	Level 3

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Volatile Sample Analysis
Individual Sample Defects

Holding Times- May affect quantitative results.
Does not affect qualitative results.

1. Within 10 days	Level 1
2. 11-28 days	Level 2
3. Greater than 28 days (May increase chances of false negative and false positive results)	Level 3

Surrogate Recovery - Affects quantitative results.
Does not affect qualitative results.

1. All surrogates within criteria	Level 1
2. One surrogate outside SOW limits or less than 10% recovery for one surrogate (but greater than zero recovery)	Level 2
3. Any surrogate not recovered at all, or 2 or more surrogates outside of limits in SOW (May increase chances of false negative results)	Level 3

Internal Standards - Affects quantitative results.
Does not affect qualitative results.

1. Change in absolute area less than -50% to +100% RT of IS-sample within +/- 30 sec of IS-calibration std	Level 1
2. Outside of criteria above (May increase chances of false negative results)	Level 3

Tentatively Identified Compounds (TICs)- Qualitative identification affected.

1. All TICs can have a quality level no better than	Level 2
2. All TICs without a complete identification, i.e., Unknown.	Level 3
3. In special cases, i.e. PCBs, Identification of compound without specific isomer ID.	Level 2

4. Blanks are assessed using the same criteria as TCL compounds.

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Semi-Volatile Analysis
Sample Group Defects

Initial Calibration - Affects all samples run until the next Init. Cal.
Affects quantitative results.
Does not affect qualitative results.

1.	Initial calibration not performed before running samples. Entire sample, + or - results		Level 3
2.	%RSD	30% or less	Level 1
	%RSD	30 to 70 %	Level 2
	%RSD	Above 70 %	Level 3
	AV-RRF	0.05 or greater	Level 1
	AV-RRF	Less than 0.05 all + hits become	Level 2
	AV RRF	Less than 0.05 all - hits become	Level 3
		(May increase chances for false negative results)	

Continuing Calibration - Affects all samples until the next calibration.
Affects quantitative results.
Does not affect qualitative results.

%D	25% or less	Level 1
%D	25 to ~~50 %~~ 70%	Level 2
%D	Above ~~50 %~~ 70%	Level 3
RRF	0.05 or greater	Level 1
RRF	Less than 0.05 all + hits become	Level 2
RRF	Less than 0.05 all - hits become	Level 3
	(May increase chances for false negative results)	

1. Instrument calibrated at beginning of 12 hour sequence. Level 1

2. Instrument calibrated between 12 and 24 hours before analysis of sample. Level 2

3. Instrument calibrated more than 24 hours before analysis of sample. Level 3

Tuning Criteria - May affect qualitative identifications.
Does not affect quantitative results.

1. Instrument tuned at beginning of 12 hour sequence; all ions in compliance with expanded criteria (see list). — Level 1

2. Tune performed at beginning of 12 hour sequence, any critical ion out of criteria for expanded criteria list
   OR
   Instrument tuned between 12 and 24 hours of sample analysis — Level 2

3. Tune not performed or tuned more than 24 hours before sample analysis — Level 3

DFTPP Expanded Criteria List

m/z	ION ABUNDANCE CRITERIA
51	22.0% - 75.0% of m/z 198
68*	less than 2.0% of m/z 69
70*	less than 2.0% of m/z 69
127	30.0 - 70.0% of m/z 198
197*	less than 1.0% of m/z 198
198*	base peak, 100% relative abundance
199*	5.0 - 9.0% of m/z 198
275	7.0 - 37.0% of m/z 198
365	greater than 0.75% of m/z 198
441*	present but less than m/z 443
442*	greater than 30.0% of m/z 198
443*	17.0% - 23.0% of m/z 198

* denotes critical ions or ratios

Method Blank Analysis - Affects quantitative and qualitative results.
False positive results may be indicated.

1. Method performed as required, blank uncontaminated — Level 1

2. Method blank not performed for a group of samples
   Common lab contaminants (phthalates)
   - (+) results — Level 3
   - (-) results — Level 1

   Other TCL compounds
   - (+) results — Level 2
   - (-) results — Level 1

3. Blank Contamination encountered in the method blank

Common laboratory contaminants (phthalates)

Sample result greater than or equal to 10X amount in the blank	Level 1
Sample result between 5x and 10x amount in the blank	Level 2
Sample result less than 5x the amount in the blank	Level 3

Other TCL compounds

Sample result greater than or equal to 5x amount in blank	Level 1
Sample result between 2.5x and 5x amount in the blank	Level 2
Sample result less than 2.5x the amount in the blank	Level 3

Semi-Volatile Sample Analysis
Individual Sample Defects

Holding Times- May affect quantitative results.
Does not affect qualitative results.

Holding Times (Extractions)

1. Within 5 days for water or 10 days for soil	Level 1
2. 6-20 days for water, 11-20 days for soil	Level 2
3. Greater than 20 days (water and soil) (May increase chances for false negative results)	Level 3

Holding times until analysis

1. 40 days or less	Level 1
2. 41 to 60 days	Level 2
3. More than 60 days (May increase chances for false negative results)	Level 3

Surrogate Recovery - By Acid or Base/Neutral fractions
Affects quantitative results.
Does not affect qualitative results.

1. All surrogates within criteria	Level 1
2. Two surrogates within either fraction outside SOW limits or less than 10% recovery for one surrogate (but greater than zero recovery)	Level 2
3. Any surrogate not recovered at all, or 3 or more surrogates from either fraction outside of limits in SOW (May increase chances of false negative results)	Level 3

Internal Standards - Affects quantitative results.
Does not affect qualitative results.

1. Change in absolute area less than -50% to +100% RT of IS-sample within +/- 30 sec of IS-calibration std	Level 1
2. Outside of criteria above (May increase chances of false negative results)	Level 3

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Tentatively Identified Compounds (TICs)- Qualitative identification affected:

1.	All TICs can have a quality level no better than	Level 2
2.	All TICs without a complete identification, i.e., Unknown.	Level 3
3.	In special cases, i.e. PCBs, Identification of compound without specific isomer ID.	Level 2
4.	Blanks are assessed using the same criteria as TCL compounds.	

Pesticides Analysis
Sample Group Defects

Initial and Continuing Calibrations - Affects all samples run during the 72 hour sequence, on packed and capillary columns, evaluated separately.

1. Initial calibration using Eval. A, B, C and Ind. A, B not run as required. Entire sample, + or - results. — Level 3

2. Failure to run the evaluation mixes A and B as required during the 72 hour sequence. Affected sub-group only. — Level 2

3. Calibration sequences run as required. — Level 1

4. Linearity (Initial Calibration):

   Linearity will be Analyte-Specific and Column-Specific.

Aldrin -	Analytes	100 - 105
Endrin -	Analytes	106 - 113
DDT -	Analytes	114 - 126

<10% RSD	Level 1
10 - 20% RSD	Level 2
>20% RSD	Level 3

5. Continuing Calibration Stability:
   Quality level for %D is determined by the %D of the IND AB which follows a sample group. Analyte-Specific and Column-Specific for all analytes - 114. DDT used for analytes 115 - 126.

<15 %D	Level 1
15 - 25%D	Level 2
>25% D	Level 3

6. Analytes quantitated on capillary column will be judged for IC and CC on capillary column, but will be Q2 or Q3. — Level 2

   4,4'-DDT and Endrin Breakdown Requirement (Column-Specific):
   Quality level for % Breakdown is determined by % Breakdown of the Eval B preceeding the sample group.

1. % Breakdown for Endrin and DDT is less than 20%.	Level 1
2. % Breakdown for Endrin and DDT is between 20 and 30%.	Level 2
3. % Breakdown for either DDT or Endrin exceeds 30%.	Level 3

DDT Retention Time - Affects all subsequent samples, all analytes (Column-Specific):

1.	DDT RT is greater than or equal to 12 minutes.	Level 1
2.	DDT RT is less than 12 minutes and visual examination of the chromatogram indicates adequate separation of individual analytes has been achieved.	Level 2
3.	DDT retention time less than 12 minutes. Visual examination indicates inadequate separation.	Level 3

Method Blank Analysis:

1.	Method performed as required, blank uncontaminated.	Level 1
2.	If a method blank is not performed for a group of samples all positive hits are All negative results are acceptable.	Level 3
3.	Blank Contamination encountered in the method blank:	
	+ Results greater than 5x contamination level	Level 1
	+ Results less than 5x contamination level	Level 3
	- Results	Level 1

Pesticide Sample Analysis
Individual Sample Defect

Holding Times:

Holding times until extraction:

1.	Within 5 days for water or 10 days for soil	Level 1
2.	6 to 10 days for water samples; 11 - 20 days for soil	Level 2
3.	Greater than 10 days for water; 20 days for soil samples	Level 3

Holding times until analysis:

1.	40 days or less	Level 1
2.	41 to 60 days	Level 2
3.	More than 60 days	Level 3
4.	Q3 hits may be considered Q2	

Surrogate Retention Time (Column-Specific):

1.	%D for DBC retention time of the sample compared to the initial evaluation mix standard is less than 2% for packed column and 0.3% for capillary column.	Level 1
2.	%D for DBC or Mirex retention time RT sample - RT initial eval mix is greater than 2% for packed column and 0.3% for capillary column.	Level 3
3.	DBC not used as surrogate.	Level 2
4.	No surrogate analyzed.	Level 3

Surrogate Recovery:

Due to the problems with loss of DBC, surrogate recovery is not considered to be a factor in assigning data quality levels. However, if no surrogate is recovered, data may be considered non-usable for all compounds except multi-component analytes, where pattern recognition is possible.

Pesticide Sample Analysis
Individual Sample Defect

Analyte Retention Time:

Retention Time Windows - Affects the individual analyte in that sample only.

1.	Retention time windows met as required by SOW and confirmation performed.	Level 1
2.	Retention time window met, confirmation not performed.	Level 3

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ATTACHMENT B

EXAMPLE OF 1 PAGE

MASTER SHEET

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EXAMPLE

ATTACHMENT

Data Usability Screening for Volatile Organics

Site _____ Page __ of __ Auditor _____

SAMPLE NUMBER	SGG	MATRIX	DATE RECEIVED	DATE ANALYZED	ASSOC TUNE	DATE BLANK	CALIB INIT	RATE CONT	INT STD OUT	VOA SURR OUT	COMMENTS		OVER-ALL LEVEL	ENV PRI NUM
PX037030	PXV24	7	15JUN87	18JUN87	1	A	A	A	A	3	2 SURR OUTSD CRIT(BFB&DCE) 2 INT.ST. OUTSD CRIT(BCM&CBZ).0-28% MOIST,	5 G. 5&6 BLANK 13-RRF 30-EXCEEDING CAL. RANGE	A	6
		18	05JUN87	05JUN87										11
		1	12JUN87	15JUN87	1	A	A	A	1	1	5-ID, RANGE EXCEEDED 13-RRF 0-7% MOIST, 5.2 G.		A	11
		1	12JUN87	15JUN87	1	A	A	A	1	2	5-ID, RANGE EXCEEDED 13-BLANK/RRF 6-BLANK S1 OUT 0-12% MOIST, 5.2 G.		A	11
		1	12JUN87	15JUN87	1	A	A	A	1	1	5-ID, RANGE EXCEEDED 13-BLANK/RRF 0-7% MOIST, 5.2 G.		A	11
		1	12JUN87	16JUN87	1	A	A	A	1	1	5-ID 13-RRF 0-11% MOIST, 5 G.		A	11
		1	12JUN87	16JUN87	1	A	A	A	1	1	5-ID, RANGE EXCEEDED 13-BLANK/RRF 0-14% MOIST, 5 G.		A	11
		1	12JUN87	16JUN87	1	A	A	A	1	1	5-ID, RANGE EXCEEDED 13-RRF 0-17% MOIST, 4.9 G.		A	11
		1	12JUN87	16JUN87	1	A	A	A	1	1	5-BLANK 6-BLANK 13-RRF 0-15% MOIST, 5 G.		A	11
		1	12JUN87	16JUN87	1	A	A	A	1	1	5&6-BLANK 13-RRF 0-20% MOIST, 5.4 G.		A	11
		1	12JUN87	16JUN87	1	A	A	A	1	1	5&6-BLANK 13-RRF 0-17% MOIST, 5.1 G.		A	11
		1	12JUN87	16JUN87	1	A	A	A	1	1	5-BLANK 13-RRF 0-16% MOIST, 5.1 G.		A	11
		1	12JUN87	16JUN87	1	A	A	A	1	1	5-BLANK 13-RRF 0-19%, 5.1 G.		A	11
		1	15JUN87	18JUN87	1	A	A	A	1	1	0-14% MOIST, 5 G. 13-RRF 6-BLANK		A	11
		1	15JUN87	18JUN87	1	A	A	A	1	1	0-17% MOIST, 5 G. 13-RRF 5&6-BLANK		A	11
		1	05JUN87	05JUN87	1	A	A	A	3	3	ALL INTNL STNDS OUT OF CRIT 13-BLANK/RRF 0-6%MOIST,5.3 G.	TWO SURROGATES OUTSIDE CRITERIA	3	11
		1	05JUN87	05JUN87	1	A	A	A	3	2	ALL INTNL STNDS OUT OF CRIT 13-RRF 0-9%MOIST,5.3 G. 1 SURR OUTSD CRIT		3	11
		1	05JUN87	05JUN87	1	A	A	A	1	2	0-5% MOIST,4.8 G. 13-RRF 1 SURR OUTSD CRIT		A	11
		1	05JUN87	06JUN87	1	A	A	A	1	1	6-BLANK 13-BLANK/RRF 0-5% MOIST, 4.90 G.		A	11
		1	05JUN87	05JUN87	1	A	A	A	1	1	13-RRF 0-7% MOIST, 5.10 G.		A	11
		1	06JUN87	06JUN87	1	A	A	A	A	2	5-BLANK 6-BLANK IS3 OUT 0-3% MOIST, 5 G.		A	11
		1	06JUN87	07JUN87	1	A	A	A	1	1	6-BLANK 0-9% MOIST, 5 G.		A	11
		1	06JUN87	06JUN87	1	A	A	A	1	1	5-BLANK 6-BLANK 13-BLANK 0-3% MOIST, 4.89 G.		A	11
		1	06JUN87	06JUN87	1	A	A	A	1	1	5-BLANK 6-BLANK 13-BLANK 0-6% MOIST, 4.9 G.		A	11
		1	05JUN87	06JUN87	2	A	A	A	A	2	IS2 & IS3 LOW, BFB SENSITIVITY TIME OUT, S1 HIGH 0-11% MOIST, 5.2 G.		A	11
		1	06JUN87	06JUN87	1	A	A	A	1	1	5-BLANK 6-BLANK 13-BLANK 0-9% MOIST, 5 G.		A	11

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ATTACHMENT C

ENV. PROBLEM FILE

(EXAMPLE)

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EPNo 26,27

ORGANIC DATA ~~TUNNEL LEVEL~~ ~~TASK~~
VOLATILE ORGANIC COMPOUNDS

99

SAMPLE IDENTIFICATION TRIP BLANK SITE CODE

DATA AUDITOR: TAMMY CHRI

	CAS NO	IS#	TARGET COMPOUND NAME	BL	IC	CC	IS	OU
1.	74-87-3	1	CHLOROMETHANE	/	/	/	/	/
2.	74-83-9	1	BROMOMETHANE	/	/	/		/
3.	75-01-4	1	VINYL CHLORIDE		2	/		2
4.	75-00-3	1	CHLOROETHANE		/	2		2
5.	75-09-2	1	METHYLENE CHLORIDE 6		/	2		2
6.	67-64-1	1	ACETONE			2		2
7.	75-15-0	1	CARBON DISULFIDE			/		/
8.	75-35-4	1	1,1-DICHLOROETHENE			/		/
9.	75-34-3	1	1,1-DICHLOROETHANE			/		/
10.	540-59-0	1	1,2-DICHLOROETHENE (TOTAL)			/		/
11.	67-66-3	1	CHLOROFORM		/	/		/
12.	107-06-2	1	1,2-DICHLOROETHANE		/	/		/
13.	78-93-3	2	2-BUTANONE 11		3	3		3
14.	71-55-6	2	1,1,1-TRICHLOROETHANE		/	/		/
15.	56-23-5	2	CARBON TETRACHLORIDE		/	/		/
16.	108-05-4	2	VINYL ACETATE		/	/		/
17.	75-27-4	2	BROMODICHLOROMETHANE		/	/		/
18.	78-87-5	2	1,2-DICHLOROPROPANE		/	/		/
19.	10061-01-5	2	cis-1,3-DICHLOROPROPENE		/	/		/
20.	79-01-6	2	TRICHLOROETHENE		/	/		/
21.	124-48-1	2	DIBROMOCHLOROMETHANE		/	/		/
22.	79-00-5	2	1,1,2-TRICHLOROETHANE		/	/		/
23.	71-43-2	2	BENZENE		/	/		/
24.	10061-02-6	2	trans-1,3-DICHLOROPROPENE		/	/		/
25.	75-25-2	2	BROMOFORM		/	/		/
26.	108-10-1	3	4-METHYL-2-PENTANONE		/	/		/
27.	591-78-6	3	2-HEXANONE		/	/		/
28.	127-18-4	3	TETRACHLOROETHENE		/	/		/
29.	79-34-5	3	1,1,2,2-TETRACHLOROETHANE		/	/		/
30.	108-88-3	3	TOLUENE		/	/		/
31.	108-90-7	3	CHLOROBENZENE		/	/		/
32.	100-41-4	3	ETHYLBENZENE		/	/		/
33.	100-42-5	3	STYRENE		/	/		/
34.	1330-20-7	3	XYLENE (TOTAL)		/	/		/

CAS NO	NON-TARGET COMPOUND NAME	BL	IC	CC	MS	OU

BL = Blank Contamination
IC = Initial Calibration
CC = Continuing Calibration
IS = Internal Standard Area/RT
OU = Overall ~~Usability~~ Quality Level

MS = Mass Spectral Identification

Christian Reddy 7/2

auditor's signature/date

ORGANIC DATA ~~USABILITY TABLES~~
VOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION _____ SITE CODE _____

DATA AUDITOR: GARY L. ROBERTSON

	CAS NO	IS#	TARGET COMPOUND NAME	DATA ~~USABILITY~~ QUALITY LEVEL BL	IC	CC	IS	OU
1.	74-87-3	1	CHLOROMETHANE		1	2	1	2
2.	74-83-9	1	BROMOMETHANE		2	2		2
3.	75-01-4	1	VINYL CHLORIDE		2	2		2
4.	75-00-3	1	CHLOROETHANE		1	2		2
5.	75-09-2	1	METHYLENE CHLORIDE 6	3		1		3
6.	67-64-1	1	ACETONE					1
7.	75-15-0	1	CARBON DISULFIDE					
8.	75-35-4	1	1,1-DICHLOROETHENE					
9.	75-34-3	1	1,1-DICHLOROETHANE					
10.	540-59-0	1	1,2-DICHLOROETHENE (TOTAL)					
11.	67-66-3	1	CHLOROFORM					
12.	107-06-2	1	1,2-DICHLOROETHANE					
13.	78-93-3	2	2-BUTANONE 11	3	3	3		3
14.	71-55-6	2	1,1,1-TRICHLOROETHANE					
15.	56-23-5	2	CARBON TETRACHLORIDE					
16.	108-05-4	2	VINYL ACETATE					
17.	75-27-4	2	BROMODICHLOROMETHANE					
18.	78-87-5	2	1,2-DICHLOROPROPANE					
19.	10061-01-5	2	cis-1,3-DICHLOROPROPENE					
20.	79-01-6	2	TRICHLOROETHENE					
21.	124-48-1	2	DIBROMOCHLOROMETHANE					
22.	79-00-5	2	1,1,2-TRICHLOROETHANE					
23.	71-43-2	2	BENZENE					
24.	10061-02-6	2	trans-1,3-DICHLOROPROPENE					
25.	75-25-2	2	BROMOFORM					
26.	108-10-1	3	4-METHYL-2-PENTANONE					
27.	591-78-6	3	2-HEXANONE					
28.	127-18-4	3	TETRACHLOROETHENE					
29.	79-34-5	3	1,1,2,2-TETRACHLOROETHANE					
30.	108-88-3	3	TOLUENE					
31.	108-90-7	3	CHLOROBENZENE					
32.	100-41-4	3	ETHYLBENZENE					
33.	100-42-5	3	STYRENE					
34.	1330-20-7	3	XYLENE (TOTAL)					

CAS NO		NON-TARGET COMPOUND NAME	BL	IC	CC	MS	OU

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IS = Internal Standard Area/RT
OU = Overall Usability Level

MS = Mass Spectral Identification

D.L. Robertson 7/20/15
Auditor's Signature/Date

ORGANIC DATA ~~USABILITY TABLES~~
VOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATIO

SITE CODE [illegible]

DATA AUDITOR: GARY L. ROBERTSON

	CAS NO	IS#	TARGET COMPOUND NAME	BL	IC	CC	IS	OU
				DATA ~~USABILITY~~ QUALITY LEVEL				
1.	74-87-3	1	CHLOROMETHANE	1	1	2	1	2
2.	74-83-9	1	BROMOMETHANE	1	2	2	1	2
3.	75-01-4	1	VINYL CHLORIDE	1	2	2	1	2
4.	75-00-3	1	CHLOROETHANE	1	1	2	1	2
5.	75-09-2	1	METHYLENE CHLORIDE	3	1	1	1	3
6.	67-64-1	1	ACETONE	1	1	1	1	1
7.	75-15-0	1	CARBON DISULFIDE	1	1	1	1	1
8.	75-35-4	1	1,1-DICHLOROETHENE	1	1	1	1	1
9.	75-34-3	1	1,1-DICHLOROETHANE	1	1	1	1	1
10.	540-59-0	1	1,2-DICHLOROETHENE (TOTAL)	1	1	1	1	1
11.	67-66-3	1	CHLOROFORM	1	1	1	1	1
12.	107-06-2	1	1,2-DICHLOROETHANE	1	1	1	1	1
13.	78-93-3	2	2-BUTANONE	3	3	3	1	3
14.	71-55-6	2	1,1,1-TRICHLOROETHANE	1	1	1	1	1
15.	56-23-5	2	CARBON TETRACHLORIDE	1	1	1	1	1
16.	108-05-4	2	VINYL ACETATE	1	1	1	1	1
17.	75-27-4	2	BROMODICHLOROMETHANE	1	1	1	1	1
18.	78-87-5	2	1,2-DICHLOROPROPANE	1	1	1	1	1
19.	10061-01-5	2	cis-1,3-DICHLOROPROPENE	1	1	1	1	1
20.	79-01-6	2	TRICHLOROETHENE	1	1	1	1	1
21.	124-48-1	2	DIBROMOCHLOROMETHANE	1	1	1	1	1
22.	79-00-5	2	1,1,2-TRICHLOROETHANE	1	1	1	1	1
23.	71-43-2	2	BENZENE	1	1	1	1	1
24.	10061-02-6	2	trans-1,3-DICHLOROPROPENE	1	1	1	1	1
25.	75-25-2	2	BROMOFORM	1	1	1	1	1
26.	108-10-1	3	4-METHYL-2-PENTANONE	1	1	1	1	1
27.	591-78-6	3	2-HEXANONE	1	1	1	1	1
28.	127-18-4	3	TETRACHLOROETHENE	1	1	1	1	1
29.	79-34-5	3	1,1,2,2-TETRACHLOROETHANE	1	1	1	1	1
30.	108-88-3	3	TOLUENE	1	1	1	1	1
31.	108-90-7	3	CHLOROBENZENE	1	1	1	1	1
32.	100-41-4	3	ETHYLBENZENE	1	1	1	1	1
33.	100-42-5	3	STYRENE	1	1	1	1	1
34.	1330-20-7	3	XYLENE (TOTAL)	1	1	1	1	1

CAS NO	NON-TARGET COMPOUND NAME	BL	IC	CC	MS	OU

BL = Blank Contamination
IC = Initial Calibration
CC = Continuing Calibration
IS = Internal Standard Area/RT
OU = Overall Usability Level

MS = Mass Spectral Identification

G. L. Robertson 7/20/94
auditor's signature/date

ORGANIC DATA ~~USABILITY TASK~~
VOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION SITE CODE ___ 1.

DATA AUDITOR: GARY L. ROBERTSON

	CAS NO	IS#	TARGET COMPOUND NAME	DATA ~~USABILITY~~ QUALITY LEVEL BL	IC	CC	IS	OU
1.	74-87-3	1	CHLOROMETHANE	1	1	2	1	2
2.	74-83-9	1	BROMOMETHANE		2	2		2
3.	75-01-4	1	VINYL CHLORIDE		2	2		2
4.	75-00-3	1	CHLOROETHANE		1	2		2
5.	75-09-2	1	METHYLENE CHLORIDE	3		1		3
6.	67-64-1	1	ACETONE	1				1
7.	75-15-0	1	CARBON DISULFIDE					
8.	75-35-4	1	1,1-DICHLOROETHENE					
9.	75-34-3	1	1,1-DICHLOROETHANE					
10.	540-59-0	1	1,2-DICHLOROETHENE (TOTAL)					
11.	67-66-3	1	CHLOROFORM					
12.	107-06-2	1	1,2-DICHLOROETHANE					
13.	78-93-3	2	2-BUTANONE	3	3	3		3
14.	71-55-6	2	1,1,1-TRICHLOROETHANE	1	1	1		1
15.	56-23-5	2	CARBON TETRACHLORIDE					
16.	108-05-4	2	VINYL ACETATE					
17.	75-27-4	2	BROMODICHLOROMETHANE					
18.	78-87-5	2	1,2-DICHLOROPROPANE					
19.	10061-01-5	2	cis-1,3-DICHLOROPROPENE					
20.	79-01-6	2	TRICHLOROETHENE					
21.	124-48-1	2	DIBROMOCHLOROMETHANE					
22.	79-00-5	2	1,1,2-TRICHLOROETHANE					
23.	71-43-2	2	BENZENE					
24.	10061-02-6	2	trans-1,3-DICHLOROPROPENE					
25.	75-25-2	2	BROMOFORM					
26.	108-10-1	3	4-METHYL-2-PENTANONE					
27.	591-78-6	3	2-HEXANONE					
28.	127-18-4	3	TETRACHLOROETHENE					
29.	79-34-5	3	1,1,2,2-TETRACHLOROETHANE					
30.	108-88-3	3	TOLUENE					
31.	108-90-7	3	CHLOROBENZENE					
32.	100-41-4	3	ETHYLBENZENE					
33.	100-42-5	3	STYRENE					
34.	1330-20-7	3	XYLENE (TOTAL)					

CAS NO	NON-TARGET COMPOUND NAME	BL	IC	CC	MS	OU

BL = Blank Contamination
IC = Initial Calibration
CC = Continuing Calibration
IS = Internal Standard Area/RT
OU = Overall ~~Usability Level~~ Quality

MS = Mass Spectral Identification

D. L. Robertson 7/1/01
Auditor's signature/date

ATTACHMENT D

GUIDELINES

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Title: GUIDELINES FOR EVALUATING USABILITY

The following are guidelines for evaluating usability of volatile and semivolatile organic data:

1. For volatile organic analysis data, both the blanks and the samples can contain common laboratory contaminants such as methylene chloride, acetone, and 2-butanone. These common laboratory contaminants are not considered "hits" under the following criteria:

   a. if their concentrations are less than 10X the concentration of the method blank (which will be noted just to the left of the "BL" column), or less than 10X the concentration in the associated trip blank; or

   b. if these contaminants are not in the method or trip blanks and their concentration is less than 10X the CRQL. Even if the quality level = 1, these contaminants must be at least 10X the contract required quantitation limit (CRQL) before the values are considered actual "hits".

   The CRQL levels for these contaminants in both water and soil matrices are:

methylene chloride	5 ppb
acetone	10 ppb
2-butanone	10 ppb

2. In general, for those data where the quality level is 3, hits above the CRQL can be considered real. However, it must be noted that this type of data is qualitative but not quanitative. For example, a hit at 10 ppb toluene with quality level 3 could actually have a toluene concentration of 1 to 25 ppb.

3. All tenatively identified compounds (TIC) data should be evaluated relative to compounds known to be used at the DOE sites. Mass spectra libraries may be limited and not contain the spectrum of analytes characteristic at the DOE sites. All TIC data will be reported to the Survey Team regardless of the data quality level. For this evaluation, all TIC-unknown data are classified Q3 based on the limitations of the mass spectrum interpretation.

4. Examples of increased probability of false negatives are:

   - 2 or more surrogates are out-of-limits for volatiles
   - internal standard is out-of-limits or has a low percent recovery (%R)
   - holding times exceeded

5. Examples of increased probability of false positive are:

   - no method blank was run with the SDG
   - no trip blank was run with the VOA SDG
   - holding times exceeded along with no trip blank analysis for the VOA SDGs

6. When quality level 3 data is accepted for usability, a footnote which explains why the data is accepted should be noted and included in the summary table (Appendix E).

7. Analyte values which are below the CRQL are reported, but will not be classified as Q1 data. These data will generally be classified as Q3 data because they are semi-quantitative.

8. Semivolatile analysis data for both blanks and the samples can contain common laboratory contaminants such as bis(2-ethylhexyl) phthalate, diethylphthalate, and di-n-octylphthalate. These common laboratory contaminants are not considered "hits" under the following criteria:

   a. if their concentrations are less than 10X the concentration of the method blank or 10X the CRQL, and/or

   b. if the quality level = 1, these contaminants must be at least 10X the CRQL before the values are considered actual "hits".

   The CRQL level for these contaminants are:

Organic compound	Water matrix	Soil matrix
bis(2-ethylhexyl) phthalate	10 ppb	330 ppb
di-n-octyl phthalate	10 ppb	330 ppb
diethylphthalate	10 ppb	330 ppb

ATTACHMENT E

SUMMARY TABLE

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ATTACHMENT E

ENV PROBLEM # - 3 SAMPLES (No analysis data available)

ENV PROBLEM # - 9 SAMPLES

o	Toluene	21ppb	Q3 (IS)(SU) No Trip Blank
	TIC-Trifluorochloromethane	8ppb	Q3 (MS)(SU) No Trip Blank
	TIC-Unknown	11ppb	Q3 (MS)(SU) No Trip Blank
o	No analysis data		

NOTE: 2 of the 8 samples, analyzed have no hits but the overall quality level is QL-3; hence the potential for false negatives exists.

ENV PROBLEM # - 3 SAMPLES

o	Toluene	7ppb	Q2
o	Toluene	64ppb	Q2
o	Toluene	7ppb	Q2

NOTE: No toluene in trip blank.

ENV PROBLEM # - 9 SAMPLES

o	Chloroform	6ppb	Q2
o	TIC-Methane(bis)thio	226ppb	Q2
o	Toluene	101ppb	Q2
o	Toluene	9ppb	Q2

NOTE: Trip blank and samples contained the normal laboratory contaminants, methylene chloride, acetone, and 2-butanone. Neither chloroform nor toluene was detected in the trip blank.

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Oak Ridge National Laboratory
Analytical Chemistry Division

ANALYSIS QUALITY LEVEL EVALUATION

	Method:
	SDG No.:
SITE NAME:	Date(s) Received:
	Date(s) prepared:
QC Request:	Date(s) analyzed:

Completed	Description	Page 1 of

DOCUMENTATION COMPLETENESS

Case Narrative Review

Preparer: _____

Reviewer: _____

Method Description _____

Reporting Forms Review

Preparer: _____

Reviewer: _____

Analyst Worksheets/Notebook Review _____

ANALYSIS QUALITY

Representativeness

Samples Preserved and Stored Properly _____

Appropriate Percentages of Holding Times Met (as listed in Table 1) _____

_____ Actual % Compliance _____ Deviation From Holding Times Requirements

AQLE1 Rev. 2 11/02/88

Oak Ridge National Laboratory
Analytical Chemistry Division

ANALYSIS QUALITY LEVEL EVALUATION

Method:

SDG No.:

SITE NAME:

Completed	Description
	ANALYSIS QUALITY (continued)
	Comparability
_____	Participation in EPA quarterly Performance Evaluation _____
	Precision
_____	80% of duplicate results for aqueous samples in compliance with requirements _____
	_____ Actual % Compliance _____ Deviation from 80% Compliance
_____	70% of duplicate results for soil samples in compliance with requirements _____
	_____ Actual % Compliance _____ Deviation from 70% Compliance
_____	Other matrix: _____
	70% of precision control limits met _____
	_____ Actual % Compliance _____ Deviation From 70% Compliance
	COMMENTS _____

Oak Ridge National Laboratory
Analytical Chemistry Division

ANALYSIS QUALITY LEVEL EVALUATION

Method:

SDG No.:

SITE NAME:

Completed	Description
	ANALYSIS QUALITY (continued)
	Accuracy
_____	95% of preparation blank results in compliance with requirements _____ Actual % Compliance _____ Deviation From 95% Compliance
_____	80% of laboratory control samples in compliance with requirements _____ Actual % Compliance _____ Deviation From 80% Compliance
_____	Appropriate percentage (see Table 2) of calibration verification data in compliance with requirements _____ Actual % Compliance _____ Deviation from Required Compliance
_____	90% of ICP interference check standards in compliance with requirements _____ Actual % Compliance _____ Deviation From 90% Compliance
_____	80% of spike and serial dilution results for aqueous samples in compliance with requirements _____ Actual % Compliance _____ Deviation From 80% Compliance
_____	70% of spike and serial dilution results for soil samples in compliance with requirements _____ Actual % Compliance _____ Deviation from 70% Compliance

****

Average Deviation from Compliance _____

*** ANALYSIS QUALITY LEVEL _____ (1, 2, 3)

EXCEPTIONS:

Analyte	Quality Level
_____	_____
_____	_____
_____	_____

AQLE3 Rev. 2 11/02/88

TABLES

Table 1. Criteria for Holding Times

Method	% Criteria
CVAA	90
ICP, GFAA, Total U	98
Anions	50
Cyanide	75
Other analytes	90

Table 2. % Criteria for Continuing Calibration Verification Data

Method	% Criteria
ICP, GFAA, CVAA	90
Rads	75
Inorganic Exotics	75
Anions	90
Other	90

Table 3. Summary of Levels

Level 1: Percent Criteria for Compliance met

Level 2: $\leq$ 20% deviation from above conditions

Level 3: > 20% deviation from above conditions

Comments

DATA QUALITY EVALUATION
PRELIMINARY OPERATING PROCEDURE
ICP (INCLUDING K)

DATE IN USE: 10-1-88
SITE(S) : LL/SN/ANL/BNL/INEL
PREPARER : Katherine Whaley

REFERENCES: 1) EPA Document: Standard Operating Procedure For Contract Compliance Screening (CCS) of Routine Analytical Services Of Inorganics Data Under SOW No. 787
2) EPA Document: Data Quality Objectives For Remedial Response Activities - Development Process
3) EPA Document: Laboratory Data Validation - Functional Guidelines For Evaluating Inorganic Analyses

PROCEDURE SUMMARY: Designed to allow determination of utility or quality levels for DOE Site Survey ICP and potassium analyses, the format for this procedure also provides a summary of all problem areas. The review occurs at the analyte level and results in an overall quality for each sample with provisions for individual analyte exceptions. The central document is the series of comments (see attachment A) which serve both to summarize specific nonconformances (as defined in CLP protocol) and to define data quality levels associated with these nonconformances. While an overall sample quality level is the final product, all analyte review results and comments appear on one sample specific form (see attachment B). Therefore no step in the process is lost. Overall levels can be reevaluated as needed.

Attachment C is an example of a completed data quality evaluation form (older version of form). The ICP-QA information requested (see attachment B top) can be used to indicate SDG number. Current ORNL inorganics practice is to provide separate electronic and hard copy files for each day's quality control results to the site data management group. The level assigned for arsenic spike results is level 2, comment 27(see attachment A) with potential detection limit elevation of 40%. Calibration blank results are evaluated together under the "CCB" column. The level assigned for aluminum preparation blanks is level 1, comment 6. If a category is left blank it is assumed that the level is 1 without comments. Quality table identification numbers are assigned for each table and current ORNL ICP practice is to store quality levels,exceptions, sample numbers, environmental problem numbers, and data quality table numbers on disk.

Potassium should be included in this procedure if determined by ICP or AA under CLP protocols. If flame emission is used, the data quality level must determined while keeping in mind that flame emission is not a CLP method.

K. Whaley
12-6-88

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Attachment A

COMMENT CODES

CODE	COMMENT
1	The calibration verification falls outside the control windows but within the ranges of 50-89% . Sample results are considered as estimated but usable. Reported results could be negatively biased by % amount indicated by " - X " appearing after code descriptor in " ( ) ". LEVEL 2
2	The calibration verification falls outside the control windows but within the ranges of 111-150% . The sample results are considered as estimated but usable. Reported results could be positively biased by % amount indicated by " + X " appearing after code descriptor in " ( ) ". LEVEL 2
3	The calibration verification result is greater than 110%, but the element was not detected in the sample. The usability of the analytical sample determination is acceptable . LEVEL 1
4	The calibration verification result is less than 90% and the element was not detected in the sample. The detection limit may be elevated by % amount indicated by " + X " appearing after code descriptor in " ( ) ". The data is considered marginally usable. LEVEL 3
5	The calibration verification result falls less than 50% or greater than 150% . This is indicative of a severe analytical deficiency. The data is rejected as unusable. LEVEL 3
5A	The calibration verification result for the secondary channel out of control. Only primary channel results reported. Primary channel was in compliance. Data not affected. LEVEL 1
6	Positive value observed in the preparation blank which is less than the CRDL. This is acceptable according to CLP protocol. LEVEL 1
7	Positive value observed in the calibration blank which is less than the CRDL, but greater than 2X the IDL. The sample result was less than 5X the blank result. The possibility of a false positive exists. The data is considered marginally usable. LEVEL 3
8	Positive value observed in the blank which is greater than the CRDL. The sample result was less than 10X the blank result. It as not possible to verify whether the level of analyte detected in the sample was due to contamination. The data is rejected as unusable. LEVEL 3
8A	Positive value observed in the blank which is greater than the CRDL. The element however was not detected in the sample. The data is acceptable. LEVEL 1
9	Positive value observed in the blank which is greater than the CRDL. The sample result was > than 10X the blank result. The data is acceptable according to the CLP protocol. LEVEL 1

K. Whaley
10-24-88

COMMENT CODES

CODE	COMMENT
10	% Recovery value for interference check standard is outside the control windows. The AL, CA, FE, and MG concentrations in the sample are less than 60% of their values in the ICS standard. No other potentially interfering elements are present in concentrations exceeding 10 ppm. The data is judged to be acceptable. LEVEL 1
11	% Recovery value for interference check standard is > 120% and the sample contains any of the following in concentrations at the levels of the ICS standard: AL,CA,FE,MG . The sample result is < IDL. The data is judged to be acceptable. LEVEL 1
12	% Recovery value for interference check standard is > 120% and the sample contains any of the following in concentrations at the levels of the ICS standard: AL,CA,FE,MG . The sample result is > IDL. The sample result is considered estimated but acceptable. Reported results could be positively biased by % amount indicated by " + X " appearing after code descriptor in " ( ) ". LEVEL 2
13	% Recovery value for interference check standard falls between 30 and 79 % and the sample contains any of the following in concentrations at the level of the ICS standard: AL,CA,FE,MG. Positive sample results were reported. The sample results are considered as estimated but acceptable. Reported results could be negatively biased by % amount indicated by " - X ". appearing after code descriptor in " ( ) ". LEVEL 2
14	% Recovery value for interference check standard falls between 30 and 79% and the sample contains any of the following in concentrations at the level of the ICS standard: AL,CA,FE,MG. The element was not detected in the sample. The possibility for false negatives exists. The detection limit may be elevated by % amount indicated by " - X " appearing after code descriptor in " ( ) ". LEVEL 2
15	The % recovery value for the laboratory control standard falls within the range of 30-79% and a positive sample result was reported. The data is considered estimated but acceptable. Reported result could be negatively biased by % amount indicated by " - X " appearing after code descriptor in " ( ) ". LEVEL 2
16	The % recovery value for the laboratory control standard is greater than 120% and a positive sample result was reported. The data is considered as estimated but acceptable. Reported result could be positively biased by % amount indicated by " + X " appearing after code descriptor in " ( ) ". LEVEL 2
17	The % recovery value for the laboratory control standard falls within the range of 30-79% and the element was not detected in the sample. The possibility for false negatives exits. The data is considered as estimated but acceptable. The actual detection limit could be elevated by % amount indicated by " + X " appearing after code descriptor in " ( ) ". LEVEL 2

K. Whaley
10-24-88

COMMENT CODES

CODE	COMMENT
18	The % recovery value for the laboratory control standard is > 120% and the element was not detected in the sample. The data is considered acceptable LEVEL 1
18A	The % recovery value for the laboratory control standard is < 30% and the element was not detected in the sample. The detection limit may be greatly elevated or the element not recovered in this sample. The data is rejected as unusable. LEVEL 3
18B	The % recovery value for the laboratory control standard is < 30% and a positive sample result was reported. The data is considered as confirmation of the qualitative presence of the analyte only. LEVEL 3

General comments regarding duplicate analysis review: Actions taken as a result of duplicate sample analysis must be weighed carefully since it may be difficult to determine if poor precision is a result of sample non-homogeneity, method defects or laboratory technique. The non-homogeneous nature of soil samples often makes it more difficult to achieve good duplicate results compared to aqueous samples. However, aqueous samples containing high levels of solids can produce erratic duplicate results as well. In general, the results of duplicate sample analysis should be used to support conclusions drawn about the quality of the data rather than as a basis for these conclusions.

19	RPD value for duplicate analysis out of control. This sample in the SDG was not the sample prepared in duplicate and it appears evident that its matrix is of a different chemical and physical nature than the sample chosen for duplication. The data is judged to be acceptable. LEVEL 2
20	RPD value for duplicate analysis > 50% . The data is considered as confirmation of the qualitative presence of the analyte only. LEVEL 3
21	RPD value for duplicate analysis > 20%, but < 50% . The data is considered as estimated but acceptable. LEVEL 2
22	Control limits for concentration of duplicate < 5X CRDL exceeded. The data is considered as estimated but acceptable. LEVEL 2
23	% Recovery for spike outside control limits, but the sample result exceeds the spike result by a factor of 4 or greater. The results are not flagged, as the percent recovery results can not be considered accurate in this case. This is acceptable under the CLP protocol. LEVEL 1
23A	% Recovery for spike outside control limits, but the sample result is close to 4X the spiking level. The accuracy of the % R result is questionable. The result has been flagged but considered acceptable and usable. LEVEL 2

K. Whaley
10-24-88

COMMENT CODES

CODE	COMMENT
24	% Recovery for spike outside control limits. This sample in the SDG was not the sample spiked during preparation and it appears evident that its matrix is of a different chemical and physical nature than the sample chosen for spiking. The data is judged to be acceptable. LEVEL 2
25	% Recovery for spike is > 125% and the reported sample result is less than the IDL. The data is acceptable. LEVEL 1
26	% Recovery for spike is > 125% and the reported sample result is positive. The results are considered as estimated but acceptable. Reported results could be positively biased by % amount indicated by " + X " appearing after code descriptor in " ( ) ". LEVEL 2
27	% Recovery for spike falls within the range of 30-74% and the reported sample result is less than the IDL. The posibility for false negatives exists. The actual detection limit may be elevated by the % amount indicated by " + X " appearing after code descriptor in " ( ) ". The data is considered as estimated but acceptable. LEVEL 2
28	% Recovery for spike falls within the range of 30-74% and the reported sample result is positive. The posibility for false negatives exits. The data is considered as estimated but acceptable. The reported result could be considered to be negatively biased by % amount indicated by " - X " appearing after code descriptor in " ( ) ". LEVEL 2
29	% Recovery for spike < 30% and the reported sample result is positive. The data may be biased significantly low and should be considered as as qualitative analyte presence only. LEVEL 3
30	% Recovery for spike < 30% and the reported sample result is less than the IDL. This is indicative of severe analytical deficiencies. The detection limit may be substantially elevated. The data is rejected as as unusable. LEVEL 3
30A	% Recovery for spike < 30% due to choice of spiking level within a factor of 2 of the IDL. Nothing can be said about the accuracy of sample digestion. The data is marginally acceptable. LEVEL 3

General comments regarding review of serial dilution results: This analysis is required so that the reviewer can ascertain whether significant physical or chemical interferences exist due to sample matrix.

31	10% criteria for serial dilution result not met. A matrix interference is suspected. The data is considered as estimated but usable. LEVEL 2

** Indicates that additional comments appear on individual quality level table form (sample specific — see summary sheet for each site to find quality table number for particular sample).

H. Whaley
10-24-88

Attachment B

ICP-QA:_____ DOE SITE SURVEY - DATA VALIDATION QUALITY TABLE:_____

ICP

SITE: _____ REVIEWER: _____

DOE SAMPLE NO: _____ DATE: _____

LABORATORY SAMPLE NO: _____ SAMPLE VALIDATION QUALITY LEVEL:_____

SDG NO: _____ EXCEPTIONS: see below

MATRIX: _____

DATA QUALITY LEVEL

LEVEL	ELEMENT	ICV	CCV	CCB	PB	ICS	LCS	DUP	SPK	SD
	ALUMINUM									
	ANTIMONY									
	ARSENIC									
	BARIUM									
	BERYLLIUM									
	CADMIUM									
	CALCIUM									
	CHROMIUM									
	COBALT									
	COPPER									
	IRON									
	LEAD									
	MAGNESIUM									
	MANGANESE									
	NICKEL									
	SELENIUM									
	SILVER									
	SODIUM									
	VANADIUM									
	ZINC									

COMMENT CODES APPEAR IN ( ) AFTER EACH CATAGORY

ONLY DEVIATIONS FROM LEVEL 1 AND QUALIFIED LEVEL 1 WILL BE NOTED ON FORM

ICV/CCV: Initial and cont. calib. verification ICS: Interference chk std

LCS: Laboratory control std CCB/PB: Calib. and preparation blanks

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CPA 63005 Attachment C

Quality Table : ~~A2D~~ MID (K.W.)

If catagory left ~~blank, assume~~ Level 1

DOE SITE SURVEY - INORGANIC
ICP

SITE: LL
DOE SAMPLE NO: LL011010C
LABORATORY SAMPLE NO: 370814-104
SDG NO: LL011010C
MATRIX: S

REVIEWER: Katherine Whaley
DATE: 10-18-88

Overall Quality Level (sample): 1
Mn: 2, Se: 2, Ni: 2

DATA QUALITY LEVEL

Overall Level	ELEMENT	ICV	CCV	CCB	PB	ICS	LCS	DUP	SPK	SD
	ALUMINUM				1(6)			2(21)		
	ANTIMONY									
	ARSENIC								2(27) + 40	
	BARIUM				1(6)					
	BERYLLIUM									
	CADMIUM									
	CALCIUM							2(21)		
	CHROMIUM									2(31)
	COBALT									
	COPPER									
	IRON				1(6)			2(21)		
	LEAD									
	MAGNESIUM				1(6)					
2	MANGANESE							3(20)		
2	NICKEL							2(22)	2(28) - 30	
	~~POTASSIUM~~ K.W.									
2	SELENIUM								3(30)	
	SILVER									
	SODIUM									
	VANADIUM									
	ZINC									

COMMENT CODES APPEAR IN ( ) AFTER EACH CATAGORY

ICV: Initial calibration verification
CCV: Continuing calibration verification
CCB: Continuing calibration blank (includes initial results)
PB: Preparation blank
ICS: Interference Chk Std.
LCS: Laboratory Control Std.

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ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439

April 6, 1989

Mr. Robert Fitts
Program Manager
Oak Ridge Environmental Survey
Program
Environmental Sciences Division
Oak Ridge National Laboratory
P.O. Box 2008
Oak Ridge, TN 37831

Dear Bob,

Per Renee Tucker's letter of March 6, 1989, I am sending you a copy of the SOP that I have been using to determine the Oak Ridge organic data usability.

I trust this is what you need.

Sincerely,

Peter C. Lindahl
Analytical Chemistry Laboratory
Chemical Technology Division

PCL:amb

Enclosure NOTE: The enclosure for this letter was DRT-SOP-002 Rev 3 with attachments (see pages D-iii through D-lxii).

cc: w/o Encl.
D. Green
F. Martino
M. Steindler (2)
P. Nelson
R. Tucker (ORNL)

w/Encl.
DES File

U.S. Department of Energy The University of Chicago

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TABLE D.1.1 DIRECTORY FOR METALS, INCLUDING CR+6 QA/QC DATA

PROBLEM NUMBER	SAMPLE NUMBER	QA/QC ANALYTICAL SDG NUMBER	QA/QC TABLE NUMBER(PG)
1	ME300017B	ME300017B	D.1.2 (D-3)
1	ME300017C	ME300017C	D.1.3 (D-7)
1	ME300028B	ME300017B	D.1.2 (D-3)
1	ME300028C	ME300017C	D.1.3 (D-8)
1	ME300039B	ME300017B	D.1.2 (D-3)
1	ME300039C	ME300017C	D.1.3 (D-8)
1	ME301018B	ME301018B	D.1.4 (D-12)
1	ME301018C	ME301018C	D.1.5 (D-14)
1	ME301029B	ME301018B	D.1.4 (D-12)
1	ME301029C	ME301018C	D.1.5 (D-14)
1	ME301030B	ME301018B	D.1.4 (D-12)
1	ME301030C	ME301018C	D.1.5 (D-14)
1	ME301041B	ME301018B	D.1.4 (D-12)
1	ME301041C	ME301018C	D.1.5 (D-14)
1	ME301052B	ME301018B	D.1.4 (D-12)
1	ME301052C	ME301018C	D.1.5 (D-14)
1	ME301063B	ME301018B	D.1.4 (D-13)
1	ME301063C	ME301018C	D.1.5 (D-14)
1	ME301074B	ME301018B	D.1.4 (D-13)
1	ME301074C	ME301018C	D.1.5 (D-14)
1	ME301085B	ME301018B	D.1.4 (D-13)
1	ME301085C	ME301018C	D.1.5 (D-14)
1	ME301096B	ME301018B	D.1.4 (D-13)
1	ME301096C	ME301018C	D.1.5 (D-15)
1	ME302019D	ME302019D	D.1.6 (D-16)
1	ME302019E	ME302019E	D.1.7 (D-22)
1	ME302020D	ME302020D	D.1.8 (D-26)
1	ME302020E	ME302020E	D.1.9 (D-30)
1	ME302031D	ME302020D	D.1.8 (D-27)
1	ME302031E	ME302020E	D.1.9 (D-31)
1	ME302100D	ME302020D	D.1.8 (D-27)
1	ME302100E	ME302020E	D.1.9 (D-31)
1	ME303010A	ME302019D	D.1.6 (D-17)
1	ME303010B	ME302019E	D.1.7 (D-23)
1	ME303021A	ME302020D	D.1.8 (D-26)
1	ME303021B	ME302020E	D.1.9 (D-30)
1	ME303032A	ME302020D	D.1.8 (D-26)
1	ME303032B	ME302020E	D.1.9 (D-30)
1	ME303043A	ME302020D	D.1.8 (D-26)
1	ME303043B	ME302020E	D.1.9 (D-30)
1	ME304011A	ME302020D	D.1.8 (D-27)
1	ME304011B	ME302020E	D.1.9 (D-30)
1	ME304022A	ME302020D	D.1.8 (D-27)
1	ME304022B	ME302020E	D.1.9 (D-30)
1	ME304033A	ME302020D	D.1.8 (D-27)
1	ME304033B	ME302020E	D.1.9 (D-32)
1	ME305012A	ME302019D	D.1.6 (D-17)
1	ME305012B	ME302019E	D.1.7 (D-23)
1	ME305023A	ME302019D	D.1.6 (D-17)
1	ME305023B	ME302019E	D.1.7 (D-23)
1	ME305034A	ME302020D	D.1.8 (D-28)

TABLE D.1.1 DIRECTORY FOR METALS, INCLUDING CR+6 QA/QC DATA

PROBLEM NUMBER	SAMPLE NUMBER	QA/QC ANALYTICAL SDG NUMBER	QA/QC TABLE NUMBER(PG)
1	ME305034B	ME302020E	D.1.9 (D-32)
1	ME306013B	ME300017B	D.1.2 (D-3)
1	ME306013C	ME300017C	D.1.3 (D-9)
1	ME306024B	ME300017B	D.1.2 (D-4)
1	ME306024C	ME300017C	D.1.3 (D-9)
1	ME306035B	ME300017B	D.1.2 (D-3)
1	ME306035C	ME300017C	D.1.3 (D-9)
1	ME306046B	ME302019D	D.1.6 (D-16)
1	ME306046C	ME302019E	D.1.7 (D-21)
1	ME306046D	ME302019D	D.1.6 (D-16)
1	ME307014A	ME302019D	D.1.6 (D-16)
1	ME307014B	ME302019E	D.1.7 (D-22)
1	ME307025A	ME302019D	D.1.6 (D-17)
1	ME307025B	ME302019E	D.1.7 (D-23)
1	ME307036A	ME302019D	D.1.6 (D-17)
1	ME307036B	ME302019E	D.1.7 (D-23)
1	ME308015A	ME300017B	D.1.2 (D-4)
1	ME308015B	ME300017C	D.1.3 (D-9)
2	ME309016D	ME302019D	D.1.6 (D-16)
2	ME309016E	ME302019E	D.1.7 (D-22)
2	ME309027D	ME302019D	D.1.6 (D-18)
2	ME309027E	ME302019E	D.1.7 (D-23)
2	ME309038D	ME302020D	D.1.8 (D-27)
2	ME309038E	ME302020E	D.1.9 (D-31)
2	ME310019D	ME302019D	D.1.6 (D-16)
2	ME310019E	ME302019E	D.1.7 (D-22)
2	ME311010D	ME302019D	D.1.6 (D-16)
2	ME311010E	ME302019E	D.1.7 (D-22)
2	ME311021D	ME302019D	D.1.6 (D-18)
2	ME311021E	ME302019E	D.1.7 (D-23)
2	ME311032D	ME302019D	D.1.6 (D-18)
2	ME311032E	ME302019E	D.1.7 (D-24)
3	ME800012B	ME800012B	D.1.10 (D-35)
3	ME800023B	ME800012B	D.1.10 (D-35)
3	ME800034B	ME800012B	D.1.10 (D-35)
3	ME800045B	ME800012B	D.1.10 (D-35)
3	ME800056B	ME800012B	D.1.10 (D-35)
3	ME800067B	ME800012B	D.1.10 (D-35)
3	ME800078B	ME302019E	D.1.7 (D-24)
3	ME801013B	ME800012B	D.1.10 (D-36)
3	ME801024B	ME800012B	D.1.10 (D-36)
3	ME801035B	ME800012B	D.1.10 (D-36)
3	ME801046B	ME800012B	D.1.10 (D-36)
3	ME801057B	ME800012B	D.1.10 (D-36)
3	ME801068B	ME800012B	D.1.10 (D-37)
3	ME801079B	ME800012B	D.1.10 (D-37)
3	ME801080B	ME800012B	D.1.10 (D-37)
3	ME801091B	ME800012B	D.1.10 (D-37)
3	ME801104B	ME800012B	D.1.10 (D-37)
3	ME801115B	ME800012B	D.1.10 (D-38)
3	ME801126B	ME800012B	D.1.10 (D-39)

TABLE D.1.2 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME300017B

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		INITIAL CAL	INITIAL CAL	INITIAL CAL	PREP	CONTINUING	CONTINUING	CONTINUING
TYPE OF LOCATION		TRUE A	FOUND A	BLANK 1	BLANK	CAL TRUE	CAL FOUND	CAL BLANK
SAMPLE NUMBER		ME2AA1001	ME2AA2001	ME03A0001	ME03A0001	ME2AA3001	ME2AA4001	ME03A1001
MATRIX		WATER	WATER	SOIL	SOIL	WATER	WATER	SOIL
UNITS		UG/L	UG/L	MG/KG	MG/KG	UG/L	UG/L	MG/KG
ENV PROBLEM NO								
ARSENIC	F	49	48	1.1 U	0.7 B	50	51	1.1 U
CADMIUM	F	96	95	0.4 U	0.08 U	12	13	0.4 U
LEAD	F	98	106	1.6 U	0.32 U	25	26	1.6 U
MERCURY	CV	2.6	2.6	0.03 U	0.01 U	2.6	2.6	0.03 U
SELENIUM	F	98	94	1.4 U	0.28 U	25	24	1.4 U
SILVER	F	98	105	0.7 U	0.14 U	25	27	0.7 U
% SOLIDS								

AREA	METHOD	QA	QA				QA	QA
LOCATION		LAB CONTROL	LAB CONTROL	BURROUGHS	BURROUGHS	BURROUGHS	CONTINUING	CONTINUING
TYPE OF LOCATION		SAMPLE TRUE	SAMPLE	SEWER	SEWER	SEWER	CAL FOUND	CAL BLANK
SAMPLE NUMBER		ME0710001	ME0710001	ME300017B	ME300028B	ME300039B	ME2AA5001	ME03A2001
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	WATER	SOIL
UNITS		MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	UG/L	MG/KG
ENV PROBLEM NO				1	1	1		
ARSENIC	F	917	912	2.8 *	5.4 *	4.5 *	51	1.4 B
CADMIUM	F	45	38	0.47 BN	0.42 BN	0.17 BN	13	0.4 U
LEAD	F	236	228	47	29	15	27	1.6 U
MERCURY	CV	13	14	0.04 N	0.07 N	0.04 N	2.6	0.03 U
SELENIUM	F	39	31	0.26 UN	0.27 UN	0.26 UN	24	1.4 U
SILVER	F	22	16	0.48 BN	0.33 BN	0.26 BN	26	0.7 U
% SOLIDS				83	85.7	87		

AREA	METHOD	QA		QA	QA	QA	QA	
LOCATION		CONTINUING	BURROUGHS	DUPLICATE	DUPLICATE	MATRIX	MS %	BURROUGHS
TYPE OF LOCATION		CAL BLANK	SEWER		RPD	SPIKE	RECOVERY	SEWER
SAMPLE NUMBER		ME03A3001	ME306013B	ME306013B	ME306013B	ME306013B	ME306013B	ME306035B
MATRIX		SOIL	SOIL	SOIL		SOIL		SOIL
UNITS		MG/KG	MG/KG	MG/KG	%	MG/KG	%	MG/KG
ENV PROBLEM NO			1	1	1	1	1	1
ARSENIC	F	1.1 U	5 *	9.7 *	64	13	95	10 *
CADMIUM	F	0.43 B	0.43 BN	0.29 B	39	1 N	57	0.24 BN

TABLE D.1.2 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME300017B DRAFT DO NOT CITE

AREA	METHOD	QA		QA	QA	QA	QA	
LOCATION		CONTINUING	BURROUGHS	DUPLICATE	DUPLICATE	MATRIX	MS %	BURROUGHS
TYPE OF LOCATION		CAL BLANK	SEWER		RPD	SPIKE	RECOVERY	SEWER
SAMPLE NUMBER		ME03A3001	ME306013B	ME306013B	ME306013B	ME306013B	ME306013B	ME306035B
MATRIX		SOIL	SOIL	SOIL		SOIL		SOIL
UNITS		MG/KG	MG/KG	MG/KG	%	MG/KG	%	MG/KG
ENV PROBLEM NO			1	1	1	1	1	1
LEAD	F	1.6 U	23	27	17	29	165	17
MERCURY	CV		0.1 N	0.11	9.5		60	0.09 N
SELENIUM	F	1.4 U	0.37 BN	0.38 B	2.7	1.4 N	52	0.4 BN
SILVER	F	0.7 U	1.3 BN	1.6 B	21	4 N	67	0.26 BN
% SOLIDS			76.7	76.7				84.6

AREA	METHOD	QA	QA	QA	QA	QA		
LOCATION		MATRIX	MS %	CONTINUING	CONTINUING	CONTINUING	BURROUGHS	BURROUGHS
TYPE OF LOCATION		SPIKE	RECOVERY	CAL FOUND	CAL FOUND	CAL BLANK	SEWER	SEWER
SAMPLE NUMBER		ME306035B	ME306035B	ME2AB4001	ME2AB5001	ME03B4001	ME306024B	ME308015A
MATRIX		SOIL		WATER	WATER	SOIL	SOIL	SOIL
UNITS		MG/KG	%	UG/L	UG/L	MG/KG	MG/KG	MG/KG
ENV PROBLEM NO		1	1				1	1
ARSENIC	F			53	53	1.1 B	5.4 *	6.5 *
CADMIUM	F			14			0.46 BN	1.7 N
LEAD	F			27	27	1.6 U	26	44
MERCURY	CV	0.12 N	60				0.17 N	0.9 N
SELENIUM	F			24			0.38 BN	0.29 UN
SILVER	F			24	26	0.7 U	3 SN	23 SN
% SOLIDS							64	78

AREA	METHOD	QA	QA	QA	QA
LOCATION		CRDL STAND	CRDL STAND	CONTINUING	CONTINUING
TYPE OF LOCATION		TRUE	FINAL	CAL FOUND	CAL FOUND
SAMPLE NUMBER		ME2B10001	ME2B10001	ME2AC4001	ME2AC5001
MATRIX		WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO					
ARSENIC	F	10	11	53	52
CADMIUM	F	5	5.7		
LEAD	F	5	5.5	27	
MERCURY	CV				

TABLE D.1.2 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME300017B

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA
LOCATION		CRDL STAND	CRDL STAND	CONTINUING	CONTINUING
TYPE OF LOCATION		TRUE	FINAL	CAL FOUND	CAL FOUND
SAMPLE NUMBER		ME2B10001	ME2B10001	ME2AC4001	ME2AC5001
MATRIX		WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO					
SELENIUM	F	5	4.9		
SILVER	F	10	11	27	
% SOLIDS					

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TABLE D.1.3 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME300017C

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		INITIAL CAL	INITIAL CAL	INITIAL CAL	CRDL STAND	CRDL STAND	CONTINUING	CONTINUING
TYPE OF LOCATION		TRUE A	FOUND A	BLANK 1	TRUE	INITIAL	CAL TRUE	CAL FOUND
SAMPLE NUMBER		ME2AA1002	ME2AA2002	ME03A0002	ME2B10002	ME2B10002	ME2AA3002	ME2AA4002
MATRIX		WATER	WATER	SOIL	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	MG/KG	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO								
ALUMINUM	P	1970	2000	21 U			2000	1980
ANTIMONY	P	1090	1120	58 U			5000	5080
ARSENIC	P	10000	10800	80 U			10000	10700
BARIUM	P	2120	2050	2 U			2000	1960
BERYLLIUM	P	527	491	0.2 U	10	9.1	2000	1970
CADMIUM	P	488	479	2.5 U	10	9.7	2000	1950
CALCIUM	P	51800	47400	57 B			50000	48600
CHROMIUM	P	529	509	2.6 U	20	21	2000	1990
COBALT	P	496	488	14 U	100	102	2000	2030
COPPER	P	524	540	1.9 U	50	51	2000	1990
IRON	P	2060	2050	14 B			2000	2050
LEAD	P	5160	4830	50 U			2000	1890
MAGNESIUM	P	25500	24400	92 B			5000	5060
MANGANESE	P	520	508	2 B	30	32	2000	1920
NICKEL	P	495	489	12 U	80	85	2000	1970
POTASSIUM	P	51300	51200	82 U			10000	10300
SELENIUM	P	5000	5160	97 U			5000	5060
SILVER	P	495	464	2.2 U	20	21	1000	958
SODIUM	P	50300	50100	271 U			50000	45400
THALLIUM	P	7000	7160	26 U			7000	7140
VANADIUM	P	520	523	2.3 U	100	104	2000	2000
ZINC	P	3070	2880	1.3 U	40	43	2000	1940
% SOLIDS								

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		CONTINUING	INTER CHK	INTER CHK	INTER CHK	INTER CHK	PREP	LAB CONTROL
TYPE OF LOCATION		CAL BLANK	SOL. A TRUE	SOL. A INIT	SOL. AB TRUE	SOL. AB INIT	BLANK	SAMPLE TRUE
SAMPLE NUMBER		ME03A1002	ME0400011	ME0400011	ME0400011	ME0400011	ME03A0002	ME0710002
MATRIX		SOIL	WATER	WATER	WATER	WATER	SOIL	SOIL
UNITS		MG/KG	UG/L	UG/L	UG/L	UG/L	MG/KG	MG/KG
ENV PROBLEM NO								
ALUMINUM	P	21 U	502000	464000	508000	464000	6.5 B	325
ANTIMONY	P	58 U		45		66	12 U	211
ARSENIC	P	80 U		-98		8.2	16 U	917
BARIUM	P	2 U		110	483	565	0.4 U	4.8
BERYLLIUM	P	0.2 B		12	474	470	0.04 U	19

TABLE D.1.3 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME300017C DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		CONTINUING	INTER CHK	INTER CHK	INTER CHK	INTER CHK	PREP	LAB CONTROL
TYPE OF LOCATION		CAL BLANK	SOL. A TRUE	SOL. A INIT	SOL. AB TRUE	SOL. AB INIT	BLANK	SAMPLE TRUE
SAMPLE NUMBER		ME03A1002	ME0400011	ME0400011	ME0400011	ME0400011	ME03A0002	ME0710002
MATRIX		SOIL	WATER	WATER	WATER	WATER	SOIL	SOIL
UNITS		MG/KG	UG/L	UG/L	UG/L	UG/L	MG/KG	MG/KG
ENV PROBLEM NO								
CADMIUM	P	2.5 U		6	909	879	0.5 U	45
CALCIUM	P	75 B	506000	443000	516000	444000	11 B	196000
CHROMIUM	P	2.6 U		57	513	516	0.52 U	100
COBALT	P	14 U		36	478	485	2.8 U	144
COPPER	P	1.9 U		-4	534	509	0.45 B	6910
IRON	P	4 U	196000	185000	203000	185000	7.2 B	22400
LEAD	P	50 U		248	4850	4740	10 U	236
MAGNESIUM	P	92 B	498000	448000	509000	447000	-14 B	118000
MANGANESE	P	1.6 B		101	531	558	0.43 B	208
NICKEL	P	12 U		21	916	872	2.4 U	61
POTASSIUM	P	82 U		-6		128	16 U	50
SELENIUM	P	97 U		-101		-62	19 U	39
SILVER	P	2.2 U		-8	993	860	0.45 B	22
SODIUM	P	271 U		671		701	-191 B	50
THALLIUM	P	26 U		194	921	1100	5.2 U	39
VANADIUM	P	2.3 U		-70	475	411	0.64 B	66
ZINC	P	1.3 U		19	973	902	0.68 B	187
% SOLIDS								

AREA	METHOD	QA		QA	QA	QA	QA	QA
LOCATION		LAB CONTROL	BURROUGHS	DUPLICATE	DUPLICATE	MATRIX	MS %	POST DIGEST
TYPE OF LOCATION		SAMPLE	SEWER		RPD	SPIKE	RECOVERY	SPIKE
SAMPLE NUMBER		ME0710002	ME300017C	ME300017C	ME300017C	ME300017C	ME300017C	ME300017C
MATRIX		SOIL	SOIL	SOIL		SOIL		SOIL
UNITS		MG/KG	MG/KG	MG/KG	%	MG/KG	%	MG/KG
ENV PROBLEM NO			1	1	1	1	1	1
ALUMINUM	P	267	5320	5400	1.5			
ANTIMONY	P	211	7.6 UN	5.5 U		26 N	61	528
ARSENIC	P	975	10 U	7.6 U		153	92	
BARIUM	P	18 B	79	58	31	234	93	
BERYLLIUM	P	20	1.5 E	0.66	78	4.8	79	
CADMIUM	P	37	0.52 B	0.35 B	39	4.1	85	
CALCIUM	P	176000	55900 *	2250 *	184			
CHROMIUM	P	98	32 *	25 *	25	50	107	
COBALT	P	136	17	10	51	52	84	
COPPER	P	6820	14 NE	16	8	41	128	403

TABLE D.1.3 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME300017C

DRAFT DO NOT CITE

AREA	METHOD	QA		QA	QA	QA	QA	QA
LOCATION		LAB CONTROL	BURROUGHS	DUPLICATE	DUPLICATE	MATRIX	MS %	POST DIGEST
TYPE OF LOCATION		SAMPLE	SEWER		RPD	SPIKE	RECOVERY	SPIKE
SAMPLE NUMBER		ME0710002	ME300017C	ME300017C	ME300017C	ME300017C	ME300017C	ME300017C
MATRIX		SOIL	SOIL	SOIL		SOIL		SOIL
UNITS		MG/KG	MG/KG	MG/KG	%	MG/KG	%	MG/KG
ENV PROBLEM NO			1	1	1	1	1	1
IRON	P	20100	39300 *	27100 *	37			
LEAD	P	207	27	67	85	59	76	
MAGNESIUM	P	108000	7020 *	1630 *	125			
MANGANESE	P	199	1080 *	439 *	84	524	-1330	
NICKEL	P	54	20	19	8.2	58	90	
POTASSIUM	P	41 B	666 E	496	29			
SELENIUM	P	28 B	13 U	9.1 U		135	81	
SILVER	P	20	2.2 BN	1.1 B	67	4.6 N	57	
SODIUM	P	54 U	71 B	26 U	200			
THALLIUM	P	62 B	21 B	4.3 B	133	155	80	
VANADIUM	P	66	37 N*	17 *	72	56 N	48	630
ZINC	P	166	81 *	63 *	24	116	84	
% SOLIDS			84.9	84.9				

AREA	METHOD	QA	QA	QA			QA	QA
LOCATION		POST DIGEST	SERIAL	SD %	BURROUGHS	BURROUGHS	CONTINUING	CONTINUING
TYPE OF LOCATION		SPIKE % REC	DILUTION	DIFFERENCE	SEWER	SEWER	CAL FOUND	CAL BLANK
SAMPLE NUMBER		ME300017C	ME300017C	ME300017C	ME300028C	ME300039C	ME2AA5002	ME03A2002
MATRIX			SOIL		SOIL	SOIL	WATER	SOIL
UNITS		%	MG/KG	%	MG/KG	MG/KG	UG/L	MG/KG
ENV PROBLEM NO		1	1	1	1	1		
ALUMINUM	P		38400	6.3	6070	6960	2000	21 U
ANTIMONY	P	106	292 U		7.7 BN	7.3 UN	5240	58 U
ARSENIC	P		402 U		9.4 U	10 U	10900	80 U
BARIUM	P		650	6.6	80	106	1990	2 U
BERYLLIUM	P		7 E	39	1.1 E	1.1 E	2010	0.4 B
CADMIUM	P		12 B		0.34 B	0.41 B	1990	2.5 U
CALCIUM	P		410000	4.9	18400 *	33700 *	49400	50 B
CHROMIUM	P		240	3.6	32 *	28 *	2010	2.6 U
COBALT	P		137		14	20	2110	14 U
COPPER	P	117	160 E	44	22 NE	19 NE	1980	1.9 U
IRON	P			0	33300 *	42100 *	2130	4 U
LEAD	P		249		25	24 B	1970	50 U
MAGNESIUM	P		53500	1.1	2040 *	2560 *	5150	41 U
MANGANESE	P		7900	4.7	857 *	1080 *	1940	1.6 B
NICKEL	P		150	3.8	19	22	1990	12 U

TABLE D.1.3 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME300017C DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA			QA	QA
LOCATION		POST DIGEST	SERIAL	SD %	BURROUGHS	BURROUGHS	CONTINUING	CONTINUING
TYPE OF LOCATION		SPIKE % REC	DILUTION	DIFFERENCE	SEWER	SEWER	CAL FOUND	CAL BLANK
SAMPLE NUMBER		ME300017C	ME300017C	ME300017C	ME300028C	ME300039C	ME2AA5002	ME03A2002
MATRIX			SOIL		SOIL	SOIL	WATER	SOIL
UNITS		%	MG/KG	%	MG/KG	MG/KG	UG/L	MG/KG
ENV PROBLEM NO		1	1	1	1	1		
POTASSIUM	P		4450 E	13	724 E	656 E	10400	82 U
SELENIUM	P		484 U		11 U	12 U	5140	97 U
SILVER	P		24 B		1.6 BN	1.7 BN	966	2.2 U
SODIUM	P		1350 B		34 B	34 U	47400	-402 B
THALLIUM	P		129 B		4 B	3.8 B	7310	26 U
VANADIUM	P	70	282	0	18 N*	21 N*	2020	2.3 U
ZINC	P		610	2.2	86 *	79 *	1970	1.3 U
% SOLIDS					89.8	82.6		

AREA	METHOD					QA	QA	QA
LOCATION		BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	CONTINUING	CONTINUING	CONTINUING
TYPE OF LOCATION		SEWER	SEWER	SEWER	SEWER	CAL FOUND	CAL BLANK	CAL BLANK
SAMPLE NUMBER		ME306013C	ME306024C	ME306035C	ME308015B	ME2AB4002	ME03A3002	ME03B4002
MATRIX		SOIL	SOIL	SOIL	SOIL	WATER	SOIL	SOIL
UNITS		MG/KG	MG/KG	MG/KG	MG/KG	UG/L	MG/KG	MG/KG
ENV PROBLEM NO		1	1	1	1			
ALUMINUM	P	5880	5500	5400	5180	1960	21 U	21 U
ANTIMONY	P	7.1 UN	7 UN	7.1 BN	7.3 UN	5050	58 U	58 U
ARSENIC	P	9.7 U	10 B	8 U	10 U	10100	80 U	80 U
BARIUM	P	84	68	70	69	1870	2 U	2 U
BERYLLIUM	P	1.5 E	1.2 E	1.2 E	1.5 E	1880	0.2 U	0.2 B
CADMIUM	P	0.3 U	0.52 B	0.3 B	0.41 B	1860	2.5 U	2.5 U
CALCIUM	P	71500 *	40600 *	47100 *	89700 *	46400	46 B	88 B
CHROMIUM	P	34 *	30 *	25 *	28 *	1900	2.6 U	2.6 U
COBALT	P	15	12	15	13	2010	14 U	14 U
COPPER	P	16 NE	14 NE	11 NE	10 NE	1950	1.9 U	1.9 U
IRON	P	36100 *	37200 *	30000 *	27800 *	2020	22 B	12 B
LEAD	P	34	28	21	23 B	1860	50 U	50 U
MAGNESIUM	P	2590 *	2420 *	2730 *	2500 *	4770	41 U	113 B
MANGANESE	P	920 *	882 *	772 *	714 *	1840	1.9 B	1.2 B
NICKEL	P	19	16	19	17	1890	12 U	12 U
POTASSIUM	P	568 BE	600 BE	485 BE	509 BE	10400	82 U	
SELENIUM	P	12 U	12 U	9.7 U	12 U	4910	97 U	97 U
SILVER	P	2.3 BN	2.3 BN	1.7 BN	2.2 BN	958	2.2 U	2.2 U
SODIUM	P	33 U	33 B	44 B	38 B	43800	-534 B	271 U
THALLIUM	P	13 B	3.1 U	9.6 B	7.3 B	7010	26 U	26 U

TABLE D.1.3 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME300017C DRAFT DO NOT CITE

AREA	METHOD					QA	QA	QA
LOCATION		BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	CONTINUING	CONTINUING	CONTINUING
TYPE OF LOCATION		SEWER	SEWER	SEWER	SEWER	CAL FOUND	CAL BLANK	CAL BLANK
SAMPLE NUMBER		ME306013C	ME306024C	ME306035C	ME308015B	ME2AB4002	ME03A3002	ME03B4002
MATRIX		SOIL	SOIL	SOIL	SOIL	WATER	SOIL	SOIL
UNITS		MG/KG	MG/KG	MG/KG	MG/KG	UG/L	MG/KG	MG/KG
ENV PROBLEM NO		1	1	1	1			
VANADIUM	P	24 N*	24 N*	19 N*	21 N*	1930	2.3 U	2.3 U
ZINC	P	101 *	82 *	77 *	87 *	1860	1.3 U	1.3 U
% SOLIDS		66.3	75	81.5	82			

AREA	METHOD	QA	QA	QA
LOCATION		INTER CHK	INTER CHK	CRDL STAND
TYPE OF LOCATION		SOL. A FINAL	SOL. AB FINA	FINAL
SAMPLE NUMBER		ME0400011	ME0400011	ME2B10002
MATRIX		WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L
ENV PROBLEM NO				
ALUMINUM	P	459000	459000	
ANTIMONY	P	33	32	
ARSENIC	P	78	150	
BARIUM	P	109	558	
BERYLLIUM	P	12	473	9.4
CADMIUM	P	5	898	12
CALCIUM	P	445000	445000	
CHROMIUM	P	59	518	19
COBALT	P	32	506	114
COPPER	P	-4	498	49
IRON	P	189000	191000	
LEAD	P	292	4680	
MAGNESIUM	P	452000	452000	
MANGANESE	P	101	554	31
NICKEL	P	20	894	83
POTASSIUM	P	-24	-4.9	
SELENIUM	P	-47	-43	
SILVER	P	-10	859	20
SODIUM	P	390	422	
THALLIUM	P	201	1050	
VANADIUM	P	-69	408	103
ZINC	P	19	904	42
% SOLIDS				

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TABLE D.1.4 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME301018B DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		INITIAL CAL	INITIAL CAL	INITIAL CAL	CRDL STAND	CRDL STAND	CONTINUING	CONTINUING
TYPE OF LOCATION		TRUE A	FOUND A	BLANK 1	TRUE	INITIAL	CAL TRUE	CAL FOUND
SAMPLE NUMBER		ME2AA1003	ME2AA2003	ME03A0003	ME2B10003	ME2B10003	ME2AA3003	ME2AA4003
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO								
ARSENIC	P	5000	5010	80 U			5000	5240
BARIUM	P	2120	1990	2 U			1000	1010
CADMIUM	P	488	499	2.5 U	10	10	1000	1010
CHROMIUM	P	529	499	2.6 U	20	23	1000	1010
LEAD	P	5160	4900	50 U			5000	5250
MERCURY	CV	2.6	2.4	0.1 B			2.6	2.4
SELENIUM	P	5000	5060	97 U			5000	5170
SILVER	P	495	465	2.6 B	20	24	1000	961
% SOLIDS								

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		CONTINUING	INTER CHK	INTER CHK	INTER CHK	PREP	LAB CONTROL	LAB CONTROL
TYPE OF LOCATION		CAL BLANK	SOL. A INIT	SOL. AB TRUE	SOL. AB INIT	BLANK	SAMPLE TRUE	SAMPLE
SAMPLE NUMBER		ME03A1003	ME0400022	ME0400022	ME0400022	ME03A0003	ME0710003	ME0710003
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO								
ARSENIC	P	80 U	-52		4.4	80 U	5000	4980
BARIUM	P	2 U	110	482	545	2 U	1000	965
CADMIUM	P	2.5 U	17	909	842	2.5 U	1000	943
CHROMIUM	P	2.6 U	82	513	526	2.6 U	1000	966
LEAD	P	50 U	-65	4850	4330	50 U	1000	989
MERCURY	CV	0.1 B				0.1 B		
SELENIUM	P	97 U	169		93	97 U	5000	4850
SILVER	P	2.2 U	23	993	883	2.2 U	1000	897
% SOLIDS								

TABLE D.1.4 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME301018B

DRAFT DO NOT CITE

AREA	METHOD	QA	QA				QA	QA
LOCATION		PREP	PREP	BURROUGHS	BURROUGHS	BURROUGHS	MATRIX	MS %
TYPE OF LOCATION		BLANK 2	BLANK 3	SEWER	SEWER	SEWER	SPIKE	RECOVERY
SAMPLE NUMBER		ME03B0003	ME03C0001	ME301018B	ME301029B	ME301030B	ME301030B	ME301030B
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	%
ENV PROBLEM NO				1	1	1	1	1
ARSENIC	P	80 U	80 U	100 B	80 U	80 U		
BARIUM	P	12 B	8.3 B	12 B	834	827		
CADMIUM	P	2.5 U	2.5 U	30	2.7 B	2.5 U		
CHROMIUM	P	2.6 U	2.6 U	59	28	15		
LEAD	P	50 U	50 U	333	50 U	50 U		
MERCURY	CV	0.1 B	0.1 B	0.1 B	0.1 B	0.1 B	1	90
SELENIUM	P	97 U	97 U	134 B	97 U	97 U		
SILVER	P	2.2 U	2.9 B	11 BN	5.5 BN	5 BN		
% SOLIDS								

AREA	METHOD			QA	QA	QA	QA	QA
LOCATION		BURROUGHS	BURROUGHS	CONTINUING	CONTINUING	DUPLICATE	DUPLICATE	MATRIX
TYPE OF LOCATION		SEWER	SEWER	CAL FOUND	CAL BLANK		RPD	SPIKE
SAMPLE NUMBER		ME301041B	ME301052B	ME2AA5003	ME03A2003	ME301052B	ME301052B	ME301052B
MATRIX		WATER	WATER	WATER	WATER	WATER		WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	%	UG/L
ENV PROBLEM NO		1	1			1	1	1
ARSENIC	P	80 U	80 U	5500	93 B	80 U		3860
BARIUM	P	1060	1030	1050	2 U	1060	2.9	4720
CADMIUM	P	3.4 B	3.3 B	1050	20 U	3 B	9.5	723
CHROMIUM	P	15	10	1050	2.6 U	11	6.5	3820
LEAD	P	92 B	90 B	5430	50 U	99 B	8.8	3830
MERCURY	CV	0.1 B	0.1 B		0.1 B	0.1 B	0	
SELENIUM	P	97 U	97 U	5490	97 U	97 U		4020
SILVER	P	5.5 BN	18 BN	988	2.2 U	5.5 B	106	2450 N
% SOLIDS								

TABLE D.1.4 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME301018B

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA			QA	QA
LOCATION		MS % RECOVERY	SERIAL DILUTION	SD % DIFFERENCE	BURROUGHS SEWER	BURROUGHS SEWER	DUPLICATE	DUPLICATE RPD
TYPE OF LOCATION								
SAMPLE NUMBER		ME301052B	ME301052B	ME301052B	ME301063B	ME301074B	ME301074B	ME301074B
MATRIX			WATER		WATER	WATER	WATER	
UNITS		%	UG/L	%	UG/L	UG/L	UG/L	%
ENV PROBLEM NO		1	1	1	1	1	1	1
ARSENIC	P	96	402 U		86 B	80 U		
BARIUM	P	92	1100	6.8	875	1360		
CADMIUM	P	90	12 B		2.8 B	2.5 U		
CHROMIUM	P	95	13		10	20		
LEAD	P	96	249 B		101 B	109 B		
MERCURY	CV				0.1 B	0.1 B	0.1 B	0
SELENIUM	P	100	484 U		97 U	97 U		
SILVER	P	61	18 B		5.9 BN	12 BN		
% SOLIDS								

AREA	METHOD			QA	QA	QA	QA
LOCATION		BURROUGHS SEWER	BURROUGHS SEWER	CONTINUING CAL BLANK	INTER CHK SOL. A FINAL	INTER CHK SOL. AB FINA	CRDL STAND FINAL
TYPE OF LOCATION							
SAMPLE NUMBER		ME301085B	ME301096B	ME03A3003	ME0400022	ME0400022	ME2B10003
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		1	1				
ARSENIC	P	80 U	80 U	80 U	19	6.4	
BARIUM	P	800	709	2 U	109	562	
CADMIUM	P	6.7 B	2.5 U	2.5 U	18	877	9.5
CHROMIUM	P	14	11	2.6 U	87	541	21
LEAD	P	127 B	72 B	50 U	-46	4470	
MERCURY	CV	0.1 B	0.1 B				
SELENIUM	P	97 U	97 U	97 U	122	79	
SILVER	P	8.4 BN	4.3 BN	2.2 U	24	907	22
% SOLIDS							

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TABLE D.1.5 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME301018C

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA			
LOCATION		PREP	INITIAL CAL	INITIAL CAL	INITIAL CAL	BURROUGHS	BURROUGHS	BURROUGHS
TYPE OF LOCATION		BLANK	TRUE A	FOUND A	BLANK 1	SEWER	SEWER	SEWER
SAMPLE NUMBER		ME03A0004	ME2AA1004	ME2AA2004	ME03A0004	ME301018C	ME301029C	ME301030C
MATRIX		SOIL	WATER	WATER	SOIL	SOIL	SOIL	SOIL
UNITS		MG/KG	UG/L	UG/L	MG/KG	MG/KG	MG/KG	MG/KG
ENV PROBLEM NO						1	1	1
MERCURY	CV	0.05 B	2.6	2.4	0.1 B	2.5	0.48	0.18
% SOLIDS						51	47.5	68.9

AREA	METHOD				QA	QA	QA	QA
LOCATION		BURROUGHS	BURROUGHS	BURROUGHS	DUPLICATE	DUPLICATE	LAB CONTROL	LAB CONTROL
TYPE OF LOCATION		SEWER	SEWER	SEWER		RPD	SAMPLE TRUE	SAMPLE
SAMPLE NUMBER		ME301041C	ME301052C	ME301063C	ME301063C	ME301063C	ME0710004	ME0710004
MATRIX		SOIL	SOIL	SOIL	SOIL		SOIL	SOIL
UNITS		MG/KG	MG/KG	MG/KG	MG/KG	%	MG/KG	MG/KG
ENV PROBLEM NO		1	1	1	1	1		
MERCURY	CV	0.59	0.79	0.44	0.36	20	13	13
% SOLIDS		58.5	50.7	51.8	51.8			

AREA	METHOD	QA	QA	QA		QA	QA	
LOCATION		CONTINUING	CONTINUING	CONTINUING	BURROUGHS	MATRIX	MS %	BURROUGHS
TYPE OF LOCATION		CAL TRUE	CAL FOUND	CAL BLANK	SEWER	SPIKE	RECOVERY	SEWER
SAMPLE NUMBER		ME2AA3004	ME2AA4004	ME03A1004	ME301074C	ME301074C	ME301074C	ME301085C
MATRIX		WATER	WATER	SOIL	SOIL	SOIL		SOIL
UNITS		UG/L	UG/L	MG/KG	MG/KG	MG/KG	%	MG/KG
ENV PROBLEM NO					1	1	1	1
MERCURY	CV	2.6	2.4	0.1 B	0.52	0.56	40	0.54
% SOLIDS					54			43.9

TABLE D.1.5 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME301018C

DRAFT DO NOT CITE

AREA	METHOD		QA	QA
LOCATION		BURROUGHS	CONTINUING	CONTINUING
TYPE OF LOCATION		SEWER	CAL FOUND	CAL BLANK
SAMPLE NUMBER		ME301096C	ME2AA5004	ME03A2004
MATRIX		SOIL	WATER	SOIL
UNITS		MG/KG	UG/L	MG/KG
ENV PROBLEM NO		1		
MERCURY	CV	0.6	2.8	0.1 B
% SOLIDS		54.8		

TABLE D.1.6 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302019D DRAFT DO NOT CITE

AREA	METHOD		QA	QA	QA	QA	QA	QA
LOCATION		BURROUGHS	INITIAL CAL	INITIAL CAL	INITIAL CAL	PREP	LAB CONTROL	LAB CONTROL
TYPE OF LOCATION		SEWER	TRUE A	FOUND A	BLANK 1	BLANK	SAMPLE TRUE	SAMPLE TRUE
SAMPLE NUMBER		ME306046D	ME2AA1005	ME2AA2005	ME03A0005	ME03A0005	ME0710005	ME0710005
MATRIX		WATER	WATER	WATER	WATER	WATER	SOIL	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	MG/KG	UG/L
ENV PROBLEM NO		1						
ARSENIC	F		49	50	1.1 U	1.1 U		49
CADMIUM	F		96	98	0.4 U	0.4 U		96
LEAD	F		98	103	1.6 U	1.6 U		98
MERCURY	CV	0.03 U	2.6	2.3	0.03 U	0.03 U		
SELENIUM	F		98	99	1.4 U	1.4 U		98
SILVER	F		98	89	0.7 U	0.7 U	92	98
% SOLIDS								

AREA	METHOD	QA		QA	QA	QA	QA	QA
LOCATION		LAB CONTROL	BURROUGHS	DUPLICATE	DUPLICATE	MATRIX	MS %	CONTINUING
TYPE OF LOCATION		SAMPLE	SEWER		RPD	SPIKE	RECOVERY	CAL TRUE
SAMPLE NUMBER		ME0710005	ME306046B	ME306046B	ME306046B	ME306046B	ME306046B	ME2AA3005
MATRIX		WATER	WATER	WATER		WATER		WATER
UNITS		UG/L	UG/L	UG/L	%	UG/L	%	UG/L
ENV PROBLEM NO			1	1	1	1	1	
ARSENIC	F	40	1.1 U	1.1 U		32	81	50
CADMIUM	F	92	0.47 B	0.51 B	8.2	5.3	97	12
LEAD	F	103	1.6 U	1.6 U		21	104	25
MERCURY	CV							2.6
SELENIUM	F	108	1.4 U	1.4 U		12	116	25
SILVER	F	89	0.77 B	0.7 U	200	22	104	25
% SOLIDS								

AREA	METHOD	QA	QA					
LOCATION		CONTINUING	CONTINUING	BURROUGHS	NW B. B-17	NW B. B-17	NW B. B-17	BURROUGHS
TYPE OF LOCATION		CAL FOUND	CAL BLANK	SEWER	STORMWATER	STORMWATER	STORMWATER	SEWER
SAMPLE NUMBER		ME2AA4005	ME03A1005	ME307014A	ME309016D	ME310019D	ME311010D	ME302019D
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO				1	2	2	2	1
ARSENIC	F	50	1.1 U	1.1 U	2.9 B	3.5 B	1.1 U	1.2 B
CADMIUM	F	14	0.4 U	0.8 B	12	7.4	0.4 U	0.4 U

TABLE D.1.6 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302019D DRAFT DO NOT CITE

AREA	METHOD	QA	QA					
LOCATION		CONTINUING	CONTINUING	BURROUGHS	NW B. B-17	NW B. B-17	NW B. B-17	BURROUGHS
TYPE OF LOCATION		CAL FOUND	CAL BLANK	SEWER	STORMWATER	STORMWATER	STORMWATER	SEWER
SAMPLE NUMBER		ME2AA4005	ME03A1005	ME307014A	ME309016D	ME310019D	ME311010D	ME302019D
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO				1	2	2	2	1
LEAD	F	26	1.6 U	16	41	45	1.6 U	1.6 U
MERCURY	CV	2.2	0.03 U	1.1	0.2	0.1 B	0.03 U	0.1 B
SELENIUM	F	25	1.4 U	1.4 UW	2 BW	1.9 BW	1.4 UW	1.4 UW
SILVER	F	24	0.7 U	2.7 B	3.6 B	1.2 B	0.7 U	5.3 B
% SOLIDS								

AREA	METHOD	QA	QA	QA	QA	QA	QA	
LOCATION		CONTINUING	DUPLICATE	DUPLICATE	INITIAL CAL	CONTINUING	INITIAL CAL	BURROUGHS
TYPE OF LOCATION		CAL FOUND		RPD	FOUND A	CAL BLANK	BLANK 2	SEWER
SAMPLE NUMBER		ME2AA5005	ME302019D	ME302019D	ME2AB2003	ME03A2005	ME03B0004	ME303010A
MATRIX		WATER	WATER		WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	%	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO			1	1				1
ARSENIC	F	49				1.1 U		1.1 UW
CADMIUM	F	13				0.4 U	0.48 B	0.4 U
LEAD	F	26				1.6 U		1.6 U
MERCURY	CV	2.3	0.1 B	0		0.03 U		0.1 B
SELENIUM	F	24			94	1.4 U		9 S
SILVER	F	24			104	0.7 U	0.78 B	24
% SOLIDS								

AREA	METHOD				QA	QA		QA
LOCATION		BURROUGHS	BURROUGHS	BURROUGHS	MATRIX	MS %	BURROUGHS	CONTINUING
TYPE OF LOCATION		SEWER	SEWER	SEWER	SPIKE	RECOVERY	SEWER	CAL FOUND
SAMPLE NUMBER		ME305012A	ME305023A	ME307025A	ME307025A	ME307025A	ME307036A	ME2AB4003
MATRIX		WATER	WATER	WATER	WATER		WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	%	UG/L	UG/L
ENV PROBLEM NO		1	1	1	1	1	1	
ARSENIC	F	1.2 BW	1.1 UW	1.4 BW			1.2 BW	49
CADMIUM	F	0.44 B	0.4 U	0.4 U			0.4 U	13
LEAD	F	1.6 U	1.6 U	7.8			1.6 U	26
MERCURY	CV	0.1 B	0.1 B	0.1 B	1	90	0.03 U	

TABLE D.1.6 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302019D

DRAFT DO NOT CITE

AREA	METHOD				QA	QA		QA
LOCATION		BURROUGHS	BURROUGHS	BURROUGHS	MATRIX	MS %	BURROUGHS	CONTINUING
TYPE OF LOCATION		SEWER	SEWER	SEWER	SPIKE	RECOVERY	SEWER	CAL FOUND
SAMPLE NUMBER		ME305012A	ME305023A	ME307025A	ME307025A	ME307025A	ME307036A	ME2AB4003
MATRIX		WATER	WATER	WATER	WATER		WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	%	UG/L	UG/L
ENV PROBLEM NO		1	1	1	1	1	1	
SELENIUM	F	5.8 S	2.6 B+	2.3 BW			1.4 UW	25
SILVER	F	0.7 U	0.7 U	4.6 B			2.7 B	26
% SOLIDS								

AREA	METHOD	QA	QA	QA				QA
LOCATION		INITIAL CAL	CONTINUING	CONTINUING	NW B. B-17	NW B. B-17	NW B. B-17	CRDL STAND
TYPE OF LOCATION		FOUND A	CAL BLANK	CAL FOUND	STORMWATER	STORMWATER	STORMWATER	TRUE
SAMPLE NUMBER		ME2AC2002	ME03A3005	ME2AB5003	ME309027D	ME311021D	ME311032D	ME2B10004
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO					2	2	2	
ARSENIC	F		1.1 U	48	1.1 UW	1.2 BW	1.1 UW	10
CADMIUM	F	102	0.4 U	14	0.4 U	0.49 B	0.4 U	5
LEAD	F		1.6 U	26	1.6 U	1.6 U	1.6 U	5
MERCURY	CV				0.1 B	0.03 U	0.1 B	
SELENIUM	F		1.4 U	24	12 +	1.4 UW	1.4 UW	5
SILVER	F		0.7 U	25	0.7 U	0.7 U	0.7 U	10
% SOLIDS								

AREA	METHOD	QA	QA	QA	QA	QA
LOCATION		CRDL STAND	CONTINUING	CONTINUING	CONTINUING	CONTINUING
TYPE OF LOCATION		FINAL	CAL FOUND	CAL FOUND	CAL BLANK	CAL BLANK
SAMPLE NUMBER		ME2B10004	ME2AC4002	ME2AC5002	ME03B4004	ME03B5004
MATRIX		WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO						
ARSENIC	F	7.4			1.1 U	
CADMIUM	F	5	13	13	0.4 U	
LEAD	F	4.7	26		1.6 U	
MERCURY	CV					
SELENIUM	F	5.1	25	25	1.4 U	1.4 U
SILVER	F	11			0.7 U	0.7 U

TABLE D.1.6 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302019D

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA		
LOCATION		CRDL STAND	CONTINUING	CONTINUING	CONTINUING	CONTINUING		
TYPE OF LOCATION		FINAL	CAL FOUND	CAL FOUND	CAL BLANK	CAL BLANK		
SAMPLE NUMBER		ME2B10004	ME2AC4002	ME2AC5002	ME03B4004	ME03B5004		
MATRIX		WATER	WATER	WATER	WATER	WATER		
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L		
ENV PROBLEM NO								
% SOLIDS								

TABLE D.1.7 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302019E

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		INITIAL CAL TRUE A	INITIAL CAL FOUND A	INITIAL CAL BLANK 1	CRDL STAND TRUE	CRDL STAND INITIAL	CONTINUING CAL TRUE	CONTINUING CAL FOUND
TYPE OF LOCATION								
SAMPLE NUMBER		ME2AA1001	ME2AA2001	ME03A0001	ME2B10001	ME2B10001	ME2AA3001	ME2AA4001
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO								
ALUMINUM	P	1970	2020	14 B			2000	1970
ANTIMONY	P	1090	1000	49 U			5000	5060
ARSENIC	P	10000	10800	-136 B			10000	10800
BARIUM	P	2120	2080	2.1 U			2000	1960
BERYLLIUM	P	527	507	0.24 U	10	7.8	2000	1910
CADMIUM	P	488	488	3.3 U	10	12	2000	1950
CALCIUM	P	51800	48400	39 B			50000	49700
CHROMIUM	P	529	513	3.9 U	20	22	2000	1990
COBALT	P	496	486	23 U	100	98	2000	1940
COPPER	P	524	539	3.3 U	50	47	2000	1980
IRON	P	2060	2010	4.3 B			2000	1940
LEAD	P	5160	5010	52 U			2000	2000
MAGNESIUM	P	25500	24300	112 B			5000	5030
MANGANESE	P	520	521	1.6 B	30	152	2000	1930
NICKEL	P	495	487	13 U	80	79	2000	1900
POTASSIUM	P	51300	51200	76 U			10000	9860
SELENIUM	P	5000	5390	133 U			5000	5270
SILVER	P	495	474	3.9 U	20	19	1000	991
SODIUM	P	50300	51200	-16 B			10000	9730
THALLIUM	P	7000	7180	15 U			7000	7220
VANADIUM	P	520	531	3.9 B	100	104	2000	2000
ZINC	P	3070	2900	2 U	40	38	2000	1920
% SOLIDS								

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		CONTINUING CAL BLANK	INTER CHK SOL. A TRUE	INTER CHK SOL. A INIT	INTER CHK SOL. AB TRUE	INTER CHK SOL. AB INIT	PREP BLANK	LAB CONTROL SAMPLE TRUE
TYPE OF LOCATION								
SAMPLE NUMBER		ME03A1001	ME0400011	ME0400011	ME0400011	ME0400011	ME03A0001	ME0710001
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO								
ALUMINUM	P	14 U	502000	475000	508000	481000	69 B	1000
ANTIMONY	P	49 U		84		27	49 U	5000
ARSENIC	P	-103 B		-49		-264	87 U	5000
BARIUM	P	2.1 U		98	483	551	2.1 U	1000
BERYLLIUM	P	0.24 U		13	474	488	0.24 U	1000

TABLE D.1.7 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302019E

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		CONTINUING	INTER CHK	INTER CHK	INTER CHK	INTER CHK	PREP	LAB CONTROL
TYPE OF LOCATION		CAL BLANK	SOL. A TRUE	SOL. A INIT	SOL. AB TRUE	SOL. AB INIT	BLANK	SAMPLE TRUE
SAMPLE NUMBER		ME03A1001	ME0400011	ME0400011	ME0400011	ME0400011	ME03A0001	ME0710001
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO								
CADMIUM	P	3.3 B		17	909	896	3.3 U	1000
CALCIUM	P	38 B	506000	452000	516000	457000	90 B	1000
CHROMIUM	P	3.9 U		62	513	528	3.9 U	1000
COBALT	P	23 U		25	478	495	23 U	1000
COPPER	P	3.3 U		-10	534	505	-7.4 B	1000
IRON	P	3.6 U	196000	19400C	203000	195000	19 B	1000
LEAD	P	52 U		342	4850	4900	52 U	1000
MAGNESIUM	P	34 U	498000	461000	509000	462000	160 B	1000
MANGANESE	P	0.89 B		105	531	570	1.8 B	1000
NICKEL	P	13 U		20	916	888	13 U	1000
POTASSIUM	P	76 U		-86		-49	76 U	10000
SELENIUM	P	133 U		187		176	133 U	5000
SILVER	P	3.9 U		-10	993	886	3.9 U	1000
SODIUM	P	16 B		394		390	56 B	10000
THALLIUM	P	15 U		230	921	1190	15 U	5000
VANADIUM	P	2.8 U		-60	475	425	5 B	1000
ZINC	P	2 U		20	973	919	-3.6 B	1000
% SOLIDS								

AREA	METHOD	QA		QA	QA	QA	QA	QA
LOCATION		LAB CONTROL	BURROUGHS	DUPLICATE	DUPLICATE	MATRIX	MS %	SERIAL
TYPE OF LOCATION		SAMPLE	SEWER		RPD	SPIKE	RECOVERY	DILUTION
SAMPLE NUMBER		ME0710001	ME306046C	ME306046C	ME306046C	ME306046C	ME306046C	ME306046C
MATRIX		WATER	WATER	WATER		WATER		WATER
UNITS		UG/L	UG/L	UG/L	%	UG/L	%	UG/L
ENV PROBLEM NO			1	1	1	1	1	1
ALUMINUM	P	990	23 B	42 B	60	1890	93	72 B
ANTIMONY	P	4990	49 U	49 U		429	86	247 U
ARSENIC	P	5240	87 U	87 U		2010	100	437 U
BARIUM	P	983	2.1 U	2.1 U		1920	96	10 U
BERYLLIUM	P	972	0.24 U	0.24 U		48	95	1.2 U
CADMIUM	P	995	3.3 U	4.7 B	200	50	99	16 U
CALCIUM	P	1120	54 B	48 B	10			114 B
CHROMIUM	P	986	3.9 U	3.9 U		196	98	19 U
COBALT	P	970	23 U	23 U		481	96	113 U
COPPER	P	974	3.3 U	3.3 U		247	99	17 U

TABLE D.1.7 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302019E

DRAFT DO NOT CITE

AREA	METHOD	QA		QA	QA	QA	QA	QA
LOCATION		LAB CONTROL	BURROUGHS	DUPLICATE	DUPLICATE	MATRIX	MS %	SERIAL
TYPE OF LOCATION		SAMPLE	SEWER		RPD	SPIKE	RECOVERY	DILUTION
SAMPLE NUMBER		ME0710001	ME306046C	ME306046C	ME306046C	ME306046C	ME306046C	ME306046C
MATRIX		WATER	WATER	WATER		WATER		WATER
UNITS		UG/L	UG/L	UG/L	%	UG/L	%	UG/L
ENV PROBLEM NO			1	1	1	1	1	1
IRON	P	981	3.6 U	7.4 B	200	981	98	18 U
LEAD	P	980	52 U	52 U		421	84	260 U
MAGNESIUM	P	1120	62 B	60 B	4.4			360 B
MANGANESE	P	982	2 B	2 B	0	486	97	9.2 B
NICKEL	P	976	13 U	13 U		485	97	66 U
POTASSIUM	P	9550	76 U	76 U				380 U
SELENIUM	P	5230	133 U	133 U		2010	100	664 U
SILVER	P	919	3.9 U	3.9 U		45	90	19 U
SODIUM	P	9390	5.6 B	100 B	179			28 B
THALLIUM	P	5900	15 U	15 U		1830	92	75 U
VANADIUM	P	981	5.1 B	5.4 B	5.7	498	99	24 B
ZINC	P	962	2 U	2 U		473	95	9.8 U
% SOLIDS								

AREA	METHOD				QA	QA		
LOCATION		BURROUGHS	NW B. B-17	NW B. B-17	CONTINUING	CONTINUING	NW B. B-17	BURROUGHS
TYPE OF LOCATION		SEWER	STORMWATER	STORMWATER	CAL FOUND	CAL BLANK	STORMWATER	SEWER
SAMPLE NUMBER		ME307014B	ME309016E	ME310019E	ME2AA5001	ME03A2001	ME311010E	ME302019E
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		1	2	2			2	1
ALUMINUM	P	267	10200	4860	1980	14 U	90 B	468
ANTIMONY	P	49 U	49 U	49 U	5190	49 U	49 U	49 U
ARSENIC	P	87 U	87 U	87 U	10800	87 U	87 U	87 U
BARIUM	P	65 B	108 B	65 B	1950	2.1 U	73 B	47 B
BERYLLIUM	P	0.24 U	0.24 U	0.24 U	1910	0.24 U	0.24 U	0.24 U
CADMIUM	P	3.4 B	3.3 U	4.6 B	1930	3.3 U	3.3 U	3.3 U
CALCIUM	P	63200	53700	56000	49500	32 B	62400	62200
CHROMIUM	P	9.1 B	25	18	1960	3.9 U	4.5 B	5.4 B
COBALT	P	23 U	23 U	23 U	1980	23 U	23 U	23 U
COPPER	P	6.5 B	23 B	26	1990	3.3 U	3.3 U	3.3 U
IRON	P	8700	12400	6470	1920	3.6 U	18 B	378
LEAD	P	52 U	105 B	52 U	1940	52 U	52 U	52 U
MAGNESIUM	P	12600	4430 B	3250 B	4960	34 U	13400	12100
MANGANESE	P	82	231	165	1910	1.3 B	26	59
NICKEL	P	13 U	29 B	34 B	1920	13 U	13 U	13 U

TABLE D.1.7 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302019E

DRAFT DO NOT CITE

AREA	METHOD				QA	QA		
LOCATION		BURROUGHS SEWER	NW B. B-17 STORMWATER	NW B. B-17 STORMWATER	CONTINUING CAL FOUND	CONTINUING CAL BLANK	NW B. B-17 STORMWATER	BURROUGHS SEWER
TYPE OF LOCATION								
SAMPLE NUMBER		ME307014B	ME309016E	ME310019E	ME2AA5001	ME03A2001	ME311010E	ME302019E
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		1	2	2			2	1
POTASSIUM	P	14700	4410 B	2690 B	10000	76 U	2700 B	6760
SELENIUM	P	133 U	144 B	133 U	5210	133 U	133 U	133 U
SILVER	P	318	3.9 U	3.9 U	1000	3.9 U	3.9 U	5.4 B
SODIUM	P	45400	14500	4270 B	9730	5.6 B	44200	54200
THALLIUM	P	60 B	22 B	15 U	7260	15 U	31 B	75 B
VANADIUM	P	16 B	31 B	21 B	1990	3.6 B	16 B	1040
ZINC	P	63	2340	194	1940	2 U	37	43
% SOLIDS								

AREA	METHOD							
LOCATION		BURROUGHS SEWER	BURROUGHS SEWER	BURROUGHS SEWER	BURROUGHS SEWER	BURROUGHS SEWER	NW B. B-17 STORMWATER	NW B. B-17 STORMWATER
TYPE OF LOCATION								
SAMPLE NUMBER		ME303010B	ME305012B	ME305023B	ME307025B	ME307036B	ME309027E	ME311021E
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		1	1	1	1	1	2	2
ALUMINUM	P	72 B	149 B	119 B	194 B	255	45 B	75 B
ANTIMONY	P	49 B	49 U	49 U	49 U	49 U	49 U	49 U
ARSENIC	P	87 B	87 U	87 U	87 U	87 U	87 U	87 U
BARIUM	P	36 B	47 B	55 B	59 B	55 B	46 B	73 B
BERYLLIUM	P	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
CADMIUM	P	3.3 B	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
CALCIUM	P	117000	74000	106000	80000	65700	89100	63600
CHROMIUM	P	7.2 B	4.4 B	7.4 B	4.1 B	5.8 B	7.3 B	18
COBALT	P	23 U	23 U	23 U	23 U	23 U	23 U	23 U
COPPER	P	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
IRON	P	370	105	78 B	322	352	20 B	79 B
LEAD	P	52 U	52 U	52 U	52 U	52 U	52 U	52 U
MAGNESIUM	P	24300	14100	17200	13600	12700	14900	13200
MANGANESE	P	148	17	19	52	40	12 B	29
NICKEL	P	13 U	13 U	13 U	13 U	13 U	13 U	13 U
POTASSIUM	P	5880	4660 B	6130	5770	3960 B	9740	3180 B
SELENIUM	P	133 U	133 U	133 B	133 U	133 U	133 U	133 U
SILVER	P	5 B	3.9 U	3.9 B	6.5 B	3.9 U	4.1 B	3.9 U
SODIUM	P	37000	59300	54200	47700	43000	84500	39400
THALLIUM	P	97 B	46 B	30 B	101 B	40 B	84 B	72 B

TABLE D.1.7 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302019E

DRAFT DO NOT CITE

AREA	METHOD							
LOCATION		BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	NW B. B-17	NW B. B-17
TYPE OF LOCATION		SEWER	SEWER	SEWER	SEWER	SEWER	STORMWATER	STORMWATER
SAMPLE NUMBER		ME303010B	ME305012B	ME305023B	ME307025B	ME307036B	ME309027E	ME311021E
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		1	1	1	1	1	2	2
VANADIUM	P	28 B	16 B	21 B	17 B	15 B	17 B	17 B
ZINC	P	27	130	239	32	20	12 B	58
% SOLIDS								

AREA	METHOD		QA	QA	QA		QA	QA
LOCATION		NW B. B-17	INITIAL CAL	CONTINUING	CONTINUING	B. B-11	CONTINUING	CONTINUING
TYPE OF LOCATION		STORMWATER	FOUND A	CAL FOUND	CAL BLANK	WASTE	CAL FOUND	CAL BLANK
SAMPLE NUMBER		ME311032E	ME2AB2001	ME2AB4001	ME03A3001	ME800078B	ME2AB5001	ME03B4001
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		2				3		
ALUMINUM	P	77 B		1970	16 B	29 B		
ANTIMONY	P	49 U		5130	-92 B	49 U		
ARSENIC	P	87 U		10800	87 U	87 U		
BARIUM	P	70 B		1960	2.1 U	2.1 U		
BERYLLIUM	P	0.24 U		1930	0.24 U	0.24 U		
CADMIUM	P	3.3 U		1930	3.3 U	3.3 U		
CALCIUM	P	60400		49800	26 B	211 B		
CHROMIUM	P	5 B		1980	3.9 U	5 B		
COBALT	P	23 U		1970	23 U	23 U		
COPPER	P	3.3 U		1980	3.3 U	3.3 U		
IRON	P	29 B		1930	3.6 U	8 B		
LEAD	P	52 U		1960	52 U	52 U		
MAGNESIUM	P	13000		5010	34 U	34 U		
MANGANESE	P	23		1920	1.2 B	2.9 B		
NICKEL	P	13 U		1930	13 U	13 U		
POTASSIUM	P	2780 B	50700	9830		76 U	9910	76 U
SELENIUM	P	133 U		5270	158 B	133 U		
SILVER	P	5.4 B		997	3.9 U	3.9 U		
SODIUM	P	40400		9810	49 B	5.6 B		
THALLIUM	P	40 B		7250	15 U	15 U		
VANADIUM	P	16 B		2000	2.8 U	6.1 B		
ZINC	P	70		1930	2 U	2 U		
% SOLIDS								

TABLE D.1.7 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302019E DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA
LOCATION		CRDL STAND	CONTINUING	INTER CHK	INTER CHK
TYPE OF LOCATION		FINAL	CAL BLANK	SOL. A FINAL	SOL. AB FINA
SAMPLE NUMBER		ME2B10001	ME03B5001	ME0400011	ME0400011
MATRIX		WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO					
ALUMINUM	P			474000	478000
ANTIMONY	P			34	62
ARSENIC	P			-170	-24
BARIUM	P			97	553
BERYLLIUM	P	8.2		13	488
CADMIUM	P	11		16	898
CALCIUM	P			457000	462000
CHROMIUM	P	24		64	525
COBALT	P	105		42	485
COPPER	P	47		-11	503
IRON	P			191000	189000
LEAD	P			388	4880
MAGNESIUM	P			454000	456000
MANGANESE	P	154		105	569
NICKEL	P	80		26	877
POTASSIUM	P		76 U	-68	-1.4
SELENIUM	P			189	165
SILVER	P	19		-10	886
SODIUM	P			425	435
THALLIUM	P			298	1260
VANADIUM	P	105		-59	425
ZINC	P	39		20	922
% SOLIDS					

TABLE D.1.8 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302020D

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	
LOCATION		INITIAL CAL	INITIAL CAL	INITIAL CAL	PREP	LAB CONTROL	LAB CONTROL	BURROUGHS
TYPE OF LOCATION		TRUE A	FOUND A	BLANK 1	BLANK	SAMPLE TRUE	SAMPLE	SEWER
SAMPLE NUMBER		ME2AA1006	ME2AA2006	ME03A0006	ME03A0006	ME0710006	ME0710006	ME303021A
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO								1
ARSENIC	F	49	53	1.1 U	1.1 U	49	52	1.1 U
CADMIUM	F	96	103	0.4 U		96	112	0.4 UN
LEAD	F	98	104	1.6 U	1.6 U	98	114	2.5 BN
MERCURY	CV	2.6	2.3	0.03 U	0.03 U			0.1 B
SELENIUM	F	98	106	1.4 U	1.4 U	98	101	7.4 S
SILVER	F	98	105	0.7 U	1 B	98	106	0.7 U
% SOLIDS								

AREA	METHOD			QA	QA	QA	QA	QA
LOCATION		BURROUGHS	BURROUGHS	CONTINUING	CONTINUING	CONTINUING	CONTINUING	CRDL STAND
TYPE OF LOCATION		SEWER	SEWER	CAL TRUE	CAL FOUND	CAL BLANK	CAL BLANK	TRUE
SAMPLE NUMBER		ME303032A	ME303043A	ME2AA3006	ME2AA4006	ME03A1006	ME03A2006	ME2B10005
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		1	1					
ARSENIC	F	1.1 U	1.1 U	50	48	1.1 U	1.1 U	10
CADMIUM	F	0.4 UN	0.51 BN	12	13	0.4 U	0.4 U	5
LEAD	F	1.6 UN	2.5 BN	25	26	1.6 U	1.6 U	5
MERCURY	CV	0.03 U	0.03 U	2.6	2.3	0.1 B	0.03 U	
SELENIUM	F	10	1.4 U	25	27	1.4 U	1.4 U	5
SILVER	F	0.7 U	0.7 U	25	25	0.7 U	0.7 U	10
% SOLIDS								

AREA	METHOD	QA		QA	QA	QA	QA	QA
LOCATION		CRDL STAND	BURROUGHS	DUPLICATE	DUPLICATE	MATRIX	MS %	CONTINUING
TYPE OF LOCATION		FINAL	SEWER		RPD	SPIKE	RECOVERY	CAL FOUND
SAMPLE NUMBER		ME2B10005	ME302020D	ME302020D	ME302020D	ME302020D	ME302020D	ME2AA5006
MATRIX		WATER	WATER	WATER		WATER		WATER
UNITS		UG/L	UG/L	UG/L	%	UG/L	%	UG/L
ENV PROBLEM NO			1	1	1	1	1	
ARSENIC	F	10	2.1 B	1.7 B	21	41	98	52
CADMIUM	F	5.4	0.43 BN	0.7 B	48	7.2 N	135	14

TABLE D.1.8 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302020D

DRAFT DO NOT CITE

AREA	METHOD	QA		QA	QA	QA	QA	QA
LOCATION		CRDL STAND	BURROUGHS	DUPLICATE	DUPLICATE	MATRIX	MS %	CONTINUING
TYPE OF LOCATION		FINAL	SEWER		RPD	SPIKE	RECOVERY	CAL FOUND
SAMPLE NUMBER		ME2B10005	ME302020D	ME302020D	ME302020D	ME302020D	ME302020D	ME2AA5006
MATRIX		WATER	WATER	WATER		WATER		WATER
UNITS		UG/L	UG/L	UG/L	%	UG/L	%	UG/L
ENV PROBLEM NO			1	1	1	1	1	
LEAD	F	6.5	2.3 BN	3 B	26	37 N	172	27
MERCURY	CV		0.1 B					2.3
SELENIUM	F	5.1	1.4 UW	1.4 U		8.9	89	24
SILVER	F	12	1.4 B	11	154	23	107	
% SOLIDS								

AREA	METHOD	QA	QA	QA		QA	QA	
LOCATION		INITIAL CAL	CONTINUING	INITIAL CAL	BURROUGHS	DUPLICATE	DUPLICATE	BURROUGHS
TYPE OF LOCATION		FOUND A	CAL BLANK	BLANK 2	SEWER		RPD	SEWER
SAMPLE NUMBER		ME2AB2004	ME03A3006	ME03B0005	ME304011A	ME304011A	ME304011A	ME304022A
MATRIX		WATER	WATER	WATER	WATER	WATER		WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	%	UG/L
ENV PROBLEM NO					1	1	1	1
ARSENIC	F		1.1 U		1.1 U			1.6 B
CADMIUM	F	92			0.4 UN			0.4 UN
LEAD	F		1.6 U		1.6 UN			5.4 N
MERCURY	CV				0.1 B	0.1 B	0	0.1 B
SELENIUM	F		1.4 U		1.5 BW			1.4 UW
SILVER	F	106	0.7 U	0.7 U	0.78 B			0.95 B
% SOLIDS								

AREA	METHOD				QA	QA		QA
LOCATION		NW B. B-17	BURROUGHS	BURROUGHS	CONTINUING	CONTINUING	BURROUGHS	MATRIX
TYPE OF LOCATION		STORMWATER	SEWER	SEWER	CAL FOUND	CAL BLANK	SEWER	SPIKE
SAMPLE NUMBER		ME309038D	ME302031D	ME302100D	ME2AB4004	ME03B4005	ME304033A	ME304033A
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		2	1	1			1	1
ARSENIC	F	1.6 B	1.1 U	1.1 U	48	1.1 U	1.1 U	
CADMIUM	F	0.4 UN	0.4 UN	0.4 UN	13	-1.4 B	0.4 UN	
LEAD	F	2.1 BN	3.3 BN	2.8 BN	26	1.6 U	2.5 BN	
MERCURY	CV	0.3	0.1 B	0.1 B			0.1 B	0.9

TABLE D.1.8 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302020D DRAFT DO NOT CITE

AREA	METHOD				QA	QA		QA
LOCATION		NW B. B-17	BURROUGHS	BURROUGHS	CONTINUING	CONTINUING	BURROUGHS	MATRIX
TYPE OF LOCATION		STORMWATER	SEWER	SEWER	CAL FOUND	CAL BLANK	SEWER	SPIKE
SAMPLE NUMBER		ME309038D	ME302031D	ME302100D	ME2AB4004	ME03B4005	ME304033A	ME304033A
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		2	1	1			1	1
SELENIUM	F	18 S	1.4 UW	1.4 UW	26	1.4 U	1.5 BS	
SILVER	F	2.2 B	2.6 B	0.74 B	26	0.7 U	1.2 B	
% SOLIDS								

AREA	METHOD	QA		QA	QA	QA	QA
LOCATION		MS %	BURROUGHS	CONTINUING	CONTINUING	CONTINUING	CONTINUING
TYPE OF LOCATION		RECOVERY	SEWER	CAL FOUND	CAL FOUND	CAL FOUND	CAL BLANK
SAMPLE NUMBER		ME304033A	ME305034A	ME2AB5004	ME2AC4003	ME2AC5003	ME03B5005
MATRIX			WATER	WATER	WATER	WATER	WATER
UNITS		%	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		1	1				
ARSENIC	F		2.1 B	51			
CADMIUM	F		0.4 UWN	13	13		-1.2 B
LEAD	F		1.6 UN	26			
MERCURY	CV	80	0.1 B				
SELENIUM	F		3.3 BS	25	26	25	
SILVER	F		5.3 B	26	26	26	
% SOLIDS							

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TABLE D.1.9 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302020E

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		INITIAL CAL	INITIAL CAL	INITIAL CAL	CRDL STAND	CRDL STAND	CONTINUING	CONTINUING
TYPE OF LOCATION		TRUE A	FOUND A	BLANK 1	TRUE	INITIAL	CAL TRUE	CAL FOUND
SAMPLE NUMBER		ME2AA1002	ME2AA2002	ME03A0002	ME2B10002	ME2B10002	ME2AA3002	ME2AA4002
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO								
ALUMINUM	P	1970	1990	21 U			2000	2010
ANTIMONY	P	1090	1100	58 U			5000	5020
ARSENIC	P	10000	10800	80 U			10000	10500
BARIUM	P	2120	2080	2 U			2000	2000
BERYLLIUM	P	527	495	0.2 U	10	7.5	2000	1960
CADMIUM	P	488	492	2.5 U	10	11	2000	1970
CALCIUM	P	51800	46100	48 B			50000	47500
CHROMIUM	P	529	519	2.6 U	20	22	2000	2020
COBALT	P	.496	515	14 U	100	109	2000	2050
COPPER	P	524	537	1.9 U	50	51	2000	2010
IRON	P	2060	2070	13 B			2000	2000
LEAD	P	5160	4930	50 U			2000	1940
MAGNESIUM	P	25500	24000	111 B			5000	4880
MANGANESE	P	520	520	1.8 B	30	32	2000	1970
NICKEL	P	475	488	12 U	80	90	2000	2000
POTASSIUM	P	51300	50500	82 U			10000	10200
SELENIUM	P	5000	5200	97 U			5000	5100
SILVER	P	495	459	2.7 B	20	20	1000	951
SODIUM	P	50300	50100	13 B			10000	9730
THALLIUM	P	7000	7250	26 U			7000	7190
VANADIUM	P	520	530	4.4 B	100	107	2000	2030
ZINC	P	3070	2880	1.3 U	40	42	2000	1950
% SOLIDS								

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		CONTINUING	INTER CHK	INTER CHK	INTER CHK	INTER CHK	PREP	LAB CONTROL
TYPE OF LOCATION		CAL BLANK	SOL. A TRUE	SOL. A INIT	SOL. AB TRUE	SOL. AB INIT	BLANK	SAMPLE TRUE
SAMPLE NUMBER		ME03A1002	ME0400022	ME0400022	ME0400022	ME0400022	ME03A0002	ME0710002
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO								
ALUMINUM	P	21 U	502000	465000	508000	475000	45 B	1000
ANTIMONY	P	58 U		76		69	58 U	5000
ARSENIC	P	-121 B		-46		-131	80 U	5000
BARIUM	P	2 U		114	483	574	2 U	1000
BERYLLIUM	P	0.2 U		12	474	477	0.2 U	1000

TABLE D.1.9 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302020E DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		CONTINUING	INTER CHK	INTER CHK	INTER CHK	INTER CHK	PREP	LAB CONTROL
TYPE OF LOCATION		CAL BLANK	SOL. A TRUE	SOL. A INIT	SOL. AB TRUE	SOL. AB INIT	BLANK	SAMPLE TRUE
SAMPLE NUMBER		ME03A1002	ME0400022	ME0400022	ME0400022	ME0400022	ME03A0002	ME0710002
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO								
CADMIUM	P	2.5 U		14	909	897	2.5 U	1000
CALCIUM	P	24 B	506000	428000	516000	440000	21 B	1000
CHROMIUM	P	2.6 U		62	513	525	2.6 U	1000
COBALT	P	14 U		36	478	493	14 U	1000
COPPER	P	1.9 U		-4	534	505	1.9 U	1000
IRON	P	4 U	196000	186000	203000	191000	11 B	1000
LEAD	P	50 U		304	4850	4750	50 U	1000
MAGNESIUM	P	41 U	498000	443000	509000	451000	41 U	1000
MANGANESE	P	0.7 U		105	531	573	1.8 B	1000
NICKEL	P	12 U		19	916	894	12 U	1000
POTASSIUM	P	-84 B		-81		2	82 U	10000
SELENIUM	P	97 U		105		-14	97 U	5000
SILVER	P	2.2 U		-9	993	857	2.2 U	1000
SODIUM	P	22 B		466		474	15 B	10000
THALLIUM	P	26 U		220	921	1090	26 U	5000
VANADIUM	P	2.7 B		-58	475	424	4.8 B	1000
ZINC	P	1.3 U		20	973	918	1.3 U	1000
% SOLIDS								

AREA	METHOD	QA						
LOCATION		LAB CONTROL	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS
TYPE OF LOCATION		SAMPLE	SEWER	SEWER	SEWER	SEWER	SEWER	SEWER
SAMPLE NUMBER		ME0710002	ME302020E	ME303021B	ME303032B	ME303043B	ME304011B	ME304022B
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO			1	1	1	1	1	1
ALUMINUM	P	987	257	80 B	71 B	26 B	228	263
ANTIMONY	P	4780	58 U	58 U	58 U	58 U	58 U	58 U
ARSENIC	P	4940	80 U	80 U	80 U	80 U	80 U	80 U
BARIUM	P	968	49 B	43 B	42 B	2 U	53 B	53 B
BERYLLIUM	P	968	0.2 U	0.27 B	0.2 U	0.2 U	0.2 U	0.2 U
CADMIUM	P	990	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
CALCIUM	P	1060	61000	121000	123000	117 B	70300	65200
CHROMIUM	P	984	4.2 B	6 B	4.5 B	2.6 U	3.2 B	2.6 U
COBALT	P	1030	14 U	14 U	14 U	14 U	14 U	14 U
COPPER	P	977	8.5 B	1.9 U	2.4 B	1.9 U	4.4 B	2.1 B

TABLE D.1.9 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302020E DRAFT DO NOT CITE

AREA	METHOD	QA						
LOCATION		LAB CONTROL	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS
TYPE OF LOCATION		SAMPLE	SEWER	SEWER	SEWER	SEWER	SEWER	SEWER
SAMPLE NUMBER		ME0710002	ME302020E	ME303021B	ME303032B	ME303043B	ME304011B	ME304022B
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO			1	1	1	1	1	1
IRON	P	1020	245	392	407	4 U	111	374
LEAD	P	943	50 U	50 U	50 U	50 U	50 U	50 U
MAGNESIUM	P	1050	12400	26600	26800	79 B	14100	13200
MANGANESE	P	982	73	149	147	1.7 B	50	70
NICKEL	P	992	12 U	12 U	12 U	12 U	12 U	12 U
POTASSIUM	P	9380	6020	5820	5740	82 U	4180 B	4260 B
SELENIUM	P	4910	97 U	97 U	97 U	97 U	97 U	97 U
SILVER	P	882	3.3 B	6.7 B	6.2 B	2.2 U	4 B	3 B
SODIUM	P	9300	52500	38100	39700	30 B	44500	44200
THALLIUM	P	5780	26 U	69 B	26 U	26 B	26 U	26 U
VANADIUM	P	983	16 B	30 B	29 B	6.2 B	21 B	22 B
ZINC	P	954	34	12 B	15 B	1.3 U	43	121
% SOLIDS								

AREA	METHOD			QA	QA		QA	QA
LOCATION		NW B. B-17	BURROUGHS	CONTINUING	CONTINUING	BURROUGHS	DUPLICATE	DUPLICATE
TYPE OF LOCATION		STORMWATER	SEWER	CAL FOUND	CAL BLANK	SEWER		RPD
SAMPLE NUMBER		ME309038E	ME302031E	ME2AA5002	ME03A2002	ME302100E	ME302100E	ME302100E
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	%
ENV PROBLEM NO		2	1			1	1	1
ALUMINUM	P	70 B	239	2010	21 U	24 B	21 U	200
ANTIMONY	P	58 U	58 U	5150	58 U	58 U	58 U	
ARSENIC	P	80 U	80 U	10700	-166 B	80 U	80 U	
BARIUM	P	63 B	53 B	2010	2 U	2 U	2 U	
BERYLLIUM	P	0.2 U	0.2 U	1960	0.2 U	0.2 U	0.2 U	
CADMIUM	P	2.5 U	2.5 U	1990	2.5 U	2.5 U	2.5 U	
CALCIUM	P	101000	62200	47700	32 B	26 B	20 U	200
CHROMIUM	P	4 B	4.8 B	2030	2.6 U	2.6 U	2.6 U	
COBALT	P	14 U	14 U	2100	14 U	14 U	14 U	
COPPER	P	1.9 U	4 B	2020	1.9 U	1.9 U	1.9 U	
IRON	P	14 B	222	2050	4 U	11 B	4 U	200
LEAD	P	50 U	50 U	1940	50 U	50 U	50 U	
MAGNESIUM	P	18300	13000	4940	47 B	41 U	41 U	
MANGANESE	P	12 B	80	1980	1.4 B	1.2 B	1 B	18
NICKEL	P	12 U	12 U	1990	12 U	12 U	12 U	

TABLE D.1.9 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302020E DRAFT DO NOT CITE

AREA	METHOD			QA	QA		QA	QA
LOCATION		NW B. B-17	BURROUGHS	CONTINUING	CONTINUING	BURROUGHS	DUPLICATE	DUPLICATE
TYPE OF LOCATION		STORMWATER	SEWER	CAL FOUND	CAL BLANK	SEWER		RPD
SAMPLE NUMBER		ME309038E	ME302031E	ME2AA5002	ME03A2002	ME302100E	ME302100E	ME302100E
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	
UNITS		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	%
ENV PROBLEM NO		2	1			1	1	1
POTASSIUM	P	11600	5900	10100	82 U	82 U	82 U	
SELENIUM	P	97 U	97 U	5150	97 U	97 U	97 U	
SILVER	P	4.6 B	4.6 B	1010	2.2 U	2.2 U	2.2 U	
SODIUM	P	114000	50900	9650	12 B	27 B	13 B	70
THALLIUM	P	26 U	29 B	7060	-44 B	26 U	26 U	
VANADIUM	P	22 B	17 B	2030	4.4 B	2.9 B	2.9 B	0
ZINC	P	32	29	1970	1.3 U	2.8 B	1.8 B	44
% SOLIDS								

AREA	METHOD	QA	QA			QA	QA	QA
LOCATION		MATRIX	MS %	BURROUGHS	BURROUGHS	SERIAL	CRDL STAND	INTER CHK
TYPE OF LOCATION		SPIKE	RECOVERY	SEWER	SEWER	DILUTION	FINAL	SOL. A FINAL
SAMPLE NUMBER		ME302100E	ME302100E	ME304033B	ME305034B	ME302100E	ME2B10002	ME0400022
MATRIX		WATER		WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	%	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		1	1	1	1	1		
ALUMINUM	P	1890	93	224	122 B	138 B		467000
ANTIMONY	P	524	105	58 U	58 U	292 U		68
ARSENIC	P	1910	96	80 U	80 U	402 U		-20
BARIUM	P	1940	97	49 B	41 B	10 U		113
BERYLLIUM	P	48	95	0.2 U	0.2 U	1 U	7.6	11
CADMIUM	P	50	100	2.5 U	2.5 U	12 U	11	10
CALCIUM	P			66200	97900	132 B		427000
CHROMIUM	P	194	97	2.6 U	2.6 U	13 U	22	61
COBALT	P	513	103	14 U	14 U	70 U	121	30
COPPER	P	247	99	3.1 B	3 B	9.5 U	52	-4
IRON	P	1020	101	132	26 B	20 B		194000
LEAD	P	436	87	50 U	50 U	249 U		336
MAGNESIUM	P			13700	17900	205 U		444000
MANGANESE	P	492	98	23	11 B	4 B	32	104
NICKEL	P	493	99	12 U	12 U	61 U	87	29
POTASSIUM	P			3960 B	7070	408 U		-79
SELENIUM	P	2010	100	97 U	97 U	484 U		34
SILVER	P	44	87	3.3 B	5.9 B	11 U	20	-7
SODIUM	P			42200	77300	171 B		520
THALLIUM	P	26 U		26 U	26 U	129 U		168

TABLE D.1.9 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME302020E DRAFT DO NOT CITE

AREA	METHOD	QA	QA			QA	QA	QA
LOCATION		MATRIX	MS %	BURROUGHS	BURROUGHS	SERIAL	CRDL STAND	INTER CHK
TYPE OF LOCATION		SPIKE	RECOVERY	SEWER	SEWER	DILUTION	FINAL	SOL. A FINAL
SAMPLE NUMBER		ME302100E	ME302100E	ME304033B	ME305034B	ME302100E	ME2B10002	ME0400022
MATRIX		WATER		WATER	WATER	WATER	WATER	WATER
UNITS		UG/L	%	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO		1	1	1	1	1		
VANADIUM	P	498	99	19 B	22 B	12 B	109	-59
ZINC	P	475	94	52	28	6.5 B	42	21
% SOLIDS								

AREA	METHOD	QA
LOCATION		INTER CHK
TYPE OF LOCATION		SOL. AB FINA
SAMPLE NUMBER		ME0400022
MATRIX		WATER
UNITS		UG/L
ENV PROBLEM NO		
ALUMINUM	P	479000
ANTIMONY	P	106
ARSENIC	P	71
BARIUM	P	567
BERYLLIUM	P	475
CADMIUM	P	894
CALCIUM	P	437000
CHROMIUM	P	531
COBALT	P	496
COPPER	P	512
IRON	P	197000
LEAD	P	4690
MAGNESIUM	P	453000
MANGANESE	P	569
NICKEL	P	884
POTASSIUM	P	-67
SELENIUM	P	-15
SILVER	P	869
SODIUM	P	466
THALLIUM	P	1040
VANADIUM	P	427
ZINC	P	903
% SOLIDS		

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TABLE D.1.10 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME800012B DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		INITIAL CAL	INITIAL CAL	CRDL STAND	CRDL STAND	INITIAL CAL	CONTINUING	CONTINUING
TYPE OF LOCATION		TRUE A	FOUND A	TRUE	INITIAL	BLANK 1	CAL TRUE	CAL FOUND
SAMPLE NUMBER		ME2AA1003	ME2AA2003	ME2B10003	ME2B10003	ME03A0003	ME2AA3003	ME2AA4003
MATRIX		WATER	WATER	WATER	WATER	SOIL	WATER	WATER
UNITS		UG/L	UG/L	UG/L	UG/L	MG/KG	UG/L	UG/L
ENV PROBLEM NO								
ALUMINUM	P	1970	1990			21 U	2000	2030
ANTIMONY	P	1090	1170			58 U	5000	5200
ARSENIC	P	10000	10800			-96 B	10000	10800
BARIUM	P	2120	2070			2 U	2000	1980
BERYLLIUM	P	527	498	10	9.6	0.2 U	2000	1970
CADMIUM	P	488	485	10	9.8	2.5 U	2000	1920
CALCIUM	P	51800	48600			60 B	50000	50200
CHROMIUM	P	529	514	20	20	2.6 U	2000	1990
COBALT	P	496	503	100	102	14 U	2000	2000
COPPER	P	524	543	50	53	1.9 U	2000	2050
IRON	P	2060	2170			88 U	2000	1930
LEAD	P	5160	4920			50 U	2000	2000
MAGNESIUM	P	25500	24800			87 B	5000	5040
MANGANESE	P	520	512	30	33	1.4 B	2000	1930
NICKEL	P	495	484	80	86	12 U	2000	1950
POTASSIUM	P	51300	50300			82 U	10000	10200
SELENIUM	P	5000	5110			97 U	5000	5120
SILVER	P	495	461	20	20	2.2 U	1000	979
SODIUM	P	50300	52700			271 B	50000	47600
THALLIUM	P	7000	7240			26 U	7000	7280
VANADIUM	P	520	529	100	108	3.1 B	2000	2020
ZINC	P	3070	2910	40	44	1.9 B	2000	1950
% SOLIDS								

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		CONTINUING	INTER CHK	INTER CHK	INTER CHK	INTER CHK	PREP	LAB CONTROL
TYPE OF LOCATION		CAL BLANK	SOL. A TRUE	SOL. A INIT	SOL. AB TRUE	SOL. AB INIT	BLANK	SAMPLE TRUE
SAMPLE NUMBER		ME03A1003	ME0400033	ME0400033	ME0400033	ME0400033	ME03A0003	ME0710003
MATRIX		SOIL	WATER	WATER	WATER	WATER	SOIL	SOIL
UNITS		MG/KG	UG/L	UG/L	UG/L	UG/L	MG/KG	MG/KG
ENV PROBLEM NO								
ALUMINUM	P	21 U	502000	476000	508000	487000	19 B	325
ANTIMONY	P	58 U		59		66	12 U	211
ARSENIC	P	80 U		-32		46	16 U	917
BARIUM	P	2 U		114	483	577	0.4 U	4.8
BERYLLIUM	P	0.2 U		13	474	480	-0.05 B	19

TABLE D.1.10 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME800012B

DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA	QA	QA	QA	QA
LOCATION		CONTINUING	INTER CHK	INTER CHK	INTER CHK	INTER CHK	PREP	LAB CONTROL
TYPE OF LOCATION		CAL BLANK	SOL. A TRUE	SOL. A INIT	SOL. AB TRUE	SOL. AB INIT	BLANK	SAMPLE TRUE
SAMPLE NUMBER		ME03A1003	ME0400033	ME0400033	ME0400033	ME0400033	ME03A0003	ME0710003
MATRIX		SOIL	WATER	WATER	WATER	WATER	SOIL	SOIL
UNITS		MG/KG	UG/L	UG/L	UG/L	UG/L	MG/KG	MG/KG
ENV PROBLEM NO								
CADMIUM	P	2.5 U		5	909	890	0.5 U	45
CALCIUM	P	20 U	506000	452000	516000	467000	45 B	196000
CHROMIUM	P	2.6 U		60	513	531	0.52 U	100
COBALT	P	14 U		32	478	482	2.8 U	144
COPPER	P	1.9 U		-2	534	527	1.3 B	6910
IRON	P	88 U	196000	194000	203000	193000	-42	22400
LEAD	P	50 U		335	4850	4810	10 U	236
MAGNESIUM	P	41 U	498000	459000	509000	470000	8.2 U	118000
MANGANESE	P	1.1 B		103	531	571	0.34 B	208
NICKEL	P	12 U		22	916	885	2.4 U	61
POTASSIUM	P	82 U		-39		31	-18 B	50
SELENIUM	P	97 U		20		-82	19 U	39
SILVER	P	2.2 U		-10	993	884	0.44 U	22
SODIUM	P	-317 B		-129		-62	-157 B	50
THALLIUM	P	26 U		143	921	1130	5.2 U	39
VANADIUM	P	3.2 B		-69	475	419	0.88 B	66
ZINC	P	1.9 U		20	973	921	0.6 B	187
% SOLIDS								

AREA	METHOD	QA						
LOCATION		LAB CONTROL	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION		SAMPLE	WASTE	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER		ME0710003	ME800012B	ME800023B	ME800034B	ME800045B	ME800056B	ME800067B
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS		MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
ENV PROBLEM NO			3	3	3	3	3	3
ALUMINUM	P	266	7210	7350	6270	7810	6350	6440
ANTIMONY	P	247	12 U	12 U	11 U	11 U	12 U	11 U
ARSENIC	P	984	21 B	16 U	26 B	17 B	16 U	15 U
BARIUM	P	19 B	85	94	76	73	265	53
BERYLLIUM	P	21	1.1	0.98 B	0.64 B	0.7 B	1.8	0.65 B
CADMIUM	P	39	0.71 B	0.82 B	0.48 U	0.48 U	1.2 B	0.6 B
CALCIUM	P	188000	36400 *	1830 *	6580 *	624 B*	144000 *	28900 *
CHROMIUM	P	102	22	19	18	19	18	15
COBALT	P	137	13	11	14	25	5.4 B	11
COPPER	P	6970	16	19	12	13	16	5.9

TABLE D.1.10 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME800012B DRAFT DO NOT CITE

AREA	METHOD	QA						
LOCATION		LAB CONTROL	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION		SAMPLE	WASTE	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER		ME0710003	ME800012B	ME800023B	ME800034B	ME800045B	ME800056B	ME800067B
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS		MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
ENV PROBLEM NO			3	3	3	3	3	3
IRON	P	21300	22600 *	14800 *	20500 *	28100 *	14200 *	16800 *
LEAD	P	221	28 B	24 B	22 B	32 B	57	26 B
MAGNESIUM	P	112000	2130 E	1550 E	1040 E	959 BE	4510 E	1340 E
MANGANESE	P	205	339	132	412	603	214	256
NICKEL	P	55	15	17	12	12	18	7 B
POTASSIUM	P	24 B	946 B	1210	546 B	620 B	870 B	520 B
SELENIUM	P	19 U	19 U	19 U	19 U	19 U	19 U	18 U
SILVER	P	24	1.1 BN	0.98 BN	1.1 BN	0.94 BN	1.9 BN	1.1 BN
SODIUM	P	54 U	53 U	54 U	52 U	52 U	54 U	51 U
THALLIUM	P	61 B	14 BN	5.2 UN	5 UN	5 UN	8 BN	4.9 UN
VANADIUM	P	68	23	24	22	24	21	19
ZINC	P	166	54	94	43	38	102	25
% SOLIDS			87.7	84.4	88.8	88.2	92	80

AREA	METHOD	QA	QA					
LOCATION		CONTINUING	CONTINUING	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION		CAL FOUND	CAL BLANK	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER		ME2AA5003	ME03A2003	ME801013B	ME801024B	ME801035B	ME801046B	ME801057B
MATRIX		WATER	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS		UG/L	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
ENV PROBLEM NO				3	3	3	3	3
ALUMINUM	P	2080	21 U	7640	7530	8200	7780	8480
ANTIMONY	P	5590	58 U	12 U	17 B	16 B	12 U	11 U
ARSENIC	P	11400	80 U	16 U	16 U	31 B	16 U	15 U
BARIUM	P	2070	2 U	153	188	147	136	246
BERYLLIUM	P	2080	-0.72 B	1 B	1.7	2.2	0.99 B	1.3
CADMIUM	P	2050	2.5 U	0.67 B	0.49 U	0.49 U	0.5 U	1.2 B
CALCIUM	P	53600	73 B	30800 *	73200 *	150000 *	26300 *	44700 *
CHROMIUM	P	2080	2.6 U	17	16	18	17	18
COBALT	P	2130	14 U	12	9.6 B	14	12	13
COPPER	P	2100	1.9 U	18	32	24	16	30
IRON	P	2100	-204	16600 *	16900 *	32700 *	18900 *	20500 *
LEAD	P	2090	50 U	32 B	23 B	31 B	29 B	52
MAGNESIUM	P	5310	-61 B	2470 E	4920 E	7550 E	2410 E	4720 E
MANGANESE	P	2020	1.9 B	320	365	765	362	447
NICKEL	P	2060	12 U	20	25	29	18	26

TABLE D.1.10 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME800012B DRAFT DO NOT CITE

AREA	METHOD	QA	QA					
LOCATION		CONTINUING	CONTINUING	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION		CAL FOUND	CAL BLANK	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER		ME2AA5003	ME03A2003	ME801013B	ME801024B	ME801035B	ME801046B	ME801057B
MATRIX		WATER	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS		UG/L	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
ENV PROBLEM NO				3	3	3	3	3
POTASSIUM	P	10400	82 U	1210	2050	1810	1150	1600
SELENIUM	P	5440	97 U	20 U	19 U	19 U	19 U	19 U
SILVER	P	968	2.2 U	1.2 BN	1.7 BN	2.4 BN	1.3 BN	3 BN
SODIUM	P	50400	-812 B	55 U	53 U	53 U	54 U	52 U
THALLIUM	P	7710	26 U	14 BN	10 BN	23 BN	5.2 UN	17 BN
VANADIUM	P	2110	3.1 B	22	19	24	23	24
ZINC	P	2050	1.9 U	65	71	70	57	79
% SOLIDS				86.7	92.5	86.3	87.4	88.5

AREA	METHOD						QA	QA
LOCATION		B. B-11	B. B-11	B. B-11	B. B-11	B. B-11	CONTINUING	CONTINUING
TYPE OF LOCATION		WASTE	WASTE	WASTE	WASTE	WASTE	CAL FOUND	CAL FOUND
SAMPLE NUMBER		ME801068B	ME801079B	ME801080B	ME801091B	ME801104B	ME2AB4002	ME2AB5002
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
UNITS		MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	UG/L	UG/L
ENV PROBLEM NO		3	3	3	3	3		
ALUMINUM	P	8290	4490	5340	2210	1870	2040	
ANTIMONY	P	12 B	12 U	13 B	11 U	18 B	5460	
ARSENIC	P	19 B	16 U	15 U	16 U	16 U	11200	
BARIUM	P	137	497	95	53	110	2020	
BERYLLIUM	P	1.4	1.4	0.56 B	2.6	1.4	2030	
CADMIUM	P	0.5 U	0.81 B	0.52 B	0.49 U	3.6 B	2000	
CALCIUM	P	43900 *	93600 *	7650 *	271000 *	144000 *	52200	
CHROMIUM	P	17	14	15	8.6	40	2030	
COBALT	P	15	9.4 B	12	2.8 B	6.9 B	2090	
COPPER	P	35	26	17	0.37 U	38	2070	
IRON	P	22000 *	19100 *	18100 *	6440 *	29000 *	2030	
LEAD	P	33 B	26 B	27 B	9.8 U	107	2050	
MAGNESIUM	P	5290 E	4650 E	1280 E	8650 E	3100 E	5150	
MANGANESE	P	501	453	399	172	280	1970	
NICKEL	P	28	23	13	10	20	2030	
POTASSIUM	P	1880	1260	858 B	488 B	298 B	10500	10500
SELENIUM	P	19 U	19 U	18 U	19 U	124	5300	
SILVER	P	1.9 BN	1.4 BN	1 BN	2.5 BN	1.5 BN	967	
SODIUM	P	54 U	54 U	52 U	53 U	54 U	51800	
THALLIUM	P	9.9 BN	6.8 BN	4.9 UN	21 BN	6.8 BN	7530	

TABLE D.1.10 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME800012B DRAFT DO NOT CITE

AREA	METHOD						QA	QA
LOCATION		B. B-11	B. B-11	B. B-11	B. B-11	B. B-11	CONTINUING	CONTINUING
TYPE OF LOCATION		WASTE	WASTE	WASTE	WASTE	WASTE	CAL FOUND	CAL FOUND
SAMPLE NUMBER		ME801068B	ME801079B	ME801080B	ME801091B	ME801104B	ME2AB4002	ME2AB5002
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
UNITS		MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	UG/L	UG/L
ENV PROBLEM NO		3	3	3	3	3		
VANADIUM	P	23	16	19	15	22	2060	
ZINC	P	70	76	55	35	284	2010	
% SOLIDS		86.2	85.1	81.6	95.2	90.6		

AREA	METHOD	QA		QA	QA	QA	QA	QA
LOCATION		CONTINUING	B. B-11	DUPLICATE	DUPLICATE	MATRIX	MS %	POST DIGEST
TYPE OF LOCATION		CAL BLANK	WASTE		RPD	SPIKE	RECOVERY	SPIKE
SAMPLE NUMBER		ME03A3003	ME801115B	ME801115B	ME801115B	ME801115B	ME801115B	ME801115B
MATRIX		SOIL	SOIL	SOIL		SOIL		SOIL
UNITS		MG/KG	MG/KG	MG/KG	%	MG/KG	%	MG/KG
ENV PROBLEM NO			3	3	3	3	3	3
ALUMINUM	P	21 U	787	911	15			
ANTIMONY	P	70 B	11 U	11 U		86	91	
ARSENIC	P	80 U	15 U	18 B	200	362	95	
BARIUM	P	2 U	35 B	40	15	378	90	
BERYLLIUM	P	0.2 U	0.34 B	0.37 B	8.4	9.2	93	
CADMIUM	P	2.5 U	0.46 U	0.47 U		8.6	90	
CALCIUM	P	70 B	4040 *	6510 *	47			
CHROMIUM	P	2.6 U	12	13	11	46	90	
COBALT	P	14 U	5.1 B	3.8 B	29	93	93	
COPPER	P	1.9 U	14	14	2.2	59	96	
IRON	P	-115	12500 *	16000 *	25			
LEAD	P	50 U	17 B	18 B	6.8	111	99	
MAGNESIUM	P	41 U	419 BE	486 B	15			
MANGANESE	P	1.7 B	74	78	5.8	167	98	
NICKEL	P	12 U	7.3 B	7.8	6.6	93	90	
POTASSIUM	P	-85 B	115 B	153 B	28			
SELENIUM	P	97 U	18 U	18 U		349	92	
SILVER	P	2.2 U	1.5 BN	1.7 B	12	8.6 N	75	48
SODIUM	P	-702 B	50 U	51 U				
THALLIUM	P	26 U	4.9 BN	9.9 B	68	220 N	57	830
VANADIUM	P	3.6 B	8.8 B	9.9	12	97	93	
ZINC	P	1.9 U	47	49	3.9	133	90	
% SOLIDS			80.7	80.7				

TABLE D.1.10 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME800012B DRAFT DO NOT CITE

AREA	METHOD	QA	QA	QA		QA	QA	QA
LOCATION		POST DIGEST	SERIAL	SD %	B. B-11	CONTINUING	CRDL STAND	INTER CHK
TYPE OF LOCATION		SPIKE % REC	DILUTION	DIFFERENCE	WASTE	CAL BLANK	FINAL	SOL. A FINAL
SAMPLE NUMBER		ME801115B	ME801115B	ME801115B	ME801126B	ME03B4002	ME2B10003	ME0400033
MATRIX			SOIL		SOIL	SOIL	WATER	WATER
UNITS		%	MG/KG	%	MG/KG	MG/KG	UG/L	UG/L
ENV PROBLEM NO		3	3	3	3			
ALUMINUM	P		4260	0.7	2740	21 U		474000
ANTIMONY	P		292 U		16 B	58 U		94
ARSENIC	P		402 U		14 U	80 U		7
BARIUM	P		186 B	0	81	2 U		113
BERYLLIUM	P		1 B		1	0.2 U	9.3	12
CADMIUM	P		12 U		9.6	2.5 U	10	4
CALCIUM	P		22300	2.8	70600 *	60 B		462000
CHROMIUM	P		60	3.5	107	2.6 U	20	59
COBALT	P		70 U		11	14 U	110	37
COPPER	P		80	10	140	1.9 U	52	-4
IRON	P		67000	2.6	124000 *	-221		193000
LEAD	P		249 U		160	50 U		315
MAGNESIUM	P		1820 BE	19	2290 E	-58 B		462000
MANGANESE	P		405	1.8	634	1.3 B	31	102
NICKEL	P		61 U		49	12 U	82	15
POTASSIUM	P		410 B		444 B	82 U		-86
SELENIUM	P		484 U		17 U	97 U		-21
SILVER	P	80	11 U		3.2 BN	2.2 U	19	-10
SODIUM	P		1350 U		48 U	-990 B		-328
THALLIUM	P	40	129 U		8.8 BN	26 U		133
VANADIUM	P		60 B	27	69	2.8 B	104	-71
ZINC	P		259	2	1360	1.9 U	42	19
% SOLIDS					82.2			

AREA	METHOD	QA
LOCATION		INTER CHK
TYPE OF LOCATION		SOL. AB FINA
SAMPLE NUMBER		ME0400033
MATRIX		WATER
UNITS		UG/L
ENV PROBLEM NO		
ALUMINUM	P	484000
ANTIMONY	P	115
ARSENIC	P	116
BARIUM	P	574
BERYLLIUM	P	479

TABLE D.1.10 METC METALS, INCLUDING CR+6 - SDG NUMBER: ME800012B DRAFT DO NOT CITE

AREA	METHOD	QA
LOCATION		INTER CHK
TYPE OF LOCATION		SOL. AB FINA
SAMPLE NUMBER		ME0400033
MATRIX		WATER
UNITS		UG/L
ENV PROBLEM NO		
CADMIUM	P	899
CALCIUM	P	473000
CHROMIUM	P	528
COBALT	P	494
COPPER	P	523
IRON	P	196000
LEAD	P	4820
MAGNESIUM	P	470000
MANGANESE	P	567
NICKEL	P	889
POTASSIUM	P	-98
SELENIUM	P	-67
SILVER	P	884
SODIUM	P	-404
THALLIUM	P	1130
VANADIUM	P	417
ZINC	P	919
% SOLIDS		

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Table D.1.11. METC Metals QC Data Interelement Correction Factors

SDGs using these Interelement Correction Factors: ME300017C, ME301018B, ME302019E, ME302020E, ME800012B

ANALYTE	INTERELEMENT CORRECTION FACTORS FOR:												
	AL	CA	FE	MG	BA	CD	CO	CR	CU	MN	NI	TI	P
Aluminum													
Antimony													
Arsenic													
Barium													
Beryllium													
Cadmium			18.000										
Calcium													
Chromium	6.000												
Cobalt													
Copper		16.000											
Iron													
Lead													
Magnesium													
Manganese													
Mercury													
Nickel													
Potassium													
Selenium													
Silver				10.000									
Sodium													
Thallium													
Vanadium				44.000									
Zinc													

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Table D.1.12. METC Metals QC Data — Linear Range

SDGs: ME300017C, ME301018B

ANALYTE	CONCENTRATION µG/L
Aluminum	497,000
Antimony	20,200
Arsenic	20,200
Barium	50,600
Beryllium	5,070
Cadmium	19,600
Calcium	485,000
Chromium	47,800
Cobalt	20,100
Copper	20,100
Iron	145,000
Lead	48,300
Magnesium	490,000
Manganese	19,600
Mercury	
Nickel	50,400
Potassium	201,000
Selenium	20,800
Silver	19,800
Sodium	98,000
Thallium	20,100
Vanadium	20,000
Zinc	49,000

Table D.1.12. METC Metals QC Data — Linear Range (continued)

SDGs: ME302019E

ANALYTE	CONCENTRATION µG/L
Aluminum	47,900
Antimony	20,900
Arsenic	20,100
Barium	52,500
Beryllium	4,940
Cadmium	19,600
Calcium	502,000
Chromium	47,900
Cobalt	19,800
Copper	20,100
Iron	196,000
Lead	51,800
Magnesium	496,000
Manganese	19,900
Mercury	
Nickel	49,600
Potassium	205,000
Selenium	21,000
Silver	20,500
Sodium	205,000
Thallium	20,500
Vanadium	20,200
Zinc	19,600

Table D.1.12. METC Metals QC Data — Linear Range (continued)

SDGs: ME302020E

ANALYTE	CONCENTRATION µG/L
Aluminum	497,000
Antimony	20,200
Arsenic	20,200
Barium	50,600
Beryllium	5,070
Cadmium	19,600
Calcium	485,000
Chromium	47,800
Cobalt	20,100
Copper	20,100
Iron	145,000
Lead	48,300
Magnesium	490,000
Manganese	19,600
Mercury	
Nickel	50,400
Potassium	201,000
Selenium	20,800
Silver	19,800
Sodium	199,000
Thallium	20,100
Vanadium	20,000
Zinc	49,000

Table D.1.12. METC Metals QC Data — Linear Range (continued)

SDGs: ME800012B

ANALYTE	CONCENTRATION µG/L
Aluminum	497,000
Antimony	20,200
Arsenic	20,200
Barium	50,600
Beryllium	5,070
Cadmium	19,600
Calcium	485,000
Chromium	47,800
Cobalt	20,100
Copper	20,100
Iron	203,000
Lead	48,300
Magnesium	490,000
Manganese	19,600
Mercury	
Nickel	50,400
Potassium	201,000
Selenium	20,800
Silver	19,800
Sodium	199,000
Thallium	20,100
Vanadium	20,000
Zinc	49,000

TABLE D.2.1 DIRECTORY FOR PCBS & OTHER EXTRACTABLES QA/QC DATA

PROBLEM NUMBER	SAMPLE NUMBER	QA/QC ANALYTICAL SDG NUMBER	QA/QC TABLE NUMBER(PG)
3	ME800012A	ME800012A	D.2.2 (D-47)
3	ME800023A	ME800012A	D.2.2 (D-48)
3	ME800034A	ME800012A	D.2.2 (D-48)
3	ME800045A	ME800012A	D.2.2 (D-48)
3	ME800056A	ME800012A	D.2.2 (D-48)
3	ME800067A	ME800012A	D.2.2 (D-48)
3	ME800078A	ME800012A	D.2.2 (D-51)
3	ME801013A	ME800012A	D.2.2 (D-48)
3	ME801024A	ME800012A	D.2.2 (D-49)
3	ME801035A	ME800012A	D.2.2 (D-49)
3	ME801046A	ME800012A	D.2.2 (D-50)
3	ME801057A	ME800012A	D.2.2 (D-50)
3	ME801068A	ME800012A	D.2.2 (D-50)
3	ME801079A	ME800012A	D.2.2 (D-50)
3	ME801080A	ME800012A	D.2.2 (D-50)
3	ME801091A	ME800012A	D.2.2 (D-50)
3	ME801104A	ME800012A	D.2.2 (D-51)
3	ME801115A	ME800012A	D.2.2 (D-51)
3	ME801126A	ME800012A	D.2.2 (D-51)

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TABLE D.2.2 METC PCBS & OTHER EXTRACTABLES - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	
LOCATION	EVAL A TUNED	EVAL B TUNED	EVAL B TUNED	RSD	EVAL C TUNED	METHOD	B. B-11
TYPE OF LOCATION	CALIBRATION	CALIBRATION	CALIBRATION		CALIBRATION	BLANK	WASTE
SAMPLE NUMBER	ME112388	ME112388	ME112388	ME112388	ME112388	PBK87240	ME800012A
MATRIX						SOIL	SOIL
UNITS	CF	%	CF	%	CF	UG/KG	UG/KG
ENV PROBLEM NO							3
ALDRIN	4440000		4520000	4.2	4810000	8 U	8.7 U
ALPHA CHLORDANE						80 U	87 U
ALPHA-BHC						8 U	8.7 U
AROCLOR-1016						80 U	87 U
AROCLOR-1221						80 U	87 U
AROCLOR-1232						80 U	87 U
AROCLOR-1242						80 U	87 U
AROCLOR-1248						80 U	87 U
AROCLOR-1254						160 U	170 U
AROCLOR-1260						160 U	170 U
BETA-BHC						8 U	8.7 U
COMBINED		14					
DBC	3390000		3440000	8.1	3540000		
DELTA-BHC						8 U	8.7 U
DIELDRIN						16 U	17 U
ENDOSULFAN I						8 U	8.7 U
ENDOSULFAN II						16 U	17 U
ENDOSULFAN SULFATE						16 U	17 U
ENDRIN	2710000	31	2820000	3.3	2890000	16 U	17 U
ENDRIN KETONE						16 U	17 U
GAMMA CHLORDANE						80 U	8.4 J
GAMMA-BHC (LINDANE)						8 U	8.7 U
HEPTACHLOR						8 U	8.7 U
HEPTACHLOR EPOXIDE						8 U	8.7 U
METHOXYCHLOR						80 U	87 U
MIREX	0		0	0	0		
TOXAPHENE						160 U	170 U
4,4'-DDD						16 U	17 U
4,4'-DDE						16 U	17 U
4,4'-DDT	3770000	6	3930000	4.6	4130000	16 U	17 U
SURR 1(DBC) %RECOVERY						101	100
ACTUAL(ALLOWED) EXTRACT TIME							8(14 D)

AREA			QA				
LOCATION	B. B-11	B. B-11	CONT. CAL	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	WASTE	WASTE	% BREAKDOWN	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME800023A	ME800034A	ME112488	ME800045A	ME800056A	ME800067A	ME801013A
MATRIX	SOIL	SOIL		SOIL	SOIL	SOIL	WATER
UNITS	UG/KG	UG/KG	%	UG/KG	UG/KG	UG/KG	UG/L
ENV PROBLEM NO	3	3		3	3	3	3
ALDRIN	9.4 U	9 U		9 U	8.8 U	9.8 U	9.3 U
ALPHA CHLORDANE	94 U	90 U		90 U	88 U	98 U	93 U
ALPHA-BHC	9.4 U	9 U		9 U	8.8 U	9.8 U	9.3 U
AROCLOR-1016	94 U	90 U		90 U	88 U	98 U	93 U
AROCLOR-1221	94 U	90 U		90 U	88 U	98 U	93 U
AROCLOR-1232	94 U	90 U		90 U	88 U	98 U	93 U
AROCLOR-1242	94 U	90 U		90 U	88 U	98 U	93 U
AROCLOR-1248	94 U	90 U		90 U	88 U	98 U	93 U
AROCLOR-1254	190 U	180 U		180 U	180 U	200 U	190 U
AROCLOR-1260	190 U	180 U		180 U	180 U	200 U	190 U
BETA-BHC	9.4 U	9 U		9 U	8.8 U	9.8 U	9.3 U
COMBINED DBC			14				
DELTA-BHC	9.4 U	9 U		9 U	8.8 U	9.8 U	9.3 U
DIELDRIN	19 U	18 U		18 U	18 U	20 U	19 U
ENDOSULFAN I	9.4 U	9 U		9 U	8.8 U	9.8 U	9.3 U
ENDOSULFAN II	19 U	18 U		18 U	18 U	20 U	19 U
ENDOSULFAN SULFATE	19 U	18 U		18 U	18 U	20 U	19 U
ENDRIN	19 U	18 U	29	18 U	18 U	20 U	19 U
ENDRIN KETONE	19 U	18 U		18 U	18 U	20 U	19 U
GAMMA CHLORDANE	94 U	90 U		90 U	88 U	98 U	93 U
GAMMA-BHC (LINDANE)	9.4 U	9 U		9 U	8.8 U	9.8 U	9.3 U
HEPTACHLOR	9.4 U	9 U		9 U	8.8 U	9.8 U	9.3 U
HEPTACHLOR EPOXIDE	9.4 U	9 U		9 U	8.8 U	9.8 U	9.3 U
METHOXYCHLOR	94 U	90 U		90 U	88 U	98 U	93 U
MIREX							
TOXAPHENE	190 U	180 U		180 U	180 U	200 U	190 U
4,4'-DDD	19 U	18 U		18 U	18 U	20 U	19 U
4,4'-DDE	19 U	18 U		18 U	18 U	20 U	19 U
4,4'-DDT	19 U	18 U	6.7	18 U	18 U	20 U	19 U
SURR 1(DBC) %RECOVERY	97	107		104	121	119	114
ACTUAL(ALLOWED) EXTRACT TIME	8(14 D)	8(14 D)		8(14 D)	8(14 D)	8(14 D)	8(7 D)

TABLE D.2.2 METC PCBS & OTHER EXTRACTABLES - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA		QA	QA	QA	QA	QA	
LOCATION	B. B-11	MATRIX	MS %	RPD	MATRIX SPIKE	MSD %	B. B-11
TYPE OF LOCATION	WASTE	SPIKE	RECOVERY		DUPLICATE	RECOVERY	WASTE
SAMPLE NUMBER	ME801024A	ME801024A	ME801024A	ME801024A	ME801024A	ME801024A	ME801035A
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	%	%	UG/KG	%	UG/KG
ENV PROBLEM NO	3	3	3	3	3	3	3
ALDRIN	8.6 U	37	119	8.8	36	109	9.3 U
ALPHA CHLORDANE	86 U	83 U			86 U		93 U
ALPHA-BHC	8.6 U	8.3 U			8.6 U		9.3 U
AROCLOR-1016	86 U	83 U			86 U		93 U
AROCLOR-1221	86 U	83 U			86 U		93 U
AROCLOR-1232	86 U	83 U			86 U		93 U
AROCLOR-1242	86 U	83 U			86 U		93 U
AROCLOR-1248	86 U	83 U			86 U		93 U
AROCLOR-1254	170 U	170 U			170 U		190 U
AROCLOR-1260	170 U	170 U			170 U		190 U
BETA-BHC	8.6 U	8.3 U			8.6 U		9.3 U
COMBINED DBC							
DELTA-BHC	8.6 U	8.3 U			8.6 U		9.3 U
DIELDRIN	17 U	58	92	12	54	82	19 U
ENDOSULFAN I	8.6 U	8.3 U			8.6 U		9.3 U
ENDOSULFAN II	17 U	17 U			17 U		19 U
ENDOSULFAN SULFATE	17 U	17 U			17 U		19 U
ENDRIN	17 U	104	151 *	11	97	135	19 U
ENDRIN KETONE	17 U	17 U			17 U		19 U
GAMMA CHLORDANE	86 U	83 U			86 U		93 U
GAMMA-BHC (LINDANE)	8.6 U	35	100	14	32	87	9.3 U
HEPTACHLOR	8.6 U	105	404 *	4.4	114	422 *	9.3 U
HEPTACHLOR EPOXIDE	8.6 U	8.3 U			8.6 U		9.3 U
METHOXYCHLOR	86 U	83 U			86 U		93 U
MIREX							
TOXAPHENE	170 U	170 U			170 U		190 U
4,4'-DDD	17 U	17 U			17 U		19 U
4,4'-DDE	17 U	17 U			17 U		19 U
4,4'-DDT	17 U	88	131	3.7	95	136 *	19 U
SURR 1(DBC) %RECOVERY	118	109			120		134
ACTUAL(ALLOWED) EXTRACT TIME	8(14 D)	8(14 D)			8(14 D)		9(14 D)

AREA			QA				
LOCATION	B. B-11	B. B-11	CONT. CAL	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	WASTE	WASTE	% BREAKDOWN	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME801046A	ME801057A	ME112588	ME801068A	ME801079A	ME801080A	ME801091A
MATRIX	SOIL	SOIL		SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	%	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO	3	3		3	3	3	3
ALDRIN	8.9 U	9.2 U		9.1 U	9.6 U	120	8.1 U
ALPHA CHLORDANE	89 U	92 U		90 U	96 U	92 U	81 U
ALPHA-BHC	8.9 U	9.2 U		9.1 U	9.6 U	9.2 U	8.1 U
AROCLOR-1016	89 U	92 U		90 U	96 U	92 U	81 U
AROCLOR-1221	89 U	92 U		90 U	96 U	92 U	81 U
AROCLOR-1232	89 U	92 U		90 U	96 U	92 U	81 U
AROCLOR-1242	89 U	92 U		90 U	96 U	92 U	81 U
AROCLOR-1248	89 U	92 U		90 U	96 U	92 U	81 U
AROCLOR-1254	180 U	180 U		180 U	190 U	180 U	160 U
AROCLOR-1260	180 U	180 U		180 U	190 U	180 U	160 U
BETA-BHC	8.9 U	9.2 U		9.1 U	9.6 U	9.2 U	8.1 U
COMBINED DBC			14				
DELTA-BHC	8.9 U	9.2 U		9.1 U	9.6 U	9.2 U	8.1 U
DIELDRIN	18 U	18 U		18 U	19 U	18 J	16 U
ENDOSULFAN I	8.9 U	9.2 U		9.1 U	9.6 U	9.2 U	8.1 U
ENDOSULFAN II	18 U	18 U		18 U	19 U	18 U	16 U
ENDOSULFAN SULFATE	18 U	18 U		18 U	19 U	18 U	16 U
ENDRIN	18 U	18 U	23	18 U	19 U	18 U	16 U
ENDRIN KETONE	18 U	18 U		18 U	19 U	18 U	16 U
GAMMA CHLORDANE	89 U	92 U		90 U	96 U	92 U	81 U
GAMMA-BHC (LINDANE)	8.9 U	9.2 U		9.1 U	9.6 U	9.2 U	8.1 U
HEPTACHLOR	8.9 U	9.2 U		9.1 U	9.6 U	9.2 U	8.1 U
HEPTACHLOR EPOXIDE	8.9 U	9.2 U		9.1 U	9.6 U	9.2 U	8.1 U
METHOXYCHLOR	89 U	92 U		90 U	96 U	9.3 J	81 U
MIREX							
TOXAPHENE	180 U	180 U		180 U	190 U	180 U	160 U
4,4'-DDD	18 U	18 U		18 U	19 U	18 U	16 U
4,4'-DDE	18 U	18 U		18 U	19 U	18 U	16 U
4,4'-DDT	18 U	18 U	8.5	18 U	19 U	18 U	16 U
SURR 1(DBC) %RECOVERY	114	104		97	152 *	120	85
ACTUAL(ALLOWED) EXTRACT TIME	9(14 D)	9(14 D)		9(14 D)	8(14 D)	8(14 D)	8(14 D)

TABLE D.2.2 METC PCBS & OTHER EXTRACTABLES - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA				QA	
LOCATION	B. B-11	B. B-11	B. B-11	METHOD	B. B-11
TYPE OF LOCATION	WASTE	WASTE	WASTE	BLANK	WASTE
SAMPLE NUMBER	ME801104A	ME801115A	ME801126A	PBK87238	ME800078A
MATRIX	SOIL	SOIL	SOIL	WATER	WATER
UNITS	UG/KG	UG/KG	UG/KG	UG/L	UG/L
ENV PROBLEM NO	3	3	3		3
ALDRIN	8.5 U	140	48 U	0.05 U	0.1 U
ALPHA CHLORDANE	85 U	99 U	480 U	0.5 U	1 U
ALPHA-BHC	8.5 U	9.9 U	48 U	0.05 U	0.1 U
AROCLOR-1016	85 U	99 U	480 U	0.5 U	1 U
AROCLOR-1221	85 U	99 U	480 U	0.5 U	1 U
AROCLOR-1232	85 U	99 U	480 U	0.5 U	1 U
AROCLOR-1242	85 U	99 U	480 U	0.5 U	1 U
AROCLOR-1248	85 U	99 U	480 U	0.5 U	1 U
AROCLOR-1254	170 U	200 U	950 U	1 U	2 U
AROCLOR-1260	170 U	200 U	950 U	1 U	2 U
BETA-BHC	8.5 U	9.9 U	48 U	0.04 J	0.1 B
COMBINED					
DBC					
DELTA-BHC	8.5 U	9.9 U	48 U	0.05 U	0.1 U
DIELDRIN	35	7.9 J	95 U	0.1 U	0.2 U
ENDOSULFAN I	8.5 U	9.9 U	48 U	0.05 U	0.1 U
ENDOSULFAN II	17 U	20 U	95 U	0.1 U	0.2 U
ENDOSULFAN SULFATE	17 U	20 U	95 U	0.1 U	0.2 U
ENDRIN	17 U	20 U	160	0.1 U	0.2 U
ENDRIN KETONE	17 U	20 U	95 U	0.1 U	0.2 U
GAMMA CHLORDANE	100	46 J	280 J	0.5 U	1 U
GAMMA-BHC (LINDANE)	8.5 U	9.9 U	48 U	0.05 U	0.1 U
HEPTACHLOR	20	74	100	0.05 U	0.1 U
HEPTACHLOR EPOXIDE	8.5 U	9.9 U	48 U	0.05 U	0.1 U
METHOXYCHLOR	85 U	99 U	480 U	0.5 U	1 U
MIREX					
TOXAPHENE	170 U	200 U	950 U	1 U	2 U
4,4'-DDD	17 U	20 U	95 U	0.1 U	0.2 U
4,4'-DDE	17 U	20 U	95 U	0.1 U	0.2 U
4,4'-DDT	17 U	20 U	95 U	0.1 U	0.2 U
SURR 1(DBC) %RECOVERY	133	95	180 *	107	76
ACTUAL(ALLOWED) EXTRACT TIME	8(14 D)	8(14 D)	8(14 D)		5(7 D)

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TABLE D.3.1 DIRECTORY FOR EXTRACTABLE ORGANICS QA/QC DATA

PROBLEM NUMBER	SAMPLE NUMBER	QA/QC ANALYTICAL SDG NUMBER	QA/QC TABLE NUMBER(PG)
1	ME300017A	ME300017A	D.3.2 (D-70)
1	ME300028A	ME300017A	D.3.2 (D-70)
1	ME300039A	ME300017A	D.3.2 (D-73)
1	ME301018A	ME300017A	D.3.2 (D-61)
1	ME301029A	ME300017A	D.3.2 (D-61)
1	ME301030A	ME300017A	D.3.2 (D-70)
1	ME301041A	ME300017A	D.3.2 (D-67)
1	ME301052A	ME300017A	D.3.2 (D-53)
1	ME301063A	ME300017A	D.3.2 (D-58)
1	ME301074A	ME300017A	D.3.2 (D-58)
1	ME301085A	ME300017A	D.3.2 (D-58)
1	ME301096A	ME300017A	D.3.2 (D-58)
1	ME302019A	ME302019A	D.3.3 (D-85)
1	ME302020A	ME302019A	D.3.3 (D-85)
1	ME302031A	ME302019A	D.3.3 (D-85)
1	ME302100A	ME302019A	D.3.3 (D-85)
1	ME306013A	ME300017A	D.3.2 (D-73)
1	ME306024A	ME300017A	D.3.2 (D-73)
1	ME306035A	ME300017A	D.3.2 (D-67)
1	ME306046A	ME302019A	D.3.3 (D-79)
2	ME309016A	ME302019A	D.3.3 (D-79)
2	ME309027A	ME302019A	D.3.3 (D-88)
2	ME309038A	ME302019A	D.3.3 (D-85)
2	ME310019A	ME302019A	D.3.3 (D-97)
2	ME311010A	ME302019A	D.3.3 (D-82)
2	ME311021A	ME302019A	D.3.3 (D-88)
2	ME311032A	ME302019A	D.3.3 (D-82)
3	ME800012A	ME800012A	D.3.4 (D-103)
3	ME800023A	ME800012A	D.3.4 (D-103)
3	ME800034A	ME800012A	D.3.4 (D-103)
3	ME800045A	ME800012A	D.3.4 (D-103)
3	ME800056A	ME800012A	D.3.4 (D-103)
3	ME800067A	ME800012A	D.3.4 (D-103)
3	ME800078A	ME302019A	D.3.3 (D-82)
3	ME801013A	ME800012A	D.3.4 (D-106)
3	ME801024A	ME800012A	D.3.4 (D-106)
3	ME801035A	ME800012A	D.3.4 (D-109)
3	ME801046A	ME800012A	D.3.4 (D-109)
3	ME801057A	ME800012A	D.3.4 (D-109)
3	ME801068A	ME800012A	D.3.4 (D-112)
3	ME801079A	ME800012A	D.3.4 (D-112)
3	ME801080A	ME800012A	D.3.4 (D-115)
3	ME801091A	ME800012A	D.3.4 (D-115)
3	ME801104A	ME800012A	D.3.4 (D-115)
3	ME801115A	ME800012A	D.3.4 (D-115)
3	ME801126A	ME800012A	D.3.4 (D-115)

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TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	
LOCATION	INITIAL CAL	INITIAL CAL	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	BURROUGHS
TYPE OF LOCATION	RRF	% RSD	CALIBRATION	CALIBRATION	CAL %D	SHIFT	SEWER
SAMPLE NUMBER	ME0816886	ME0816886	ME0816885	ME1003887	ME1003887	ME1003888	ME301052A
MATRIX							SOIL
UNITS	RRF	%	%	RRF	%	AREA	UG/KG
ENV PROBLEM NO							1
ACENAPHTHENE	1.154	3.5		1.156	-0.2		960 U
ACENAPHTHYLENE	1.82	5		1.828	-0.4		960 U
ANTHRACENE	1.125	4.9		1.152	-2.4		24 J
BENZO(A)ANTHRACENE	1.229	3.6		1.224	0.4		69 J
BENZO(A)PYRENE	1.336	6.5		1.478	-10.6		36 J
BENZO(B)FLUORANTHENE	1.57	6.7		1.772	-12.9		94 J
BENZO(G,H,I)PERYLENE	0.803	14.9		0.94	-17.1		960 U
BENZO(K)FLUORANTHENE	1.537	12.1		1.577	-2.6		960 U
BENZOIC ACID	0.113	32.4		0.021	81.4		4700 U
BENZYL ALCOHOL	0.911	2.4		0.788	13.5		960 U
BIS(-2-CHLOROETHOXY)METHANE	0.479	2.1		0.48	-0.2		960 U
BIS(2-CHLOROETHYL)ETHER	1.724	4.2		1.75	-1.5		960 U
BIS(2-CHLOROISOPROPYL)ETHER	2.763	4		2.608	5.6		960 U
BIS(2-ETHYLHEXYL)PHTHALATE	0.965	13.2		0.88	8.8		120 BJ
BUTYLBENZYLPHTHALATE	0.728	9.3		0.656	9.9		960 U
CHRYSENE	1.145	5.5		1.148	-0.3		73 J
DI-N-BUTYLPHTHALATE	1.2	6.1		1.219	-1.6		400 BJ
DI-N-OCTYL PHTHALATE	2.572	25.4		2.538	1.3		960 U
DIBENZO(A,H)ANTHRACENE	0.909	12		1.072	-17.9		960 U
DIBENZOFURAN	1.674	4		1.663	0.7		22 J
DIETHYLPHTHALATE	1.154	3.7		1.094	5.2		960 U
DIMETHYLPHTHALATE	1.213	8.4		1.191	1.8		960 U
FLUORANTHENE	1.109	2.8		1.09	1.7		160 J
FLUORENE	1.373	2.9		1.333	2.9		28 J
HEXACHLOROBENZENE	0.217	4.9		0.224	-3.2		960 U
HEXACHLOROBUTADIENE	0.158	3.9		0.165	-4.4		960 U
HEXACHLOROCYCLOPENTADIENE	0.316	1.4		0.285	9.8		960 U
HEXACHLOROETHANE	0.591	3.6		0.57	3.6		960 U
INDENO(1,2,3-CD)PYRENE	0.92	13.4		1.09	-18.5		45 J
ISOPHORONE	0.772	7.4		0.739	4.3		960 U
N-NITROSO-DI-N-PROPYLAMINE	0.835	3.4		0.783	6.2		960 U
N-NITROSODIPHENYLAMINE	0.352	24.4		0.397	-12.8		960 U
NAPHTHALENE	1.065	11.8		1.128	-5.9		53 J
NITROBENZENE	0.394	1.7		0.4	-1.5		960 U
NITROBENZENE-D5	0.2	2.3		0.209	-4.5		
PENTACHLOROPHENOL	0.103	8.2		0.083	19.4		4700 U
PHENANTHRENE	1.133	3.9		1.131	0.2		110 J
PHENOL	1.862	3.8		1.918	-3		38 J
PHENOL-D5	1.454	0.8		1.471	-1.2		

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	
LOCATION	INITIAL CAL	INITIAL CAL	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	BURROUGHS
TYPE OF LOCATION	RRF	% RSD	CALIBRATION	CALIBRATION	CAL %D	SHIFT	SEWER
SAMPLE NUMBER	ME0816886	ME0816886	ME0816885	ME1003887	ME1003887	ME1003888	ME301052A
MATRIX							SOIL
UNITS	RRF	%	%	RRF	%	AREA	UG/KG
ENV PROBLEM NO							1
PYRENE	1.101	3.2		1.08	1.9		130 J
TERPHENYL-D14	1.074	9.2		1.027	4.4		
1,2-DICHLOROBENZENE	1.565	4.6		1.56	0.3		960 U
1,2,4-TRICHLOROBENZENE	0.338	3.7		0.345	-2.1		960 U
1,3-DICHLOROBENZENE	1.6	4.3		1.604	-0.3		960 U
1,4-DICHLOROBENZENE	1.683	4.6		1.701	-1.1		960 U
2-CHLORONAPHTHALENE	1.259	4.1		1.295	-2.9		960 U
2-CHLOROPHENOL	1.399	3.8		1.402	-0.2		960 U
2-FLUOROBIPHENYL	1.315	1.9		1.403	-6.7		
2-FLUOROPHENOL	1.316	1		1.222	7.1		
2-METHYLNAPHTHALENE	0.74	3.5		0.734	0.8		53 J
2-METHYLPHENOL	1.32	1.9		1.251	5.2		960 U
2-NITROANILINE	0.345	1.8		0.329	4.6		4700 U
2-NITROPHENOL	0.216	2.5		0.214	0.9		960 U
2,4-DICHLOROPHENOL	0.283	1.6		0.247	12.7		960 U
2,4-DIMETHYLPHENOL	0.285	1.4		0.283	0.7		960 U
2,4-DINITROPHENOL	0.19	16.9		0.077	59.5		4700 U
2,4-DINITROTOLUENE	0.395	4.9		0.366	7.3		960 U
2,4,5-TRICHLOROPHENOL	0.347	6.1		0.346	0.3		4700 U
2,4,6-TRIBROMOPHENOL	0.086	3		0.092	-7		
2,4,6-TRICHLOROPHENOL	0.371	7		0.35	5.7		960 U
2,6-DINITROTOLUENE	0.313	5.4		0.303	3.2		960 U
3-NITROANILINE	0.33	5		0.308	6.7		4700 U
3,3'-DICHLOROBENZIDINE	0.406	41.5		0.728	-79.3		1900 U
4-BROMOPHENYL-PHENYLETHER	0.213	4.6		0.22	-3.3		960 U
4-CHLORO-3-METHYLPHENOL	0.268	1.1		0.241	10.1		960 U
4-CHLOROANILINE	0.153	5.6		0.136	11.1		960 U
4-CHLOROPHENYL-PHENYLETHER	0.654	2.5		0.643	1.7		960 U
4-METHYLPHENOL	1.344	2.2		1.217	9.4		960 U
4-NITROANILINE	0.302	8.5		0.263	12.9		4700 U
4-NITROPHENOL	0.082	10.6		0.082	0		4700 U
4,6-DINITRO-2-METHYLPHENOL	0.244	10.6		0.163	33.2		4700 U
SURR 1(NBZ) %RECOVERY							43
SURR 2(FBP) %RECOVERY							41
SURR 3(TPH) %RECOVERY							53
SURR 4(PHL) %RECOVERY							42
SURR 5(2FP) %RECOVERY							51
SURR 6(TBP) %RECOVERY							39

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	
LOCATION	INITIAL CAL	INITIAL CAL	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	BURROUGHS
TYPE OF LOCATION	RRF	% RSD	CALIBRATION	CALIBRATION	CAL %D	SHIFT	SEWER
SAMPLE NUMBER	ME0816886	ME0816886	ME0816885	ME1003887	ME1003887	ME1003888	ME301052A
MATRIX							SOIL
UNITS	RRF	%	%	RRF	%	AREA	UG/KG
ENV PROBLEM NO							1
M/E 51			48				
M/E 68-1			0				
M/E 68-2			0				
M/E 69			42				
M/E 70-1			0				
M/E 70-2			0				
M/E 127			41				
M/E 197			0				
M/E 198			100				
M/E 199			6.3				
M/E 275			18				
M/E 365			1.2				
M/E 441			6.1				
M/E 442			53				
M/E 443-1			9.9				
M/E 443-2			19				
INTERNAL STD AREA(ANT)						102000	111000
INTERNAL STD AREA(CRY)						101000	103000
INTERNAL STD AREA(DCB)						61200	61800
INTERNAL STD AREA(NPT)						213000	211000
INTERNAL STD AREA(PHN)						142000	157000
INTERNAL STD AREA(PRY)						56100	84700
DILUTION FACTOR							2
PERCENT MOISTURE							33
ACTUAL(ALLOWED) EXTRACT TIME							6(14 D)

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	TUNED	METHOD	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	CALIBRATION	BLANK	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME1004885	SBK81104	ME1005885	ME1005887	ME1005887	ME1005888	SBK81105
MATRIX		SOIL					SOIL
UNITS	%	UG/KG	%	RRF	%	AREA	UG/KG
ENV PROBLEM NO							
ACENAPHTHENE		660 U		1.124	2.6		660 U

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	TUNED	METHOD	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	CALIBRATION	BLANK	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME1004885	SBK81104	ME1005885	ME1005887	ME1005887	ME1005888	SBK81105
MATRIX		SOIL					SOIL
UNITS	%	UG/KG	%	RRF	%	AREA	UG/KG
ENV PROBLEM NO							
ACENAPHTHYLENE		660 U		1.815	0.3		660 U
ANTHRACENE		660 U		1.139	-1.2		660 U
BENZO(A)ANTHRACENE		660 U		1.194	2.8		660 U
BENZO(A)PYRENE		660 U		1.436	-7.5		660 U
BENZO(B)FLUORANTHENE		660 U		1.701	-8.3		660 U
BENZO(G,H,I)PERYLENE		660 U		0.991	-23.4		660 U
BENZO(K)FLUORANTHENE		660 U		1.561	-1.6		660 U
BENZOIC ACID		3200 U		0.04	64.6		3200 U
BENZYL ALCOHOL		660 U		0.772	15.3		660 U
BIS(-2-CHLOROETHOXY)METHANE		660 U		0.489	-2.1		660 U
BIS(2-CHLOROETHYL)ETHER		660 U		1.745	-1.2		660 U
BIS(2-CHLOROISOPROPYL)ETHER		660 U		2.663	3.6		660 U
BIS(2-ETHYLHEXYL)PHTHALATE		48 J		0.868	10.1		110 J
BUTYLBENZYLPHTHALATE		660 U		0.631	13.3		660 U
CHRYSENE		660 U		1.151	-0.5		660 U
DI-N-BUTYLPHTHALATE		280 J		1.172	2.3		290 J
DI-N-OCTYL PHTHALATE		660 U		2.3	10.6		36 J
DIBENZO(A,H)ANTHRACENE		660 U		1.133	-24.6		660 U
DIBENZOFURAN		660 U		1.65	1.4		660 U
DIETHYLPHTHALATE		660 U		1.026	11.1		660 U
DIMETHYLPHTHALATE		660 U		1.157	4.6		660 U
FLUORANTHENE		660 U		1.001	9.7		660 U
FLUORENE		660 U		1.284	6.5		660 U
HEXACHLOROBENZENE		660 U		0.231	-6.5		660 U
HEXACHLOROBUTADIENE		660 U		0.165	-4.4		660 U
HEXACHLOROCYCLOPENTADIENE		660 U		0.284	10.1		660 U
HEXACHLOROETHANE		660 U		0.588	0.5		660 U
INDENO(1,2,3-CD)PYRENE		660 U		1.177	-27.9		660 U
ISOPHORONE		660 U		0.779	-0.9		660 U
N-NITROSO-DI-N-PROPYLAMINE		660 U		0.824	1.3		660 U
N-NITROSODIPHENYLAMINE		660 U		0.378	-7.4		660 U
NAPHTHALENE		660 U		1.131	-6.2		660 U
NITROBENZENE		660 U		0.397	-0.8		660 U
NITROBENZENE-D5				0.208	-4		
PENTACHLOROPHENOL		3200 U		0.081	21.4		3200 U
PHENANTHRENE		660 U		1.118	1.3		660 U
PHENOL		660 U		1.896	-1.8		660 U
PHENOL-D5				1.465	-0.8		
PYRENE		660 U		0.983	10.7		660 U

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	TUNED	METHOD	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	CALIBRATION	BLANK	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME1004885	SBK81104	ME1005885	ME1005887	ME1005887	ME1005888	SBK81105
MATRIX		SOIL					SOIL
UNITS	%	UG/KG	%	RRF	%	AREA	UG/KG
ENV PROBLEM NO							
TERPHENYL-D14				0.962	10.4		
1,2-DICHLOROBENZENE		660 U		1.56	0.3		660 U
1,2,4-TRICHLOROBENZENE		660 U		0.34	-0.6		660 U
1,3-DICHLOROBENZENE		660 U		1.589	0.7		660 U
1,4-DICHLOROBENZENE		660 U		1.686	-0.2		660 U
2-CHLORONAPHTHALENE		660 U		1.301	-3.3		660 U
2-CHLOROPHENOL		660 U		1.418	-1.4		660 U
2-FLUOROBIPHENYL				1.4	-6.5		
2-FLUOROPHENOL				1.247	5.2		
2-METHYLNAPHTHALENE		660 U		0.749	-1.2		660 U
2-METHYLPHENOL		660 U		1.261	4.5		660 U
2-NITROANILINE		3200 U		0.322	6.7		3200 U
2-NITROPHENOL		660 U		0.212	1.9		660 U
2,4-DICHLOROPHENOL		660 U		0.254	10.3		660 U
2,4-DIMETHYLPHENOL		660 U		0.292	-2.5		660 U
2,4-DINITROPHENOL		3200 U		0.061	67.9		3200 U
2,4-DINITROTOLUENE		660 U		0.328	17		660 U
2,4,5-TRICHLOROPHENOL		3200 U		0.345	0.6		3200 U
2,4,6-TRIBROMOPHENOL				0.096	-11.6		
2,4,6-TRICHLOROPHENOL		660 U		0.351	5.4		660 U
2,6-DINITROTOLUENE		660 U		0.294	6.1		660 U
3-NITROANILINE		3200 U		0.282	14.6		3200 U
3,3'-DICHLOROBENZIDINE		1300 U		0.734	-80.8		1300 U
4-BROMOPHENYL-PHENYLETHER		660 U		0.238	-11.7		660 U
4-CHLORO-3-METHYLPHENOL		660 U		0.252	6		660 U
4-CHLOROANILINE		660 U		0.137	10.5		660 U
4-CHLOROPHENYL-PHENYLETHER		660 U		0.626	4.3		660 U
4-METHYLPHENOL		660 U		1.233	8.3		660 U
4-NITROANILINE		3200 U		0.194	35.8		3200 U
4-NITROPHENOL		3200 U		0.069	15.9		3200 U
4,6-DINITRO-2-METHYLPHENOL		3200 U		0.134	45.1		3200 U
SURR 1(NBZ) %RECOVERY		45					32
SURR 2(FBP) %RECOVERY		43					34
SURR 3(TPH) %RECOVERY		70					54
SURR 4(PHL) %RECOVERY		39					32
SURR 5(2FP) %RECOVERY		44					36
SURR 6(TBP) %RECOVERY		26					29
M/E 51	51		50				

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	TUNED	METHOD	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	CALIBRATION	BLANK	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME1004885	SBK81104	ME1005885	ME1005887	ME1005887	ME1005888	SBK81105
MATRIX		SOIL					SOIL
UNITS	%	UG/KG	%	RRF	%	AREA	UG/KG
ENV PROBLEM NO							
M/E 68-1	0		0				
M/E 68-2	0		0				
M/E 69	44		44				
M/E 70-1	0		0				
M/E 70-2	0		0				
M/E 127	42		43				
M/E 197	0		0				
M/E 198	100		100				
M/E 199	6.8		6.8				
M/E 275	19		19				
M/E 365	1.9		1.1				
M/E 441	6.7		6.2				
M/E 442	56		54				
M/E 443-1	11		11				
M/E 443-2	20		20				
INTERNAL STD AREA(ANT)		95200				92800	116000
INTERNAL STD AREA(CRY)		87400				78900	101000
INTERNAL STD AREA(DCB)		52700				51600	65300
INTERNAL STD AREA(NPT)		173000				187000	216000
INTERNAL STD AREA(PHN)		140000				116000	159000
INTERNAL STD AREA(PRY)		66100				50300	73500
DILUTION FACTOR		2					2
PERCENT MOISTURE							
ACTUAL(ALLOWED) EXTRACT TIME							

AREA					QA	QA	QA
LOCATION	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SEWER	SEWER	SEWER	SEWER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME301063A	ME301074A	ME301085A	ME301096A	ME1010885	ME1010887	ME1010887
MATRIX	SOIL	SOIL	SOIL	SOIL			
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	%	RRF	%
ENV PROBLEM NO	1	1	1	1			
ACENAPHTHENE	850 U	1000 U	1400 U	860 U		1.131	2

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A

DRAFT DO NOT CITE

AREA					QA	QA	QA
LOCATION	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SEWER	SEWER	SEWER	SEWER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME301063A	ME301074A	ME301085A	ME301096A	ME1010885	ME1010887	ME1010887
MATRIX	SOIL	SOIL	SOIL	SOIL			
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	%	RRF	%
ENV PROBLEM NO	1	1	1	1			
ACENAPHTHYLENE	850 U	1000 U	1400 U	860 U		1.835	-0.8
ANTHRACENE	850 U	1000 U	1400 U	860 U		1.143	-1.6
BENZO(A)ANTHRACENE	49 J	1000 U	93 J	33 J		1.174	4.5
BENZO(A)PYRENE	850 U	1000 U	67 J	860 U		1.485	-11.2
BENZO(B)FLUORANTHENE	70 J	48 J	120 J	30 J		1.721	-9.6
BENZO(G,H,I)PERYLENE	850 U	1000 U	1400 U	860 U		1.135	-41.3
BENZO(K)FLUORANTHENE	850 U	1000 U	1400 U	860 U		1.79	-16.5
BENZOIC ACID	4100 U	4800 U	6600 U	4200 U		0.029	74.3
BENZYL ALCOHOL	850 U	1000 U	1400 U	860 U		0.822	9.8
BIS(-2-CHLOROETHOXY)METHANE	850 U	1000 U	1400 U	860 U		0.48	-0.2
BIS(2-CHLOROETHYL)ETHER	850 U	1000 U	1400 U	860 U		1.824	-5.8
BIS(2-CHLOROISOPROPYL)ETHER	850 U	1000 U	1400 U	860 U		2.647	4.2
BIS(2-ETHYLHEXYL)PHTHALATE	110 BJ	160 BJ	340 BJ	190 BJ		0.888	8
BUTYLBENZYLPHTHALATE	850 U	1000 U	1400 U	860 U		0.643	11.7
CHRYSENE	50 J	47 J	83 J	32 J		1.099	4
DI-N-BUTYLPHTHALATE	370 BJ	490 BJ	1400 U	440 BJ		1.248	-4
DI-N-OCTYL PHTHALATE	850 U	34 BJ	55 BJ	31 BJ		2.85	-10.8
DIBENZO(A,H)ANTHRACENE	850 U	1000 U	1400 U	860 U		1.109	-22
DIBENZOFURAN	26 J	1000 U	37 J	860 U		1.65	1.4
DIETHYLPHTHALATE	850 U	1000 U	1400 U	860 U		1.089	5.6
DIMETHYLPHTHALATE	850 U	1000 U	1400 U	860 U		1.187	2.1
FLUORANTHENE	100 J	75 J	160 J	67 J		1.094	1.4
FLUORENE	40 J	1000 U	1400 U	860 U		1.304	5
HEXACHLOROBENZENE	850 U	1000 U	1400 U	860 U		0.225	-3.7
HEXACHLOROBUTADIENE	850 U	1000 U	1400 U	860 U		0.16	-1.3
HEXACHLOROCYCLOPENTADIENE	850 U	1000 U	1400 U	860 U		0.353	-11.7
HEXACHLOROETHANE	850 U	1000 U	1400 U	860 U		0.59	0.2
INDENO(1,2,3-CD)PYRENE	850 U	1000 U	1400 U	860 U		1.145	-24.5
ISOPHORONE	850 U	1000 U	1400 U	860 U		0.747	3.2
N-NITROSO-DI-N-PROPYLAMINE	850 U	1000 U	1400 U	860 U		0.809	3.1
N-NITROSODIPHENYLAMINE	850 U	1000 U	1400 U	860 U		0.39	-10.8
NAPHTHALENE	17 J	34 J	74 J	38 J		1.116	-4.8
NITROBENZENE	850 U	1000 U	1400 U	860 U		0.406	-3
NITROBENZENE-D5						0.213	-6.5
PENTACHLOROPHENOL	4100 U	4800 U	6600 U	4200 U		0.112	-8.7
PHENANTHRENE	77 J	67 J	95 J	75 J		1.134	-0.1
PHENOL	850 U	1000 U	1400 U	860 U		2.077	-11.6
PHENOL-D5						1.558	-7.2
PYRENE	82 J	62 J	110 J	52 J		1.084	1.5

AREA					QA	QA	QA
LOCATION	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SEWER	SEWER	SEWER	SEWER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME301063A	ME301074A	ME301085A	ME301096A	ME1010885	ME1010887	ME1010887
MATRIX	SOIL	SOIL	SOIL	SOIL			
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	%	RRF	%
ENV PROBLEM NO	1	1	1	1			
TERPHENYL-D14						1.008	6.1
1,2-DICHLOROBENZENE	850 U	1000 U	1400 U	860 U		1.572	-0.4
1,2,4-TRICHLOROBENZENE	850 U	1000 U	1400 U	860 U		0.34	-0.6
1,3-DICHLOROBENZENE	850 U	1000 U	1400 U	860 U		1.609	-0.6
1,4-DICHLOROBENZENE	850 U	1000 U	1400 U	860 U		1.71	-1.6
2-CHLORONAPHTHALENE	850 U	1000 U	1400 U	860 U		1.312	-4.2
2-CHLOROPHENOL	850 U	1000 U	1400 U	860 U		1.437	-2.7
2-FLUOROBIPHENYL						1.435	-9.1
2-FLUOROPHENOL						1.284	2.4
2-METHYLNAPHTHALENE	850 U	41 J	87 J	44 J		0.728	1.6
2-METHYLPHENOL	850 U	1000 U	1400 U	860 U		1.304	1.2
2-NITROANILINE	4100 U	4800 U	6600 U	4200 U		0.341	1.2
2-NITROPHENOL	850 U	1000 U	1400 U	860 U		0.216	0
2,4-DICHLOROPHENOL	850 U	1000 U	1400 U	860 U		0.273	3.5
2,4-DIMETHYLPHENOL	850 U	1000 U	1400 U	860 U		0.286	-0.4
2,4-DINITROPHENOL	4100 U	4800 U	6600 U	4200 U		0.141	25.8
2,4-DINITROTOLUENE	850 U	1000 U	1400 U	860 U		0.366	7.3
2,4,5-TRICHLOROPHENOL	4100 U	4800 U	6600 U	4200 U		0.368	-6.1
2,4,6-TRIBROMOPHENOL						0.092	-7
2,4,6-TRICHLOROPHENOL	850 U	1000 U	1400 U	860 U		0.369	0.5
2,6-DINITROTOLUENE	850 U	1000 U	1400 U	860 U		0.299	4.5
3-NITROANILINE	4100 U	4800 U	6600 U	4200 U		0.312	5.5
3,3'-DICHLOROBENZIDINE	1700 U	2000 U	2700 U	1700 U		0.701	-72.7
4-BROMOPHENYL-PHENYLETHER	850 U	1000 U	1400 U	860 U		0.221	-3.8
4-CHLORO-3-METHYLPHENOL	850 U	1000 U	1400 U	860 U		0.245	8.6
4-CHLOROANILINE	850 U	1000 U	1400 U	860 U		0.136	11.1
4-CHLOROPHENYL-PHENYLETHER	850 U	1000 U	1400 U	860 U		0.638	2.4
4-METHYLPHENOL	850 U	1000 U	1400 U	860 U		1.309	2.6
4-NITROANILINE	4100 U	4800 U	6600 U	4200 U		0.261	13.6
4-NITROPHENOL	4100 U	4800 U	6600 U	4200 U		0.076	7.3
4,6-DINITRO-2-METHYLPHENOL	4100 U	4800 U	6600 U	4200 U		0.198	18.9
SURR 1(NBZ) %RECOVERY	35	40	36	42			
SURR 2(FBP) %RECOVERY	34	41	37	41			
SURR 3(TPH) %RECOVERY	40	67	50	53			
SURR 4(PHL) %RECOVERY	35	39	34	39			
SURR 5(2FP) %RECOVERY	41	43	41	46			
SURR 6(TBP) %RECOVERY	30	40	35	38			

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A

DRAFT DO NOT CITE

AREA					QA	QA	QA
LOCATION	BURROUGHS	BURROUGHS	BURROUGHS	BURROUGHS	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SEWER	SEWER	SEWER	SEWER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME301063A	ME301074A	ME301085A	ME301096A	ME1010885	ME1010887	ME1010887
MATRIX	SOIL	SOIL	SOIL	SOIL			
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	%	RRF	%
ENV PROBLEM NO	1	1	1	1			
M/E 68-1					0		
M/E 68-2					0		
M/E 69					43		
M/E 70-1					0		
M/E 70-2					0		
M/E 127					42		
M/E 197					0		
M/E 198					100		
M/E 199					6.2		
M/E 275					20		
M/E 365					1.5		
M/E 441					6.1		
M/E 442					59		
M/E 443-1					11		
M/E 443-2					19		
INTERNAL STD AREA(ANT)	103000	105000	97400	108000			
INTERNAL STD AREA(CRY)	98800	80200	72400	103000			
INTERNAL STD AREA(DCB)	57600	56100	56500	59200			
INTERNAL STD AREA(NPT)	191000	187000	186000	198000			
INTERNAL STD AREA(PHN)	149000	149000	121000	148000			
INTERNAL STD AREA(PRY)	69900	57800	58700	84100			
DILUTION FACTOR	2	2	2	2			
PERCENT MOISTURE	29	35	53	29			
ACTUAL(ALLOWED) EXTRACT TIME	6(14 D)	6(14 D)	6(14 D)	6(14 D)			

AREA	QA			QA	QA	QA	QA
LOCATION	ISTD RET TIM	BURROUGHS	BURROUGHS	INITIAL CAL	INITIAL CAL	TUNED	TUNED
TYPE OF LOCATION	SHIFT	SEWER	SEWER	RRF	% RSD	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME1010888	ME301018A	ME301029A	ME1129886	ME1129886	ME1129885	ME1201885
MATRIX		SOIL	SOIL				
UNITS	AREA	UG/KG	UG/KG	RRF	%	%	%
ENV PROBLEM NO		1	1				
ACENAPHTHENE		7800 U	2400 U	1.106	5.9		

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A

DRAFT DO NOT CITE

AREA	QA			QA	QA	QA	QA
LOCATION	ISTD RET TIM	BURROUGHS	BURROUGHS	INITIAL CAL	INITIAL CAL	TUNED	TUNED
TYPE OF LOCATION	SHIFT	SEWER	SEWER	RRF	% RSD	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME1010888	ME301018A	ME301029A	ME1129886	ME1129886	ME1129885	ME1201885
MATRIX		SOIL	SOIL				
UNITS	AREA	UG/KG	UG/KG	RRF	%	%	%
ENV PROBLEM NO		1	1				
ACENAPHTHYLENE		270 J	2400 U	1.786	6.8		
ANTHRACENE		7800 U	2400 U	1.04	4.7		
BENZO(A)ANTHRACENE		930 J	2400 U	1.274	3.3		
BENZO(A)PYRENE		7800 U	2400 U	1.324	4.4		
BENZO(B)FLUORANTHENE		1300 J	2400 U	1.742	23		
BENZO(G,H,I)PERYLENE		7800 U	2400 U	1.107	11.8		
BENZO(K)FLUORANTHENE		7800 U	2400 U	1.671	27		
BENZOIC ACID		38000 U	11000 U	0.03	17.4		
BENZYL ALCOHOL		7800 U	2400 U	0.733	9.5		
BIS(-2-CHLOROETHOXY)METHANE		7800 U	2400 U	0.468	4.9		
BIS(2-CHLOROETHYL)ETHER		7800 U	2400 U	1.768	3.1		
BIS(2-CHLOROISOPROPYL)ETHER		7800 U	2400 U	2.767	3.1		
BIS(2-ETHYLHEXYL)PHTHALATE		1900 BJ	2400 U	0.909	7.5		
BUTYLBENZYLPHTHALATE		7800 U	2400 U	0.699	4		
CHRYSENE		940 J	2400 U	1.282	7.3		
DI-N-BUTYLPHTHALATE		1800 BJ	510 BJ	1	4.3		
DI-N-OCTYL PHTHALATE		1400 J	2400 U	1.92	3.2		
DIBENZO(A,H)ANTHRACENE		7800 U	2400 U	1.022	12.1		
DIBENZOFURAN		370 J	2400 U	1.682	6.2		
DIETHYLPHTHALATE		7800 U	2400 U	0.968	8.4		
DIMETHYLPHTHALATE		7800 U	2400 U	1.151	7.6		
FLUORANTHENE		2100 J	2400 U	0.88	6.8		
FLUORENE		450 J	2400 U	1.255	6.4		
HEXACHLOROBENZENE		7800 U	2400 U	0.231	5.8		
HEXACHLOROBUTADIENE		7800 U	2400 U	0.16	8		
HEXACHLOROCYCLOPENTADIENE		7800 U	2400 U	0.32	3.4		
HEXACHLOROETHANE		7800 U	2400 U	0.605	5		
INDENO(1,2,3-CD)PYRENE		7800 U	2400 U	1.099	14.4		
ISOPHORONE		7800 U	2400 U	0.714	13.7		
N-NITROSO-DI-N-PROPYLAMINE		7800 U	2400 U	0.734	7.7		
N-NITROSODIPHENYLAMINE		7800 U	2400 U	0.21	28.5		
NAPHTHALENE		620 J	61 J	1.019	14.3		
NITROBENZENE		7800 U	2400 U	0.38	4.2		
NITROBENZENE-D5				0.207	10.1		
PENTACHLOROPHENOL		38000 U	11000 U	0.078	18.4		
PHENANTHRENE		1500 J	2400 U	1.084	4.5		
PHENOL		7800 U	2400 U	1.887	3.9		
PHENOL-D5				1.594	7		
PYRENE		1500 J	2400 U	0.861	7.3		

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA			QA	QA	QA	QA
LOCATION	ISTD RET TIM	BURROUGHS	BURROUGHS	INITIAL CAL	INITIAL CAL	TUNED	TUNED
TYPE OF LOCATION	SHIFT	SEWER	SEWER	RRF	% RSD	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME1010888	ME301018A	ME301029A	ME1129886	ME1129886	ME1129885	ME1201885
MATRIX		SOIL	SOIL				
UNITS	AREA	UG/KG	UG/KG	RRF	%	%	%
ENV PROBLEM NO		1	1				
TERPHENYL-D14				1.134	16.6		
1,2-DICHLOROBENZENE		7800 U	2400 U	1.594	5.2		
1,2,4-TRICHLOROBENZENE		7800 U	2400 U	0.347	6.1		
1,3-DICHLOROBENZENE		7800 U	2400 U	1.658	5.2		
1,4-DICHLOROBENZENE		7800 U	2400 U	1.728	6		
2-CHLORONAPHTHALENE		7800 U	2400 U	1.335	6		
2-CHLOROPHENOL		7800 U	2400 U	1.404	3.7		
2-FLUOROBIPHENYL				1.46	5.8		
2-FLUOROPHENOL				1.391	7		
2-METHYLNAPHTHALENE		890 J	71 J	0.674	10.1		
2-METHYLPHENOL		7800 U	2400 U	1.24	2.6		
2-NITROANILINE		38000 U	11000 U	0.284	3.4		
2-NITROPHENOL		7800 U	2400 U	0.21	2		
2,4-DICHLOROPHENOL		7800 U	2400 U	0.263	1.2		
2,4-DIMETHYLPHENOL		7800 U	2400 U	0.257	2.2		
2,4-DINITROPHENOL		38000 U	11000 U	0.115	26.5		
2,4-DINITROTOLUENE		7800 U	2400 U	0.312	2.3		
2,4,5-TRICHLOROPHENOL		38000 U	11000 U	0.357	3		
2,4,6-TRIBROMOPHENOL				0.092	7.8		
2,4,6-TRICHLOROPHENOL		7800 U	2400 U	0.366	0.9		
2,6-DINITROTOLUENE		7800 U	2400 U	0.301	2.9		
3-NITROANILINE		38000 U	11000 U	0.268	3.7		
3,3'-DICHLOROBENZIDINE		16000 U	4700 U	0.318	20		
4-BROMOPHENYL-PHENYLETHER		7800 U	2400 U	0.237	3.9		
4-CHLORO-3-METHYLPHENOL		7800 U	2400 U	0.218	4.5		
4-CHLOROANILINE		7800 U	2400 U	0.119	11.3		
4-CHLOROPHENYL-PHENYLETHER		7800 U	2400 U	0.643	6.2		
4-METHYLPHENOL		7800 U	2400 U	1.234	3.8		
4-NITROANILINE		38000 U	11000 U	0.171	16.8		
4-NITROPHENOL		38000 U	11000 U	0.06	5.9		
4,6-DINITRO-2-METHYLPHENOL		38000 U	11000 U	0.154	12.5		
SURR 1(NBZ) %RECOVERY		77	33				
SURR 2(FBP) %RECOVERY		84	37				
SURR 3(TPH) %RECOVERY		77	43				
SURR 4(PHL) %RECOVERY		84	36				
SURR 5(2FP) %RECOVERY		95	41				
SURR 6(TBP) %RECOVERY		80	31				
M/E 51						44	43

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A

DRAFT DO NOT CITE

AREA	QA			QA	QA	QA	QA
LOCATION	ISTD RET TIM SHIFT	BURROUGHS SEWER	BURROUGHS SEWER	INITIAL CAL RRF	INITIAL CAL % RSD	TUNED CALIBRATION	TUNED CALIBRATION
TYPE OF LOCATION							
SAMPLE NUMBER	ME1010888	ME301018A	ME301029A	ME1129886	ME1129886	ME1129885	ME1201885
MATRIX		SOIL	SOIL				
UNITS	AREA	UG/KG	UG/KG	RRF	%	%	%
ENV PROBLEM NO		1	1				
M/E 68-1						0	0
M/E 68-2						0	0
M/E 69						40	37
M/E 70-1						0	0
M/E 70-2						0	0
M/E 127						40	40
M/E 197						0	0
M/E 198						100	100
M/E 199						7	6.9
M/E 275						19	20
M/E 365						2.1	2.5
M/E 441						8.1	9.5
M/E 442						71	78
M/E 443-1						13	15
M/E 443-2						18	19
INTERNAL STD AREA(ANT)	110000	67000	99100				
INTERNAL STD AREA(CRY)	107000	58300	67500				
INTERNAL STD AREA(DCB)	67600	35100	57800				
INTERNAL STD AREA(NPT)	242000	130000	208000				
INTERNAL STD AREA(PHN)	148000	88000	126000				
INTERNAL STD AREA(PRY)	50000	40700	37500				
DILUTION FACTOR		8	4				
PERCENT MOISTURE		67	45				
ACTUAL(ALLOWED) EXTRACT TIME		6(14 D)	6(14 D)				

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	CONTINUING CALIBRATION	CONTINUING CAL %D	ISTD RET TIM SHIFT	MATRIX SPIKE	MS % RECOVERY	RPD	MATRIX SPIKE DUPLICATE
TYPE OF LOCATION							
SAMPLE NUMBER	ME1201887	ME1201887	ME1201888	ME300028A	ME300028A	ME300028A	ME300028A
MATRIX				SOIL	SOIL	SOIL	SOIL
UNITS	RRF	%	AREA	UG/KG	%	%	UG/KG
ENV PROBLEM NO				1	1	1	1
ACENAPHTHENE	1.139	-3		6580	72	-11	7180

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	CONTINUING	CONTINUING	ISTD RET TIM	MATRIX	MS %	RPD	MATRIX SPIKE
TYPE OF LOCATION	CALIBRATION	CAL %D	SHIFT	SPIKE	RECOVERY		DUPLICATE
SAMPLE NUMBER	ME1201887	ME1201887	ME1201888	ME300028A	ME300028A	ME300028A	ME300028A
MATRIX				SOIL	SOIL	SOIL	SOIL
UNITS	RRF	%	AREA	UG/KG	%	%	UG/KG
ENV PROBLEM NO				1	1	1	1
ACENAPHTHYLENE	1.823	-2.1		900 U			890 U
ANTHRACENE	1.076	-3.5		39 J			62 J
BENZO(A)ANTHRACENE	1.289	-1.2		190 J			240 J
BENZO(A)PYRENE	1.399	-5.7		120 J			170 J
BENZO(B)FLUORANTHENE	1.671	4.1		310 J			470 J
BENZO(G,H,I)PERYLENE	0.89	19.6		900 U			890 U
BENZO(K)FLUORANTHENE	1.697	-1.6		900 U			890 U
BENZOIC ACID	0.057	-90		4400 U			4300 U
BENZYL ALCOHOL	0.662	9.7		900 U			890 U
BIS(-2-CHLOROETHOXY)METHANE	0.464	0.9		900 U			890 U
BIS(2-CHLOROETHYL)ETHER	1.731	2.1		900 U			890 U
BIS(2-CHLOROISOPROPYL)ETHER	2.633	4.8		900 U			890 U
BIS(2-ETHYLHEXYL)PHTHALATE	0.914	-0.6		200 BJ			240 BJ
BUTYLBENZYLPHTHALATE	0.735	-5.2		900 U			890 U
CHRYSENE	1.28	0.2		220 J			280 J
DI-N-BUTYLPHTHALATE	1.127	-12.7		460 BJ			370 BJ
DI-N-OCTYL PHTHALATE	2.319	-20.8		900 U			890 U
DIBENZO(A,H)ANTHRACENE	0.841	17.7		900 U			890 U
DIBENZOFURAN	1.719	-2.2		49 J			65 J
DIETHYLPHTHALATE	1.102	-13.8		900 U			890 U
DIMETHYLPHTHALATE	1.233	-7.1		900 U			890 U
FLUORANTHENE	1.043	-18.5		360 J			630 J
FLUORENE	1.323	-5.4		900 U			890 U
HEXACHLOROBENZENE	0.237	-2.6		900 U			890 U
HEXACHLOROBUTADIENE	0.164	-2.5		900 U			890 U
HEXACHLOROCYCLOPENTADIENE	0.324	-1.3		900 U			890 U
HEXACHLOROETHANE	0.593	2		900 U			890 U
INDENO(1,2,3-CD)PYRENE	0.998	9.2		200 J			890 U
ISOPHORONE	0.748	-4.8		900 U			890 U
N-NITROSO-DI-N-PROPYLAMINE	0.741	-1		6950	77	-4	7170
N-NITROSODIPHENYLAMINE	0.261	-24.3		900 U			890 U
NAPHTHALENE	1.078	-5.8		33 J			34 J
NITROBENZENE	0.365	3.9		900 U			890 U
NITROBENZENE-D5	0.221	-6.8					
PENTACHLOROPHENOL	0.078	0		10600	58	0	10500
PHENANTHRENE	1.086	-0.2		210 J			340 J
PHENOL	1.834	2.8		14100	77	-8	15000
PHENOL-D5	1.478	7.3					
PYRENE	1.036	-20.3		6940	72	-22	8550

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	CONTINUING	CONTINUING	ISTD RET TIM	MATRIX	MS %	RPD	MATRIX SPIKE
TYPE OF LOCATION	CALIBRATION	CAL %D	SHIFT	SPIKE	RECOVERY		DUPLICATE
SAMPLE NUMBER	ME1201887	ME1201887	ME1201888	ME300028A	ME300028A	ME300028A	ME300028A
MATRIX				SOIL	SOIL	SOIL	SOIL
UNITS	RRF	%	AREA	UG/KG	%	%	UG/KG
ENV PROBLEM NO				1	1	1	1
TERPHENYL-D14	1.287	-13.5					
1,2-DICHLOROBENZENE	1.582	0.8		900 U			890 U
1,2,4-TRICHLOROBENZENE	0.347	0		7250	80	-5	7540
1,3-DICHLOROBENZENE	1.638	1.2		900 U			890 U
1,4-DICHLOROBENZENE	1.734	-0.3		6660	73	-7	7030
2-CHLORONAPHTHALENE	1.33	0.4		900 U			890 U
2-CHLOROPHENOL	1.356	3.4		14300	79	-6	15100
2-FLUOROBIPHENYL	1.475	-1					
2-FLUOROPHENOL	1.264	9.1					
2-METHYLNAPHTHALENE	0.691	-2.5		900 U			890 U
2-METHYLPHENOL	1.215	2		900 U			890 U
2-NITROANILINE	0.277	2.5		4400 U			4300 U
2-NITROPHENOL	0.204	2.9		900 U			890 U
2,4-DICHLOROPHENOL	0.268	-1.9		900 U			890 U
2,4-DIMETHYLPHENOL	0.256	0.4		900 U			890 U
2,4-DINITROPHENOL	0.112	2.6		4400 U			4300 U
2,4-DINITROTOLUENE	0.376	-20.5		7070	78	-12	7940
2,4,5-TRICHLOROPHENOL	0.366	-2.5		4400 U			4300 U
2,4,6-TRIBROMOPHENOL	0.088	4.3					
2,4,6-TRICHLOROPHENOL	0.363	0.8		900 U			890 U
2,6-DINITROTOLUENE	0.315	-4.7		900 U			890 U
3-NITROANILINE	0.287	-7.1		4400 U			4300 U
3,3'-DICHLOROBENZIDINE	0.31	2.5		1800 U			1800 U
4-BROMOPHENYL-PHENYLETHER	0.216	8.9		900 U			890 U
4-CHLORO-3-METHYLPHENOL	0.222	-1.8		16300	90	-1	16400
4-CHLOROANILINE	0.113	5		900 U			890 U
4-CHLOROPHENYL-PHENYLETHER	0.666	-3.6		900 U			890 U
4-METHYLPHENOL	1.22	1.1		900 U			890 U
4-NITROANILINE	0.255	-49.1		4400 U			4300 U
4-NITROPHENOL	0.075	-25		2930	16	-36	4130
4,6-DINITRO-2-METHYLPHENOL	0.197	-27.9		4400 U			4300 U
SURR 1(NBZ) %RECOVERY				40			40
SURR 2(FBP) %RECOVERY				40			43
SURR 3(TPH) %RECOVERY				44			58
SURR 4(PHL) %RECOVERY				42			48
SURR 5(2FP) %RECOVERY				45			47
SURR 6(TBP) %RECOVERY				42			44

M/E 51

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	CONTINUING	CONTINUING	ISTD RET TIM	MATRIX	MS %	RPD	MATRIX SPIKE
TYPE OF LOCATION	CALIBRATION	CAL %D	SHIFT	SPIKE	RECOVERY		DUPLICATE
SAMPLE NUMBER	ME1201887	ME1201887	ME1201888	ME300028A	ME300028A	ME300028A	ME300028A
MATRIX				SOIL	SOIL	SOIL	SOIL
UNITS	RRF	%	AREA	UG/KG	%	%	UG/KG
ENV PROBLEM NO				1	1	1	1
M/E 68-1							
M/E 68-2							
M/E 69							
M/E 70-1							
M/E 70-2							
M/E 127							
M/E 197							
M/E 198							
M/E 199							
M/E 275							
M/E 365							
M/E 441							
M/E 442							
M/E 443-1							
M/E 443-2							
INTERNAL STD AREA(ANT)			59900	87600			66600
INTERNAL STD AREA(CRY)			48900	67300			50900
INTERNAL STD AREA(DCB)			34500	50500			39000
INTERNAL STD AREA(NPT)			126000	172000			136000
INTERNAL STD AREA(PHN)			88200	116000			97300
INTERNAL STD AREA(PRY)			25100	42100			20500
DILUTION FACTOR				2			2
PERCENT MOISTURE				28			28
ACTUAL(ALLOWED) EXTRACT TIME				6(14 D)			6(14 D)

AREA	QA			QA	QA	QA	QA
LOCATION	MSD %	BURROUGHS	BURROUGHS	INITIAL CAL	INITIAL CAL	TUNED	CONTINUING
TYPE OF LOCATION	RECOVERY	SEWER	SEWER	RRF	% RSD	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME300028A	ME306035A	ME301041A	ME1202886	ME1202886	ME1202885	ME1202887
MATRIX	SOIL	SOIL	SOIL				
UNITS	%	UG/KG	UG/KG	RRF	%	%	RRF
ENV PROBLEM NO	1	1	1				
ACENAPHTHENE	80	760 U	1100 U	1.109	5.9		1.124

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A

DRAFT DO NOT CITE

AREA	QA			QA	QA	QA	QA
LOCATION	MSD % RECOVERY	BURROUGHS SEWER	BURROUGHS SEWER	INITIAL CAL RRF	INITIAL CAL % RSD	TUNED CALIBRATION	CONTINUING CALIBRATION
TYPE OF LOCATION							
SAMPLE NUMBER	ME300028A	ME306035A	ME301041A	ME1202886	ME1202886	ME1202885	ME1202887
MATRIX	SOIL	SOIL	SOIL				
UNITS	%	UG/KG	UG/KG	RRF	%	%	RRF
ENV PROBLEM NO	1	1	1				
ACENAPHTHYLENE		28 J	1100 U	1.788	6.8		1.801
ANTHRACENE		33 J	1100 U	1.042	4.8		1.052
BENZO(A)ANTHRACENE		160 J	1100 U	1.28	3.6		1.295
BENZO(A)PYRENE		150 J	1100 U	1.399	15.3		1.666
BENZO(B)FLUORANTHENE		350 J	1100 U	1.8	22.8		2.087
BENZO(G,H,I)PERYLENE		160 J	1100 U	1.118	12.7		1.054
BENZO(K)FLUORANTHENE		760 U	1100 U	1.798	27.1		1.883
BENZOIC ACID		3700 U	5300 U	0.037	34.2		0.042
BENZYL ALCOHOL		760 U	1100 U	0.74	9.4		0.728
BIS(-2-CHLOROETHOXY)METHANE		760 U	1100 U	0.469	4.9		0.478
BIS(2-CHLOROETHYL)ETHER		760 U	1100 U	1.775	3.2		1.805
BIS(2-CHLOROISOPROPYL)ETHER		760 U	1100 U	2.799	3.2		2.901
BIS(2-ETHYLHEXYL)PHTHALATE		770 B	140 BJ	0.931	6.3		1.06
BUTYLBENZYLPHTHALATE		280 J	1100 U	0.714	3.8		0.822
CHRYSENE		220 J	1100 U	1.279	7.3		1.289
DI-N-BUTYLPHTHALATE		130 BJ	520 BJ	1.035	5.5		1.163
DI-N-OCTYL PHTHALATE		760 U	1100 U	2.135	24.1		2.659
DIBENZO(A,H)ANTHRACENE		760 U	1100 U	1.044	14.5		1.051
DIBENZOFURAN		24 J	1100 U	1.688	6.2		1.738
DIETHYLPHTHALATE		760 U	1100 U	0.994	10.4		1.169
DIMETHYLPHTHALATE		760 U	1100 U	1.167	8.2		1.281
FLUORANTHENE		390 J	93 J	0.91	5.7		1.038
FLUORENE		760 U	1100 U	1.266	6.7		1.347
HEXACHLOROBENZENE		760 U	1100 U	0.228	6.4		0.216
HEXACHLOROBUTADIENE		760 U	1100 U	0.159	7.8		0.158
HEXACHLOROCYCLOPENTADIENE		760 U	1100 U	0.319	3.3		0.302
HEXACHLOROETHANE		760 U	1100 U	0.608	5		0.601
INDENO(1,2,3-CD)PYRENE		190 J	1100 U	1.16	15.6		1.196
ISOPHORONE		760 U	1100 U	0.722	14.2		0.8
N-NITROSO-DI-N-PROPYLAMINE	80	760 U	1100 U	0.75	9.5		0.824
N-NITROSODIPHENYLAMINE		760 U	1100 U	0.182	6.6		0.184
NAPHTHALENE		29 J	51 J	1.015	14.1		1.079
NITROBENZENE		760 U	1100 U	0.38	4.2		0.38
NITROBENZENE-D5				0.2	9.3		0.192
PENTACHLOROPHENOL	58	3700 U	5300 U	0.082	13.6		0.076
PHENANTHRENE		250 J	68 J	1.082	4.5		1.075
PHENOL	83	760 U	1100 U	1.893	3.8		1.909
PHENOL-D5				1.615	6.6		1.66
PYRENE	90	300 J	67 J	0.894	5.7		1.027

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A

DRAFT DO NOT CITE

AREA	QA			QA	QA	QA	QA
LOCATION	MSD % RECOVERY	BURROUGHS SEWER	BURROUGHS SEWER	INITIAL CAL RRF	INITIAL CAL % RSD	TUNED CALIBRATION	CONTINUING CALIBRATION
TYPE OF LOCATION							
SAMPLE NUMBER	ME300028A	ME306035A	ME301041A	ME1202886	ME1202886	ME1202885	ME1202887
MATRIX	SOIL	SOIL	SOIL				
UNITS	%	UG/KG	UG/KG	RRF	%	%	RRF
ENV PROBLEM NO	1	1	1				
TERPHENYL-D14				1.123	16.1		1.283
1,2-DICHLOROBENZENE		760 U	1100 U	1.591	5.1		1.606
1,2,4-TRICHLOROBENZENE	84	760 U	1100 U	0.346	6.1		0.344
1,3-DICHLOROBENZENE		760 U	1100 U	1.658	5.2		1.663
1,4-DICHLOROBENZENE	78	760 U	1100 U	1.733	6.1		1.763
2-CHLORONAPHTHALENE		760 U	1100 U	1.327	6		1.297
2-CHLOROPHENOL	84	760 U	1100 U	1.407	3.7		1.396
2-FLUOROBIPHENYL				1.421	6.6		1.31
2-FLUOROPHENOL				1.411	6.7		1.447
2-METHYLNAPHTHALENE		760 U	59 J	0.675	10.1		0.707
2-METHYLPHENOL		760 U	1100 U	1.245	2.3		1.254
2-NITROANILINE		3700 U	5300 U	0.295	5		0.322
2-NITROPHENOL		760 U	1100 U	0.21	2		0.207
2,4-DICHLOROPHENOL		760 U	1100 U	0.263	1.2		0.263
2,4-DIMETHYLPHENOL		760 U	1100 U	0.26	3.7		0.276
2,4-DINITROPHENOL		3700 U	5300 U	0.125	11.4		0.114
2,4-DINITROTOLUENE	88	760 U	1100 U	0.327	8.7		0.394
2,4,5-TRICHLOROPHENOL		3700 U	5300 U	0.355	2.6		0.351
2,4,6-TRIBROMOPHENOL				0.093	7.3		0.089
2,4,6-TRICHLOROPHENOL		760 U	1100 U	0.364	1.5		0.35
2,6-DINITROTOLUENE		760 U	1100 U	0.306	3.2		0.326
3-NITROANILINE		3700 U	5300 U	0.276	2.5		0.303
3,3'-DICHLOROBENZIDINE		1500 U	2200 U	0.331	16.6		0.323
4-BROMOPHENYL-PHENYLETHER		760 U	1100 U	0.233	5.1		0.214
4-CHLORO-3-METHYLPHENOL	91	760 U	1100 U	0.222	5		0.24
4-CHLOROANILINE		760 U	1100 U	0.119	11.5		0.116
4-CHLOROPHENYL-PHENYLETHER		760 U	1100 U	0.648	6.3		0.68
4-METHYLPHENOL		760 U	1100 U	1.24	3.6		1.255
4-NITROANILINE		3700 U	5300 U	0.2	17.3		0.274
4-NITROPHENOL	23	3700 U	5300 U	0.064	7.5		0.057
4,6-DINITRO-2-METHYLPHENOL		3700 U	5300 U	0.171	9.1		0.209
SURR 1(NBZ) %RECOVERY		39	39				
SURR 2(FBP) %RECOVERY		40	42				
SURR 3(TPH) %RECOVERY		35	38				
SURR 4(PHL) %RECOVERY		42	44				
SURR 5(2FP) %RECOVERY		45	48				
SURR 6(TBP) %RECOVERY		39	44				

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA			QA	QA	QA	QA
LOCATION	MSD %	BURROUGHS	BURROUGHS	INITIAL CAL	INITIAL CAL	TUNED	CONTINUING
TYPE OF LOCATION	RECOVERY	SEWER	SEWER	RRF	% RSD	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME300028A	ME306035A	ME301041A	ME1202886	ME1202886	ME1202885	ME1202887
MATRIX	SOIL	SOIL	SOIL				
UNITS	%	UG/KG	UG/KG	RRF	%	%	RRF
ENV PROBLEM NO	1	1	1				
M/E 68-1						0	
M/E 68-2						0	
M/E 69						40	
M/E 70-1						0	
M/E 70-2						0	
M/E 127						41	
M/E 197						0	
M/E 198						100	
M/E 199						6.7	
M/E 275						18	
M/E 365						1.5	
M/E 441						7.8	
M/E 442						69	
M/E 443-1						13	
M/E 443-2						18	
INTERNAL STD AREA(ANT)		76800	78500				
INTERNAL STD AREA(CRY)		60500	60500				
INTERNAL STD AREA(DCB)		44300	46600				
INTERNAL STD AREA(NPT)		153000	161000				
INTERNAL STD AREA(PHN)		107000	104000				
INTERNAL STD AREA(PRY)		41100	38600				
DILUTION FACTOR		2	2				
PERCENT MOISTURE		15	42				
ACTUAL(ALLOWED) EXTRACT TIME		6(14 D)	6(14 D)				

AREA	QA	QA				QA	QA
LOCATION	CONTINUING	ISTD RET TIM	BURROUGHS	BURROUGHS	BURROUGHS	TUNED	CONTINUING
TYPE OF LOCATION	CAL %D	SHIFT	SEWER	SEWER	SEWER	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME1202887	ME1202888	ME301030A	ME300017A	ME300028A	ME1205885	ME1205887
MATRIX			SOIL	SOIL	SOIL		
UNITS	%	AREA	UG/KG	UG/KG	UG/KG	%	RRF
ENV PROBLEM NO			1	1	1		
ACENAPHTHENE	-1.4		830 U	850 U	870 U		1.116

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA				QA	QA
LOCATION	CONTINUING	ISTD RET TIM	BURROUGHS	BURROUGHS	BURROUGHS	TUNED	CONTINUING
TYPE OF LOCATION	CAL %D	SHIFT	SEWER	SEWER	SEWER	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME1202887	ME1202888	ME301030A	ME300017A	ME300028A	ME1205885	ME1205887
MATRIX			SOIL	SOIL	SOIL		
UNITS	%	AREA	UG/KG	UG/KG	UG/KG	%	RRF
ENV PROBLEM NO			1	1	1		
ACENAPHTHYLENE	-0.7		830 U	850 U	32 J		1.815
ANTHRACENE	-1		830 U	850 U	62 J		1.067
BENZO(A)ANTHRACENE	-1.2		830 U	110 J	300 J		1.269
BENZO(A)PYRENE	-19.1		830 U	140 J	180 J		1.664
BENZO(B)FLUORANTHENE	-15.9		830 U	240 J	380 J		2.005
BENZO(G,H,I)PERYLENE	5.7		830 U	850 U	270 J		1.415
BENZO(K)FLUORANTHENE	-4.7		830 U	850 U	870 U		1.912
BENZOIC ACID	-13.5		4000 U	4100 U	4200 U		0.041
BENZYL ALCOHOL	1.6		830 U	850 U	870 U		0.692
BIS(-2-CHLOROETHOXY)METHANE	-1.9		830 U	850 U	870 U		0.475
BIS(2-CHLOROETHYL)ETHER	-1.7		830 U	850 U	870 U		1.742
BIS(2-CHLOROISOPROPYL)ETHER	-3.6		830 U	850 U	870 U		2.779
BIS(2-ETHYLHEXYL)PHTHALATE	-13.9		830 U	360 BJ	650 BJ		0.918
BUTYLBENZYLPHTHALATE	-15.1		830 U	430 J	340 J		0.688
CHRYSENE	-0.8		830 U	130 J	270 J		1.316
DI-N-BUTYLPHTHALATE	-12.4		350 BJ	340 BJ	160 BJ		1.003
DI-N-OCTYL PHTHALATE	-24.5		830 U	850 U	870 U		2.617
DIBENZO(A,H)ANTHRACENE	-0.7		830 U	850 U	870 U		1.396
DIBENZOFURAN	-3		830 U	850 U	27 J		1.665
DIETHYLPHTHALATE	-17.6		830 U	850 U	870 U		0.976
DIMETHYLPHTHALATE	-9.8		830 U	850 U	870 U		1.153
FLUORANTHENE	-14.1		830 U	220 J	520 J		0.885
FLUORENE	-6.4		830 U	850 U	36 J		1.276
HEXACHLOROBENZENE	5.3		830 U	850 U	870 U		0.231
HEXACHLOROBUTADIENE	0.6		830 U	850 U	870 U		0.162
HEXACHLOROCYCLOPENTADIENE	5.3		830 U	850 U	870 U		0.372
HEXACHLOROETHANE	1.2		830 U	850 U	870 U		0.591
INDENO(1,2,3-CD)PYRENE	-3.1		830 U	850 U	290 J		1.628
ISOPHORONE	-10.8		830 U	850 U	870 U		0.754
N-NITROSO-DI-N-PROPYLAMINE	-9.9		830 U	850 U	870 U		0.778
N-NITROSODIPHENYLAMINE	-1.1		830 U	850 U	870 U		0.171
NAPHTHALENE	-6.3		40 J	850 U	29 J		1.081
NITROBENZENE	0		830 U	850 U	870 U		0.379
NITROBENZENE-D5	4						0.197
PENTACHLOROPHENOL	7.3		4000 U	4100 U	4200 U		0.067
PHENANTHRENE	0.6		39 J	130 J	390 J		1.079
PHENOL	-0.8		830 U	850 U	49 J		1.872
PHENOL-D5	-2.8						1.603
PYRENE	-14.9		830 U	170 J	420 J		0.865

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A

DRAFT DO NOT CITE

AREA	QA	QA				QA	QA
LOCATION	CONTINUING	ISTD RET TIM	BURROUGHS	BURROUGHS	BURROUGHS	TUNED	CONTINUING
TYPE OF LOCATION	CAL %D	SHIFT	SEWER	SEWER	SEWER	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME1202887	ME1202888	ME301030A	ME300017A	ME300028A	ME1205885	ME1205887
MATRIX			SOIL	SOIL	SOIL		
UNITS	%	AREA	UG/KG	UG/KG	UG/KG	%	RRF
ENV PROBLEM NO			1	1	1		
TERPHENYL-D14	-14.3						1.048
1,2-DICHLOROBENZENE	-0.9		830 U	850 U	870 U		1.601
1,2,4-TRICHLOROBENZENE	0.6		830 U	850 U	870 U		0.35
1,3-DICHLOROBENZENE	-0.3		830 U	850 U	870 U		1.646
1,4-DICHLOROBENZENE	-1.7		830 U	850 U	870 U		1.749
2-CHLORONAPHTHALENE	2.3		830 U	850 U	870 U		1.353
2-CHLOROPHENOL	0.8		830 U	850 U	870 U		1.376
2-FLUOROBIPHENYL	7.8						1.386
2-FLUOROPHENOL	-2.6						1.422
2-METHYLNAPHTHALENE	-4.7		53 J	850 U	870 U		0.694
2-METHYLPHENOL	-0.7		830 U	850 U	870 U		1.221
2-NITROANILINE	-9.2		4000 U	4100 U	4200 U		0.27
2-NITROPHENOL	1.4		830 U	850 U	870 U		0.209
2,4-DICHLOROPHENOL	0		830 U	850 U	870 U		0.263
2,4-DIMETHYLPHENOL	-6.2		830 U	850 U	870 U		0.257
2,4-DINITROPHENOL	8.8		4000 U	4100 U	4200 U		0.085
2,4-DINITROTOLUENE	-20.5		830 U	850 U	870 U		0.31
2,4,5-TRICHLOROPHENOL	1.1		4000 U	4100 U	4200 U		0.346
2,4,6-TRIBROMOPHENOL	4.3						0.096
2,4,6-TRICHLOROPHENOL	3.8		830 U	850 U	870 U		0.36
2,6-DINITROTOLUENE	-6.5		830 U	850 U	870 U		0.297
3-NITROANILINE	-9.8		4000 U	4100 U	4200 U		0.241
3,3'-DICHLOROBENZIDINE	2.4		1700 U	1700 U	1700 U		0.34
4-BROMOPHENYL-PHENYLETHER	8.2		830 U	850 U	870 U		0.235
4-CHLORO-3-METHYLPHENOL	-8.1		830 U	850 U	870 U		0.209
4-CHLOROANILINE	2.5		830 U	850 U	870 U		0.103
4-CHLOROPHENYL-PHENYLETHER	-4.9		830 U	850 U	870 U		0.649
4-METHYLPHENOL	-1.2		830 U	850 U	870 U		1.222
4-NITROANILINE	-37		4000 U	4100 U	4200 U		0.14
4-NITROPHENOL	10.9		4000 U	4100 U	4200 U		0.056
4,6-DINITRO-2-METHYLPHENOL	-22.2		4000 U	4100 U	4200 U		0.147
SURR 1(NBZ) %RECOVERY			42	43	44		
SURR 2(FBP) %RECOVERY			44	44	44		
SURR 3(TPH) %RECOVERY			43	49	36		
SURR 4(PHL) %RECOVERY			36	36	37		
SURR 5(2FP) %RECOVERY			39	38	39		
SURR 6(TBP) %RECOVERY			37	37	33		

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A

DRAFT DO NOT CITE

AREA	QA	QA				QA	QA
LOCATION	CONTINUING	ISTD RET TIM	BURROUGHS	BURROUGHS	BURROUGHS	TUNED	CONTINUING
TYPE OF LOCATION	CAL %D	SHIFT	SEWER	SEWER	SEWER	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME1202887	ME1202888	ME301030A	ME300017A	ME300028A	ME1205885	ME1205887
MATRIX			SOIL	SOIL	SOIL		
UNITS	%	AREA	UG/KG	UG/KG	UG/KG	%	RRF
ENV PROBLEM NO			1	1	1		
M/E 68-1						0	
M/E 68-2						0	
M/E 69						40	
M/E 70-1						0	
M/E 70-2						0	
M/E 127						41	
M/E 197						0	
M/E 198						100	
M/E 199						6.6	
M/E 275						18	
M/E 365						1.4	
M/E 441						8.2	
M/E 442						70	
M/E 443-1						13	
M/E 443-2						18	
INTERNAL STD AREA(ANT)		67000	73700	67500	83100		
INTERNAL STD AREA(CRY)		51400	42600	41300	45300		
INTERNAL STD AREA(DCB)		36300	45200	39400	51500		
INTERNAL STD AREA(NPT)		135000	154000	136000	174000		
INTERNAL STD AREA(PHN)		103000	97200	98800	111000		
INTERNAL STD AREA(PRY)		20900	26000	14400	29600		
DILUTION FACTOR			2.01	2	2		
PERCENT MOISTURE			25	28	28		
ACTUAL(ALLOWED) EXTRACT TIME			6(14 D)	6(14 D)	6(14 D)		

AREA	QA	QA	QA				
LOCATION	CONTINUING	ISTD RET TIM	METHOD	BURROUGHS	BURROUGHS	BURROUGHS	
TYPE OF LOCATION	CAL %D	SHIFT	BLANK	SEWER	SEWER	SEWER	
SAMPLE NUMBER	ME1205887	ME1205888	SBK81102	ME300039A	ME306013A	ME306024A	
MATRIX			SOIL	SOIL	SOIL	SOIL	
UNITS	%	AREA	UG/KG	UG/KG	UG/KG	UG/KG	
ENV PROBLEM NO				1	1	1	
ACENAPHTHENE	-0.6		660 U	52 J	35 J	780 U	

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA	QA			
LOCATION	CONTINUING	ISTD RET TIM	METHOD	BURROUGHS	BURROUGHS	BURROUGHS
TYPE OF LOCATION	CAL %D	SHIFT	BLANK	SEWER	SEWER	SEWER
SAMPLE NUMBER	ME1205887	ME1205888	SBK81102	ME300039A	ME306013A	ME306024A
MATRIX			SOIL	SOIL	SOIL	SOIL
UNITS	%	AREA	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO				1	1	1
ACENAPHTHYLENE	-1.5		660 U	21 J	380 J	780 U
ANTHRACENE	-2.4		660 U	180 J	270 J	40 J
BENZO(A)ANTHRACENE	0.9		660 U	510 J	620 J	180 J
BENZO(A)PYRENE	-18.9		660 U	270 J	810	110 J
BENZO(B)FLUORANTHENE	-11.4		660 U	500 J	1200	250 J
BENZO(G,H,I)PERYLENE	-26.6		660 U	170 J	540 J	780 U
BENZO(K)FLUORANTHENE	-6.3		660 U	720 U	740 U	780 U
BENZOIC ACID	-10.8		3200 U	3500 U	3600 U	3800 U
BENZYL ALCOHOL	6.5		660 U	720 U	740 U	780 U
BIS(-2-CHLOROETHOXY)METHANE	-1.3		660 U	720 U	740 U	780 U
BIS(2-CHLOROETHYL)ETHER	1.9		660 U	720 U	740 U	780 U
BIS(2-CHLOROISOPROPYL)ETHER	0.7		660 U	720 U	740 U	780 U
BIS(2-ETHYLHEXYL)PHTHALATE	1.4		120 J	470 BJ	780 B	220 BJ
BUTYLBENZYLPHTHALATE	3.6		660 U	330 J	300 J	780 U
CHRYSENE	-2.9		660 U	390 J	630 J	220 J
DI-N-BUTYLPHTHALATE	3.1		240 J	240 BJ	170 BJ	460 BJ
DI-N-OCTYL PHTHALATE	-22.6		660 U	720 U	740 U	780 U
DIBENZO(A,H)ANTHRACENE	-33.7		660 U	720 U	110 J	780 U
DIBENZOFURAN	1.4		660 U	47 J	120 J	780 U
DIETHYLPHTHALATE	1.8		660 U	720 U	740 U	780 U
DIMETHYLPHTHALATE	1.2		660 U	720 U	740 U	780 U
FLUORANTHENE	2.7		660 U	1100	1000	520 J
FLUORENE	-0.8		660 U	88 J	180 J	780 U
HEXACHLOROBENZENE	-1.3		660 U	720 U	740 U	780 U
HEXACHLOROBUTADIENE	-1.9		660 U	720 U	740 U	780 U
HEXACHLOROCYCLOPENTADIENE	-16.6		660 U	720 U	740 U	780 U
HEXACHLOROETHANE	2.8		660 U	720 U	740 U	780 U
INDENO(1,2,3-CD)PYRENE	-40.3		660 U	720 U	670 J	96 J
ISOPHORONE	-4.4		660 U	720 U	740 U	780 U
N-NITROSO-DI-N-PROPYLAMINE	-3.7		660 U	720 U	740 U	780 U
N-NITROSODIPHENYLAMINE	6		660 U	720 U	740 U	780 U
NAPHTHALENE	-6.5		660 U	30 J	280 J	20 J
NITROBENZENE	0.3		660 U	720 U	740 U	780 U
NITROBENZENE-D5	1.5					
PENTACHLOROPHENOL	18.3		3200 U	3500 U	3600 U	3800 U
PHENANTHRENE	0.3		660 U	1100	1100	290 J
PHENOL	1.1		660 U	720 U	740 U	780 U
PHENOL-D5	0.7					
PYRENE	3.2		660 U	820	890	390 J

TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A DRAFT DO NOT CITE

AREA	QA	QA	QA			
LOCATION	CONTINUING	ISTD RET TIM	METHOD	BURROUGHS	BURROUGHS	BURROUGHS
TYPE OF LOCATION	CAL %D	SHIFT	BLANK	SEWER	SEWER	SEWER
SAMPLE NUMBER	ME1205887	ME1205888	SBK81102	ME300039A	ME306013A	ME306024A
MATRIX			SOIL	SOIL	SOIL	SOIL
UNITS	%	AREA	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO				1	1	1
TERPHENYL-D14	6.7					
1,2-DICHLOROBENZENE	-0.6		660 U	720 U	740 U	780 U
1,2,4-TRICHLOROBENZENE	-1.2		660 U	720 U	740 U	780 U
1,3-DICHLOROBENZENE	0.7		660 U	720 U	740 U	780 U
1,4-DICHLOROBENZENE	-0.9		660 U	720 U	740 U	780 U
2-CHLORONAPHTHALENE	-2		660 U	720 U	740 U	780 U
2-CHLOROPHENOL	2.2		660 U	720 U	740 U	780 U
2-FLUOROBIPHENYL	2.5					
2-FLUOROPHENOL	-0.8					
2-METHYLNAPHTHALENE	-2.8		660 U	38 J	120 J	780 U
2-METHYLPHENOL	1.9		660 U	720 U	740 U	780 U
2-NITROANILINE	8.5		3200 U	3500 U	3600 U	3800 U
2-NITROPHENOL	0.5		660 U	720 U	740 U	780 U
2,4-DICHLOROPHENOL	0		660 U	720 U	740 U	780 U
2,4-DIMETHYLPHENOL	1.2		660 U	720 U	740 U	780 U
2,4-DINITROPHENOL	32		3200 U	3500 U	3600 U	3800 U
2,4-DINITROTOLUENE	5.2		660 U	720 U	740 U	780 U
2,4,5-TRICHLOROPHENOL	2.5		3200 U	3500 U	3600 U	3800 U
2,4,6-TRIBROMOPHENOL	-3.2					
2,4,6-TRICHLOROPHENOL	1.1		660 U	720 U	740 U	780 U
2,6-DINITROTOLUENE	2.9		660 U	720 U	740 U	780 U
3-NITROANILINE	12.7		3200 U	3500 U	3600 U	3800 U
3,3'-DICHLOROBENZIDINE	-2.7		1300 U	1400 U	1500 U	1600 U
4-BROMOPHENYL-PHENYLETHER	-0.9		660 U	720 U	740 U	780 U
4-CHLORO-3-METHYLPHENOL	5.9		660 U	720 U	740 U	780 U
4-CHLOROANILINE	13.5		660 U	720 U	740 U	780 U
4-CHLOROPHENYL-PHENYLETHER	-0.2		660 U	720 U	740 U	780 U
4-METHYLPHENOL	1.5		660 U	720 U	740 U	780 U
4-NITROANILINE	30		3200 U	3500 U	3600 U	3800 U
4-NITROPHENOL	12.5		3200 U	3500 U	3600 U	3800 U
4,6-DINITRO-2-METHYLPHENOL	14		3200 U	3500 U	3600 U	3800 U
SURR 1(NBZ) %RECOVERY			39	43	39	42
SURR 2(FBP) %RECOVERY			40	43	39	44
SURR 3(TPH) %RECOVERY			46	38	40	59
SURR 4(PHL) %RECOVERY			36	37	36	37
SURR 5(2FP) %RECOVERY			38	40	37	40
SURR 6(TBP) %RECOVERY			30	29	27	32

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TABLE D.3.2 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME300017A

DRAFT DO NOT CITE

AREA	QA	QA	QA			
LOCATION	CONTINUING	ISTD RET TIM	METHOD	BURROUGHS	BURROUGHS	BURROUGHS
TYPE OF LOCATION	CAL %D	SHIFT	BLANK	SEWER	SEWER	SEWER
SAMPLE NUMBER	ME1205887	ME1205888	SBK81102	ME300039A	ME306013A	ME306024A
MATRIX			SOIL	SOIL	SOIL	SOIL
UNITS	%	AREA	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO				1	1	1
M/E 68-1						
M/E 68-2						
M/E 69						
M/E 70-1						
M/E 70-2						
M/E 127						
M/E 197						
M/E 198						
M/E 199						
M/E 275						
M/E 365						
M/E 441						
M/E 442						
M/E 443-1						
M/E 443-2						
INTERNAL STD AREA(ANT)		64300	72700	79600	83100	71200
INTERNAL STD AREA(CRY)		40300	44500	47100	50100	41900
INTERNAL STD AREA(DCB)		39300	43200	50000	47800	46700
INTERNAL STD AREA(NPT)		144000	146000	168000	164000	158000
INTERNAL STD AREA(PHN)		79600	95700	93200	111000	87700
INTERNAL STD AREA(PRY)		23000	28200	39200	44800	30100
DILUTION FACTOR			2	2	1.99	2
PERCENT MOISTURE				12	18	17
ACTUAL(ALLOWED) EXTRACT TIME				6(14 D)	6(14 D)	6(14 D)

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	INITIAL CAL	INITIAL CAL	TUNED	TUNED	CONTINUING	CONTINUING	ISTD RET TIM
TYPE OF LOCATION	RRF	% RSD	CALIBRATION	CALIBRATION	CALIBRATION	CAL %D	SHIFT
SAMPLE NUMBER	ME0816886	ME0816886	ME0816885	ME0912885	ME0912887	ME0912887	ME0912888
MATRIX							
UNITS	RRF	%	%	%	RRF	%	AREA
ENV PROBLEM NO							
ACENAPHTHENE	1.154	3.5			1.171	-1.5	
ACENAPHTHYLENE	1.82	5			1.902	-4.5	
ANTHRACENE	1.125	4.9			1.17	-4	
BENZO(A)ANTHRACENE	1.229	3.6			1.281	-4.2	
BENZO(A)PYRENE	1.336	6.5			1.626	-21.7	
BENZO(B)FLUORANTHENE	1.57	6.7			1.895	-20.7	
BENZO(G,H,I)PERYLENE	0.803	14.9			1.09	-35.7	
BENZO(K)FLUORANTHENE	1.537	12.1			1.931	-25.6	
BENZOIC ACID	0.113	32.4			0.066	41.6	
BENZYL ALCOHOL	0.911	2.4			0.931	-2.2	
BIS(-2-CHLOROETHOXY)METHANE	0.479	2.1			0.492	-2.7	
BIS(2-CHLOROETHYL)ETHER	1.724	4.2			1.797	-4.2	
BIS(2-CHLOROISOPROPYL)ETHER	2.763	4			2.697	2.4	
BIS(2-ETHYLHEXYL)PHTHALATE	0.965	13.2			0.859	11	
BUTYLBENZYLPHTHALATE	0.728	9.3			0.714	1.9	
CHRYSENE	1.145	5.5			1.211	-5.8	
DI-N-BUTYLPHTHALATE	1.2	6.1			1.217	-1.4	
DI-N-OCTYL PHTHALATE	2.572	25.4			2.419	5.9	
DIBENZO(A,H)ANTHRACENE	0.909	12			1.132	-24.5	
DIBENZOFURAN	1.674	4			1.703	-1.7	
DIETHYLPHTHALATE	1.154	3.7			1.112	3.6	
DIMETHYLPHTHALATE	1.213	8.4			1.227	-1.2	
FLUORANTHENE	1.109	2.8			1.142	-3	
FLUORENE	1.373	2.9			1.387	-1	
HEXACHLOROBENZENE	0.217	4.9			0.216	0.5	
HEXACHLOROBUTADIENE	0.158	3.9			0.166	-5.1	
HEXACHLOROCYCLOPENTADIENE	0.316	1.4			0.363	-14.9	
HEXACHLOROETHANE	0.591	3.6			0.594	-0.5	
INDENO(1,2,3-CD)PYRENE	0.92	13.4			1.078	-17.2	
ISOPHORONE	0.772	7.4			0.783	-1.4	
N-NITROSO-DI-N-PROPYLAMINE	0.835	3.4			0.829	0.7	
N-NITROSODIPHENYLAMINE	0.352	24.4			0.422	-19.9	
NAPHTHALENE	1.065	11.8			1.151	-8.1	
NITROBENZENE	0.394	1.7			0.401	-1.8	
NITROBENZENE-D5	0.2	2.3			0.211	-5.5	
PENTACHLOROPHENOL	0.103	8.2			0.119	-15.5	
PHENANTHRENE	1.133	3.9			1.156	-2	
PHENOL	1.862	3.8			1.92	-3.1	
PHENOL-D5	1.454	0.8			1.49	-2.5	

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	INITIAL CAL	INITIAL CAL	TUNED	TUNED	CONTINUING	CONTINUING	ISTD RET TIM
TYPE OF LOCATION	RRF	% RSD	CALIBRATION	CALIBRATION	CALIBRATION	CAL %D	SHIFT
SAMPLE NUMBER	ME0816886	ME0816886	ME0816885	ME0912885	ME0912887	ME0912887	ME0912888
MATRIX							
UNITS	RRF	%	%	%	RRF	%	AREA
ENV PROBLEM NO							
PYRENE	1.101	3.2			1.126	-2.3	
TERPHENYL-D14	1.074	9.2			1.191	-10.9	
1,2-DICHLOROBENZENE	1.565	4.6			1.608	-2.7	
1,2,4-TRICHLOROBENZENE	0.338	3.7			0.35	-3.6	
1,3-DICHLOROBENZENE	1.6	4.3			1.669	-4.3	
1,4-DICHLOROBENZENE	1.683	4.6			1.736	-3.1	
2-CHLORONAPHTHALENE	1.259	4.1			1.309	-4	
2-CHLOROPHENOL	1.399	3.8			1.454	-3.9	
2-FLUOROBIPHENYL	1.315	1.9			1.387	-5.5	
2-FLUOROPHENOL	1.316	1			1.386	-5.3	
2-METHYLNAPHTHALENE	0.74	3.5			0.753	-1.8	
2-METHYLPHENOL	1.32	1.9			1.355	-2.7	
2-NITROANILINE	0.345	1.8			0.331	4.1	
2-NITROPHENOL	0.216	2.5			0.225	-4.2	
2,4-DICHLOROPHENOL	0.283	1.6			0.301	-6.4	
2,4-DIMETHYLPHENOL	0.285	1.4			0.292	-2.5	
2,4-DINITROPHENOL	0.19	16.9			0.185	2.6	
2,4-DINITROTOLUENE	0.395	4.9			0.398	-0.8	
2,4,5-TRICHLOROPHENOL	0.347	6.1			0.384	-10.7	
2,4,6-TRIBROMOPHENOL	0.086	3			0.085	1.2	
2,4,6-TRICHLOROPHENOL	0.371	7			0.38	-2.4	
2,6-DINITROTOLUENE	0.313	5.4			0.32	-2.2	
3-NITROANILINE	0.33	5			0.324	1.8	
3,3'-DICHLOROBENZIDINE	0.406	41.5			0.325	20	
4-BROMOPHENYL-PHENYLETHER	0.213	4.6			0.218	-2.3	
4-CHLORO-3-METHYLPHENOL	0.268	1.1			0.264	1.5	
4-CHLOROANILINE	0.153	5.6			0.14	8.5	
4-CHLOROPHENYL-PHENYLETHER	0.654	2.5			0.656	-0.3	
4-METHYLPHENOL	1.344	2.2			1.397	-3.9	
4-NITROANILINE	0.302	8.5			0.296	2	
4-NITROPHENOL	0.082	10.6			0.082	0	
4,6-DINITRO-2-METHYLPHENOL	0.244	10.6			0.233	4.5	

SURR 1(NBZ) %RECOVERY
SURR 2(FBP) %RECOVERY
SURR 3(TPH) %RECOVERY
SURR 4(PHL) %RECOVERY
SURR 5(2FP) %RECOVERY
SURR 6(TBP) %RECOVERY

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	INITIAL CAL	INITIAL CAL	TUNED	TUNED	CONTINUING	CONTINUING	ISTD RET TIM
TYPE OF LOCATION	RRF	% RSD	CALIBRATION	CALIBRATION	CALIBRATION	CAL %D	SHIFT
SAMPLE NUMBER	ME0816886	ME0816886	ME0816885	ME0912885	ME0912887	ME0912887	ME0912888
MATRIX							
UNITS	RRF	%	%	%	RRF	%	AREA
ENV PROBLEM NO							
M/E 51			48	46			
M/E 68-1			0	0			
M/E 68-2			0	0			
M/E 69			42	41			
M/E 70-1			0	0			
M/E 70-2			0	0			
M/E 127			41	40			
M/E 197			0	0			
M/E 198			100	100			
M/E 199			6.3	6.4			
M/E 275			18	18			
M/E 365			1.2	1.4			
M/E 441			6.1	5.3			
M/E 442			53	47			
M/E 443-1			9.9	8.8			
M/E 443-2			19	19			
INTERNAL STD AREA(ANT)							99500
INTERNAL STD AREA(CRY)							87600
INTERNAL STD AREA(DCB)							57000
INTERNAL STD AREA(NPT)							202000
INTERNAL STD AREA(PHN)							143000
INTERNAL STD AREA(PRY)							39500
DILUTION FACTOR							
ACTUAL(ALLOWED) EXTRACT TIME							

AREA		QA	QA		QA	QA	QA
LOCATION	BURROUGHS	MSD %	MATRIX SPIKE	NW B. B-17	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SEWER	RECOVERY	DUPLICATE	STORMWATER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME306046A	ME309016A	ME309016C	ME309016A	ME0913885	ME0913887	ME0913887
MATRIX	WATER	WATER	WATER	WATER			
UNITS	UG/L	%	UG/L	UG/L	%	RRF	%
ENV PROBLEM NO	1	2	2	2			
ACENAPHTHENE	10 U	82	82	10 U		1.191	-3.2

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA		QA	QA		QA	QA	QA
LOCATION	BURROUGHS	MSD %	MATRIX SPIKE	NW B. B-17	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SEWER	RECOVERY	DUPLICATE	STORMWATER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME306046A	ME309016A	ME309016C	ME309016A	ME0913885	ME0913887	ME0913887
MATRIX	WATER	WATER	WATER	WATER			
UNITS	UG/L	%	UG/L	UG/L	%	RRF	%
ENV PROBLEM NO	1	2	2	2			
ACENAPHTHYLENE	10 U		10 U	10 U		1.929	-6
ANTHRACENE	10 U		10 U	10 U		1.178	-4.7
BENZO(A)ANTHRACENE	10 U		10 U	10 U		1.282	-4.3
BENZO(A)PYRENE	10 U		10 U	10 U		1.571	-17.6
BENZO(B)FLUORANTHENE	10 U		10 U	10 U		1.806	-15
BENZO(G,H,I)PERYLENE	10 U		10 U	10 U		1.251	-55.8
BENZO(K)FLUORANTHENE	10 U		10 U	10 U		1.707	-11.1
BENZOIC ACID	50 U		29 J	42 J		0.069	38.9
BENZYL ALCOHOL	10 U		10 U	10 U		0.954	-4.7
BIS(-2-CHLOROETHOXY)METHANE	10 U		10 U	10 U		0.508	-6.1
BIS(2-CHLOROETHYL)ETHER	10 U		10 U	10 U		1.899	-10.2
BIS(2-CHLOROISOPROPYL)ETHER	10 U		10 U	10 U		2.901	-5
BIS(2-ETHYLHEXYL)PHTHALATE	2 J		28 B	23		0.968	-0.3
BUTYLBENZYLPHTHALATE	10 U		10 U	10 U		0.716	1.6
CHRYSENE	10 U		10 U	10 U		1.231	-7.5
DI-N-BUTYLPHTHALATE	1 BJ		1 BJ	2 BJ		1.196	0.3
DI-N-OCTYL PHTHALATE	10 U		2 BJ	2 BJ		2.638	-2.6
DIBENZO(A,H)ANTHRACENE	10 U		10 U	10 U		1.301	-43.1
DIBENZOFURAN	10 U		10 U	10 U		1.741	-4
DIETHYLPHTHALATE	10 U		10 U	10 U		1.134	1.7
DIMETHYLPHTHALATE	10 U		10 U	10 U		1.269	-4.6
FLUORANTHENE	10 U		10 U	10 U		1.014	8.6
FLUORENE	10 U		10 U	10 U		1.379	-0.4
HEXACHLOROBENZENE	10 U		10 U	10 U		0.229	-5.5
HEXACHLOROBUTADIENE	10 U		10 U	10 U		0.162	-2.5
HEXACHLOROCYCLOPENTADIENE	10 U		10 U	10 U		0.315	0.3
HEXACHLOROETHANE	10 U		10 U	10 U		0.619	-4.7
INDENO(1,2,3-CD)PYRENE	10 U		10 U	10 U		1.203	-30.8
ISOPHORONE	10 U		10 U	10 U		0.837	-8.4
N-NITROSO-DI-N-PROPYLAMINE	10 U	73	73	10 U		0.931	-11.5
N-NITROSODIPHENYLAMINE	10 U		10 U	10 U		0.421	-19.6
NAPHTHALENE	10 U		10 U	10 U		1.146	-7.6
NITROBENZENE	10 U		10 U	10 U		0.415	-5.3
NITROBENZENE-D5						0.22	-10
PENTACHLOROPHENOL	50 U	69	138	50 U		0.086	16.5
PHENANTHRENE	10 U		0.8 J	10 U		1.163	-2.6
PHENOL	10 U	33	68	2 J		2.112	-13.4
PHENOL-D5						1.578	-8.5
PYRENE	10 U	65	65	10 U		0.984	10.6

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A DRAFT DO NOT CITE

AREA		QA	QA		QA	QA	QA
LOCATION	BURROUGHS	MSD %	MATRIX SPIKE	NW B. B-17	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SEWER	RECOVERY	DUPLICATE	STORMWATER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME306046A	ME309016A	ME309016C	ME309016A	ME0913885	ME0913887	ME0913887
MATRIX	WATER	WATER	WATER	WATER			
UNITS	UG/L	%	UG/L	UG/L	%	RRF	%
ENV PROBLEM NO	1	2	2	2			
TERPHENYL-D14						1.072	0.2
1,2-DICHLOROBENZENE	10 U		10 U	10 U		1.636	-4.5
1,2,4-TRICHLOROBENZENE	10 U	84	84	10 U		0.342	-1.2
1,3-DICHLOROBENZENE	10 U		10 U	10 U		1.693	-5.8
1,4-DICHLOROBENZENE	10 U	79	79	10 U		1.775	-5.5
2-CHLORONAPHTHALENE	10 U		10 U	10 U		1.318	-4.7
2-CHLOROPHENOL	10 U	71	142	10 U		1.502	-7.4
2-FLUOROBIPHENYL						1.368	-4
2-FLUOROPHENOL						1.395	-6
2-METHYLNAPHTHALENE	10 U		10 U	10 U		0.766	-3.5
2-METHYLPHENOL	10 U		10 U	10 U		1.402	-6.2
2-NITROANILINE	50 U		50 U	50 U		0.371	-7.5
2-NITROPHENOL	10 U		10 U	10 U		0.226	-4.6
2,4-DICHLOROPHENOL	10 U		10 U	10 U		0.282	0.4
2,4-DIMETHYLPHENOL	10 U		10 U	10 U		0.313	-9.8
2,4-DINITROPHENOL	50 U		50 U	50 U		0.115	39.5
2,4-DINITROTOLUENE	10 U	71	71	10 U		0.375	5.1
2,4,5-TRICHLOROPHENOL	50 U		50 U	50 U		0.372	-7.2
2,4,6-TRIBROMOPHENOL						0.095	-10.5
2,4,6-TRICHLOROPHENOL	10 U		10 U	10 U		0.372	-0.3
2,6-DINITROTOLUENE	10 U		10 U	10 U		0.325	-3.8
3-NITROANILINE	50 U		50 U	50 U		0.329	0.3
3,3'-DICHLOROBENZIDINE	50 U		50 U	50 U		0.357	12.1
4-BROMOPHENYL-PHENYLETHER	10 U		10 U	10 U		0.241	-13.2
4-CHLORO-3-METHYLPHENOL	10 U	70	140	10 U		0.284	-6
4-CHLOROANILINE	10 U		10 U	10 U		0.143	6.5
4-CHLOROPHENYL-PHENYLETHER	10 U		10 U	10 U		0.662	-1.2
4-METHYLPHENOL	10 U		10 U	10 U		1.416	-5.4
4-NITROANILINE	50 U		50 U	50 U		0.261	13.6
4-NITROPHENOL	50 U	29	58	50 U		0.067	18.3
4,6-DINITRO-2-METHYLPHENOL	50 U		50 U	50 U		0.177	27.5
SURR 1(NBZ) %RECOVERY	90		90	82			
SURR 2(FBP) %RECOVERY	86		87	76			
SURR 3(TPH) %RECOVERY	83		69	68			
SURR 4(PHL) %RECOVERY	35		37	42			
SURR 5(2FP) %RECOVERY	54		51	60			
SURR 6(TBP) %RECOVERY	79		90	97			

AREA		QA	QA		QA	QA	QA
LOCATION	BURROUGHS	MSD %	MATRIX SPIKE	NW B. B-17	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SEWER	RECOVERY	DUPLICATE	STORMWATER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME306046A	ME309016A	ME309016C	ME309016A	ME0913885	ME0913887	ME0913887
MATRIX	WATER	WATER	WATER	WATER			
UNITS	UG/L	%	UG/L	UG/L	%	RRF	%
ENV PROBLEM NO	1	2	2	2			
M/E 68-1					0		
M/E 68-2					0		
M/E 69					42		
M/E 70-1					0		
M/E 70-2					0		
M/E 127					42		
M/E 197					0		
M/E 198					100		
M/E 199					6.4		
M/E 275					19		
M/E 365					1.4		
M/E 441					6.1		
M/E 442					52		
M/E 443-1					9.8		
M/E 443-2					19		
INTERNAL STD AREA(ANT)	116000		92900	98700			
INTERNAL STD AREA(CRY)	97000		64700	64700			
INTERNAL STD AREA(DCB)	58200		50600	53300			
INTERNAL STD AREA(NPT)	214000		182000	193000			
INTERNAL STD AREA(PHN)	167000		110000	132000			
INTERNAL STD AREA(PRY)	57500		50500	46100			
DILUTION FACTOR	1		1	1			
ACTUAL(ALLOWED) EXTRACT TIME	3(7 D)		3(7 D)	3(7 D)			

AREA	QA				QA	QA	QA
LOCATION	ISTD RET TIM	NW B. B-17	B. B-11	NW B. B-17	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SHIFT	STORMWATER	WASTE	STORMWATER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME0913888	ME311010A	ME800078A	ME311032A	ME0922885	ME0922887	ME0922887
MATRIX		WATER	WATER	WATER			
UNITS	AREA	UG/L	UG/L	UG/L	%	RRF	%
ENV PROBLEM NO		2	3	2			
ACENAPHTHENE		10 U	20 U	10 U		1.178	-2.1
ACENAPHTHYLENE		10 U	20 U	10 U		1.922	-5.6

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA	QA				QA	QA	QA
LOCATION	ISTD RET TIM	NW B. B-17	B. B-11	NW B. B-17	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SHIFT	STORMWATER	WASTE	STORMWATER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME0913888	ME311010A	ME800078A	ME311032A	ME0922885	ME0922887	ME0922887
MATRIX		WATER	WATER	WATER			
UNITS	AREA	UG/L	UG/L	UG/L	%	RRF	%
ENV PROBLEM NO		2	3	2			
ANTHRACENE		10 U	20 U	10 U		1.182	-5.1
BENZO(A)ANTHRACENE		10 U	20 U	10 U		1.26	-2.5
BENZO(A)PYRENE		10 U	20 U	10 U		1.629	-21.9
BENZO(B)FLUORANTHENE		10 U	20 U	10 U		1.757	-11.9
BENZO(G,H,I)PERYLENE		10 U	20 U	10 U		1.196	-48.9
BENZO(K)FLUORANTHENE		10 U	20 U	10 U		1.882	-22.5
BENZOIC ACID		50 U	100 U	50 U		0.021	81.4
BENZYL ALCOHOL		10 U	20 U	10 U		0.881	3.3
BIS(-2-CHLOROETHOXY)METHANE		10 U	20 U	10 U		0.486	-1.5
BIS(2-CHLOROETHYL)ETHER		10 U	20 U	10 U		1.782	-3.4
BIS(2-CHLOROISOPROPYL)ETHER		10 U	20 U	10 U		2.599	5.9
BIS(2-ETHYLHEXYL)PHTHALATE		10 U	3 J	10 U		0.874	9.4
BUTYLBENZYLPHTHALATE		10 U	3 J	10 U		0.658	9.6
CHRYSENE		10 U	20 U	10 U		1.198	-4.6
DI-N-BUTYLPHTHALATE		2 BJ	7 BJ	5 BJ		1.168	2.7
DI-N-OCTYL PHTHALATE		10 U	20 U	10 U		2.44	5.1
DIBENZO(A,H)ANTHRACENE		10 U	20 U	10 U		1.214	-33.6
DIBENZOFURAN		10 U	20 U	10 U		1.722	-2.9
DIETHYLPHTHALATE		10 U	20 U	10 J		1.099	4.8
DIMETHYLPHTHALATE		10 U	20 U	10 U		1.24	-2.2
FLUORANTHENE		10 U	20 U	10 U		0.996	10.2
FLUORENE		10 U	20 U	10 U		1.364	0.7
HEXACHLOROBENZENE		10 U	20 U	10 U		0.233	-7.4
HEXACHLOROBUTADIENE		10 U	20 U	10 U		0.169	-7
HEXACHLOROCYCLOPENTADIENE		10 U	20 U	10 U		0.356	-12.7
HEXACHLOROETHANE		10 U	20 U	10 U		0.597	-1
INDENO(1,2,3-CD)PYRENE		10 U	20 U	10 U		1.142	-24.1
ISOPHORONE		10 U	20 U	10 U		0.789	-2.2
N-NITROSO-DI-N-PROPYLAMINE		10 U	20 U	10 U		0.798	4.4
N-NITROSODIPHENYLAMINE		10 U	20 U	10 U		0.404	-14.8
NAPHTHALENE		10 U	20 U	10 U		1.165	-9.4
NITROBENZENE		10 U	20 U	10 U		0.397	-0.8
NITROBENZENE-D5						0.208	-4
PENTACHLOROPHENOL		50 U	100 U	50 U		0.09	12.6
PHENANTHRENE		10 U	20 U	10 U		1.165	-2.8
PHENOL		10 U	20 U	10 U		1.991	-6.9
PHENOL-D5						1.479	-1.7
PYRENE		10 U	20 U	10 U		0.981	10.9
TERPHENYL-D14						1.05	2.2

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A DRAFT DO NOT CITE

AREA	QA				QA	QA	QA
LOCATION	ISTD RET TIM	NW B. B-17	B. B-11	NW B. B-17	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SHIFT	STORMWATER	WASTE	STORMWATER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME0913888	ME311010A	ME800078A	ME311032A	ME0922885	ME0922887	ME0922887
MATRIX		WATER	WATER	WATER			
UNITS	AREA	UG/L	UG/L	UG/L	%	RRF	%
ENV PROBLEM NO		2	3	2			
1,2-DICHLOROBENZENE		10 U	20 U	10 U		1.62	-3.5
1,2,4-TRICHLOROBENZENE		10 U	20 U	10 U		0.357	-5.6
1,3-DICHLOROBENZENE		10 U	20 U	10 U		1.645	-2.8
1,4-DICHLOROBENZENE		10 U	20 U	10 U		1.736	-3.1
2-CHLORONAPHTHALENE		10 U	20 U	10 U		1.325	-5.2
2-CHLOROPHENOL		10 U	20 U	10 U		1.42	-1.5
2-FLUOROBIPHENYL						1.419	-7.9
2-FLUOROPHENOL						1.308	0.6
2-METHYLNAPHTHALENE		10 U	20 U	10 U		0.772	-4.3
2-METHYLPHENOL		10 U	20 U	10 U		1.304	1.2
2-NITROANILINE		50 U	100 U	50 U		0.325	5.8
2-NITROPHENOL		10 U	20 U	10 U		0.221	-2.3
2,4-DICHLOROPHENOL		10 U	20 U	10 U		0.28	1.1
2,4-DIMETHYLPHENOL		10 U	20 U	10 U		0.291	-2.1
2,4-DINITROPHENOL		50 U	100 U	50 U		0.112	41.1
2,4-DINITROTOLUENE		10 U	20 U	10 U		0.353	10.6
2,4,5-TRICHLOROPHENOL		50 U	100 U	50 U		0.377	-8.6
2,4,6-TRIBROMOPHENOL						0.097	-12.8
2,4,6-TRICHLOROPHENOL		10 U	20 U	10 U		0.381	-2.7
2,6-DINITROTOLUENE		10 U	20 U	10 U		0.311	0.6
3-NITROANILINE		50 U	100 U	50 U		0.296	10.3
3,3'-DICHLOROBENZIDINE		50 U	100 U	50 U		0.336	17.2
4-BROMOPHENYL-PHENYLETHER		10 U	20 U	10 U		0.239	-12.2
4-CHLORO-3-METHYLPHENOL		10 U	20 U	10 U		0.262	2.2
4-CHLOROANILINE		10 U	20 U	10 U		0.13	15
4-CHLOROPHENYL-PHENYLETHER		10 U	20 U	10 U		0.663	-1.4
4-METHYLPHENOL		10 U	20 U	10 U		1.29	4
4-NITROANILINE		50 U	100 U	50 U		0.209	30.8
4-NITROPHENOL		50 U	100 U	50 U		0.058	29.3
4,6-DINITRO-2-METHYLPHENOL		50 U	100 U	50 U		0.173	29.1
SURR 1(NBZ) %RECOVERY		94	85	93			
SURR 2(FBP) %RECOVERY		86	73	85			
SURR 3(TPH) %RECOVERY		95	86	139			
SURR 4(PHL) %RECOVERY		33	59	33			
SURR 5(2FP) %RECOVERY		52	77	54			
SURR 6(TBP) %RECOVERY		69	84	76			

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TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA	QA				QA	QA	QA
LOCATION	ISTD RET TIM	NW B. B-17	B. B-11	NW B. B-17	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	SHIFT	STORMWATER	WASTE	STORMWATER	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME0913888	ME311010A	ME800078A	ME311032A	ME0922885	ME0922887	ME0922887
MATRIX		WATER	WATER	WATER			
UNITS	AREA	UG/L	UG/L	UG/L	%	RRF	%
ENV PROBLEM NO		2	3	2			
M/E 68-1					0		
M/E 68-2					0		
M/E 69					42		
M/E 70-1					0		
M/E 70-2					0		
M/E 127					41		
M/E 197					0		
M/E 198					100		
M/E 199					6.9		
M/E 275					19		
M/E 365					1.8		
M/E 441					6.2		
M/E 442					54		
M/E 443-1					9.8		
M/E 443-2					18		
INTERNAL STD AREA(ANT)	101000	124000	126000	115000			
INTERNAL STD AREA(CRY)	80300	91400	102000	58700			
INTERNAL STD AREA(DCB)	55000	64300	65000	62800			
INTERNAL STD AREA(NPT)	203000	228000	229000	222000			
INTERNAL STD AREA(PHN)	136000	169000	174000	150000			
INTERNAL STD AREA(PRY)	49200	48900	69100	34800			
DILUTION FACTOR		1	1	1			
ACTUAL(ALLOWED) EXTRACT TIME		3(7 D)	6(7 D)	5(7 D)			

AREA	QA						QA
LOCATION	ISTD RET TIM	BURROUGHS	BURROUGHS	BURROUGHS	NW B. B-17	BURROUGHS	TUNED
TYPE OF LOCATION	SHIFT	SEWER	SEWER	SEWER	STORMWATER	SEWER	CALIBRATION
SAMPLE NUMBER	ME0922888	ME302031A	ME302100A	ME302020A	ME309038A	ME302019A	ME0923885
MATRIX		WATER	WATER	WATER	WATER	WATER	
UNITS	AREA	UG/L	UG/L	UG/L	UG/L	UG/L	%
ENV PROBLEM NO		1	1	1	2	1	
ACENAPHTHENE		10 U	10 U	10 U	11 U	10 U	
ACENAPHTHYLENE		10 U	10 U	10 U	11 U	10 U	

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA	QA						QA
LOCATION	ISTD RET TIM	BURROUGHS	BURROUGHS	BURROUGHS	NW B. B-17	BURROUGHS	TUNED
TYPE OF LOCATION	SHIFT	SEWER	SEWER	SEWER	STORMWATER	SEWER	CALIBRATION
SAMPLE NUMBER	ME0922888	ME302031A	ME302100A	ME302020A	ME309038A	ME302019A	ME0923885
MATRIX		WATER	WATER	WATER	WATER	WATER	
UNITS	AREA	UG/L	UG/L	UG/L	UG/L	UG/L	%
ENV PROBLEM NO		1	1	1	2	1	
ANTHRACENE		10 U	10 U	10 U	11 U	10 U	
BENZO(A)ANTHRACENE		10 U	10 U	10 U	11 U	10 U	
BENZO(A)PYRENE		10 U	10 U	10 U	11 U	10 U	
BENZO(B)FLUORANTHENE		10 U	10 U	10 U	11 U	10 U	
BENZO(G,H,I)PERYLENE		10 U	10 U	10 U	11 U	10 U	
BENZO(K)FLUORANTHENE		10 U	10 U	10 U	11 U	10 U	
BENZOIC ACID		50 U	50 U	50 U	56 U	50 U	
BENZYL ALCOHOL		10 U	10 U	10 U	11 U	10 U	
BIS(-2-CHLOROETHOXY)METHANE		10 U	10 U	10 U	11 U	10 U	
BIS(2-CHLOROETHYL)ETHER		10 U	10 U	10 U	11 U	10 U	
BIS(2-CHLOROISOPROPYL)ETHER		10 U	10 U	10 U	11 U	10 U	
BIS(2-ETHYLHEXYL)PHTHALATE		90	4 J	91	9 J	110	
BUTYLBENZYLPHTHALATE		10 U	10 U	10 U	11 U	10 U	
CHRYSENE		10 U	10 U	10 U	11 U	10 U	
DI-N-BUTYLPHTHALATE		3 BJ	5 BJ	1 BJ	4 BJ	2 BJ	
DI-N-OCTYL PHTHALATE		10 U	10 U	2 J	2 J	10 U	
DIBENZO(A,H)ANTHRACENE		10 U	10 U	10 U	11 U	10 U	
DIBENZOFURAN		10 U	10 U	10 U	11 U	10 U	
DIETHYLPHTHALATE		10 U	10 U	10 U	11 U	10 U	
DIMETHYLPHTHALATE		10 U	10 U	10 U	11 U	10 U	
FLUORANTHENE		10 U	10 U	10 U	11 U	10 U	
FLUORENE		10 U	10 U	10 U	11 U	10 U	
HEXACHLOROBENZENE		10 U	10 U	10 U	11 U	10 U	
HEXACHLOROBUTADIENE		10 U	10 U	10 U	11 U	10 U	
HEXACHLOROCYCLOPENTADIENE		10 U	10 U	10 U	11 U	10 U	
HEXACHLOROETHANE		10 U	10 U	10 U	11 U	10 U	
INDENO(1,2,3-CD)PYRENE		10 U	10 U	10 U	11 U	10 U	
ISOPHORONE		10 U	10 U	10 U	11 U	10 U	
N-NITROSO-DI-N-PROPYLAMINE		10 U	10 U	10 U	11 U	10 U	
N-NITROSODIPHENYLAMINE		10 U	10 U	10 U	11 U	10 U	
NAPHTHALENE		10 U	10 U	10 U	11 U	10 U	
NITROBENZENE		10 U	10 U	10 U	11 U	10 U	
NITROBENZENE-D5							
PENTACHLOROPHENOL		50 U	50 U	50 U	56 U	50 U	
PHENANTHRENE		10 U	10 U	10 U	11 U	10 U	
PHENOL		1 J	10 U	10 U	11 U	10 U	
PHENOL-D5							
PYRENE		10 U	10 U	10 U	11 U	10 U	
TERPHENYL-D14							

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA	QA						QA
LOCATION	ISTD RET TIM	BURROUGHS SEWER	BURROUGHS SEWER	BURROUGHS SEWER	NW B. B-17 STORMWATER	BURROUGHS SEWER	TUNED CALIBRATION
TYPE OF LOCATION	SHIFT	ME302031A	ME302100A	ME302020A	ME309038A	ME302019A	ME0923885
SAMPLE NUMBER	ME0922888	WATER	WATER	WATER	WATER	WATER	
MATRIX		UG/L	UG/L	UG/L	UG/L	UG/L	
UNITS	AREA	1	1	1	2	1	%
ENV PROBLEM NO							
1,2-DICHLOROBENZENE		10 U	10 U	10 U	11 U	10 U	
1,2,4-TRICHLOROBENZENE		10 U	10 U	10 U	11 U	10 U	
1,3-DICHLOROBENZENE		10 U	10 U	10 U	11 U	10 U	
1,4-DICHLOROBENZENE		10 U	10 U	10 U	11 U	10 U	
2-CHLORONAPHTHALENE		10 U	10 U	10 U	11 U	10 U	
2-CHLOROPHENOL		10 U	10 U	10 U	11 U	10 U	
2-FLUOROBIPHENYL							
2-FLUOROPHENOL							
2-METHYLNAPHTHALENE		10 U	10 U	10 U	11 U	10 U	
2-METHYLPHENOL		10 U	10 U	10 U	11 U	10 U	
2-NITROANILINE		50 U	50 U	50 U	56 U	50 U	
2-NITROPHENOL		10 U	10 U	10 U	11 U	10 U	
2,4-DICHLOROPHENOL		10 U	10 U	10 U	11 U	10 U	
2,4-DIMETHYLPHENOL		10 U	10 U	10 U	11 U	10 U	
2,4-DINITROPHENOL		50 U	50 U	50 U	56 U	50 U	
2,4-DINITROTOLUENE		10 U	10 U	10 U	11 U	10 U	
2,4,5-TRICHLOROPHENOL		50 U	50 U	50 U	56 U	50 U	
2,4,6-TRIBROMOPHENOL							
2,4,6-TRICHLOROPHENOL		10 U	10 U	10 U	11 U	10 U	
2,6-DINITROTOLUENE		10 U	10 U	10 U	11 U	10 U	
3-NITROANILINE		50 U	50 U	50 U	56 U	50 U	
3,3'-DICHLOROBENZIDINE		50 U	50 U	50 U	56 U	50 U	
4-BROMOPHENYL-PHENYLETHER		10 U	10 U	10 U	11 U	10 U	
4-CHLORO-3-METHYLPHENOL		10 U	10 U	10 U	11 U	10 U	
4-CHLOROANILINE		10 U	10 U	10 U	11 U	10 U	
4-CHLOROPHENYL-PHENYLETHER		10 U	10 U	10 U	11 U	10 U	
4-METHYLPHENOL		10 U	10 U	10 U	11 U	10 U	
4-NITROANILINE		50 U	50 U	50 U	56 U	50 U	
4-NITROPHENOL		50 U	50 U	50 U	56 U	50 U	
4,6-DINITRO-2-METHYLPHENOL		50 U	50 U	50 U	56 U	50 U	
SURR 1(NBZ) %RECOVERY		96	92	82	86	84	
SURR 2(FBP) %RECOVERY		80	74	66	75	78	
SURR 3(TPH) %RECOVERY		126	117	110	112	86	
SURR 4(PHL) %RECOVERY		26	35	34	38	32	
SURR 5(2FP) %RECOVERY		51	58	56	60	59	
SURR 6(TBP) %RECOVERY		85	75	84	78	87	

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A DRAFT DO NOT CITE

AREA	QA						QA
LOCATION	ISTD RET TIM	BURROUGHS	BURROUGHS	BURROUGHS	NW B. B-17	BURROUGHS	TUNED
TYPE OF LOCATION	SHIFT	SEWER	SEWER	SEWER	STORMWATER	SEWER	CALIBRATION
SAMPLE NUMBER	ME0922888	ME302031A	ME302100A	ME302020A	ME309038A	ME302019A	ME0923885
MATRIX		WATER	WATER	WATER	WATER	WATER	
UNITS	AREA	UG/L	UG/L	UG/L	UG/L	UG/L	%
ENV PROBLEM NO		1	1	1	2	1	
M/E 68-1							0
M/E 68-2							0
M/E 69							42
M/E 70-1							0
M/E 70-2							0
M/E 127							42
M/E 197							0
M/E 198							100
M/E 199							6.9
M/E 275							18
M/E 365							1.2
M/E 441							6
M/E 442							51
M/E 443-1							9.6
M/E 443-2							19
INTERNAL STD AREA(ANT)	79100	81600	92600	94000	86200	91900	
INTERNAL STD AREA(CRY)	61000	59300	88800	73900	79700	83800	
INTERNAL STD AREA(DCB)	45100	48500	50400	51700	46700	52100	
INTERNAL STD AREA(NPT)	160000	169000	171000	179000	159000	184000	
INTERNAL STD AREA(PHN)	103000	107000	133000	131000	125000	128000	
INTERNAL STD AREA(PRY)	35300	31700	53300	49200	49100	56200	
DILUTION FACTOR		1	1	1	0.999	1	
ACTUAL(ALLOWED) EXTRACT TIME		3(7 D)	3(7 D)	5(7 D)	5(7 D)	5(7 D)	

AREA	QA	QA	QA			QA	QA
LOCATION	CONTINUING	CONTINUING	ISTD RET TIM	NW B. B-17	NW B. B-17	TUNED	CONTINUING
TYPE OF LOCATION	CALIBRATION	CAL %D	SHIFT	STORMWATER	STORMWATER	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME0923887	ME0923887	ME0923888	ME309027A	ME311021A	ME1005885	ME1005887
MATRIX				WATER	WATER		
UNITS	RRF	%	AREA	UG/L	UG/L	%	RRF
ENV PROBLEM NO				2	2		
ACENAPHTHENE	1.171	-1.5		11 U	10 U		1.124
ACENAPHTHYLENE	1.892	-4		11 U	10 U		1.815

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA	QA	QA	QA			QA	QA
LOCATION	CONTINUING	CONTINUING	ISTD RET TIM	NW B. B-17	NW B. B-17	TUNED	CONTINUING
TYPE OF LOCATION	CALIBRATION	CAL %D	SHIFT	STORMWATER	STORMWATER	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME0923887	ME0923887	ME0923888	ME309027A	ME311021A	ME1005885	ME1005887
MATRIX				WATER	WATER		
UNITS	RRF	%	AREA	UG/L	UG/L	%	RRF
ENV PROBLEM NO				2	2		
ANTHRACENE	1.191	-5.9		11 U	10 U		1.139
BENZO(A)ANTHRACENE	1.281	-4.2		11 U	10 U		1.194
BENZO(A)PYRENE	1.602	-19.9		11 U	10 U		1.436
BENZO(B)FLUORANTHENE	1.837	-17		11 U	10 U		1.701
BENZO(G,H,I)PERYLENE	1.152	-43.5		11 U	10 U		0.991
BENZO(K)FLUORANTHENE	1.795	-16.8		11 U	10 U		1.561
BENZOIC ACID	0.021	81.4		54 U	50 U		0.04
BENZYL ALCOHOL	0.872	4.3		11 U	10 U		0.772
BIS(-2-CHLOROETHOXY)METHANE	0.476	0.6		11 U	10 U		0.489
BIS(2-CHLOROETHYL)ETHER	1.775	-3		11 U	10 U		1.745
BIS(2-CHLOROISOPROPYL)ETHER	2.608	5.6		11 U	10 U		2.663
BIS(2-ETHYLHEXYL)PHTHALATE	0.886	8.2		59	10 U		0.868
BUTYLBENZYLPHTHALATE	0.669	8.1		11 U	10 U		0.631
CHRYSENE	1.195	-4.4		11 U	10 U		1.151
DI-N-BUTYLPHTHALATE	1.254	-4.5		2 BJ	1 BJ		1.172
DI-N-OCTYL PHTHALATE	2.603	-1.2		11 U	10 U		2.3
DIBENZO(A,H)ANTHRACENE	1.219	-34.1		11 U	10 U		1.133
DIBENZOFURAN	1.718	-2.6		11 U	10 U		1.65
DIETHYLPHTHALATE	1.122	2.8		11 U	10 U		1.026
DIMETHYLPHTHALATE	1.248	-2.9		11 U	10 U		1.157
FLUORANTHENE	1.128	-1.7		11 U	10 U		1.001
FLUORENE	1.378	-0.4		11 U	10 U		1.284
HEXACHLOROBENZENE	0.234	-7.8		11 U	10 U		0.231
HEXACHLOROBUTADIENE	0.169	-7		11 U	10 U		0.165
HEXACHLOROCYCLOPENTADIENE	0.367	-16.1		11 U	10 U		0.284
HEXACHLOROETHANE	0.593	-0.3		11 U	10 U		0.588
INDENO(1,2,3-CD)PYRENE	1.13	-22.8		11 U	10 U		1.177
ISOPHORONE	0.756	2.1		11 U	10 U		0.779
N-NITROSO-DI-N-PROPYLAMINE	0.82	1.8		11 U	10 U		0.824
N-NITROSODIPHENYLAMINE	0.42	-19.3		11 U	10 U		0.378
NAPHTHALENE	1.143	-7.3		11 U	10 U		1.131
NITROBENZENE	0.399	-1.3		11 U	10 U		0.397
NITROBENZENE-D5	0.207	-3.5					0.208
PENTACHLOROPHENOL	0.096	6.8		54 U	50 U		0.081
PHENANTHRENE	1.166	-2.9		11 U	10 U		1.118
PHENOL	1.993	-7		11 U	10 U		1.896
PHENOL-D5	1.528	-5.1					1.465
PYRENE	1.124	-2.1		11 U	10 U		0.983
TERPHENYL-D14	1.015	5.5					0.962

AREA	QA	QA	QA			QA	QA
LOCATION	CONTINUING	CONTINUING	ISTD RET TIM	NW B. B-17	NW B. B-17	TUNED	CONTINUING
TYPE OF LOCATION	CALIBRATION	CAL %D	SHIFT	STORMWATER	STORMWATER	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME0923887	ME0923887	ME0923888	ME309027A	ME311021A	ME1005885	ME1005887
MATRIX				WATER	WATER		
UNITS	RRF	%	AREA	UG/L	UG/L	%	RRF
ENV PROBLEM NO				2	2		
1,2-DICHLOROBENZENE	1.613	-3.1		11 U	10 U		1.56
1,2,4-TRICHLOROBENZENE	0.351	-3.8		11 U	10 U		0.34
1,3-DICHLOROBENZENE	1.636	-2.3		11 U	10 U		1.589
1,4-DICHLOROBENZENE	1.738	-3.3		11 U	10 U		1.686
2-CHLORONAPHTHALENE	1.332	-5.8		11 U	10 U		1.301
2-CHLOROPHENOL	1.441	-3		11 U	10 U		1.418
2-FLUOROBIPHENYL	1.404	-6.8					1.4
2-FLUOROPHENOL	1.301	1.1					1.247
2-METHYLNAPHTHALENE	0.746	-0.8		11 U	10 U		0.749
2-METHYLPHENOL	1.309	0.8		11 U	10 U		1.261
2-NITROANILINE	0.33	4.3		54 U	50 U		0.322
2-NITROPHENOL	0.22	-1.9		11 U	10 U		0.212
2,4-DICHLOROPHENOL	0.275	2.8		11 U	10 U		0.254
2,4-DIMETHYLPHENOL	0.287	-0.7		11 U	10 U		0.292
2,4-DINITROPHENOL	0.126	33.7		54 U	50 U		0.061
2,4-DINITROTOLUENE	0.38	3.8		11 U	10 U		0.328
2,4,5-TRICHLOROPHENOL	0.374	-7.8		54 U	50 U		0.345
2,4,6-TRIBROMOPHENOL	0.097	-12.8					0.096
2,4,6-TRICHLOROPHENOL	0.378	-1.9		11 U	10 U		0.351
2,6-DINITROTOLUENE	0.319	-1.9		11 U	10 U		0.294
3-NITROANILINE	0.316	4.2		54 U	50 U		0.282
3,3'-DICHLOROBENZIDINE	0.36	11.3		54 U	50 U		0.734
4-BROMOPHENYL-PHENYLETHER	0.23	-8		11 U	10 U		0.238
4-CHLORO-3-METHYLPHENOL	0.248	7.5		11 U	10 U		0.252
4-CHLOROANILINE	0.132	13.7		11 U	10 U		0.137
4-CHLOROPHENYL-PHENYLETHER	0.661	-1.1		11 U	10 U		0.626
4-METHYLPHENOL	1.329	1.1		11 U	10 U		1.233
4-NITROANILINE	0.259	14.2		54 U	50 U		0.194
4-NITROPHENOL	0.068	17.1		54 U	50 U		0.069
4,6-DINITRO-2-METHYLPHENOL	0.201	17.6		54 U	50 U		0.134
SURR 1(NBZ) %RECOVERY				76	75		
SURR 2(FBP) %RECOVERY				68	67		
SURR 3(TPH) %RECOVERY				92	87		
SURR 4(PHL) %RECOVERY				31	25		
SURR 5(2FP) %RECOVERY				52	42		
SURR 6(TBP) %RECOVERY				75	65		

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A DRAFT DO NOT CITE

AREA	QA	QA	QA			QA	QA
LOCATION	CONTINUING	CONTINUING	ISTD RET TIM	NW B. B-17	NW B. B-17	TUNED	CONTINUING
TYPE OF LOCATION	CALIBRATION	CAL %D	SHIFT	STORMWATER	STORMWATER	CALIBRATION	CALIBRATION
SAMPLE NUMBER	ME0923887	ME0923887	ME0923888	ME309027A	ME311021A	ME1005885	ME1005887
MATRIX				WATER	WATER		
UNITS	RRF	%	AREA	UG/L	UG/L	%	RRF
ENV PROBLEM NO				2	2		
M/E 68-1						0	
M/E 68-2						0	
M/E 69						44	
M/E 70-1						0	
M/E 70-2						0	
M/E 127						43	
M/E 197						0	
M/E 198						100	
M/E 199						6.8	
M/E 275						19	
M/E 365						1.1	
M/E 441						6.2	
M/E 442						54	
M/E 443-1						11	
M/E 443-2						20	
INTERNAL STD AREA(ANT)			89100	96000	93500		
INTERNAL STD AREA(CRY)			87600	56800	64000		
INTERNAL STD AREA(DCB)			52700	52900	51900		
INTERNAL STD AREA(NPT)			188000	178000	174000		
INTERNAL STD AREA(PHN)			123000	121000	125000		
INTERNAL STD AREA(PRY)			48400	32700	36400		
DILUTION FACTOR				1	1		
ACTUAL(ALLOWED) EXTRACT TIME				5(7 D)	5(7 D)		

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	CONTINUING	ISTD RET TIM	MS %	RPD	MATRIX	INITIAL CAL	INITIAL CAL
TYPE OF LOCATION	CAL %D	SHIFT	RECOVERY		SPIKE	RRF	% RSD
SAMPLE NUMBER	ME1005887	ME1005888	ME309016A	ME309016A	ME309016B	ME1129886	ME1129886
MATRIX			WATER	WATER	WATER		
UNITS	%	AREA	%	%	UG/L	RRF	%
ENV PROBLEM NO			2	2	2		
ACENAPHTHENE	2.6		82	0	82	1.109	5.9
ACENAPHTHYLENE	0.3				10 U	1.788	6.8

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	CONTINUING	ISTD RET TIM	MS %	RPD	MATRIX	INITIAL CAL	INITIAL CAL
TYPE OF LOCATION	CAL %D	SHIFT	RECOVERY		SPIKE	RRF	% RSD
SAMPLE NUMBER	ME1005887	ME1005888	ME309016A	ME309016A	ME309016B	ME1129886	ME1129886
MATRIX			WATER	WATER	WATER		
UNITS	%	AREA	%	%	UG/L	RRF	%
ENV PROBLEM NO			2	2	2		
ANTHRACENE	-1.2				10 U	1.042	4.8
BENZO(A)ANTHRACENE	2.8				10 U	1.28	3.6
BENZO(A)PYRENE	-7.5				10 U	1.399	15.3
BENZO(B)FLUORANTHENE	-8.3				10 U	1.8	22.8
BENZO(G,H,I)PERYLENE	-23.4				10 U	1.118	12.7
BENZO(K)FLUORANTHENE	-1.6				10 U	1.798	27.1
BENZOIC ACID	64.6				47 J	0.037	34.2
BENZYL ALCOHOL	15.3				10 U	0.74	9.4
BIS(-2-CHLOROETHOXY)METHANE	-2.1				10 U	0.469	4.9
BIS(2-CHLOROETHYL)ETHER	-1.2				10 U	1.775	3.2
BIS(2-CHLOROISOPROPYL)ETHER	3.6				10 U	2.799	3.2
BIS(2-ETHYLHEXYL)PHTHALATE	10.1				13	0.931	6.3
BUTYLBENZYLPHTHALATE	13.3				10 U	0.714	3.8
CHRYSENE	-0.5				10 U	1.279	7.3
DI-N-BUTYLPHTHALATE	2.3				10 U	1.035	5.5
DI-N-OCTYL PHTHALATE	10.6				10 U	2.135	24.1
DIBENZO(A,H)ANTHRACENE	-24.6				10 U	1.044	14.5
DIBENZOFURAN	1.4				10 U	1.668	6.2
DIETHYLPHTHALATE	11.1				10 U	0.994	10.4
DIMETHYLPHTHALATE	4.6				10 U	1.167	8.2
FLUORANTHENE	9.7				10 U	0.91	5.7
FLUORENE	6.5				10 U	1.266	6.7
HEXACHLOROBENZENE	-6.5				10 U	0.228	6.4
HEXACHLOROBUTADIENE	-4.4				10 U	0.159	7.8
HEXACHLOROCYCLOPENTADIENE	10.1				10 U	0.319	3.3
HEXACHLOROETHANE	0.5				10 U	0.608	5
INDENO(1,2,3-CD)PYRENE	-27.9				10 U	1.16	15.6
ISOPHORONE	-0.9				10 U	0.722	14.2
N-NITROSO-DI-N-PROPYLAMINE	1.3		70	-4	70	0.75	9.5
N-NITROSODIPHENYLAMINE	-7.4				10 U	0.182	6.6
NAPHTHALENE	-6.2				10 U	1.015	14.1
NITROBENZENE	-0.8				10 U	0.38	4.2
NITROBENZENE-D5	-4					0.2	9.3
PENTACHLOROPHENOL	21.4		118 *	52 *	236	0.082	13.6
PHENANTHRENE	1.3				10 U	1.082	4.5
PHENOL	-1.8		35	6	71	1.893	3.8
PHENOL-D5	-0.8					1.615	6.6
PYRENE	10.7		75	14	75	0.894	5.7
TERPHENYL-D14	10.4					1.123	16.1

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	CONTINUING	ISTD RET TIM	MS %	RPD	MATRIX	INITIAL CAL	INITIAL CAL
TYPE OF LOCATION	CAL %D	SHIFT	RECOVERY		SPIKE	RRF	% RSD
SAMPLE NUMBER	ME1005887	ME1005888	ME309016A	ME309016A	ME309016B	ME1129886	ME1129886
MATRIX			WATER	WATER	WATER		
UNITS	%	AREA	%	%	UG/L	RRF	%
ENV PROBLEM NO			2	2	2		
1,2-DICHLOROBENZENE	0.3				10 U	1.591	5.1
1,2,4-TRICHLOROBENZENE	-0.6		83	-1	83	0.346	6.1
1,3-DICHLOROBENZENE	0.7				10 U	1.658	5.2
1,4-DICHLOROBENZENE	-0.2		77	-3	77	1.733	6.1
2-CHLORONAPHTHALENE	-3.3				10 U	1.327	6
2-CHLOROPHENOL	-1.4		87	20	173	1.407	3.7
2-FLUOROBIPHENYL	-6.5					1.421	6.6
2-FLUOROPHENOL	5.2					1.411	6.7
2-METHYLNAPHTHALENE	-1.2				10 U	0.675	10.1
2-METHYLPHENOL	4.5				10 U	1.245	2.3
2-NITROANILINE	6.7				50 U	0.295	5
2-NITROPHENOL	1.9				10 U	0.21	2
2,4-DICHLOROPHENOL	10.3				10 U	0.263	1.2
2,4-DIMETHYLPHENOL	-2.5				10 U	0.26	3.7
2,4-DINITROPHENOL	67.9				50 U	0.125	11.4
2,4-DINITROTOLUENE	17		72	1	72	0.327	8.7
2,4,5-TRICHLOROPHENOL	0.6				50 U	0.355	2.6
2,4,6-TRIBROMOPHENOL	-11.6					0.093	7.3
2,4,6-TRICHLOROPHENOL	5.4				10 U	0.364	1.5
2,6-DINITROTOLUENE	6.1				10 U	0.306	3.2
3-NITROANILINE	14.6				50 U	0.276	2.5
3,3'-DICHLOROBENZIDINE	-80.8				50 U	0.331	16.6
4-BROMOPHENYL-PHENYLETHER	-11.7				10 U	0.233	5.1
4-CHLORO-3-METHYLPHENOL	6		68	-3	135	0.222	5
4-CHLOROANILINE	10.5				10 U	0.119	11.5
4-CHLOROPHENYL-PHENYLETHER	4.3				10 U	0.648	6.3
4-METHYLPHENOL	8.3				10 U	1.24	3.6
4-NITROANILINE	35.8				50 U	0.2	17.3
4-NITROPHENOL	15.9		38	27	76	0.064	7.5
4,6-DINITRO-2-METHYLPHENOL	45.1				50 U	0.171	9.1
SURR 1(NBZ) %RECOVERY					91		
SURR 2(FBP) %RECOVERY					86		
SURR 3(TPH) %RECOVERY					93		
SURR 4(PHL) %RECOVERY					37		
SURR 5(2FP) %RECOVERY					67		
SURR 6(TBP) %RECOVERY					92		

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TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	CONTINUING	ISTD RET TIM	MS %	RPD	MATRIX	INITIAL CAL	INITIAL CAL
TYPE OF LOCATION	CAL %D	SHIFT	RECOVERY		SPIKE	RRF	% RSD
SAMPLE NUMBER	ME1005887	ME1005888	ME309016A	ME309016A	ME309016B	ME1129886	ME1129886
MATRIX			WATER	WATER	WATER		
UNITS	%	AREA	%	%	UG/L	RRF	%
ENV PROBLEM NO			2	2	2		
M/E 68-1							
M/E 68-2							
M/E 69							
M/E 70-1							
M/E 70-2							
M/E 127							
M/E 197							
M/E 198							
M/E 199							
M/E 275							
M/E 365							
M/E 441							
M/E 442							
M/E 443-1							
M/E 443-2							
INTERNAL STD AREA(ANT)		92800			76800		
INTERNAL STD AREA(CRY)		78900			49200		
INTERNAL STD AREA(DCB)		51600			52000		
INTERNAL STD AREA(NPT)		187000			171000		
INTERNAL STD AREA(PHN)		116000			86600		
INTERNAL STD AREA(PRY)		50300			40800		
DILUTION FACTOR					1		
ACTUAL(ALLOWED) EXTRACT TIME					3(7 D)		

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	TUNED	TUNED	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	CALIBRATION	CALIBRATION	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME1129885	ME1202885	ME1206885	ME1206887	ME1206887	ME1206888	SBK81100
MATRIX							WATER
UNITS	%	%	%	RRF	%	AREA	UG/L
ENV PROBLEM NO							
ACENAPHTHENE				1.118	-0.8		10 U
ACENAPHTHYLENE				1.824	-2		10 U

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION							
TYPE OF LOCATION	TUNED CALIBRATION	TUNED CALIBRATION	TUNED CALIBRATION	CONTINUING CALIBRATION	CONTINUING CAL %D	ISTD RET TIM SHIFT	METHOD BLANK
SAMPLE NUMBER	ME1129885	ME1202885	ME1206885	ME1206887	ME1206887	ME1206888	SBK81100
MATRIX							WATER
UNITS	%	%	%	RRF	%	AREA	UG/L
ENV PROBLEM NO							
ANTHRACENE				1.073	-3		10 U
BENZO(A)ANTHRACENE				1.303	-1.8		10 U
BENZO(A)PYRENE				1.724	-23.2		10 U
BENZO(B)FLUORANTHENE				2.13	-18.3		10 U
BENZO(G,H,I)PERYLENE				1.162	-3.9		10 U
BENZO(K)FLUORANTHENE				1.997	-11.1		10 U
BENZOIC ACID				0.021	43.2		50 U
BENZYL ALCOHOL				0.744	-0.5		10 U
BIS(-2-CHLOROETHOXY)METHANE				0.483	-3		10 U
BIS(2-CHLOROETHYL)ETHER				1.812	-2.1		10 U
BIS(2-CHLOROISOPROPYL)ETHER				2.966	-6		10 U
BIS(2-ETHYLHEXYL)PHTHALATE				1.017	-9.2		10 U
BUTYLBENZYLPHTHALATE				0.79	-10.6		10 U
CHRYSENE				1.292	-1		10 U
DI-N-BUTYLPHTHALATE				1.206	-16.5		1 J
DI-N-OCTYL PHTHALATE				2.645	-23.9		5 J
DIBENZO(A,H)ANTHRACENE				1.171	-12.2		10 U
DIBENZOFURAN				1.743	-3.3		10 U
DIETHYLPHTHALATE				1.169	-17.6		10 U
DIMETHYLPHTHALATE				1.277	-9.4		10 U
FLUORANTHENE				1.053	-15.7		10 U
FLUORENE				1.345	-6.2		10 U
HEXACHLOROBENZENE				0.216	5.3		10 U
HEXACHLOROBUTADIENE				0.157	1.3		10 U
HEXACHLOROCYCLOPENTADIENE				0.3	6		10 U
HEXACHLOROETHANE				0.622	-2.3		10 U
INDENO(1,2,3-CD)PYRENE				1.33	-14.7		10 U
ISOPHORONE				0.811	-12.3		10 U
N-NITROSO-DI-N-PROPYLAMINE				0.87	-16		10 U
N-NITROSODIPHENYLAMINE				0.188	-3.3		10 U
NAPHTHALENE				1.082	-6.6		10 U
NITROBENZENE				0.397	-4.5		10 U
NITROBENZENE-D5				0.193	3.5		
PENTACHLOROPHENOL				0.082	0		50 U
PHENANTHRENE				1.083	-0.1		10 U
PHENOL				1.941	-2.5		10 U
PHENOL-D5				1.681	-4.1		
PYRENE				1.041	-16.4		10 U
TERPHENYL-D14				1.155	-2.9		

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	TUNED	TUNED	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	CALIBRATION	CALIBRATION	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME1129885	ME1202885	ME1206885	ME1206887	ME1206887	ME1206888	SBK81100
MATRIX							WATER
UNITS	%	%	%	RRF	%	AREA	UG/L
ENV PROBLEM NO							
1,2-DICHLOROBENZENE				1.627	-2.3		10 U
1,2,4-TRICHLOROBENZENE				0.336	2.9		10 U
1,3-DICHLOROBENZENE				1.672	-0.8		10 U
1,4-DICHLOROBENZENE				1.751	-1		10 U
2-CHLORONAPHTHALENE				1.297	2.3		10 U
2-CHLOROPHENOL				1.423	-1.1		10 U
2-FLUOROBIPHENYL				1.299	8.6		
2-FLUOROPHENOL				1.458	-3.3		
2-METHYLNAPHTHALENE				0.702	-4		10 U
2-METHYLPHENOL				1.284	-3.1		10 U
2-NITROANILINE				0.342	-15.9		50 U
2-NITROPHENOL				0.211	-0.5		10 U
2,4-DICHLOROPHENOL				0.265	-0.8		10 U
2,4-DIMETHYLPHENOL				0.28	-7.7		10 U
2,4-DINITROPHENOL				0.119	4.8		50 U
2,4-DINITROTOLUENE				0.403	-23.2		10 U
2,4,5-TRICHLOROPHENOL				0.351	1.1		50 U
2,4,6-TRIBROMOPHENOL				0.089	4.3		
2,4,6-TRICHLOROPHENOL				0.346	4.9		10 U
2,6-DINITROTOLUENE				0.332	-8.5		10 U
3-NITROANILINE				0.314	-13.8		50 U
3,3'-DICHLOROBENZIDINE				0.357	-7.9		50 U
4-BROMOPHENYL-PHENYLETHER				0.209	10.3		10 U
4-CHLORO-3-METHYLPHENOL				0.249	-12.2		10 U
4-CHLOROANILINE				0.122	-2.5		10 U
4-CHLOROPHENYL-PHENYLETHER				0.674	-4		10 U
4-METHYLPHENOL				1.292	-4.2		10 U
4-NITROANILINE				0.288	-44		50 U
4-NITROPHENOL				0.062	3.1		50 U
4,6-DINITRO-2-METHYLPHENOL				0.211	-23.4		50 U
SURR 1(NBZ) %RECOVERY							80
SURR 2(FBP) %RECOVERY							77
SURR 3(TPH) %RECOVERY							81
SURR 4(PHL) %RECOVERY							26
SURR 5(2FP) %RECOVERY							45
SURR 6(TBP) %RECOVERY							65
M/E 51	44	46	53				

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	TUNED	TUNED	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	CALIBRATION	CALIBRATION	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME1129885	ME1202885	ME1206885	ME1206887	ME1206887	ME1206888	SBK81100
MATRIX							WATER
UNITS	%	%	%	RRF	%	AREA	UG/L
ENV PROBLEM NO							
M/E 68-1	0	0	0				
M/E 68-2	0	0	0				
M/E 69	40	40	46				
M/E 70-1	0	0	0				
M/E 70-2	0	0	0				
M/E 127	40	41	43				
M/E 197	0	0	0				
M/E 198	100	100	100				
M/E 199	7	6.7	6.7				
M/E 275	19	18	19				
M/E 365	2.1	1.5	1.7				
M/E 441	8.1	7.8	7.8				
M/E 442	71	69	70				
M/E 443-1	13	13	13				
M/E 443-2	18	18	19				
INTERNAL STD AREA(ANT)						72000	76900
INTERNAL STD AREA(CRY)						62500	33900
INTERNAL STD AREA(DCB)						39300	43000
INTERNAL STD AREA(NPT)						147000	148000
INTERNAL STD AREA(PHN)						110000	90700
INTERNAL STD AREA(PRY)						28400	14800
DILUTION FACTOR							1
ACTUAL(ALLOWED) EXTRACT TIME							

AREA		QA	QA	QA	QA	QA	QA
LOCATION	NW B. B-17	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD	METHOD
TYPE OF LOCATION	STORMWATER	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK	BLANK
SAMPLE NUMBER	ME310019A	ME1209885	ME1209887	ME1209887	ME1209888	SBK81101	SBK81103
MATRIX	WATER					WATER	WATER
UNITS	UG/L	%	RRF	%	AREA	UG/L	UG/L
ENV PROBLEM NO	2						
ACENAPHTHENE	10 U		1.122	-1.2		10 U	10 U
ACENAPHTHYLENE	10 U		1.814	-1.5		10 U	10 U

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A DRAFT DO NOT CITE

AREA		QA	QA	QA	QA	QA	QA
LOCATION	NW B. B-17	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD	METHOD
TYPE OF LOCATION	STORMWATER	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK	BLANK
SAMPLE NUMBER	ME310019A	ME1209885	ME1209887	ME1209887	ME1209888	SBK81101	SBK81103
MATRIX	WATER					WATER	WATER
UNITS	UG/L	%	RRF	%	AREA	UG/L	UG/L
ENV PROBLEM NO	2						
ANTHRACENE	10 U		1.071	-2.8		10 U	10 U
BENZO(A)ANTHRACENE	10 U		1.342	-4.8		10 U	10 U
BENZO(A)PYRENE	10 U		1.707	-22		10 U	10 U
BENZO(B)FLUORANTHENE	10 U		1.968	-9.3		10 U	10 U
BENZO(G,H,I)PERYLENE	10 U		1.167	-4.4		10 U	10 U
BENZO(K)FLUORANTHENE	10 U		2.164	-20.4		10 U	10 U
BENZOIC ACID	50 U		0.015	59.5		50 U	50 U
BENZYL ALCOHOL	10 U		0.73	1.4		10 U	10 U
BIS(-2-CHLOROETHOXY)METHANE	10 U		0.478	-1.9		10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U		1.774	0.1		10 U	10 U
BIS(2-CHLOROISOPROPYL)ETHER	10 U		2.888	-3.2		10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	9 J		1.102	-18.4		10 U	10 U
BUTYLBENZYLPHTHALATE	4 J		0.838	-17.4		10 U	10 U
CHRYSENE	10 U		1.271	0.6		10 U	10 U
DI-N-BUTYLPHTHALATE	2 BJ		1.205	-16.4		1 J	3 J
DI-N-OCTYL PHTHALATE	12 B		2.629	-23.1		10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U		1.202	-15.1		10 U	10 U
DIBENZOFURAN	10 U		1.73	-2.5		10 U	10 U
DIETHYLPHTHALATE	4 J		1.167	-17.4		10 U	10 J
DIMETHYLPHTHALATE	10 U		1.272	-9		10 U	10 U
FLUORANTHENE	1 J		1.07	-17.6		10 U	10 U
FLUORENE	10 U		1.358	-7.3		10 U	10 U
HEXACHLOROBENZENE	10 U		0.214	6.1		10 U	10 U
HEXACHLOROBUTADIENE	10 U		0.156	1.9		10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U		0.312	2.2		10 U	10 U
HEXACHLOROETHANE	10 U		0.616	-1.3		10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U		1.247	-7.5		10 U	10 U
ISOPHORONE	10 U		0.799	-10.7		10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U		0.85	-13.3		10 U	10 U
N-NITROSODIPHENYLAMINE	10 U		0.19	-4.4		10 U	10 U
NAPHTHALENE	10 U		1.078	-6.2		10 U	10 U
NITROBENZENE	10 U		0.392	-3.2		10 U	10 U
NITROBENZENE-D5			0.194	3			
PENTACHLOROPHENOL	50 U		0.079	3.7		50 U	50 U
PHENANTHRENE	10 U		1.071	1		10 U	10 U
PHENOL	10 U		1.901	-0.4		10 U	10 U
PHENOL-D5			1.632	-1.1			
PYRENE	10 U		1.071	-19.8		10 U	10 U
TERPHENYL-D14			1.228	-9.4			

TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A DRAFT DO NOT CITE

AREA		QA	QA	QA	QA	QA	QA
LOCATION	NW B. B-17	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD	METHOD
TYPE OF LOCATION	STORMWATER	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK	BLANK
SAMPLE NUMBER	ME310019A	ME1209885	ME1209887	ME1209887	ME1209888	SBK81101	SBK81103
MATRIX	WATER					WATER	WATER
UNITS	UG/L	%	RRF	%	AREA	UG/L	UG/L
ENV PROBLEM NO	2						
1,2-DICHLOROBENZENE	10 U		1.615	-1.5		10 U	10 U
1,2,4-TRICHLOROBENZENE	10 U		0.341	1.4		10 U	10 U
1,3-DICHLOROBENZENE	10 U		1.659	-0.1		10 U	10 U
1,4-DICHLOROBENZENE	10 U		1.752	-1.1		10 U	10 U
2-CHLORONAPHTHALENE	10 U		1.268	4.4		10 U	10 U
2-CHLOROPHENOL	10 U		1.39	1.2		10 U	10 U
2-FLUOROBIPHENYL			1.293	9			
2-FLUOROPHENOL			1.411	0			
2-METHYLNAPHTHALENE	10 U		0.714	-5.8		10 U	10 U
2-METHYLPHENOL	10 U		1.262	-1.4		10 U	10 U
2-NITROANILINE	50 U		0.319	-8.1		50 U	50 U
2-NITROPHENOL	10 U		0.215	-2.4		10 U	10 U
2,4-DICHLOROPHENOL	10 U		0.26	1.1		10 U	10 U
2,4-DIMETHYLPHENOL	10 U		0.273	-5		10 U	10 U
2,4-DINITROPHENOL	50 U		0.117	6.4		50 U	50 U
2,4-DINITROTOLUENE	10 U		0.405	-23.9		10 U	10 U
2,4,5-TRICHLOROPHENOL	50 U		0.345	2.8		50 U	50 U
2,4,6-TRIBROMOPHENOL			0.086	7.5			
2,4,6-TRICHLOROPHENOL	10 U		0.346	4.9		10 U	10 U
2,6-DINITROTOLUENE	10 U		0.336	-9.8		10 U	10 U
3-NITROANILINE	50 U		0.306	-10.9		50 U	50 U
3,3'-DICHLOROBENZIDINE	50 U		0.352	-6.3		50 U	50 U
4-BROMOPHENYL-PHENYLETHER	10 U		0.209	10.3		10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U		0.239	-7.7		10 U	10 U
4-CHLOROANILINE	10 U		0.118	0.8		10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U		0.683	-5.4		10 U	10 U
4-METHYLPHENOL	1 J		1.268	-2.3		10 U	10 U
4-NITROANILINE	50 U		0.302	-51		50 U	50 U
4-NITROPHENOL	50 U		0.05	21.9		50 U	50 U
4,6-DINITRO-2-METHYLPHENOL	50 U		0.224	-31		50 U	50 U
SURR 1(NBZ) %RECOVERY	102					94	96
SURR 2(FBP) %RECOVERY	98					88	80
SURR 3(TPH) %RECOVERY	92					89	104
SURR 4(PHL) %RECOVERY	30					28	30
SURR 5(2FP) %RECOVERY	49					49	54
SURR 6(TBP) %RECOVERY	75					66	73

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TABLE D.3.3 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME302019A

DRAFT DO NOT CITE

AREA		QA	QA	QA	QA	QA	QA
LOCATION	NW B. B-17	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD	METHOD
TYPE OF LOCATION	STORMWATER	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK	BLANK
SAMPLE NUMBER	ME310019A	ME1209885	ME1209887	ME1209887	ME1209888	SBK81101	SBK81103
MATRIX	WATER					WATER	WATER
UNITS	UG/L	%	RRF	%	AREA	UG/L	UG/L
ENV PROBLEM NO	2						
M/E 68-1		0					
M/E 68-2		0					
M/E 69		42					
M/E 70-1		0					
M/E 70-2		0					
M/E 127		42					
M/E 197		0					
M/E 198		100					
M/E 199		6.5					
M/E 275		19					
M/E 365		1.6					
M/E 441		7.6					
M/E 442		71					
M/E 443-1		13					
M/E 443-2		18					
INTERNAL STD AREA(ANT)	78700				84400	88500	77000
INTERNAL STD AREA(CRY)	49100				71800	42200	45400
INTERNAL STD AREA(DCB)	47200				44700	50400	44100
INTERNAL STD AREA(NPT)	165000				167000	171000	148000
INTERNAL STD AREA(PHN)	111000				131000	109000	95500
INTERNAL STD AREA(PRY)	29200				30500	23400	28100
DILUTION FACTOR	1					1	1
ACTUAL(ALLOWED) EXTRACT TIME	3(7 D)						

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A

DRAFT DO NOT CITE

AREA		QA	QA	QA	QA	QA	QA
LOCATION	B. B-11	INITIAL CAL	INITIAL CAL	TUNED	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	WASTE	RRF	% RSD	CALIBRATION	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME801068A	ME0816886	ME0816886	ME0816885	ME1010885	ME1010887	ME1010887
MATRIX							
UNITS		RRF	%	%	%	RRF	%
ENV PROBLEM NO	3						
ACENAPHTHENE		1.154	3.5			1.131	2
ACENAPHTHYLENE		1.82	5			1.835	-0.8
ANTHRACENE		1.125	4.9			1.143	-1.6
BENZO(A)ANTHRACENE		1.229	3.6			1.174	4.5
BENZO(A)PYRENE		1.336	6.5			1.485	-11.2
BENZO(B)FLUORANTHENE		1.57	6.7			1.721	-9.6
BENZO(G,H,I)PERYLENE		0.803	14.9			1.135	-41.3
BENZO(K)FLUORANTHENE		1.537	12.1			1.79	-16.5
BENZOIC ACID		0.113	32.4			0.029	74.3
BENZYL ALCOHOL		0.911	2.4			0.822	9.8
BIS(-2-CHLOROETHOXY)METHANE		0.479	2.1			0.48	-0.2
BIS(2-CHLOROETHYL)ETHER		1.724	4.2			1.824	-5.8
BIS(2-CHLOROISOPROPYL)ETHER		2.763	4			2.647	4.2
BIS(2-ETHYLHEXYL)PHTHALATE		0.965	13.2			0.888	8
BUTYLBENZYLPHTHALATE		0.728	9.3			0.643	11.7
CHRYSENE		1.145	5.5			1.099	4
DI-N-BUTYLPHTHALATE		1.2	6.1			1.248	-4
DI-N-OCTYL PHTHALATE		2.572	25.4			2.85	-10.8
DIBENZO(A,H)ANTHRACENE		0.909	12			1.109	-22
DIBENZOFURAN	750 U	1.674	4			1.65	1.4
DIETHYLPHTHALATE		1.154	3.7			1.089	5.6
DIMETHYLPHTHALATE		1.213	8.4			1.187	2.1
FLUORANTHENE		1.109	2.8			1.094	1.4
FLUORENE		1.373	2.9			1.304	5
HEXACHLOROBENZENE		0.217	4.9			0.225	-3.7
HEXACHLOROBUTADIENE		0.158	3.9			0.16	-1.3
HEXACHLOROCYCLOPENTADIENE		0.316	1.4			0.353	-11.7
HEXACHLOROETHANE		0.591	3.6			0.59	0.2
INDENO(1,2,3-CD)PYRENE		0.92	13.4			1.145	-24.5
ISOPHORONE		0.772	7.4			0.747	3.2
N-NITROSO-DI-N-PROPYLAMINE		0.835	3.4			0.809	3.1
N-NITROSODIPHENYLAMINE		0.352	24.4			0.39	-10.8
NAPHTHALENE		1.065	11.8			1.116	-4.8
NITROBENZENE		0.394	1.7			0.406	-3
NITROBENZENE-D5		0.2	2.3			0.213	-6.5
PENTACHLOROPHENOL		0.103	8.2			0.112	-8.7
PHENANTHRENE		1.133	3.9			1.134	-0.1
PHENOL		1.862	3.8			2.077	-11.6
PHENOL-D5		1.454	0.8			1.558	-7.2

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA		QA	QA	QA	QA	QA	QA
LOCATION	B. B-11	INITIAL CAL	INITIAL CAL	TUNED	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	WASTE	RRF	% RSD	CALIBRATION	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME801068A	ME0816886	ME0816886	ME0816885	ME1010885	ME1010887	ME1010887
MATRIX							
UNITS		RRF	%	%	%	RRF	%
ENV PROBLEM NO	3						
PYRENE		1.101	3.2			1.084	1.5
TERPHENYL-D14		1.074	9.2			1.008	6.1
1,2-DICHLOROBENZENE		1.565	4.6			1.572	-0.4
1,2,4-TRICHLOROBENZENE		0.338	3.7			0.34	-0.6
1,3-DICHLOROBENZENE		1.6	4.3			1.609	-0.6
1,4-DICHLOROBENZENE		1.683	4.6			1.71	-1.6
2-CHLORONAPHTHALENE		1.259	4.1			1.312	-4.2
2-CHLOROPHENOL		1.399	3.8			1.437	-2.7
2-FLUOROBIPHENYL		1.315	1.9			1.435	-9.1
2-FLUOROPHENOL		1.316	1			1.284	2.4
2-METHYLNAPHTHALENE		0.74	3.5			0.728	1.6
2-METHYLPHENOL		1.32	1.9			1.304	1.2
2-NITROANILINE		0.345	1.8			0.341	1.2
2-NITROPHENOL		0.216	2.5			0.216	0
2,4-DICHLOROPHENOL		0.283	1.6			0.273	3.5
2,4-DIMETHYLPHENOL		0.285	1.4			0.286	-0.4
2,4-DINITROPHENOL		0.19	16.9			0.141	25.8
2,4-DINITROTOLUENE		0.395	4.9			0.366	7.3
2,4,5-TRICHLOROPHENOL		0.347	6.1			0.368	-6.1
2,4,6-TRIBROMOPHENOL		0.086	3			0.092	-7
2,4,6-TRICHLOROPHENOL		0.371	7			0.369	0.5
2,6-DINITROTOLUENE		0.313	5.4			0.299	4.5
3-NITROANILINE		0.33	5			0.312	5.5
3,3'-DICHLOROBENZIDINE		0.406	41.5			0.701	-72.7
4-BROMOPHENYL-PHENYLETHER		0.213	4.6			0.221	-3.8
4-CHLORO-3-METHYLPHENOL		0.268	1.1			0.245	8.6
4-CHLOROANILINE		0.153	5.6			0.136	11.1
4-CHLOROPHENYL-PHENYLETHER		0.654	2.5			0.638	2.4
4-METHYLPHENOL		1.344	2.2			1.309	2.6
4-NITROANILINE		0.302	8.5			0.261	13.6
4-NITROPHENOL		0.082	10.6			0.076	7.3
4,6-DINITRO-2-METHYLPHENOL		0.244	10.6			0.198	18.9

SURR 1(NBZ) %RECOVERY
SURR 2(FBP) %RECOVERY
SURR 3(TPH) %RECOVERY
SURR 4(PHL) %RECOVERY
SURR 5(2FP) %RECOVERY
SURR 6(TBP) %RECOVERY

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A

DRAFT DO NOT CITE

AREA		QA	QA	QA	QA	QA	QA
LOCATION	B. B-11	INITIAL CAL	INITIAL CAL	TUNED	TUNED	CONTINUING	CONTINUING
TYPE OF LOCATION	WASTE	RRF	% RSD	CALIBRATION	CALIBRATION	CALIBRATION	CAL %D
SAMPLE NUMBER	ME801068A	ME0816886	ME0816886	ME0816885	ME1010885	ME1010887	ME1010887
MATRIX							
UNITS		RRF	%	%	%	RRF	%
ENV PROBLEM NO	3						
M/E 51				48	49		
M/E 68-1				0	0		
M/E 68-2				0	0		
M/E 69				42	43		
M/E 70-1				0	0		
M/E 70-2				0	0		
M/E 127				41	42		
M/E 197				0	0		
M/E 198				100	100		
M/E 199				6.3	6.2		
M/E 275				18	20		
M/E 365				1.2	1.5		
M/E 441				6.1	6.1		
M/E 442				53	59		
M/E 443-1				9.9	11		
M/E 443-2				19	19		
INTERNAL STD AREA(ANT)							
INTERNAL STD AREA(CRY)							
INTERNAL STD AREA(DCB)							
INTERNAL STD AREA(NPT)							
INTERNAL STD AREA(PHN)							
INTERNAL STD AREA(PRY)							
DILUTION FACTOR							
PERCENT MOISTURE							
ACTUAL(ALLOWED) EXTRACT TIME							

AREA	QA						
LOCATION	ISTD RET TIM	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	SHIFT	WASTE	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME1010888	ME800012A	ME800023A	ME800034A	ME800045A	ME800056A	ME800067A
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	AREA	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO		3	3	3	3	3	3
ACENAPHTHENE		57 J	770 U	740 U	740 U	2900 U	800 U

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA	QA						
LOCATION	ISTD RET TIM	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	SHIFT	WASTE	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME1010888	ME800012A	ME800023A	ME800034A	ME800045A	ME800056A	ME800067A
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	AREA	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO		3	3	3	3	3	3
ACENAPHTHYLENE		720 U	770 U	740 U	740 U	2900 U	800 U
ANTHRACENE		67 J	770 U	71 J	740 U	2900 U	800 U
BENZO(A)ANTHRACENE		210 J	770 U	220 J	740 U	2900 U	800 U
BENZO(A)PYRENE		150 J	770 U	150 J	740 U	2900 U	800 U
BENZO(B)FLUORANTHENE		310 J	770 U	300 J	740 U	2900 U	800 U
BENZO(G,H,I)PERYLENE		120 J	770 U	130 J	740 U	2900 U	800 U
BENZO(K)FLUORANTHENE		720 U	770 U	740 U	760 U	2900 U	800 U
BENZOIC ACID		3500 U	3800 U	3600 U	3600 U	14000 U	3900 U
BENZYL ALCOHOL		720 U	770 U	740 U	740 U	2900 U	800 U
BIS(-2-CHLOROETHOXY)METHANE		720 U	770 U	740 U	740 U	2900 U	800 U
BIS(2-CHLOROETHYL)ETHER		720 U	770 U	740 U	740 U	2900 U	800 U
BIS(2-CHLOROISOPROPYL)ETHER		720 U	770 U	740 U	740 U	2900 U	800 U
BIS(2-ETHYLHEXYL)PHTHALATE		120 BJ	100 BJ	99 BJ	960 B	200 BJ	39 BJ
BUTYLBENZYLPHTHALATE		720 U	770 U	740 U	740 U	2900 U	800 U
CHRYSENE		230 J	770 U	210 J	36 J	2900 U	800 U
DI-N-BUTYLPHTHALATE		610 BJ	1000 B	760 B	610 BJ	1100 BJ	900 B
DI-N-OCTYL PHTHALATE		26 BJ	770 U	740 U	21 BJ	2900 J	17 BJ
DIBENZO(A,H)ANTHRACENE		720 U	770 U	740 U	740 U	2900 U	800 U
DIBENZOFURAN		43 J	770 U	36 J	740 U	2900 U	800 U
DIETHYLPHTHALATE		25 J	770 U	740 U	740 U	2900 U	800 U
DIMETHYLPHTHALATE		720 U	770 U	740 U	740 U	2900 U	800 U
FLUORANTHENE		390 J	24 J	330 J	740 U	110 J	800 U
FLUORENE		45 J	770 U	740 U	740 U	2900 U	800 U
HEXACHLOROBENZENE		720 U	770 U	740 U	740 U	2900 U	800 U
HEXACHLOROBUTADIENE		720 U	770 U	740 U	740 U	2900 U	800 U
HEXACHLOROCYCLOPENTADIENE		720 U	770 U	740 U	740 U	2900 U	800 U
HEXACHLOROETHANE		720 U	770 U	740 U	740 U	2900 U	800 U
INDENO(1,2,3-CD)PYRENE		110 J	770 U	140 J	740 U	2900 U	800 U
ISOPHORONE		720 U	770 U	740 U	740 U	2900 U	800 U
N-NITROSO-DI-N-PROPYLAMINE		720 U	770 U	740 U	740 U	2900 U	800 U
N-NITROSODIPHENYLAMINE		720 U	770 U	740 U	740 U	2900 U	800 U
NAPHTHALENE		68 J	770 U	73 J	740 U	2900 U	800 U
NITROBENZENE		720 U	770 U	740 U	740 U	2900 U	800 U
NITROBENZENE-D5							
PENTACHLOROPHENOL		3500 U	3800 U	3600 U	3600 U	14000 U	3900 U
PHENANTHRENE		370 J	26 J	360 J	740 U	86 J	800 U
PHENOL		720 U	770 U	740 U	740 U	2900 U	800 U
PHENOL-D5							
PYRENE		300 J	22 J	250 J	740 U	100 J	800 U

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA	QA						
LOCATION	ISTD RET TIM	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	SHIFT	WASTE	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME1010888	ME800012A	ME800023A	ME800034A	ME800045A	ME800056A	ME800067A
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	AREA	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO		3	3	3	3	3	3
TERPHENYL-D14							
1,2-DICHLOROBENZENE		720 U	770 U	740 U	740 U	2900 U	800 U
1,2,4-TRICHLOROBENZENE		720 U	770 U	740 U	740 U	2900 U	800 U
1,3-DICHLOROBENZENE		720 U	770 U	740 U	740 U	2900 U	800 U
1,4-DICHLOROBENZENE		720 U	770 U	740 U	740 U	2900 U	800 U
2-CHLORONAPHTHALENE		720 U	770 U	740 U	740 U	2900 U	800 U
2-CHLOROPHENOL		720 U	770 U	740 U	740 U	2900 U	800 U
2-FLUOROBIPHENYL							
2-FLUOROPHENOL							
2-METHYLNAPHTHALENE		74 J	770 U	48 J	740 U	2900 U	800 U
2-METHYLPHENOL		720 U	770 U	740 U	740 U	2900 U	800 U
2-NITROANILINE		3500 U	3800 U	3600 U	3600 U	14000 U	3900 U
2-NITROPHENOL		720 U	770 U	740 U	740 U	2900 U	800 U
2,4-DICHLOROPHENOL		720 U	770 U	740 U	740 U	2900 U	800 U
2,4-DIMETHYLPHENOL		720 U	770 U	740 U	740 U	2900 U	800 U
2,4-DINITROPHENOL		3500 U	3800 U	3600 U	3600 U	14000 U	3900 U
2,4-DINITROTOLUENE		720 U	770 U	740 U	740 U	2900 U	800 U
2,4,5-TRICHLOROPHENOL		3500 U	3800 U	3600 U	3600 U	14000 U	3900 U
2,4,6-TRIBROMOPHENOL							
2,4,6-TRICHLOROPHENOL		720 U	770 U	740 U	740 U	2900 U	800 U
2,6-DINITROTOLUENE		720 U	770 U	740 U	740 U	2900 U	800 U
3-NITROANILINE		3500 U	3800 U	3600 U	3600 U	14000 U	3900 U
3,3'-DICHLOROBENZIDINE		1400 U	1500 U	1500 U	1500 U	5800 U	1600 U
4-BROMOPHENYL-PHENYLETHER		720 U	770 U	740 U	740 U	2900 U	800 U
4-CHLORO-3-METHYLPHENOL		720 U	770 U	740 U	740 U	2900 U	800 U
4-CHLOROANILINE		720 U	770 U	740 U	740 U	2900 U	800 U
4-CHLOROPHENYL-PHENYLETHER		720 U	770 U	740 U	740 U	2900 U	800 U
4-METHYLPHENOL		720 U	770 U	740 U	740 U	2900 U	800 U
4-NITROANILINE		3500 U	3800 U	3600 U	3600 U	14000 U	3900 U
4-NITROPHENOL		3500 U	3800 U	3600 U	3600 U	14000 U	3900 U
4,6-DINITRO-2-METHYLPHENOL		3500 U	3800 U	3600 U	3600 U	14000 U	3900 U
SURR 1(NBZ) %RECOVERY		38	34	41	36	39	30
SURR 2(FBP) %RECOVERY		38	36	43	36	46	29 *
SURR 3(TPH) %RECOVERY		54	52	61	60	59	39
SURR 4(PHL) %RECOVERY		41	38	43	42	44	31
SURR 5(2FP) %RECOVERY		45	42	49	47	48	35
SURR 6(TBP) %RECOVERY		35	37	37	39	37	27

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TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA	QA						
LOCATION	ISTD RET TIM	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	SHIFT	WASTE	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME1010888	ME800012A	ME800023A	ME800034A	ME800045A	ME800056A	ME800067A
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	AREA	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO		3	3	3	3	3	3
M/E 68-1							
M/E 68-2							
M/E 69							
M/E 70-1							
M/E 70-2							
M/E 127							
M/E 197							
M/E 198							
M/E 199							
M/E 275							
M/E 365							
M/E 441							
M/E 442							
M/E 443-1							
M/E 443-2							
INTERNAL STD AREA(ANT)	110000	132000	116000	107000	136000	108000	137000
INTERNAL STD AREA(CRY)	107000	107000	90300	63400	98200	98100	126000
INTERNAL STD AREA(DCB)	67600	70400	66900	67000	70600	63400	75300
INTERNAL STD AREA(NPT)	242000	249000	235000	227000	252000	225000	260000
INTERNAL STD AREA(PHN)	148000	187000	150000	129000	194000	143000	189000
INTERNAL STD AREA(PRY)	50000	60700	50300	40900	64000	73200	92100
DILUTION FACTOR		2	2	2	2	8	2
PERCENT MOISTURE		10	16	11	11	12	22
ACTUAL(ALLOWED) EXTRACT TIME		8(14 D)	8(14 D)	8(14 D)	8(14 D)	8(14 D)	8(14 D)

AREA	QA	QA	QA	QA			QA
LOCATION	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	B. B-11	B. B-11	MATRIX
TYPE OF LOCATION	CALIBRATION	CALIBRATION	CAL %D	SHIFT	WASTE	WASTE	SPIKE
SAMPLE NUMBER	ME1011885	ME1011887	ME1011887	ME1011888	ME801013A	ME801024A	ME801024A
MATRIX					SOIL	SOIL	SOIL
UNITS	%	RRF	%	AREA	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO					3	3	3
ACENAPHTHENE		1.138	1.4		110 J	710 U	5300

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA			QA
LOCATION	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	B. B-11	B. B-11	MATRIX
TYPE OF LOCATION	CALIBRATION	CALIBRATION	CAL %D	SHIFT	WASTE	WASTE	SPIKE
SAMPLE NUMBER	ME1011885	ME1011887	ME1011887	ME1011888	ME801013A	ME801024A	ME801024A
MATRIX					SOIL	SOIL	SOIL
UNITS	%	RRF	%	AREA	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO					3	3	3
ACENAPHTHYLENE		1.806	0.8		36 J	710 U	680 U
ANTHRACENE		1.133	-0.7		190 J	710 U	680 U
BENZO(A)ANTHRACENE		1.193	2.9		430 J	710 U	680 U
BENZO(A)PYRENE		1.499	-12.2		350 J	710 U	680 U
BENZO(B)FLUORANTHENE		1.699	-8.2		730 J	710 U	680 U
BENZO(G,H,I)PERYLENE		0.999	-24.4		280 J	710 U	680 U
BENZO(K)FLUORANTHENE		1.749	-13.8		770 U	710 U	680 U
BENZOIC ACID		0.034	69.9		3700 U	3400 U	3300 U
BENZYL ALCOHOL		0.864	5.2		770 U	710 U	680 U
BIS(-2-CHLOROETHOXY)METHANE		0.491	-2.5		770 U	710 U	680 U
BIS(2-CHLOROETHYL)ETHER		1.808	-4.9		770 U	710 U	680 U
BIS(2-CHLOROISOPROPYL)ETHER		2.635	4.6		770 U	710 U	680 U
BIS(2-ETHYLHEXYL)PHTHALATE		0.885	8.3		160 BJ	590 BJ	99 BJ
BUTYLBENZYLPHTHALATE		0.668	8.2		770 U	160 J	680 U
CHRYSENE		1.117	2.4		440 J	710 U	680 U
DI-N-BUTYLPHTHALATE		1.141	4.9		910 B	1200 B	1200 B
DI-N-OCTYL PHTHALATE		2.601	-1.1		31 BJ	25 BJ	26 BJ
DIBENZO(A,H)ANTHRACENE		1.027	-13		770 U	710 U	680 U
DIBENZOFURAN		1.665	0.5		120 J	710 U	26 J
DIETHYLPHTHALATE		1.099	4.8		770 U	710 U	680 U
DIMETHYLPHTHALATE		1.203	0.8		770 U	710 U	680 U
FLUORANTHENE		0.917	17.3		1300	710 U	680 U
FLUORENE		1.31	4.6		150 J	710 U	680 U
HEXACHLOROBENZENE		0.237	-9.2		770 U	710 U	680 U
HEXACHLOROBUTADIENE		0.157	0.6		770 U	710 U	680 U
HEXACHLOROCYCLOPENTADIENE		0.31	1.9		770 U	710 U	680 U
HEXACHLOROETHANE		0.591	0		770 U	710 U	680 U
INDENO(1,2,3-CD)PYRENE		1.072	-16.5		260 J	710 U	680 U
ISOPHORONE		0.801	-3.8		770 U	710 U	680 U
N-NITROSO-DI-N-PROPYLAMINE		0.871	-4.3		770 U	710 U	4060
N-NITROSODIPHENYLAMINE		0.39	-10.8		770 U	710 U	680 U
NAPHTHALENE		1.083	-1.7		76 J	710 U	680 U
NITROBENZENE		0.401	-1.8		770 U	710 U	680 U
NITROBENZENE-D5		0.211	-5.5				
PENTACHLOROPHENOL		0.112	-8.7		3700 U	3400 U	7880
PHENANTHRENE		1.119	1.2		1100	15 J	680 U
PHENOL		2.058	-10.5		770 U	710 U	9790
PHENOL-D5		1.596	-9.8				
PYRENE		0.893	18.9		940	710 U	6470

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA			QA
LOCATION	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	B. B-11	B. B-11	MATRIX
TYPE OF LOCATION	CALIBRATION	CALIBRATION	CAL %D	SHIFT	WASTE	WASTE	SPIKE
SAMPLE NUMBER	ME1011885	ME1011887	ME1011887	ME1011888	ME801013A	ME801024A	ME801024A
MATRIX					SOIL	SOIL	SOIL
UNITS	%	RRF	%	AREA	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO					3	3	3
TERPHENYL-D14		1.134	-5.6				
1,2-DICHLOROBENZENE		1.582	-1.1		770 U	710 U	680 U
1,2,4-TRICHLOROBENZENE		0.337	0.3		770 U	710 U	5620
1,3-DICHLOROBENZENE		1.603	-0.2		770 U	710 U	680 U
1,4-DICHLOROBENZENE		1.706	-1.4		770 U	710 U	5260
2-CHLORONAPHTHALENE		1.251	0.6		770 U	710 U	680 U
2-CHLOROPHENOL		1.44	-2.9		770 U	710 U	11000
2-FLUOROBIPHENYL		1.345	-2.3				
2-FLUOROPHENOL		1.281	2.7				
2-METHYLNAPHTHALENE		0.756	-2.2		70 J	710 U	680 U
2-METHYLPHENOL		1.333	-1		770 U	710 U	680 U
2-NITROANILINE		0.338	2		3700 U	3400 U	3300 U
2-NITROPHENOL		0.221	-2.3		770 U	710 U	680 U
2,4-DICHLOROPHENOL		0.279	1.4		770 U	710 U	680 U
2,4-DIMETHYLPHENOL		0.293	-2.8		770 U	710 U	680 U
2,4-DINITROPHENOL		0.135	29		3700 U	3400 U	3300 U
2,4-DINITROTOLUENE		0.345	12.7		770 U	710 U	5660
2,4,5-TRICHLOROPHENOL		0.364	-4.9		3700 U	3400 U	3300 U
2,4,6-TRIBROMOPHENOL		0.104	-20.9				
2,4,6-TRICHLOROPHENOL		0.363	2.2		770 U	710 U	680 U
2,6-DINITROTOLUENE		0.31	1		770 U	710 U	680 U
3-NITROANILINE		0.314	4.8		3700 U	3400 U	3300 U
3,3'-DICHLOROBENZIDINE		0.698	-71.9		1500 U	1400 U	1400 U
4-BROMOPHENYL-PHENYLETHER		0.247	-16		770 U	710 U	680 U
4-CHLORO-3-METHYLPHENOL		0.269	-0.4		770 U	710 U	10700
4-CHLOROANILINE		0.143	6.5		770 U	710 U	680 U
4-CHLOROPHENYL-PHENYLETHER		0.66	-0.9		770 U	710 U	680 U
4-METHYLPHENOL		1.372	-2.1		770 U	710 U	680 U
4-NITROANILINE		0.239	20.9		3700 U	3400 U	3300 U
4-NITROPHENOL		0.069	15.9		3700 U	3400 U	9250
4,6-DINITRO-2-METHYLPHENOL		0.175	28.3		3700 U	3400 U	3300 U
SURR 1(NBZ) %RECOVERY					37	40	37
SURR 2(FBP) %RECOVERY					41	43	41
SURR 3(TPH) %RECOVERY					49	51	60
SURR 4(PHL) %RECOVERY					38	41	41
SURR 5(2FP) %RECOVERY					44	46	45
SURR 6(TBP) %RECOVERY					25	34	40

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA			QA
LOCATION	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	B. B-11	B. B-11	MATRIX
TYPE OF LOCATION	CALIBRATION	CALIBRATION	CAL %D	SHIFT	WASTE	WASTE	SPIKE
SAMPLE NUMBER	ME1011885	ME1011887	ME1011887	ME1011888	ME801013A	ME801024A	ME801024A
MATRIX					SOIL	SOIL	SOIL
UNITS	%	RRF	%	AREA	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO					3	3	3
M/E 68-1	0						
M/E 68-2	0						
M/E 69	43						
M/E 70-1	0						
M/E 70-2	0						
M/E 127	42						
M/E 197	0						
M/E 198	100						
M/E 199	6.5						
M/E 275	20						
M/E 365	1.5						
M/E 441	6.8						
M/E 442	62						
M/E 443-1	12						
M/E 443-2	19						
INTERNAL STD AREA(ANT)				150000	110000	128000	116000
INTERNAL STD AREA(CRY)				94400	89400	100000	80300
INTERNAL STD AREA(DCB)				77700	64000	69800	65100
INTERNAL STD AREA(NPT)				288000	222000	245000	222000
INTERNAL STD AREA(PHN)				183000	153000	167000	149000
INTERNAL STD AREA(PRY)				47600	44100	57100	43000
DILUTION FACTOR					2	2	2
PERCENT MOISTURE					14	7	7
ACTUAL(ALLOWED) EXTRACT TIME					8(14 D)	8(14 D)	8(14 D)

AREA	QA	QA	QA	QA			
LOCATION	MS %	RPD	MATRIX SPIKE	MSD %	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	RECOVERY		DUPLICATE	RECOVERY	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME801024A	ME801024A	ME801024A	ME801024A	ME801035A	ME801046A	ME801057A
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	%	%	UG/KG	%	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO	3	3	3	3	3	3	3
ACENAPHTHENE	77	-3	5670	79	760 U	45 J	45 J

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA			
LOCATION	MS % RECOVERY	RPD	MATRIX SPIKE DUPLICATE	MSD % RECOVERY	B. B-11 WASTE	B. B-11 WASTE	B. B-11 WASTE
TYPE OF LOCATION							
SAMPLE NUMBER	ME801024A	ME801024A	ME801024A	ME801024A	ME801035A	ME801046A	ME801057A
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	%	%	UG/KG	%	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO	3	3	3	3	3	3	3
ACENAPHTHYLENE			710 U		760 U	25 J	19 J
ANTHRACENE			710 U		760 U	88 J	64 J
BENZO(A)ANTHRACENE			710 U		760 U	290 J	170 J
BENZO(A)PYRENE			710 U		760 U	190 J	100 J
BENZO(B)FLUORANTHENE			710 U		81 J	410 J	220 J
BENZO(G,H,I)PERYLENE			710 U		760 U	140 J	110 J
BENZO(K)FLUORANTHENE			710 U		760 U	730 U	750 U
BENZOIC ACID			3400 U		3700 U	3500 U	3700 U
BENZYL ALCOHOL			710 U		760 U	730 U	750 U
BIS(-2-CHLOROETHOXY)METHANE			710 U		760 U	730 U	750 U
BIS(2-CHLOROETHYL)ETHER			710 U		760 U	730 U	750 U
BIS(2-CHLOROISOPROPYL)ETHER			710 U		760 U	730 U	750 U
BIS(2-ETHYLHEXYL)PHTHALATE			1600 B		150 BJ	88 BJ	110 BJ
BUTYLBENZYLPHTHALATE			710 U		760 U	730 U	750 U
CHRYSENE			710 U		760 U	290 J	170 J
DI-N-BUTYLPHTHALATE			1100 B		1700 B	1600 B	1400 B
DI-N-OCTYL PHTHALATE			32 BJ		32 BJ	31 BJ	29 BJ
DIBENZO(A,H)ANTHRACENE			710 U		760 U	43 J	750 U
DIBENZOFURAN			29 J		760 U	36 J	38 J
DIETHYLPHTHALATE			710 U		760 U	22 J	750 U
DIMETHYLPHTHALATE			710 U		760 U	730 U	750 U
FLUORANTHENE			710 U		760 U	620 J	350 J
FLUORENE			710 U		760 U	61 J	62 J
HEXACHLOROBENZENE			710 U		760 U	730 U	750 U
HEXACHLOROBUTADIENE			710 U		760 U	730 U	750 U
HEXACHLOROCYCLOPENTADIENE			710 U		760 U	730 U	750 U
HEXACHLOROETHANE			710 U		760 U	730 U	750 U
INDENO(1,2,3-CD)PYRENE			710 U		760 U	150 J	99 J
ISOPHORONE			710 U		760 U	730 U	750 U
N-NITROSO-DI-N-PROPYLAMINE	59	-5	4440	62	760 U	730 U	750 U
N-NITROSODIPHENYLAMINE			710 U		760 U	730 U	750 U
NAPHTHALENE			710 U		760 U	51 J	72 J
NITROBENZENE			710 U		760 U	730 U	750 U
NITROBENZENE-D5							
PENTACHLOROPHENOL	58	-8	9000	63	3700 U	3500 U	3700 U
PHENANTHRENE			710 U		760 U	500 J	360 J
PHENOL	71	-3	10400	73	760 U	730 U	750 U
PHENOL-D5							
PYRENE	94	-12	7570	106	760 U	490 J	280 J

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA			
LOCATION	MS % RECOVERY	RPD	MATRIX SPIKE DUPLICATE	MSD % RECOVERY	B. B-11 WASTE	B. B-11 WASTE	B. B-11 WASTE
TYPE OF LOCATION							
SAMPLE NUMBER	ME801024A	ME801024A	ME801024A	ME801024A	ME801035A	ME801046A	ME801057A
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	%	%	UG/KG	%	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO	3	3	3	3	3	3	3
TERPHENYL-D14							
1,2-DICHLOROBENZENE			710 U		760 U	730 U	750 U
1,2,4-TRICHLOROBENZENE	82	-2	6000	84	760 U	730 U	750 U
1,3-DICHLOROBENZENE			710 U		760 U	730 U	750 U
1,4-DICHLOROBENZENE	77	0	5500	77	760 U	730 U	750 U
2-CHLORONAPHTHALENE			710 U		760 U	730 U	750 U
2-CHLOROPHENOL	80	-1	11600	81	760 U	730 U	750 U
2-FLUOROBIPHENYL							
2-FLUOROPHENOL							
2-METHYLNAPHTHALENE			710 U		760 U	39 J	60 J
2-METHYLPHENOL			710 U		760 U	730 U	750 U
2-NITROANILINE			3400 U		3700 U	3500 U	3700 U
2-NITROPHENOL			710 U		760 U	730 U	750 U
2,4-DICHLOROPHENOL			710 U		760 U	730 U	750 U
2,4-DIMETHYLPHENOL			710 U		760 U	730 U	750 U
2,4-DINITROPHENOL			3400 U		3700 U	3500 U	3700 U
2,4-DINITROTOLUENE	83	-7	6380	89	760 U	730 U	750 U
2,4,5-TRICHLOROPHENOL			3400 U		3700 U	3500 U	3700 U
2,4,6-TRIBROMOPHENOL							
2,4,6-TRICHLOROPHENOL			710 U		760 U	730 U	750 U
2,6-DINITROTOLUENE			710 U		760 U	730 U	750 U
3-NITROANILINE			3400 U		3700 U	3500 U	3700 U
3,3'-DICHLOROBENZIDINE			1400 U		1500 U	1500 U	1500 U
4-BROMOPHENYL-PHENYLETHER			710 U		760 U	730 U	750 U
4-CHLORO-3-METHYLPHENOL	78	-1	11300	79	760 U	730 U	750 U
4-CHLOROANILINE			710 U		760 U	730 U	750 U
4-CHLOROPHENYL-PHENYLETHER			710 U		760 U	730 U	750 U
4-METHYLPHENOL			710 U		760 U	730 U	750 U
4-NITROANILINE			3400 U		3700 U	3500 U	3700 U
4-NITROPHENOL	68	-22	12100	85	3700 U	3500 U	3700 U
4,6-DINITRO-2-METHYLPHENOL			3400 U		3700 U	3500 U	3700 U
SURR 1(NBZ) %RECOVERY			39		42	41	37
SURR 2(FBP) %RECOVERY			42		47	43	41
SURR 3(TPH) %RECOVERY			52		47	52	47
SURR 4(PHL) %RECOVERY			42		45	43	39
SURR 5(2FP) %RECOVERY			45		52	51	45
SURR 6(TBP) %RECOVERY			41		37	37	34

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TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA			
LOCATION	MS %	RPD	MATRIX SPIKE	MSD %	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	RECOVERY		DUPLICATE	RECOVERY	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME801024A	ME801024A	ME801024A	ME801024A	ME801035A	ME801046A	ME801057A
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	%	%	UG/KG	%	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO	3	3	3	3	3	3	3
M/E 68-1							
M/E 68-2							
M/E 69							
M/E 70-1							
M/E 70-2							
M/E 127							
M/E 197							
M/E 198							
M/E 199							
M/E 275							
M/E 365							
M/E 441							
M/E 442							
M/E 443-1							
M/E 443-2							
INTERNAL STD AREA(ANT)			121000		121000	151000	128000
INTERNAL STD AREA(CRY)			106000		114000	114000	90800
INTERNAL STD AREA(DCB)			70400		72600	78700	70700
INTERNAL STD AREA(NPT)			240000		252000	272000	250000
INTERNAL STD AREA(PHN)			156000		156000	208000	161000
INTERNAL STD AREA(PRY)			64600		60700	79200	68700
DILUTION FACTOR			2		2	2	2
PERCENT MOISTURE			7		14	13	13
ACTUAL(ALLOWED) EXTRACT TIME			8(14 D)		8(14 D)	8(14 D)	8(14 D)

AREA		QA	QA	QA	QA	QA	
LOCATION	B. B-11	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD	B. B-11
TYPE OF LOCATION	WASTE	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK	WASTE
SAMPLE NUMBER	ME801068A	ME1012885	ME1012887	ME1012887	ME1012888	SBK81107	ME801079A
MATRIX	SOIL					SOIL	SOIL
UNITS	UG/KG	%	RRF	%	AREA	UG/KG	UG/KG
ENV PROBLEM NO	3						3
ACENAPHTHENE	750 U		1.158	-0.3		660 U	240000 U

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A

DRAFT DO NOT CITE

AREA		QA	QA	QA	QA	QA	
LOCATION	B. B-11	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD	B. B-11
TYPE OF LOCATION	WASTE	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK	WASTE
SAMPLE NUMBER	ME801068A	ME1012885	ME1012887	ME1012887	ME1012888	SBK81107	ME801079A
MATRIX	SOIL					SOIL	SOIL
UNITS	UG/KG	%	RRF	%	AREA	UG/KG	UG/KG
ENV PROBLEM NO	3						3
ACENAPHTHYLENE	750 U		1.816	0.2		660 U	240000 U
ANTHRACENE	750 U		1.149	-2.1		660 U	240000 U
BENZO(A)ANTHRACENE	750 U		1.189	3.3		660 U	240000 U
BENZO(A)PYRENE	750 U		1.466	-9.7		660 U	240000 U
BENZO(B)FLUORANTHENE	41 J		1.667	-6.2		660 U	240000 U
BENZO(G,H,I)PERYLENE	750 U		0.958	-19.3		660 U	240000 U
BENZO(K)FLUORANTHENE	750 U		1.688	-9.8		660 U	240000 U
BENZOIC ACID	3700 U		0.023	79.7		3200 U	1200000 U
BENZYL ALCOHOL	750 U		0.822	9.8		660 U	240000 U
BIS(-2-CHLOROETHOXY)METHANE	750 U		0.479	0		660 U	240000 U
BIS(2-CHLOROETHYL)ETHER	750 U		1.748	-1.4		660 U	240000 U
BIS(2-CHLOROISOPROPYL)ETHER	750 U		2.602	5.8		660 U	240000 U
BIS(2-ETHYLHEXYL)PHTHALATE	190 BJ		0.892	7.6		45 J	240000 U
BUTYLBENZYLPHTHALATE	52 J		0.656	9.9		660 U	240000 U
CHRYSENE	30 J		1.104	3.6		660 U	240000 U
DI-N-BUTYLPHTHALATE	1500 B		1.28	-6.7		1100	7300 BJ
DI-N-OCTYL PHTHALATE	24 BJ		2.677	-4.1		19 J	240000 U
DIBENZO(A,H)ANTHRACENE	750 U		1.047	-15.2		660 U	240000 U
DIBENZOFURAN			1.652	1.3		660 U	240000 U
DIETHYLPHTHALATE	750 U		1.115	3.4		660 U	240000 U
DIMETHYLPHTHALATE	750 U		1.199	1.2		660 U	240000 U
FLUORANTHENE	49 J		1.139	-2.7		660 U	240000 U
FLUORENE	750 U		1.335	2.8		660 U	240000 U
HEXACHLOROBENZENE	750 U		0.225	-3.7		660 U	240000 U
HEXACHLOROBUTADIENE	750 U		0.165	-4.4		660 U	240000 U
HEXACHLOROCYCLOPENTADIENE	750 U		0.318	-0.6		660 U	240000 U
HEXACHLOROETHANE	750 U		0.58	1.9		660 U	240000 U
INDENO(1,2,3-CD)PYRENE	750 U		1.074	-16.7		660 U	240000 U
ISOPHORONE	750 U		0.754	2.3		660 U	240000 U
N-NITROSO-DI-N-PROPYLAMINE	750 U		0.773	7.4		660 U	240000 U
N-NITROSODIPHENYLAMINE	750 U		0.394	-11.9		660 U	240000 U
NAPHTHALENE	750 U		1.092	-2.5		660 U	240000 U
NITROBENZENE	750 U		0.402	-2		660 U	240000 U
NITROBENZENE-D5			0.212	-6			
PENTACHLOROPHENOL	3700 U		0.109	-5.8		3200 U	1200000 U
PHENANTHRENE	34 J		1.129	0.4		660 U	240000 U
PHENOL	750 U		1.968	-5.7		26 J	240000 U
PHENOL-D5			1.519	-4.5			
PYRENE	43 J		1.132	-2.8		660 U	240000 U

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA		QA	QA	QA	QA	QA	
LOCATION	B. B-11	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD	B. B-11
TYPE OF LOCATION	WASTE	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK	WASTE
SAMPLE NUMBER	ME801068A	ME1012885	ME1012887	ME1012887	ME1012888	SBK81107	ME801079A
MATRIX	SOIL					SOIL	SOIL
UNITS	UG/KG	%	RRF	%	AREA	UG/KG	UG/KG
ENV PROBLEM NO	3						3
TERPHENYL-D14			1.03	4.1			
1,2-DICHLOROBENZENE	750 U		1.573	-0.5		660 U	240000 U
1,2,4-TRICHLOROBENZENE	750 U		0.343	-1.5		660 U	240000 U
1,3-DICHLOROBENZENE	750 U		1.595	0.3		660 U	240000 U
1,4-DICHLOROBENZENE	750 U		1.697	-0.8		660 U	240000 U
2-CHLORONAPHTHALENE	750 U		1.297	-3		660 U	240000 U
2-CHLOROPHENOL	750 U		1.421	-1.6		660 U	240000 U
2-FLUOROBIPHENYL			1.407	-7			
2-FLUOROPHENOL			1.258	4.4			
2-METHYLNAPHTHALENE	750 U		0.736	0.5		660 U	240000 U
2-METHYLPHENOL	750 U		1.31	0.8		660 U	240000 U
2-NITROANILINE	3700 U		0.316	8.4		3200 U	1200000 U
2-NITROPHENOL	750 U		0.212	1.9		660 U	240000 U
2,4-DICHLOROPHENOL	750 U		0.269	4.9		660 U	240000 U
2,4-DIMETHYLPHENOL	750 U		0.288	-1.1		660 U	240000 U
2,4-DINITROPHENOL	3700 U		0.119	37.4		3200 U	1200000 U
2,4-DINITROTOLUENE	750 U		0.374	5.3		660 U	240000 U
2,4,5-TRICHLOROPHENOL	3700 U		0.361	-4		3200 U	1200000 U
2,4,6-TRIBROMOPHENOL			0.096	-11.6			
2,4,6-TRICHLOROPHENOL	750 U		0.365	1.6		660 U	240000 U
2,6-DINITROTOLUENE	750 U		0.302	3.5		660 U	240000 U
3-NITROANILINE	3700 U		0.319	3.3		3200 U	1200000 U
3,3'-DICHLOROBENZIDINE	1500 U		0.728	-79.3		1300 U	480000 U
4-BROMOPHENYL-PHENYLETHER	750 U		0.219	-2.8		660 U	240000 U
4-CHLORO-3-METHYLPHENOL	750 U		0.243	9.3		660 U	240000 U
4-CHLOROANILINE	750 U		0.135	11.8		660 U	240000 U
4-CHLOROPHENYL-PHENYLETHER	750 U		0.647	1.1		660 U	240000 U
4-METHYLPHENOL	750 U		1.306	2.8		660 U	240000 U
4-NITROANILINE	3700 U		0.289	4.3		3200 U	1200000 U
4-NITROPHENOL	3700 U		0.069	15.9		3200 U	1200000 U
4,6-DINITRO-2-METHYLPHENOL	3700 U		0.193	20.9		3200 U	1200000 U
SURR 1(NBZ) %RECOVERY	36					40	1 *
SURR 2(FBP) %RECOVERY	40					40	53
SURR 3(TPH) %RECOVERY	48					52	5 *
SURR 4(PHL) %RECOVERY	37					43	2 *
SURR 5(2FP) %RECOVERY	43					37	14 *
SURR 6(TBP) %RECOVERY	32					0 *	5 *

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TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA		QA	QA	QA	QA	QA	
LOCATION	B. B-11	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD	B. B-11
TYPE OF LOCATION	WASTE	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK	WASTE
SAMPLE NUMBER	ME801068A	ME1012885	ME1012887	ME1012887	ME1012888	SBK81107	ME801079A
MATRIX	SOIL					SOIL	SOIL
UNITS	UG/KG	%	RRF	%	AREA	UG/KG	UG/KG
ENV PROBLEM NO	3						3
M/E 68-1		0					
M/E 68-2		0					
M/E 69		41					
M/E 70-1		0					
M/E 70-2		0					
M/E 127		41					
M/E 197		0					
M/E 198		100					
M/E 199		6.3					
M/E 275		18					
M/E 365		1.1					
M/E 441		5.4					
M/E 442		50					
M/E 443-1		10					
M/E 443-2		21					
INTERNAL STD AREA(ANT)	117000				129000	119000	127000
INTERNAL STD AREA(CRY)	101000				134000	112000	129000
INTERNAL STD AREA(DCB)	65900				78700	62100	60100
INTERNAL STD AREA(NPT)	225000				272000	213000	227000
INTERNAL STD AREA(PHN)	157000				181000	172000	183000
INTERNAL STD AREA(PRY)	72300				68300	67200	87200
DILUTION FACTOR	2					2	606
PERCENT MOISTURE	13						17
ACTUAL(ALLOWED) EXTRACT TIME	8(14 D)						7(14 D)

AREA							
LOCATION	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11		
TYPE OF LOCATION	WASTE	WASTE	WASTE	WASTE	WASTE		
SAMPLE NUMBER	ME801080A	ME801091A	ME801104A	ME801115A	ME801126A		
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL		
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG		
ENV PROBLEM NO	3	3	3	3	3		
ACENAPHTHENE	760000 U	270000 U	70000 U	41000 U	39000 U		

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A

DRAFT DO NOT CITE

AREA

LOCATION	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME801080A	ME801091A	ME801104A	ME801115A	ME801126A
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO	3	3	3	3	3
ACENAPHTHYLENE	760000 U	270000 U	70000 U	41000 U	39000 U
ANTHRACENE	760000 U	270000 U	70000 U	41000 U	4000 J
BENZO(A)ANTHRACENE	760000 U	270000 U	70000 U	41000 U	13000 J
BENZO(A)PYRENE	760000 U	270000 U	70000 U	41000 U	4600 J
BENZO(B)FLUORANTHENE	760000 U	270000 U	70000 U	41000 U	12000 J
BENZO(G,H,I)PERYLENE	760000 U	270000 U	70000 U	41000 U	39000 U
BENZO(K)FLUORANTHENE	760000 U	270000 U	70000 U	41000 U	39000 U
BENZOIC ACID	3700000 U	1300000 U	340000 U	200000 U	190000 U
BENZYL ALCOHOL	760000 U	270000 U	70000 U	41000 U	39000 U
BIS(-2-CHLOROETHOXY)METHANE	760000 U	270000 U	70000 U	41000 U	39000 U
BIS(2-CHLOROETHYL)ETHER	760000 U	270000 U	70000 U	41000 U	39000 U
BIS(2-CHLOROISOPROPYL)ETHER	760000 U	270000 U	70000 U	41000 U	39000 U
BIS(2-ETHYLHEXYL)PHTHALATE	760000 U	270000 U	70000 U	41000 U	39000 U
BUTYLBENZYLPHTHALATE	760000 U	270000 U	70000 U	41000 U	39000 U
CHRYSENE	760000 U	270000 U	70000 U	41000 U	10000 J
DI-N-BUTYLPHTHALATE	21000 BJ	11000 BJ	2200 BJ	1500 BJ	1600 BJ
DI-N-OCTYL PHTHALATE	760000 U	270000 U	70000 U	41000 U	39000 U
DIBENZO(A,H)ANTHRACENE	760000 U	270000 U	70000 U	41000 U	39000 U
DIBENZOFURAN	760000 U	270000 U	70000 U	1100 J	1500 J
DIETHYLPHTHALATE	760000 U	270000 U	70000 U	41000 U	39000 U
DIMETHYLPHTHALATE	760000 U	270000 U	70000 U	41000 U	39000 U
FLUORANTHENE	760000 U	270000 U	3700 J	41000 U	16000 J
FLUORENE	760000 U	270000 U	70000 U	41000 U	1800 J
HEXACHLOROBENZENE	760000 U	270000 U	70000 U	41000 U	39000 U
HEXACHLOROBUTADIENE	760000 U	270000 U	70000 U	41000 U	39000 U
HEXACHLOROCYCLOPENTADIENE	760000 U	270000 U	70000 U	41000 U	39000 U
HEXACHLOROETHANE	760000 U	270000 U	70000 U	41000 U	39000 U
INDENO(1,2,3-CD)PYRENE	760000 U	270000 U	70000 U	41000 U	3500 J
ISOPHORONE	760000 U	270000 U	70000 U	41000 U	39000 U
N-NITROSO-DI-N-PROPYLAMINE	760000 U	270000 U	70000 U	41000 U	39000 U
N-NITROSODIPHENYLAMINE	760000 U	270000 U	70000 U	41000 U	39000 U
NAPHTHALENE	760000 U	270000 U	70000 U	2800 J	3300 J
NITROBENZENE	760000 U	270000 U	70000 U	41000 U	39000 U
NITROBENZENE-D5					
PENTACHLOROPHENOL	3700000 U	1300000 U	340000 U	200000 U	190000 U
PHENANTHRENE	760000 U	270000 U	4300 J	2100 J	14000 J
PHENOL	760000 U	270000 U	70000 U	41000 U	39000 U
PHENOL-D5					
PYRENE	760000 U	270000 U	2200 J	41000 U	12000 J

TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A DRAFT DO NOT CITE

AREA

LOCATION	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME801080A	ME801091A	ME801104A	ME801115A	ME801126A
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO	3	3	3	3	3
TERPHENYL-D14					
1,2-DICHLOROBENZENE	760000 U	270000 U	70000 U	41000 U	39000 U
1,2,4-TRICHLOROBENZENE	760000 U	270000 U	70000 U	41000 U	39000 U
1,3-DICHLOROBENZENE	760000 U	270000 U	70000 U	41000 U	39000 U
1,4-DICHLOROBENZENE	760000 U	270000 U	70000 U	41000 U	39000 U
2-CHLORONAPHTHALENE	760000 U	270000 U	70000 U	41000 U	39000 U
2-CHLOROPHENOL	760000 U	270000 U	70000 U	41000 U	39000 U
2-FLUOROBIPHENYL					
2-FLUOROPHENOL					
2-METHYLNAPHTHALENE	760000 U	270000 U	70000 U	2500 J	3000 J
2-METHYLPHENOL	760000 U	270000 U	70000 U	41000 U	39000 U
2-NITROANILINE	3700000 U	1300000 U	340000 U	200000 U	190000 U
2-NITROPHENOL	760000 U	270000 U	70000 U	41000 U	39000 U
2,4-DICHLOROPHENOL	760000 U	270000 U	70000 U	41000 U	39000 U
2,4-DIMETHYLPHENOL	760000 U	270000 U	70000 U	41000 U	39000 U
2,4-DINITROPHENOL	3700000 U	1300000 U	340000 U	200000 U	190000 U
2,4-DINITROTOLUENE	760000 U	270000 U	70000 U	41000 U	39000 U
2,4,5-TRICHLOROPHENOL	3700000 U	1300000 U	340000 U	200000 U	190000 U
2,4,6-TRIBROMOPHENOL					
2,4,6-TRICHLOROPHENOL	760000 U	270000 U	70000 U	41000 U	39000 U
2,6-DINITROTOLUENE	760000 U	270000 U	70000 U	41000 U	39000 U
3-NITROANILINE	3700000 U	1300000 U	340000 U	200000 U	190000 U
3,3'-DICHLOROBENZIDINE	1500000 U	540000 U	140000 U	82000 U	78000 U
4-BROMOPHENYL-PHENYLETHER	760000 U	270000 U	70000 U	41000 U	39000 U
4-CHLORO-3-METHYLPHENOL	760000 U	270000 U	70000 U	41000 U	39000 U
4-CHLOROANILINE	760000 U	270000 U	70000 U	41000 U	39000 U
4-CHLOROPHENYL-PHENYLETHER	760000 U	270000 U	70000 U	41000 U	39000 U
4-METHYLPHENOL	760000 U	270000 U	70000 U	41000 U	39000 U
4-NITROANILINE	3700000 U	1300000 U	340000 U	200000 U	190000 U
4-NITROPHENOL	3700000 U	1300000 U	340000 U	200000 U	190000 U
4,6-DINITRO-2-METHYLPHENOL	3700000 U	1300000 U	340000 U	200000 U	190000 U
SURR 1(NBZ) %RECOVERY	9 *	14 *	29	30	38
SURR 2(FBP) %RECOVERY	54	40	47	49	63
SURR 3(TPH) %RECOVERY	1 *	1 *	25	10 *	24
SURR 4(PHL) %RECOVERY	15 *	16 *	1 *	23 *	27
SURR 5(2FP) %RECOVERY	0 D	0 D	17 *	2 *	0 *
SURR 6(TBP) %RECOVERY	14 *	29	25	18 *	19

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TABLE D.3.4 METC EXTRACTABLE ORGANICS - SDG NUMBER: ME800012A

DRAFT DO NOT CITE

AREA

LOCATION	B. B-11	B. B-11	B. B-11	B. B-11	B. B-11
TYPE OF LOCATION	WASTE	WASTE	WASTE	WASTE	WASTE
SAMPLE NUMBER	ME801080A	ME801091A	ME801104A	ME801115A	ME801126A
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
ENV PROBLEM NO	3	3	3	3	3
M/E 68-1					
M/E 68-2					
M/E 69					
M/E 70-1					
M/E 70-2					
M/E 127					
M/E 197					
M/E 198					
M/E 199					
M/E 275					
M/E 365					
M/E 441					
M/E 442					
M/E 443-1					
M/E 443-2					
INTERNAL STD AREA(ANT)	112000	114000	124000	113000	111000
INTERNAL STD AREA(CRY)	93200	90400	101000	78500	67500
INTERNAL STD AREA(DCB)	59100	57700	64000	60200	58300
INTERNAL STD AREA(NPT)	222000	218000	238000	222000	214000
INTERNAL STD AREA(PHN)	146000	153000	171000	149000	151000
INTERNAL STD AREA(PRY)	61400	64400	72800	55400	44200
DILUTION FACTOR	2000	800	200	100	100
PERCENT MOISTURE	17	5	9	19	17
ACTUAL(ALLOWED) EXTRACT TIME	7(14 D)	7(14 D)	7(14 D)	7(14 D)	7(14 D)

TABLE D 3.5 METC QC TIC EXTRACTABLE ORGANICS BY SDG NUM

SDG NUM	SMP ID	CAS NUM	ANALYSIS	RESULTS & PREFIX	RETENTION TIME
ME300017A					
	ME300017A		UNKNOWN HYDROCARBON(37.27)	1000 J	37.27
	ME300017A		UNKNOWN PHTHALATE(37.54)	1300 J	37.54
	ME300017A	107-52-8	HEXASILOXANE,TETRADECAM(21.04)	130 J	21.04
	ME300017A	17851-53-5	BUTYL 2-METHYLPROPY PHT(29.97)	620 J	29.97
	ME300017A	541-01-5	HEPTASILOXANE,HEXADECAM(24.54)	140 J	24.54
	ME300017A	541-01-5	HEPTASILOXANE,HEXADECAM(27.69)	170 J	27.69
	ME300017A	629-59-4	TETRADECANE(20.64)	180 J	20.64
	ME300017A	629-62-9	PENTADECANE(22.82)	150 J	22.82
	ME300017A	629-78-7	HEPTADECANE(27.01)	210 J	27.01
	ME300028A		UNKNOWN PHTHALATE(37.57)	540 J	37.57
	ME300028A		UNKNOWN(30.94)	350 J	30.94
	ME300028A		UNKNOWN(41.73)	760 J	41.73
	ME300028A	10544-50-0	SULFUR, MOL. (S8)(32.61)	1100 J	32.61
	ME300028A	107-52-8	HEXASILOXANE,TETRADECAM(21.07)	140 J	21.07
	ME300028A	17851-53-5	BUTYL 2-METHYLPROPYLPHT(30.01)	390 J	30.01
	ME300028A	541-01-5	HEPTASILOXANE,HEXADECAM(24.57)	340 J	24.57
	ME300028A	541-01-5	HEPTASILOXANE,HEXADECAM(27.72)	270 J	27.72
	ME300028A	629-50-5	TRIDECANE(18.37)	120 J	18.37
	ME300028A	629-59-4	TETRADECANE(20.67)	200 J	20.67
	ME300028A	629-62-9	PENTADECANE(22.85)	230 J	22.85
	ME300039A		UNKNOWN PHTHALATE(37.57)	420 J	37.57
	ME300039A	17851-53-5	BUTYL 2-METHYLPROPYLPHT(30.02)	530 J	30.02
	ME300039A	541-01-5	HEPTASILOXANE,HEXADECAM(24.59)	160 J	24.59
	ME300039A	541-01-5	HEPTASILOXANE,HEXADECAM(27.74)	240 J	27.74
	ME301018A		C12-ALKANE(16.79)	960 BJ	16.79
	ME301018A		C14-ALKANE(20.69)	2500 BJ	20.69
	ME301018A		C15-ALKANE(22.60)	2800 J	22.60
	ME301018A		C16-ALKANE(26.49)	2100 J	26.49
	ME301018A		C17-ALKANE(27.59)	6700 J	27.59
	ME301018A		C18-ALKANE(29.54)	5900 J	29.54
	ME301018A		UNKNOWN HYDROCARBON(29.94)	4900 J	29.94
	ME301018A		UNKNOWN SILOXANE(28.26)	8300 J	28.26
	ME301018A		UNKNOWN SILOXANE(30.97)	4000 J	30.97
	ME301018A	10544-50-0	SULFUR, MOL. (S8)(33.22)	27000 J	33.22
	ME301018A	107-52-8	HEXASILOXANE,TETRADECAM(21.59)	2500 J	21.59
	ME301018A	541-01-5	HEPTASILOXANE,HEXADECAM(25.11)	6900 J	25.11
	ME301018A	55334-01-5	PHENANTHRENE,9-DODECYLT(46.84)	6900 J	46.84
	ME301018A	55334-01-5	PHENANTHRENE,9-DODECYLT(49.04)	4000 J	49.04
	ME301018A	62108-25-2	DECANE, 2,6,7-TRIMETHYL(18.24)	1200 J	18.24
	ME301018A	629-59-4	TETRADECANE(21.22)	2500 J	21.22
	ME301018A	629-62-9	PENTADECANE(23.40)	3500 J	23.40
	ME301018A	629-78-7	HEPTADECANE(27.47)	4400 J	27.47
	ME301029A		UNKNOWN HYDROCARBON(35.82)	180 J	35.82
	ME301029A		UNKNOWN HYDROCARBON(39.87)	370 J	39.87
	ME301029A		UNKNOWN SILOXANE(25.14)	1500 J	25.14
	ME301029A		UNKNOWN SILOXANE(28.29)	990 J	28.29
	ME301029A		UNKNOWN SILOXANE(31.01)	480 J	31.01

TABLE D 3.5 METC QC TIC EXTRACTABLE ORGANICS BY SDG NUM

SDG NUM	SMP ID	CAS NUM	ANALYSIS	RESULTS & PREFIX	RETENTION TIME
ME300017A					
	ME301029A	10042-59-8	1-HEPTANOL, 2-PROPYL-(29.56)	430 J	29.56
	ME301029A	10544-50-0	SULFUR, MOL. (S8)(33.22)	1300 J	33.22
	ME301029A	107-52-8	HEXASILOXANE,TETRADECAM(21.62)	1100 J	21.62
	ME301029A	141-63-9	PENTASILOXANE, DODECAME(17.64)	250 J	17.64
	ME301030A		UNKNOWN HYDROCARBON(27.02)	240 J	27.02
	ME301030A		UNKNOWN HYDROCARBON(36.01)	510 J	36.01
	ME301030A		UNKNOWN HYDROCARBON(37.29)	1200 J	37.29
	ME301030A	10544-50-0	SULFUR, MOL. (S8)(32.62)	570 J	32.62
	ME301041A		C17-ALKANE(27.04)	420 J	27.04
	ME301041A	10544-50-0	SULFUR, MOL. (S8)(32.67)	1200 J	32.67
	ME301041A	541-01-5	HEPTASILOXANE,HEXADECAM(24.60)	340 J	24.60
	ME301041A	541-01-5	HEPTASILOXANE,HEXADECAM(27.74)	410 J	27.74
	ME301041A	629-78-7	HEPTADECANE(26.92)	250 J	26.92
	ME301041A	7715-44-8	2(1H)-PHENANTHRENONE,3,(38.76)	450 J	38.76
	ME301052A		C14-ALKANE(21.42)	280 BJ	21.42
	ME301052A		C17-ALKANE(27.82)	380 J	27.82
	ME301052A		UNKNOWN HYDROCARBON(39.76)	260 J	39.76
	ME301052A		UNKNOWN SILOXANE(25.32)	290 J	25.32
	ME301052A		UNKNOWN SILOXANE(28.49)	390 J	28.49
	ME301052A	10544-50-0	SULFUR, MOL. (S8)(33.44)	1100 J	33.44
	ME301052A	107-52-8	HEXASILOXANE,TETRADECAM(21.79)	190 J	21.79
	ME301052A	2298-99-9	4H-PYRAN-4-ONE,3-HYDROX(17.90)	300 J	17.90
	ME301052A	3377-86-4	HEXANE, 2-BROMO-(9.34)	1300 J	9.34
	ME301052A	629-50-5	TRIDECANE(19.10)	220 J	19.10
	ME301052A	629-62-9	PENTADECANE(23.64)	280 J	23.64
	ME301052A	629-78-7	HEPTADECANE(27.71)	260 J	27.71
	ME301052A	629-92-5	NONADECANE(31.19)	490 J	31.19
	ME301063A		C15-ALKANE(23.62)	150 J	23.62
	ME301063A		C17-ALKANE(27.81)	220 J	27.81
	ME301063A		UNKNOWN SILOXANE(25.31)	460 J	25.31
	ME301063A		UNKNOWN SILOXANE(28.46)	490 J	28.46
	ME301063A		UNKNOWN SILOXANE(31.14)	310 J	31.14
	ME301063A	10544-50-0	SULFUR, MOL. (S8)(33.41)	630 J	33.41
	ME301063A	107-52-8	HEXASILOXANE,TETRADECAM(21.77)	240 J	21.77
	ME301063A	629-59-4	TETRADECANE(21.40)	130 J	21.40
	ME301063A	629-78-7	HEPTADECANE(27.67)	180 J	27.67
	ME301074A		C17-ALKANE(27.77)	290 J	27.77
	ME301074A		C27-ALKANE(39.69)	290 J	39.69
	ME301074A		C28-ALKANE(40.99)	690 J	40.99
	ME301074A		UNKNOWN SILOXANE(25.27)	280 J	25.27
	ME301074A	10544-50-0	SULFUR, MOL. (S8)(33.39)	1200 J	33.39
	ME301074A	107-52-8	HEXASILOXANE,TETRADECAM(21.74)	320 J	21.74
	ME301074A	128-37-0	PHENOL,2,6-BIS(1,1-DIME(23.94)	210 J	23.94
	ME301074A	541-02-6	CYCLOPENTASILOXANE, DEC(15.47)	96 J	15.47
	ME301074A	629-78-7	HEPTADECANE(27.64)	210 J	27.64
	ME301085A		C17-ALKANE(27.77)	710 J	27.77
	ME301085A		C18-ALKANE(29.71)	800 J	29.71
	ME301085A		UNKNOWN HYDROCARBON(30.09)	780 J	30.09

TABLE D 3.5 METC QC TIC EXTRACTABLE ORGANICS BY SDG NUM

SDG NUM	SMP ID	CAS NUM	ANALYSIS	RESULTS & PREFIX	RETENTION TIME
ME300017A					
	ME301085A		UNKNOWN SILOXANE(25.27)	4900 J	25.27
	ME301085A		UNKNOWN SILOXANE(28.42)	4700 J	28.42
	ME301085A		UNKNOWN SILOXANE(31.11)	2100 J	31.11
	ME301085A		UNKNOWN(38.41)	800 J	38.41
	ME301085A	10544-50-0	SULFUR, MOL. (S8)(33.39)	2200 J	33.39
	ME301085A	107-52-8	HEXASILOXANE,TETRADECAM(21.74)	1800 J	21.74
	ME301085A	141-63-9	PENTASILOXANE, DODECAME(17.74)	280 J	17.74
	ME301085A	629-59-4	TETRADECANE(21.37)	210 J	21.37
	ME301085A	629-78-7	HEPTADECANE(27.64)	500 J	27.64
	ME301096A		C17-ALKANE(27.79)	180 J	27.79
	ME301096A		UNKNOWN SILOXANE(25.29)	410 J	25.29
	ME301096A		UNKNOWN SILOXANE(28.44)	300 J	28.44
	ME301096A	10544-50-0	SULFUR, MOL. (S8)(33.41)	620 J	33.41
	ME301096A	107-52-8	HEXASILOXANE,TETRADECAM(21.75)	250 J	21.75
	ME301096A	629-78-7	HEPTADECANE(27.66)	200 J	27.66
	ME306013A		METHYL NAPHTHALENE(18.79)	220 J	18.79
	ME306013A		UNKNOWN HYDROCARBON(45.78)	520 J	45.78
	ME306013A		UNKNOWN HYDROCARBON(47.03)	520 J	47.03
	ME306013A		UNKNOWN PHTHALATE(37.57)	520 J	37.57
	ME306013A	107-52-8	HEXASILOXANE,TETRADECAM(21.07)	160 J	21.07
	ME306013A	295-65-8	CYCLOHEXADECANE(30.24)	2400 J	30.24
	ME306013A	33528-09-5	BENZOIC ACID, 2-HYDROXY(18.65)	220 J	18.65
	ME306013A	541-01-5	HEPTASILOXANE,HEXADECAM(24.59)	310 J	24.59
	ME306013A	541-01-5	HEPTASILOXANE,HEXADECAM(27.74)	360 J	27.74
	ME306024A	10544-50-0	SULFUR, MOL. (S8)(32.64)	540 J	32.64
	ME306024A	2381-21-7	PYRENE, 1-METHYL-(34.72)	150 J	34.72
	ME306024A	629-78-7	HEPTADECANE(26.92)	100 J	26.92
	ME306035A		UNKNOWN PHTHALATE(37.57)	280 J	37.57
	ME306035A	10544-50-0	SULFUR, MOL. 9S8)(32.61)	630 J	32.61
	ME306035A	4337-65-9	HEXANEDIOIC ACID, MONO((36.34)	6800 J	36.34
	SBK81104		C14-ALKANE(21.40)	200 J	21.40
	SBK81104		UNKNOWN SILOXANE(37.14)	360 J	37.14
	SBK81104		UNKNOWN SILOXANE(46.73)	1200 J	46.73
ME302019A					
	ME302019A		CYCLOHEXANOL, BROMO(14.15)	12 J	14.15
	ME302019A	122-34-9	1,3,5-TRIAZINE-2,4-DIAM(28.67)	12 J	28.67
	ME302019A	128-37-0	PHENOL,2,6-BIS(1,1-DIME(24.07)	4.7 J	24.07
	ME302019A	143-07-7	DODECANOIC ACID(25.02)	4.8 J	25.02
	ME302019A	541-01-5	HEPTASILOXANE,HEXADECAM(31.24)	5.2 J	31.24
	ME302019A	541-01-5	HEPTASILOXANE,HEXADECAM(33.32)	4.8 J	33.32
	ME302019A	870-50-4	2-PYRROLIDINONE, 1-METH(12.39)	26 J	12.39
	ME302020A	122-34-9	1,3,5-TRIAZINE-2,4-DIAM(28.67)	14 J	28.67
	ME302020A	2425-33-4	CYCLOHEXANOL, 2-BROMO-,(14.14)	27 J	14.14
	ME302020A	541-01-5	HEPTASILOXANE,HEXADECAM(28.57)	6.7 J	28.57
	ME302020A	541-01-5	HEPTASILOXANE,HEXADECAM(31.26)	11 J	31.26
	ME302020A	541-01-5	HEPTASILOXANE,HEXADECAM(33.32)	11 J	33.32

TABLE D 3.5 METC QC TIC EXTRACTABLE ORGANICS BY SDG NUM

SDG NUM	SMP ID	CAS NUM	ANALYSIS	RESULTS & PREFIX	RETENTION TIME
ME302019A					
	ME302020A	872-50-4	2-PYRROLIDINONE, 1-METH(12.37)	31 J	12.37
	ME302031A		CYCLOHEXENOL, BROMO(13.10)	16 J	13.10
	ME302031A	16536-57-5	CYCLOHEXANOL, 2-BROMO-,(14.12)	25 J	14.12
	ME302031A	541-01-5	HEPTASILOXANE,HEXADECAM(28.56)	13 J	28.56
	ME302031A	541-01-5	HEPTASILOXANE,HEXADECAM(31.24)	14 J	31.24
	ME302031A	541-01-5	HEPTASILOXANE,HEXADECAM(33.32)	15 J	33.32
	ME302031A	541-01-5	HEPTASILOXANE,HEXADECAM(37.87)	7.5 J	37.87
	ME302031A	541-01-5	HEPTASILOXANE,HEXADECAM(39.42)	5.4 J	39.42
	ME302031A	541-01-5	HEPTASILOXANE,HEXADECAM(41.37)	10 J	41.37
	ME302031A	872-50-4	2-PYRROLIDINONE, 1-METH(12.35)	22 J	12.35
	ME302100A		UNKNOWN(21.49)	21 J	21.49
	ME302100A		UNKNOWN(26.01)	14 J	26.01
	ME302100A	128-37-0	PHENOL,2,6-BIS(1,1-DIME(24.05)	5.3 J	24.05
	ME306046A		UNKNOWN(21.47)	18 J	21.47
	ME306046A		UNKNOWN(25.97)	9.7 J	25.97
	ME309016A		UNKNOWN HYDROCARBON(43.33)	16 J	43.33
	ME309016A		UNKNOWN HYDROCARBON(45.39)	7 J	45.39
	ME309016A		UNKNOWN HYDROCARBON(47.94)	18 J	47.94
	ME309016A		UNKNOWN HYDROCARBON(51.13)	11 J	51.13
	ME309027A		UNKNOWN(42.18)	5.7 J	42.18
	ME310019A		C27-ALKANE(39.24)	8.9 J	39.24
	ME310019A		C28-ALKANE(40.46)	47 J	40.46
	ME310019A		C29-ALKANE(41.91)	20 J	41.91
	ME310019A		UNKNOWN HYDROCARBON(38.17)	11 J	38.17
	ME310019A		UNKNOWN HYDROCARBON(43.68)	10 J	43.68
	ME310019A		UNKNOWN HYDROCARBON(45.83)	15 J	45.83
	ME310019A	28553-12-0	DIISONONYL PHTHALATE(46.68)	10 J	46.68
	ME310019A	3648-21-3	DIHEPTYL PHTHALATE(42.64)	19 J	42.64
	ME310019A	629-62-9	PENTADECANE(22.90)	5.4 J	22.90
	ME311021A	128-37-0	PHENOL,2,6-BIS(1,1-DIME(24.05)	3.7 J	24.05
	ME800078A		UNKNOWN(21.49)	13 J	21.49
	ME800078A		UNKNOWN(26.01)	10 J	26.01
ME800012A					
	ME800012A		C17-ALKANE(27.62)	200 J	27.62
	ME800012A		C18-ALKANE(29.37)	330 J	29.37
	ME800012A		C18-ALKANE(29.56)	150 J	29.56
	ME800012A		C20-ALKANE(32.42)	200 J	32.42
	ME800012A		C21-ALKANE(33.66)	170 J	33.66
	ME800012A		C27-ALKANE(39.86)	170 J	39.86
	ME800012A		C34-ALKANE(47.21)	560 J	47.21
	ME800012A		UNKNOWN(38.56)	250 J	38.56
	ME800012A	10544-50-0	SULFUR, MOL. (S8)(33.24)	890 J	33.24
	ME800012A	629-50-5	TRIDECANE(18.92)	170 J	18.92
	ME800012A	629-59-4	TETRADECANE(21.24)	260 BJ	21.24
	ME800012A	629-62-9	PENTADECANE(23.42)	280 J	23.42
	ME800012A	629-78-7	HEPTADECANE(27.49)	210 J	27.49

TABLE D 3.5 METC QC TIC EXTRACTABLE ORGANICS BY SDG NUM

SDG NUM	SMP ID	CAS NUM	ANALYSIS	RESULTS & PREFIX	RETENTION TIME
ME800012A					
	ME800012A	629-92-5	NONADECANE(31.01)	280 J	31.01
	ME800023A		C19-ALKENE(30.74)	450 J	30.74
	ME800023A		C23-ALKANE(35.81)	94 J	35.81
	ME800023A		C27-ALKANE(39.84)	300 J	39.84
	ME800023A		C34-ALKANE(47.19)	300 J	47.19
	ME800023A		UNKNOWN HYDROCARBON(36.47)	390 J	36.47
	ME800023A		UNKNOWN HYDROCARBON(42.81)	460 J	42.81
	ME800023A		UNKNOWN(38.56)	310 J	38.56
	ME800023A		UNKNOWN(41.79)	230 J	41.79
	ME800034A		C17-ALKANE(27.59)	100 J	27.59
	ME800034A		C26-ALKENE(38.24)	300 J	38.24
	ME800034A		C26-ALKENE(38.54)	290 J	38.54
	ME800034A		C34-ALKANE(47.18)	420 J	47.18
	ME800034A	629-59-4	TETRADECANE(21.22)	100 BJ	21.22
	ME800034A	629-62-9	PENTADECANE(23.40)	120 J	23.40
	ME800045A		UNKNOWN(30.74)	220 J	30.74
	ME800045A		UNKNOWN(38.54)	330 J	38.54
	ME800045A	146-50-9	BIS(4-METHYLPENTYL)PHTH(35.74)	240 J	35.74
	ME800045A	146-50-9	BIS(4-METHYLPENTYL)PHTH(36.01)	210 J	36.01
	ME800045A	25724-58-7	DECYL HEXYL PHTHALATE(36.31)	150 J	36.31
	ME800056A		C15-ALKANE(23.42)	390 J	23.42
	ME800056A	10544-50-0	SULFUR, MOL. (S8)(33.19)	1700 J	33.19
	ME800056A	629-59-4	TETRADECANE(21.22)	200 BJ	21.22
	ME801013A		C15-ALKANE(27.57)	270 J	27.57
	ME801013A		C21-HYDROCARBON(33.62)	230 J	33.62
	ME801013A		C26-HYDROCARBON(38.51)	540 BJ	38.51
	ME801013A		C27-HYDROCARBON(39.81)	300 J	39.81
	ME801013A		C30-HYDROCARBON(42.74)	690 J	42.74
	ME801013A		C34-HYDROCARBON(47.11)	400 J	47.11
	ME801013A	112-95-8	EICOSANE(32.37)	240 J	32.37
	ME801013A	203-64-5	4H-CYCLOPENTA[DEF]PHENA(31.44)	520 J	31.44
	ME801013A	2381-21-7	PYRENE, 1-METHYL-(35.19)	400 J	35.19
	ME801013A	629-50-5	TRIDECANE(18.87)	110 J	18.87
	ME801013A	629-59-4	TETRADECANE(21.19)	170 BJ	21.19
	ME801013A	629-62-9	PENTADECANE(23.39)	170 J	23.39
	ME801013A	629-78-7	HEPTADECANE(27.44)	250 J	27.44
	ME801013A	629-92-5	NONADECANE(30.96)	230 J	30.96
	ME801013A	638-67-5	TRICOSANE(35.77)	290 J	35.77
	ME801013A	832-64-4	PHENANTHRENE, 4-METHYL-(31.17)	290 J	31.17
	ME801013A	84-65-1	9,10-ANTHRACENEDIONE(32.19)	340 J	32.19
	ME801024A		C26-HYDROCARBON(38.52)	350 BJ	38.52
	ME801024A	146-50-9	BIS(4-METHYLPENTYL)PHTH(35.42)	53 J	35.42
	ME801024A	25724-58-7	DECYL HEXYL PHTHALATE(36.31)	75 J	36.31
	ME801035A		C26-HYDROCARBON(38.52)	310 J	38.52
	ME801046A		C17-ALKANE(27.57)	420 J	27.57
	ME801046A		C30-ALKANE(42.76)	740 J	42.76
	ME801046A		C34-ALKANE(47.13)	430 J	47.13
	ME801046A		UNKNOWN HYDROCARBON(22.59)	200 J	22.59

TABLE D 3.5 METC QC TIC EXTRACTABLE ORGANICS BY SDG NUM

SDG NUM	SMP ID	CAS NUM	ANALYSIS	RESULTS & PREFIX	RETENTION TIME
ME800012A					
	ME801046A		UNKNOWN HYDROCARBON(29.51)	220 J	29.51
	ME801046A		UNKNOWN HYDROCARBON(36.42)	360 J	36.42
	ME801046A		UNKNOWN(38.52)	410 J	38.52
	ME801046A	112-40-3	DODECANE(16.40)	140 J	16.40
	ME801046A	238-84-6	11H-BENZO[A]FLUORENE(35.19)	300 J	35.19
	ME801046A	593-45-3	OCTADECANE(29.32)	530 J	29.32
	ME801046A	593-49-7	HEPTACOSANE(39.82)	310 J	39.82
	ME801046A	629-59-4	TETRADECANE(21.19)	350 BJ	21.19
	ME801046A	629-62-9	PENTADECANE(23.39)	460 J	23.39
	ME801046A	629-78-7	HEPTADECANE(27.46)	410 J	27.46
	ME801046A	629-92-5	NONADECANE(30.97)	300 J	30.97
	ME801046A	629-94-7	HENEICOSANE(33.62)	380 J	33.62
	ME801046A	638-67-5	TRICOSANE(35.79)	320 J	35.79
	ME801057A		C14-ALKANE(20.67)	120 J	20.67
	ME801057A		C17-ALKANE(27.57)	540 J	27.57
	ME801057A		C18-ALKANE(29.51)	320 J	29.51
	ME801057A		UNKNOWN ALKANE(22.57)	240 J	22.57
	ME801057A		UNKNOWN ALKANE(26.46)	510 J	26.46
	ME801057A		UNKNOWN HYDROCARBON(36.39)	220 J	36.39
	ME801057A		UNKNOWN HYDROCARBON(38.49)	390 J	38.49
	ME801057A		UNKNOWN HYDROCARBON(38.66)	310 J	38.66
	ME801057A		UNKNOWN HYDROCARBON(41.74)	310 J	41.74
	ME801057A		UNKNOWN HYDROCARBON(42.74)	370 J	42.74
	ME801057A		UNKNOWN HYDROCARBON(47.11)	720 J	47.11
	ME801057A	10544-50-0	SULFUR, MOL. (S8)(33.14)	350 J	33.14
	ME801057A	112-40-3	DODECANE(16.40)	120 J	16.40
	ME801057A	112-95-8	EICOSANE(32.36)	240 J	32.36
	ME801057A	593-45-3	OCTADECANE(29.32)	450 J	29.32
	ME801057A	593-49-7	HEPTACOSANE(39.79)	320 J	39.79
	ME801057A	629-59-4	TETRADECANE(21.19)	160 BJ	21.19
	ME801057A	629-62-9	PENTADECANE(23.39)	360 J	23.39
	ME801057A	629-78-7	HEPTADECANE(27.44)	350 J	27.44
	ME801057A	629-92-5	NONADECANE(30.97)	280 J	30.97
	ME801057A	629-94-7	HENEICOSANE(33.61)	200 J	33.61
	ME801057A	638-67-5	TRICOSANE(35.76)	210 J	35.76
	ME801068A		C30-ALKANE(42.74)	560 J	42.74
	ME801068A		PHTHALATE ESTER(36.41)	140 J	36.41
	ME801068A		UNKNOWN HYDROCARBON(39.81)	170 J	39.81
	ME801068A		UNKNOWN HYDROCARBON(47.09)	350 J	47.09
	ME801079A		UNKNOWN HYDROCARBON(29.87)	34000 J	29.87
	ME801079A		UNKNOWN HYDROCARBON(33.41)	130000 J	33.41
	ME801079A		UNKNOWN HYDROCARBON(34.44)	80000 J	34.44
	ME801079A		UNKNOWN HYDROCARBON(34.56)	54000 J	34.56
	ME801079A		UNKNOWN HYDROCARBON(35.52)	93000 J	35.52
	ME801079A		UNKNOWN HYDROCARBON(38.96)	83000 J	38.96
	ME801079A		UNKNOWN HYDROCARBON(40.67)	180000 J	40.67
	ME801079A		UNKNOWN HYDROCARBON(42.09)	140000 J	42.09
	ME801079A		UNKNOWN HYDROCARBON(47.08)	85000 J	47.08

TABLE D 3.5 METC QC TIC EXTRACTABLE ORGANICS BY SDG NUM

SDG NUM	SMP ID	CAS NUM	ANALYSIS	RESULTS & PREFIX	RETENTION TIME
ME800012A					
	ME801079A	79-34-5	ETHANE, 1,1,2,2-TETRACH(8.50)	56000 J	8.50
	ME801091A		UNKNOWN HYDROCARBON(33.32)	120000 J	33.32
	ME801091A		UNKNOWN HYDROCARBON(34.04)	56000 J	34.04
	ME801091A		UNKNOWN HYDROCARBON(35.12)	160000 J	35.12
	ME801091A		UNKNOWN HYDROCARBON(35.94)	160000 J	35.94
	ME801091A	629-92-5	NONADECANE(30.94)	36000 J	30.94
	ME801091A	629-94-7	HENEICOSANE(33.59)	47000 J	33.59
	ME801091A	629-97-0	DOCOSANE(34.72)	32000 J	34.72
	ME801115A		UNKNOWN ALKANE(22.54)	4900 J	22.54
	ME801115A		UNKNOWN ALKANE(27.52)	11000 J	27.52
	ME801115A	629-50-5	TRIDECANE(18.82)	9700 J	18.82
	ME801126A		C1-PYRENE(35.36)	14000 J	35.36
	ME801126A		UNKNOWN(27.52)	8400 J	27.52
	ME801126A	2381-21-7	PYRENE, 1-METHYL-(35.16)	13000 J	35.16
	ME801126A	3442-78-2	PYRENE, 2-METHYL-(35.76)	12000 J	35.76
	ME801126A	3674-65-5	PHENANTHRENE, 2,3-DIMET(32.77)	2800 J	32.77
	ME801126A	3674-73-5	PHENANTHRENE,2,3,5-TRIM(34.49)	6800 J	34.49
	ME801126A	610-48-0	ANTHRACENE, 1-METHYL-(31.14)	13000 J	31.14
	ME801126A	832-64-4	PHENANTHRENE, 4-METHYL-(31.42)	13000 J	31.42
	ME801126A	832-71-3	PHENANTHRENE, 3-METHYL-(31.04)	8800 J	31.04
	SBK81107		C26-HYDROCARBON(38.51)	360 J	38.51
	SBK81107		UNKNOWN(36.44)	250 J	36.44
	SBK81107	128-37-0	PHENOL,2,6-BIS(1,1-DIME(23.72)	63 J	23.72
	SBK81107	629-59-4	TETRADECANE(21.19)	90 J	21.19
	SBK81107	7683-64-9	SQUALENE(41.68)	240 J	41.68

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TABLE D.4.1 DIRECTORY FOR VOLATILE ORGANICS QA/QC DATA

PROBLEM NUMBER	SAMPLE NUMBER	QA/QC ANALYTICAL SDG NUMBER	QA/QC TABLE NUMBER(PG)
1	ME302042A	ME302042A	D.4.2 (D-128)
1	ME302053A	ME302042A	D.4.2 (D-128)
1	ME302064A	ME302042A	D.4.2 (D-128)
1	ME302075A	ME302042A	D.4.2 (D-128)
1	ME302086A	ME302042A	D.4.2 (D-128)
1	ME302097A	ME302042A	D.4.2 (D-130)
99	MEN04012A	ME302042A	D.4.2 (D-128)
99	MEN07015A	ME302042A	D.4.2 (D-128)
99	MEN09017A	ME302042A	D.4.2 (D-130)

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TABLE D.4.2 METC VOLATILE ORGANICS - SDG NUMBER: ME302042A

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AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	TUNED	INITIAL CAL	INITIAL CAL	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	CALIBRATION	RRF	% RSD	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME0901885	ME0901886	ME0901886	ME0901887	ME0901887	ME0901888	VBK09018
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	%	RRF	%	RRF	%	AREA	UG/L
ENV PROBLEM NO							
ACETONE		0.152	25.5	0.084	45.1		10 U
BENZENE		0.752	4.1	0.755	0.3		5 U
BROMODICHLOROMETHANE		1.127	3	1.141	1.2		5 U
BROMOFORM		0.803	6.8	0.834	3.9		5 U
BROMOMETHANE		1.198	3.5	1.223	2.1		10 U
CARBON DISULFIDE		1.934	1.5	1.9	1.8		5 U
CARBON TETRACHLORIDE		1.075	2.3	1.083	0.8		5 U
CHLOROBENZENE		0.983	3.5	0.98	0.3		5 U
CHLOROETHANE		0.485	2.3	0.5	3.2		10 U
CHLOROFORM		3.3	4.9	3.213	2.6		5 U
CHLOROMETHANE		0.749	6.7	0.704	6		10 U
CIS-1,3-DICHLOROPROPENE		0.711	3.5	0.728	2.5		5 U
DIBROMOCHLOROMETHANE		1.043	4.7	1.065	2.2		5 U
ETHYLBENZENE		0.419	4.2	0.415	1		5 U
METHYLENE CHLORIDE		0.935	3.5	0.925	1.1		5 U
STYRENE		0.885	3.9	0.862	2.5		5 U
TETRACHLOROETHENE		0.582	3.7	0.577	0.9		5 U
TOLUENE		0.646	4.8	0.642	0.6		5 U
TOLUENE-D8		1.069	2.2	1.042	2.6		
TRANS-1,3-DICHLOROPROPENE		0.422	7.1	0.411	2.4		5 U
TRICHLOROETHENE		0.498	5.4	0.49	1.5		5 U
VINYL ACETATE		0.269	23	0.338	25.6		10 U
VINYL CHLORIDE		0.716	4.9	0.706	1.3		10 U
XYLENE (TOTAL)		0.52	4.5	0.502	3.4		5 U
1,1-DICHLOROETHANE		2.239	2.7	2.185	2.4		5 U
1,1-DICHLOROETHENE		1.07	3	1.063	0.6		5 U
1,1,1-TRICHLOROETHANE		0.943	2.2	0.93	1.4		5 U
1,1,2-TRICHLOROETHANE		0.354	8.8	0.364	2.8		5 U
1,1,2,2-TETRACHLOROETHANE		0.696	7.4	0.72	3.5		1 J
1,2-DICHLOROETHANE		2.117	4.4	2.121	0.2		5 U
1,2-DICHLOROETHANE-D4		1.869	6.1	1.739	7		
1,2-DICHLOROETHENE		1.156	2.7	1.138	1.6		5 U
1,2-DICHLOROPROPANE		0.38	3	0.382	0.3		5 U
1,4-BROMOFLUOROBENZENE		1.043	2.5	1.009	3.3		
2-BUTANONE		0.017	20.1	0.015	7.5		10 U
2-HEXANONE		0.22	12.3	0.224	2		10 U
4-METHYL-2-PENTANONE		0.313	10.1	0.307	2		10 U
SURR 1(TOL) %RECOVERY							102

TABLE D.4.2 METC VOLATILE ORGANICS - SDG NUMBER: ME302042A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA	QA
LOCATION	TUNED	INITIAL CAL	INITIAL CAL	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	CALIBRATION	RRF	% RSD	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME0901885	ME0901886	ME0901886	ME0901887	ME0901887	ME0901888	VBK09018
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	%	RRF	%	RRF	%	AREA	UG/L
ENV PROBLEM NO							
SURR 2(BFB) %RECOVERY							102
SURR 3(DCE) %RECOVERY							102
M/E 50	23						
M/E 75	59						
M/E 95	100						
M/E 96	6.4						
M/E 173-1	0						
M/E 173-2	0						
M/E 174	74						
M/E 175-1	5.5						
M/E 175-2	7.5						
M/E 176-1	73						
M/E 176-2	99						
M/E 177-1	5.2						
M/E 177-2	7.1						
INTERNAL STD AREA(BCM)						70800	65700
INTERNAL STD AREA(CBZ)						194000	193000
INTERNAL STD AREA(DFB)						237000	237000
DILUTION FACTOR							1
ACTUAL(ALLOWED) HOLD TIME							

AREA							
LOCATION	BURROUGHS	BURROUGHS	TRIP BLANK	BURROUGHS	BURROUGHS	TRIP BLANK	BURROUGHS
TYPE OF LOCATION	SEWER	SEWER	TRIP BLANK	SEWER	SEWER	TRIP BLANK	SEWER
SAMPLE NUMBER	ME302042A	ME302053A	MEN04012A	ME302064A	ME302075A	MEN07015A	ME302086A
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO	1	1	99	1	1	99	1
ACETONE	17	42	10 U	62	88	10 U	69
BENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
BROMODICHLOROMETHANE	3 J	4 J	5 U	4 J	5	5 U	5
BROMOFORM	5 U	5 U	5 U	5 U	5 U	5 U	5 U

TABLE D.4.2 METC VOLATILE ORGANICS - SDG NUMBER: ME302042A DRAFT DO NOT CITE

AREA

LOCATION	BURROUGHS SEWER	BURROUGHS SEWER	TRIP BLANK TRIP BLANK	BURROUGHS SEWER	BURROUGHS SEWER	TRIP BLANK TRIP BLANK	BURROUGHS SEWER
TYPE OF LOCATION							
SAMPLE NUMBER	ME302042A	ME302053A	MEN04012A	ME302064A	ME302075A	MEN07015A	ME302086A
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO	1	1	99	1	1	99	1
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON DISULFIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CARBON TETRACHLORIDE	5 U	1 J	5 U	5 U	5 U	5 U	5 U
CHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	24	21	5 U	20	15	5 U	18
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
DIBROMOCHLOROMETHANE	2 J	2 J	5 U	2 J	2 J	5 U	2 J
ETHYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	11	12	5 U	19	10	5 U	15
STYRENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TETRACHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TOLUENE	5 U	5 U	5 U	2 J	1 J	5 U	3 J
TOLUENE-D8							
TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TRICHLOROETHENE	5 U	5 U	2 J	5 U	5 U	2 J	5 U
VINYL ACETATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DICHLOROETHANE-D4							
1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-BROMOFLUOROBENZENE							
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SURR 1(TOL) %RECOVERY	104	103	100	101	104	101	101
SURR 2(BFB) %RECOVERY	104	100	96	101	103	101	100
SURR 3(DCE) %RECOVERY	98	101	107	104	100	103	109

M/E 50

AREA

LOCATION	BURROUGHS	BURROUGHS	TRIP BLANK	BURROUGHS	BURROUGHS	TRIP BLANK	BURROUGHS
TYPE OF LOCATION	SEWER	SEWER	TRIP BLANK	SEWER	SEWER	TRIP BLANK	SEWER
SAMPLE NUMBER	ME302042A	ME302053A	MEN04012A	ME302064A	ME302075A	MEN07015A	ME302086A
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ENV PROBLEM NO	1	1	99	1	1	99	1
M/E 75							
M/E 95							
M/E 96							
M/E 173-1							
M/E 173-2							
M/E 174							
M/E 175-1							
M/E 175-2							
M/E 176-1							
M/E 176-2							
M/E 177-1							
M/E 177-2							
INTERNAL STD AREA(BCM)	61100	66400	65200	60500	66100	56900	58600
INTERNAL STD AREA(CBZ)	173000	191000	219000	175000	184000	160000	191000
INTERNAL STD AREA(DFB)	217000	235000	263000	207000	224000	195000	232000
DILUTION FACTOR	1	1	1	1	1	1	1
ACTUAL(ALLOWED) HOLD TIME	8(14 D)	8(14 D)	7(14 D)	7(14 D)	7(14 D)	6(14 D)	6(14 D)

AREA

LOCATION	BURROUGHS	TRIP BLANK	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	SEWER	TRIP BLANK	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME302097A	MEN09017A	ME0902885	ME0902887	ME0902887	ME0902888	VBK09028
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	%	RRF	%	AREA	UG/L
ENV PROBLEM NO	1	99					
ACETONE	36	10 U		0.197	29.5		10 U
BENZENE	5 U	5 U		0.793	5.4		5 U
BROMODICHLOROMETHANE	4 J	5 U		1.176	4.4		5 U
BROMOFORM	5 U	5 U		0.831	3.5		5 U
BROMOMETHANE	10 U	10 U		1.314	9.7		10 U
CARBON DISULFIDE	5 U	5 U		1.956	1.1		5 U
CARBON TETRACHLORIDE	5 U	5 U		1.122	4.4		5 U
CHLOROBENZENE	5 U	5 U		1.011	2.8		5 U

TABLE D.4.2 METC VOLATILE ORGANICS - SDG NUMBER: ME302042A DRAFT DO NOT CITE

AREA			QA	QA	QA	QA	QA
LOCATION	BURROUGHS	TRIP BLANK	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	SEWER	TRIP BLANK	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME302097A	MEN09017A	ME0902885	ME0902887	ME0902887	ME0902888	VBK09028
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	%	RRF	%	AREA	UG/L
ENV PROBLEM NO	1	99					
CHLOROETHANE	10 U	10 U		0.531	9.6		10 U
CHLOROFORM	22	5 U		3.303	0.1		5 U
CHLOROMETHANE	10 U	10 U		0.761	1.7		10 U
CIS-1,3-DICHLOROPROPENE	5 U	5 U		0.747	5.2		5 U
DIBROMOCHLOROMETHANE	2 J	5 U		1.078	3.4		5 U
ETHYLBENZENE	5 U	5 U		0.434	3.5		5 U
METHYLENE CHLORIDE	10	5 U		0.979	4.8		5 U
STYRENE	5 U	5 U		0.884	0		5 U
TETRACHLOROETHENE	5 U	5 U		0.613	5.4		5 U
TOLUENE	2 J	5 U		0.679	5		5 U
TOLUENE-D8				1.077	0.8		
TRANS-1,3-DICHLOROPROPENE	5 U	5 U		0.457	8.5		5 U
TRICHLOROETHENE	5 U	2 J		0.507	1.8		5 U
VINYL ACETATE	10 U	10 U		0.343	27.6		10 U
VINYL CHLORIDE	10 U	10 U		0.755	5.5		10 U
XYLENE (TOTAL)	5 U	5 U		0.526	1.2		5 U
1,1-DICHLOROETHANE	5 U	5 U		2.29	2.3		5 U
1,1-DICHLOROETHENE	5 U	5 U		1.067	0.3		5 U
1,1,1-TRICHLOROETHANE	5 U	5 U		0.967	2.6		5 U
1,1,2-TRICHLOROETHANE	5 U	5 U		0.376	6.1		5 U
1,1,2,2-TETRACHLOROETHANE	5 U	5 U		0.782	12.4		5 U
1,2-DICHLOROETHANE	5 U	5 U		2.197	3.8		5 U
1,2-DICHLOROETHANE-D4				1.754	6.2		
1,2-DICHLOROETHENE	5 U	5 U		1.195	3.4		5 U
1,2-DICHLOROPROPANE	5 U	5 U		0.395	3.8		5 U
1,4-BROMOFLUOROBENZENE				1.049	0.5		
2-BUTANONE	10 U	10 U		0.02	19.9		10 U
2-HEXANONE	10 U	10 U		0.234	6.3		10 U
4-METHYL-2-PENTANONE	10 U	10 U		0.333	6.5		10 U
SURR 1(TOL) %RECOVERY	99	101					97
SURR 2(BFB) %RECOVERY	98	98					93
SURR 3(DCE) %RECOVERY	111	109					106
M/E 50			24				
M/E 75			59				
M/E 95			100				
M/E 96			6.4				
M/E 173-1			0				

TABLE D.4.2 METC VOLATILE ORGANICS - SDG NUMBER: ME302042A DRAFT DO NOT CITE

AREA			QA	QA	QA	QA	QA
LOCATION	BURROUGHS	TRIP BLANK	TUNED	CONTINUING	CONTINUING	ISTD RET TIM	METHOD
TYPE OF LOCATION	SEWER	TRIP BLANK	CALIBRATION	CALIBRATION	CAL %D	SHIFT	BLANK
SAMPLE NUMBER	ME302097A	MEN09017A	ME0902885	ME0902887	ME0902887	ME0902888	VBK09028
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	%	RRF	%	AREA	UG/L
ENV PROBLEM NO	1	99					
M/E 173-2			0				
M/E 174			77				
M/E 175-1			5.5				
M/E 175-2			7.1				
M/E 176-1			76				
M/E 176-2			98				
M/E 177-1			4.8				
M/E 177-2			6.3				
INTERNAL STD AREA(BCM)	62400	63100				64800	59600
INTERNAL STD AREA(CBZ)	207000	202000				173000	202000
INTERNAL STD AREA(DFB)	245000	241000				214000	244000
DILUTION FACTOR	1	1					1
ACTUAL(ALLOWED) HOLD TIME	6(14 D)	5(14 D)					

AREA	QA	QA	QA	QA	QA	QA
LOCATION	MATRIX	MS %	RPD	MATRIX SPIKE	MSD %	HOLDING
TYPE OF LOCATION	SPIKE	RECOVERY		DUPLICATE	RECOVERY	BLANK
SAMPLE NUMBER	ME302042B	ME302042B	ME302042B	ME302042B	ME302042B	HOLDINGB
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	%	%	UG/L	%	UG/L
ENV PROBLEM NO	1	1	1	1	1	
ACETONE	14			11		10 U
BENZENE	47	94	2	46	92	5 U
BROMODICHLOROMETHANE	2 J			2 J		5 U
BROMOFORM	5 U			5 U		5 U
BROMOMETHANE	10 U			10 U		10 U
CARBON DISULFIDE	5 U			5 U		5 U
CARBON TETRACHLORIDE	5 U			5 U		5 U
CHLOROBENZENE	51	102	4	49	98	5 U
CHLOROETHANE	10 U			10 U		10 U
CHLOROFORM	20			19		5 U
CHLOROMETHANE	10 U			10 U		10 U
CIS-1,3-DICHLOROPROPENE	5 U			5 U		5 U

TABLE D.4.2 METC VOLATILE ORGANICS - SDG NUMBER: ME302042A

DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA
LOCATION	MATRIX	MS %	RPD	MATRIX SPIKE	MSD %	HOLDING
TYPE OF LOCATION	SPIKE	RECOVERY		DUPLICATE	RECOVERY	BLANK
SAMPLE NUMBER	ME302042B	ME302042B	ME302042B	ME302042B	ME302042B	HOLDINGB
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	%	%	UG/L	%	UG/L
ENV PROBLEM NO	1	1	1	1	1	
DIBROMOCHLOROMETHANE	1 J			1 J		5 U
ETHYLBENZENE	5 U			5 U		5 U
METHYLENE CHLORIDE	8			8		5 U
STYRENE	5 U			5 U		5 U
TETRACHLOROETHENE	5 U			5 U		5 U
TOLUENE	49	98	6	46	92	5 U
TOLUENE-D8						
TRANS-1,3-DICHLOROPROPENE	5 U			5 U		5 U
TRICHLOROETHENE	49	98	4	47	94	5 U
VINYL ACETATE	10 U			10 U		10 U
VINYL CHLORIDE	10 U			10 U		10 U
XYLENE (TOTAL)	5 U			5 U		5 U
1,1-DICHLOROETHANE	5 U			5 U		5 U
1,1-DICHLOROETHENE	43	86	7	40	80	5 U
1,1,1-TRICHLOROETHANE	5 U			5 U		5 U
1,1,2-TRICHLOROETHANE	5 U			5 U		5 U
1,1,2,2-TETRACHLOROETHANE	5 U			5 U		5 U
1,2-DICHLOROETHANE	5 U			5 U		5 U
1,2-DICHLOROETHANE-D4						
1,2-DICHLOROETHENE	5 U			5 U		5 U
1,2-DICHLOROPROPANE	5 U			5 U		5 U
1,4-BROMOFLUOROBENZENE						
2-BUTANONE	10 U			10 U		10 U
2-HEXANONE	10 U			10 U		10 U
4-METHYL-2-PENTANONE	10 U			10 U		10 U
SURR 1(TOL) %RECOVERY	98			97		97
SURR 2(BFB) %RECOVERY	95			93		95
SURR 3(DCE) %RECOVERY	94			93		92

M/E 50
M/E 75
M/E 95
M/E 96
M/E 173-1
M/E 173-2
M/E 174
M/E 175-1
M/E 175-2

TABLE D.4.2 METC VOLATILE ORGANICS - SDG NUMBER: ME302042A DRAFT DO NOT CITE

AREA	QA	QA	QA	QA	QA	QA
LOCATION	MATRIX	MS %	RPD	MATRIX SPIKE	MSD %	HOLDING
TYPE OF LOCATION	SPIKE	RECOVERY		DUPLICATE	RECOVERY	BLANK
SAMPLE NUMBER	ME302042B	ME302042B	ME302042B	ME302042B	ME302042B	HOLDINGB
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	%	%	UG/L	%	UG/L
ENV PROBLEM NO	1	1	1	1	1	
M/E 176-1						
M/E 176-2						
M/E 177-1						
M/E 177-2						
INTERNAL STD AREA(BCM)	64200			72200		64900
INTERNAL STD AREA(CBZ)	192000			209000		193000
INTERNAL STD AREA(DFB)	235000			253000		230000
DILUTION FACTOR	1			1		1
ACTUAL(ALLOWED) HOLD TIME	9(14 D)			9(14 D)		

No volatile TICs reported for METC.

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TABLE D.5 ANALYTICAL DATA SUMMARY FOR TRAVEL BLANKS

DRAFT DO NOT CITE

AREA

LOCATION	TRIP BLANK	TRIP BLANK	TRIP BLANK
TYPE OF LOCATION	TRIP BLANK	TRIP BLANK	TRIP BLANK
SAMPLE NUMBER	MEN04012A	MEN07015A	MEN09017A
MATRIX	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L
ENV PROBLEM NO	99	99	99
ACETONE	10 U	10 U	10 U
BENZENE	5 U	5 U	5 U
BROMODICHLOROMETHANE	5 U	5 U	5 U
BROMOFORM	5 U	5 U	5 U
BROMOMETHANE	10 U	10 U	10 U
CARBON DISULFIDE	5 U	5 U	5 U
CARBON TETRACHLORIDE	5 U	5 U	5 U
CHLOROBENZENE	5 U	5 U	5 U
CHLOROETHANE	10 U	10 U	10 U
CHLOROFORM	5 U	5 U	5 U
CHLOROMETHANE	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U
DIBROMOCHLOROMETHANE	5 U	5 U	5 U
ETHYLBENZENE	5 U	5 U	5 U
METHYLENE CHLORIDE	5 U	5 U	5 U
STYRENE	5 U	5 U	5 U
TETRACHLOROETHENE	5 U	5 U	5 U
TOLUENE	5 U	5 U	5 U
TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U
TRICHLOROETHENE	2 J	2 J	2 J
VINYL ACETATE	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U
XYLENE (TOTAL)	5 U	5 U	5 U
1,1-DICHLOROETHANE	5 U	5 U	5 U
1,1-DICHLOROETHENE	5 U	5 U	5 U
1,1,1-TRICHLOROETHANE	5 U	5 U	5 U
1,1,2-TRICHLOROETHANE	5 U	5 U	5 U
1,1,2,2-TETRACHLOROETHANE	5 U	5 U	5 U
1,2-DICHLOROETHANE	5 U	5 U	5 U
1,2-DICHLOROETHENE	5 U	5 U	5 U
1,2-DICHLOROPROPANE	5 U	5 U	5 U
2-BUTANONE	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U
SURR 1(TOL) %RECOVERY	100	101	101
SURR 2(BFB) %RECOVERY	96	101	98
SURR 3(DCE) %RECOVERY	107	103	109
INTERNAL STD AREA(BCM)	65200	56900	63100

TABLE D.5 ANALYTICAL DATA SUMMARY FOR TRAVEL BLANKS DRAFT DO NOT CITE

AREA

LOCATION	TRIP BLANK	TRIP BLANK	TRIP BLANK
TYPE OF LOCATION	TRIP BLANK	TRIP BLANK	TRIP BLANK
SAMPLE NUMBER	MEN04012A	MEN07015A	MEN09017A
MATRIX	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L
ENV PROBLEM NO	99	99	99
INTERNAL STD AREA(CBZ)	219000	160000	202000
INTERNAL STD AREA(DFB)	263000	195000	241000
DILUTION FACTOR	1	1	1
ACTUAL(ALLOWED) HOLD TIME	7(14 D)	6(14 D)	5(14 D)

Appendix E

RADIOLOGICAL QC DATA TABLES

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TABLE E-1 QC RADIOLOGICAL SAMPLE DATA

DRAFT DO NOT CITE

CONTROL I.D. OR SAMPLE ID	RADIONUCLIDE	VALUE OBTAINED	KNOWN VALUE	"R" VALUE	UNIT OF MEASURE	INSTRUMENT USED	DATE ANALYZED	TYPE OF CONTROL
ME800012C	BI-214	1340.00			PCI/KGD	3	22SEP1988	DUP
ME800012C	RA-226	1295.00			PCI/KGD	3	22SEP1988	DUP
ME800012C	TH-232	1167.00			PCI/KGD	3	22SEP1988	DUP
ME800012C	TH-228	1190.00			PCI/KGD	3	22SEP1988	DUP
ME800012C	CS-137	102.00			PCI/KGD	3	22SEP1988	DUP
ME800012C	K-40	13553.00			PCI/KGD	3	22SEP1988	DUP
137CS-17	CS-137	98000000.00	98500000	-0.40	DPM	3	19SEP1988	CNTRL
137CS-17	CS-137	98700000.00	98500000	0.20	DPM	3	22SEP1988	CNTRL
137CS-17	CS-137	98800000.00	98500000	0.30	DPM	3	26SEP1988	CNTRL
137CS-17	CS-137	96100000.00	98500000	-2.40	DPM	7	21SEP1988	CNTRL
137CS-17	CS-137	96700000.00	98500000	-1.80	DPM	7	22SEP1988	CNTRL
137CS-17	CS-137	96600000.00	98500000	-2.00	DPM	7	26SEP1988	CNTRL
137CS-8	CS-137	10500000.00	10700000	-2.30	DPM	9	19SEP1988	CNTRL
137CS-8	CS-137	10500000.00	10700000	-1.70	DPM	9	20SEP1988	CNTRL
137CS-8	CS-137	10600000.00	10700000	-1.20	DPM	9	21SEP1988	CNTRL
137CS-8	CS-137	10400000.00	10700000	-3.20	DPM	9	22SEP1988	CNTRL

Table E.2. Gamma Standard Results

Detector 3, Std. 137-Cs-17

Known decay corrected in DPM

Date	661.6 keV (Cs-137) measured	661.6 keV (Cs-137) known	% D
09/19/88	9.81×10^6	9.86×10^6	-0.4
09/22/88	9.87×10^6	9.86×10^6	+0.2
09/26/88	9.88×10^6	9.86×10^6	+0.3

Detector 7, Std. 137-Cs-17

Known decay corrected in DPM

Date	661.6 keV (Cs-137) measured	661.6 keV (Cs-137) known	% D
09/19/88	9.61×10^6	9.85×10^6	-2.4
09/22/88	9.67×10^6	9.85×10^6	-1.8
09/26/88	9.66×10^6	9.85×10^6	-2.0

Detector 9, Std. 137-Cs-8

Known decay corrected in DPM

Date	661.6 keV (Cs-137) measured	661.6 keV (Cs-137) known	% D
09/19/88	1.05×10^6	1.07×10^6	-2.3
09/20/88	1.05×10^6	1.07×10^6	-1.7
09/31/88	1.06×10^6	1.07×10^6	-1.2

Table E.3. Gamma Detector Backgrounds

Background for Gamma Detector 3

Peak Energy (keV)	CPM			
	9/9/88	9/16/88	9/23/88	9/30/88
185	0.313	0.440	0.334	0.295
609	0.477	0.523	0.494	0.842
662	0.245	0.237	0.234	0.255
911	0.178	0.211	0.207	0.186
1332	0.072	0.049	0.058	0.062
1460	1.475	1.481	1.517	1.475
Total	304.7	531.7	574.3	588.0

Background for Gamma Detector 7

Peak Energy (keV)	CPM		
	9/2/88	9/23/88	9/30/88
185	0.117	0.078	0.091
609	0.090	0.037	0.125
911	0.031	0.036	0.035
1460	0.070	0.083	0.081
Total	82.2	69.2	72.6

Background for Gamma Detector 9

Peak Energy (keV)	CPM			
	9/9/88	9/16/88	9/23/88	9/30/88
185	0.099	0.121	----	0.103
609	0.257	0.220	0.249	0.250
662	0.125	0.119	0.155	0.169
911	0.081	0.077	0.102	0.082
1460	0.734	0.744	0.721	0.690
Total	198.6	183.6	192.0	193.6

Table E.4. Interlaboratory Comparison Sample Results
EMSL (Water Matrices) Results on pCi/L

Isotope	Date	Known Value	Grand Avg.	Found Avg.
Cr-51	Jun 88	352.0	304.6	314.0
Cr-51	Oct 88	261.0	248.7	278.0
Cr-51	Feb 89	235.0	232.7	256.7
Co-85	Jun 88	15.0	16.0	16.3
Co-85	Oct 88	25.0	25.5	26.7
Co-85	Feb 89	10.0	10.8	10.0
Zn-85	Jun 88	101.0	103.1	109.7
Zn-85	Oct 88	151.0	151.8	159.3
Zn-85	Feb 89	159.0	160.2	168.7
Ru-165	Jun 88	195.0	190.8	208.7
Rul-165	Oct 88	152.0	144.2	171.0
Rul-165	Feb 89	178.0	171.2	172.0
Cs-134	Jun 88	20.0	19.3	21.0
Cs-134	Oct 88	25.0	24.0	28.3
Cs-134	Feb 89	10.0	9.7	11.0
Cs-137	Jun 88	25.0	25.9	22.3
Cs-137	Oct 88	15.0	15.8	12.3
Cs-137	Feb 89	10.0	10.7	8.3
Co-85	Apr 88	50.0	50.8	52.0
Cs-134	Apr 88	7.0	7.2	8.3
Cs-134	Oct 88	15.0	14.3	15.3
Cs-137	Apr 88	7.0	8.0	6.7
Cs-137	Oct 88	15.0	15.7	14.3

EML (Soil Matrices) Results on pCi/L

Isotope	Date	EML Value	Grand Aver.	Found Value
K 40	03 88	0.680E+00	0.743E+00	0.800E+00
K 40	09 88	0.748E+01	0.701E+01	0.708E+01
CS 137	03 88	0.400E+00	0.400E+00	0.400E+00
CS 137	09 88	0.910E+00	0.970E+00	0.940E+00