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FINAL WORK PLAN GROUNDWATER SAMPLING AND ANALYSIS LANDFILL 2 FORT STORY VA

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Final Work Plan

GROUNDWATER SAMPLING AND ANALYSIS

Landfill No. 2
Fort Story, Virginia

U. S. Army Corps of Engineers
Baltimore District

August 1997

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FINAL WORK PLAN

GROUNDWATER SAMPLING AND ANALYSIS
LANDFILL No. 2

FORT STORY, VIRGINIA

PREPARED FOR:

U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT
BALTIMORE, MARYLAND

AUGUST 1997

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1.0 INTRODUCTION

1.1 Site Location and Description

Fort Story is located in southeastern Virginia within the city of Virginia Beach, Virginia. Fort Story occupies an area of approximately 1,450 acres and is situated on Cape Henry which divides the waters of the Chesapeake Bay to the north and the Atlantic Ocean to the east. Figure 1 shows the location of Fort Story and Figure 2 shows the installation map.

Land features encountered at Fort Story consist of linear sand ridges, sand flats and wetland areas. The topography is dominated by a series of prominent linear, well-drained sand ridges that roughly bisect the Fort Story area. The central ridges trend parallel to the coastline and are characterized by maximum elevations in excess of 85 feet, National Geodetic Vertical Datum (NGVD) of 1929. A second series of sand ridges located on Fort Story are comprised of an active dune complex located adjacent to the coastline. The coastal sand ridges reach a maximum elevation in excess of 25 feet NGVD. Broad, poorly drained sand flats are located adjacent to the sand ridge areas. Land surface elevations in the sand flat areas typically range between 5 and 10 feet, NGVD. Wetland areas, which are common features of the sand flats, occur locally in closed depressions. South of the central sand ridges, the Fort Story topography consists of an extensively wooded, wetland area, formerly a back-bay, lagoonal feature. Most of the installation's facilities and operations are confined to the sand ridge and sand flats areas.

The chief potable water supply in the region is the surface water reservoir system operated by the City of Norfolk. To a minor extent, potable water is obtained from groundwater sources. Groundwater use at Fort Story is restricted to withdrawal from a single well located at the Lighter Amphibious Resupply Cargo (LARC) maintenance area. The unavailability of construction data for this well precludes a determination of which aquifer unit provides the groundwater withdrawn from this well. Water is obtained from the well for non-potable uses only.

The Virginia Department of Environmental Quality (DEQ), Division of Water, Tidewater Region, regulates wells in the region. Information obtained by Montgomery-Watson during performance of the PA/SI indicated that groundwater use is discouraged because of poor quality and withdrawal restrictions. High dissolved iron and manganese and total solids characterize the groundwater in the deeper aquifers.

1.2 Site Background and Setting

Fort Story began as a military installation in 1914. On March 10, 1914 the Virginia General Assembly ceded 343.1 acres, located at Cape Henry in Princess Anne County, to the U.S. Government "to erect fortifications and for other military purposes". On June 14, 1914 the U.S. District Court acquired title for the land by condemnation proceedings against the Cape Henry Syndicate and other landowners in the Cape Henry subdivision. War Department General Order No. 31, dated July 24, 1916 named this newly acquired tract of land Fort Story in honor of Major General John Patton Story.

Construction of powder magazines and projectile rooms got underway during the latter part of 1916 and by February 1917, construction of the 16-inch howitzer fortifications had begun. Also, during February 1917, the 2nd and 5th Coast Artillery Companies established the military garrison at Fort Story. From 1917 through 1925, the installation continued to develop as a small coast artillery garrison consisting of little more than its armament. The only land expansion which occurred during the period was the acquisition of 9.38 acres from the Norfolk and Southern Railway Company in March 1917.

During World War I, Fort Story was integrated into the Coast Defenses of Chesapeake Bay which included Fort Monroe (Headquarters) and Fort Wool (located at the east entrance of the Hampton Roads Bridge Tunnel). On June 9, 1925 Fort Story was designated a Harbor Defense Command by War Department General Order No. 13, but the change in designation added little to the dwindling post-war activity of the garrison.

As World War II approached, Fort Story began an extensive development. Many of the facilities which exist at Fort Story today were constructed then, and the installation increased in size to 1,439 acres. An additional 11.82 acres were acquired in 1963 which increased its size to its present 1,451 acres. In the 1940s, the construction included temporary artillery batteries, theater, chapel, fire station, mess halls, barracks, Officer and NCO clubs, shops, additional powder magazines and projectile rooms, six underground storage bunkers and 19 seacoast searchlights.

In December 1941, the Headquarters of the Harbor Defense Command was moved from Fort Monroe to Fort Story. Two harbor defense installations were added to the network in 1941; Fort John Curtis and a mine base. On March 1, 1944 the Chesapeake Bay sector of the Harbor Defenses was inactivated, and control passed to Headquarters, Southeastern Sector, Eastern Defense

Command, Raleigh, North Carolina.

By September 1944, Fort Story began a transition from a heavily fortified coast artillery garrison to a convalescent hospital. At the time of its closing on March 15, 1946 the hospital had accommodated over 13,472 patients.

At the closing of World War II, Fort Story again changed missions. This time it assumed the role which it still has today, to train units and individuals for amphibious operations. Fort Story was officially transferred to the Transportation Corps in July 1948 as a subpost of the Transportation Training Command, Fort Eustis, Virginia.

Fort Story trains army personnel in amphibious and Logistics Over-the-Shore (LOTS) operations. Fort Story is the only available facility which has the necessary natural terrain features and beaches, sand, surf, variable tide conditions (bay and ocean) and hinterlands, all of which are normally experienced by amphibious and LOTS operations. In addition, Fort Story contains beach training areas, tactical training areas and a series of trails throughout the installation. The deep water ship anchorage, of-road driving areas and soil of sufficient bearing strength for the heavy vehicles are indispensable in amphibious training, LOTS training and the testing of new equipment, doctrines and techniques.

1.2.1 Landfill No. 2 - Site Description and History

Site 2 - Landfill No. 2 is located within the wetland area along the southern margin of Fort Story, adjacent to the southern flank of a central sand ridge area near the junction of Coast Artillery Road and U.S. Route 60. Figure 3 shows the site map for Landfill No. 2.

According to the *Update of the Initial Installation Assessment of Ft. Story, Final Report* prepared by Environmental Science and Engineering in 1988, the landfill was in operation from 1956 to 1962. It was reported in the *Final Confirmatory Studies Report* by Montgomery Watson, 1995 that during the 1960s, a group of wooden buildings were reported to have been demolished and buried at this site, but no documentation was available to confirm this action. Reportedly, surface debris or evidence of buried debris was not evident during field observations for the PA/SI in 1990. Based on geographical and electromagnetic surveying conducted during the 1990 PA/SI the landfill was estimated to cover 3 acres. Five monitoring wells were installed at the site as shown on Figure 3. The wells are approximately 10 feet deep. These wells were sampled to assess whether the

landfill may have released contaminants to the environment.

During the PA/SI in 1990, cadmium was detected in groundwater collected from MW109 at a concentration of 87 ug/l. Although MW109 is cross-gradient to the landfill, it is downgradient of a marshy area suspected to have been impacted by the landfill. Additionally, elevated concentrations of copper were detected in soil samples collected from the boring of monitoring well MW107, located downgradient of the landfill.

In 1995, another sampling event was conducted. Five groundwater samples, two surface water samples, and five sediment samples were collected during this effort. Samples were analyzed for volatile organic compounds (VOCs), base-neutral acid extractable compounds (BNAs), pesticides and polychlorinated biphenyls (PCBs), total fuel hydrocarbons, and total metals. Concentrations of total lead in samples at MW107 (16 ug/l)and MW108 (18 ug/l) exceeded Federal MCLs, while zinc was detected in three wells at concentrations exceeding Virginia Groundwater Protection Limits (VPGLs). However, in all groundwater samples that exceeded regulatory levels for total metals, the dissolved metals were below regulatory levels. The surface water samples collected were below the Virginia Water Quality Standards (VWQS) for freshwater except for zinc which was detected in both surface water samples at concentrations greater than the VWQS for the protection of freshwater aquatic life. DDE, arsenic, lead, and mercury were detected above criteria in the sediment samples, however, these contaminants are not believed to be indicative of background concentration and not directly related to conditions at Landfill No. 2.

Water level measurements collected in January 1995 at the five monitoring wells at Landfill No. 2 (MW105 through MW109) indicate that the hydraulic gradient at the site changes in head less than 0.1 feet across the site. Groundwater was interpreted to flow in a southerly direction towards the wetland area.

1.3 Purpose and Scope

The results of the confirmatory studies performed at Landfill No. 2 at Fort Story, Virginia, and reported November 1995 indicated inconsistent analytical results between the 1990 and 1995 groundwater sampling events. Therefore it has been agreed that one additional groundwater and surface water sampling event will be performed to determine whether contaminant levels detected in 1990 and 1995 have changed over time.

The five existing monitoring wells will be purged, sampled, and analyzed for TCL VOCs, TAL metals (total and dissolved), hardness, ammonia, chloride, nitrate-N, orthophosphate-P, total dissolved solids (TDS), and phosphorus. Two surface water samples will also be collected and analyzed for the same parameters.

2.0 FIELD SAMPLING PLAN

2.1 'Groundwater Elevation Gauging

Prior to sampling activities, depth to water measurement from top-of-casing will be obtained using an electric water level indicator calibrated to 0.01 feet. This data will be used to construct a groundwater elevation contour map. Flow directions and gradients will be compared to previously obtained data. The meter will be decontaminated before gauging begins and between each well.

2.2 Groundwater Sampling

Groundwater sampling techniques, as outlined in Enclosure No. 1 of Attachment I in the *Final Work Plan for Groundwater, Surface Water and Gas Monitoring Program - Landfills 1, 7, and 15 Fort Eustis, Virginia* will be used during sampling activities. To obtain comparable results to the 1995 data set, the wells will be purged in a like manner to that of the 1995 sampling activities. MW109, MW105, MW107, and MW108 will be purged using an electric stage pump (centrifugal pump with foot valve) while MW106 will be hand bailed using a teflon bailer. Analytical requirements for surface water samples are summarized in Table 1, including method of analysis for each parameter. Table 2 summarizes specific analytical method requirements for metals analyses. The MDLs and reporting limits for the analytical methods to be used are provided in Appendix C. In accordance with the CDAP, the following procedures will be followed:

- A piece of polyethylene sheeting will be fitted over the monitoring well and laid on the ground. All sampling equipment will be placed on this sheet. Upon removal of the well cap, the concentration of the VOC vapors and explosive gases will be recorded using a PID/FID and explosimeter.

- The depth to water and total depth of the well will be recorded using an electric water level meter. These measurements will be used to calculate the purge volume for each well using the formula and tables provided in Section 4.3.3.2 of the CDAP.

- The monitoring wells will be purged using a centrifugal pump or teflon bailer as outlined above. The centrifugal pump will be fitted with a valve to control the purge rate to avoid rapid drawdown to the water column. Based on pervious sampling events a purge rate of approximately 1 gallon per minute is considered appropriate. Purge water will be containerized. Field measurements of pH, dissolved oxygen, specific conductance, temperature and water level will be recorded before purging begins and during purging at 10, 30, 50, and 80 percent of the anticipated purge volume (i.e., three times the calculated well and annulus volume). Purging will be continued until the measured field parameters have stabilized (i.e., when at least two consecutive readings are within 10 percent of each other) but not before three well volumes have been evacuated. Stabilization of the field parameters will be cons

- Groundwater samples will be collected using a 2-inch teflon bailer with a teflon coated leader (at least 2 feet long) and placed in their appropriate sample container. Upon collection, samples containers will be properly labelled and placed in coolers with ice as outlined in Section 5 (Sample Custody Procedures) of the CDAP. Samples will be collected in order of decreasing volatility as follows:

  - VOCs (unfiltered)
  - Total Metals (unfiltered)
  - Dissolved Metals (filtered)
  - Water Quality Parameters (unfiltered)

2.3 Surface Water Sampling

Standard surface water sampling procedures are detailed in Section 4.3.1 of the CDAP. Analytical requirements for surface water samples are summarized in Table 3, including method of

analysis for each parameter. Table 2 summarizes specific analytical method requirements for metals analyses. Proposed sample locations are shown on Figure 3. The proposed locations shown on Figure 3 were chosen to coincide with the previous sample locations.

2.4 Quality Control Samples

Quality control samples will be collected at the following frequency. One blind duplicate sample will be collected from MW108 and analyzed for the parameters listed in Table 1. One trip blank will accompany the VOC sample containers during shipment to and from the labroatory and will remain in the cooler during sampling activities.

2.5 Daily Quality Control Reports

Daily Quality Control Reports (DQCR) are required during field work activities. A sample report is shown in Appendix D and is required to record each days activities. The reports contain pertinent information regarding personnel, equipment, progress, procedures, field conditions, problems encountered, quality control methods, and other related information. Reports must be hand carried to the installation Environmental Coordinator on the morning after each reported work day. At the end of each sampling round, the DQCR's must be compiled and submitted to the Engineer Manager.

2.6 Control and Disposal of Investigation Derived Waste

All groundwater purged during the confirmatory sampling event will be collected and stored in the on-site polyethylene container provided by Fort Story. All decontamination water (consisting of a wash and a rinse bucket) generated will also be placed in this container. At the completion of the sampling program one sample of the purge water will be collected from the polyethylene container. The sample will be analyzed for full TCLP as listed on Table 4.

To reduce the amount of IDW generated all PPE and DE will be decontaminated, rendered nonhazardous, double bagged, and disposed of in an on-site dumpster.

TABLE 1

GROUNDWATER ANALYTICAL SUMMARY

LANDFILL No. 2, FORT STORY

Parameter	Analytical Method[1]	Well ID					MDL mg/L	LRL mg/L
		MW105	MW106	MW107	MW108	MW109		
TCL VOC	8260	✓	✓	✓	✓	✓	See App C	
TAL Metals - Total	6010/7470	✓	✓	✓	✓	✓	See Table 2	
TAL Metals - Dissolved	6010/7470	✓	✓	✓	✓	✓	See Table 2	
Hardness	130.2	✓	✓	✓	✓	✓	NAp	10
Ammonia	350.1	✓	✓	✓	✓	✓	0.0099	0.03
Chloride	325.2	✓	✓	✓	✓	✓	0.24	1.0
Nitrate-N	353.2	✓	✓	✓	✓	✓	NAp	0.05
Orthophosphate-P	365.1	✓	✓	✓	✓	✓	0.027	0.05
Sulfate	375.4	✓	✓	✓	✓	✓	1.1	5.0
TDS	160.1	✓	✓	✓	✓	✓	4.6	5.0
Phosphorus	365.4	✓	✓	✓	✓	✓	0.098	0.1
pH[2]	--	✓	✓	✓	✓	✓	NAp	NAp
Dissolved Oxygen[2]	--	✓	✓	✓	✓	✓	NAp	NAp
Temperature[2]	--	✓	✓	✓	✓	✓	NAp	NAp
Specific Conductance[2]	--	✓	✓	✓	✓	✓	NAp	NAp

Notes:

(1) Analytical methods from SW-846

(2) Field measurement

NAp Not Applicable

MDL Method Detection Limit

LRL Laboratory Reporting Limit

TABLE 2

SUMMARY OF ANALYTICAL METHOD REQUIREMENTS

METAL ANALYSIS

LANDFILL No. 2, FORT STORY

Parameter	Analytical Method	MDL (ug/l)	LRL(ug/l)
Aluminum	6010/6010-T	19/23	200/100
Antimony	6010/6010-T	16/2.6	50/5.0
Arsenic	6010/6010-T	17/2.2	100/10
Barium	6010/6010-T	2.9/0.25	10/10
Beryllium	6010/6010-T	1.7/0.19	5.0/2.0
Cadmium	6010/6010-T	3.2/0.58	5.0/1.0
Calcium	6010/6010-T	41/28	500/500
Chromium	6010/6010-T	5.9/0.88	10/2.0
Cobalt	6010/6010-T	3.5/0.53	10/5.0
Copper	6010/6010-T	5.9/1.7	25/5.0
Iron	6010/6010-T	8.5/18	50/50
Lead	6010/6010-T	14/1.2	50/5.0
Magnesium	6010/6010-T	14/13	500/500
Manganese	6010/6010-T	20/0.30	10/10
Mercury	7470	0.050	0.20
Nickel	6010/6010-T	7.5/1.2	40/5.0
Potassium	6010/6010-T	86/40	1000/200
Selenium	6010/6010-T	42/2.6	500/10
Silver	6010/6010-T	3.4/0.90	10/5.0
Sodium	6010/6010-T	31/13	500/500
Thallium	7841/6010-T	1.2/2.3	10/10
Vanadium	6010/6010-T	2.3/0.77	10/10
Zinc	6010/6010-T	4.3/3.7	20/20

Notes:

MDLs and LRLs are provided for both the ICP (6010) and ICAP Trace (6010-T) instrumentation.

MDL Method Detection Limit

LRL Laboratory Reporting Limit

TABLE 3

SURFACE WATER ANALYTICAL SUMMARY

LANDFILL No. 2, FORT STORY

Parameter	Analytical Method	Surface Water Sample ID	
		SW3006	SW3007
TCL VOC	8260	✓	✓
TAL Metals - Total	6010-T/7470	✓	✓
TAL Metals - Dissolved	6010-T/7470	✓	✓
Hardness	130.2	✓	✓
Ammonia	350.1	✓	✓
Chloride	325.2	✓	✓
Nitrate-N	353.2	✓	✓
Orthophosphate-P	365.1	✓	✓
Sulfate	375.4	✓	✓
TDS	160.1	✓	✓
Phosphorus	365.4	✓	✓
pH(2)	--	✓	✓
Dissolved Oxygen(2)	--	✓	✓
Temperature(2)	--	✓	✓
Specific Conductance(2)	--	✓	✓

Notes:

(1) Analytical methods from SW-846

(2) Field measurement

TABLE 4

PURGE WATER/IDW ANALYTICAL SUMMARY

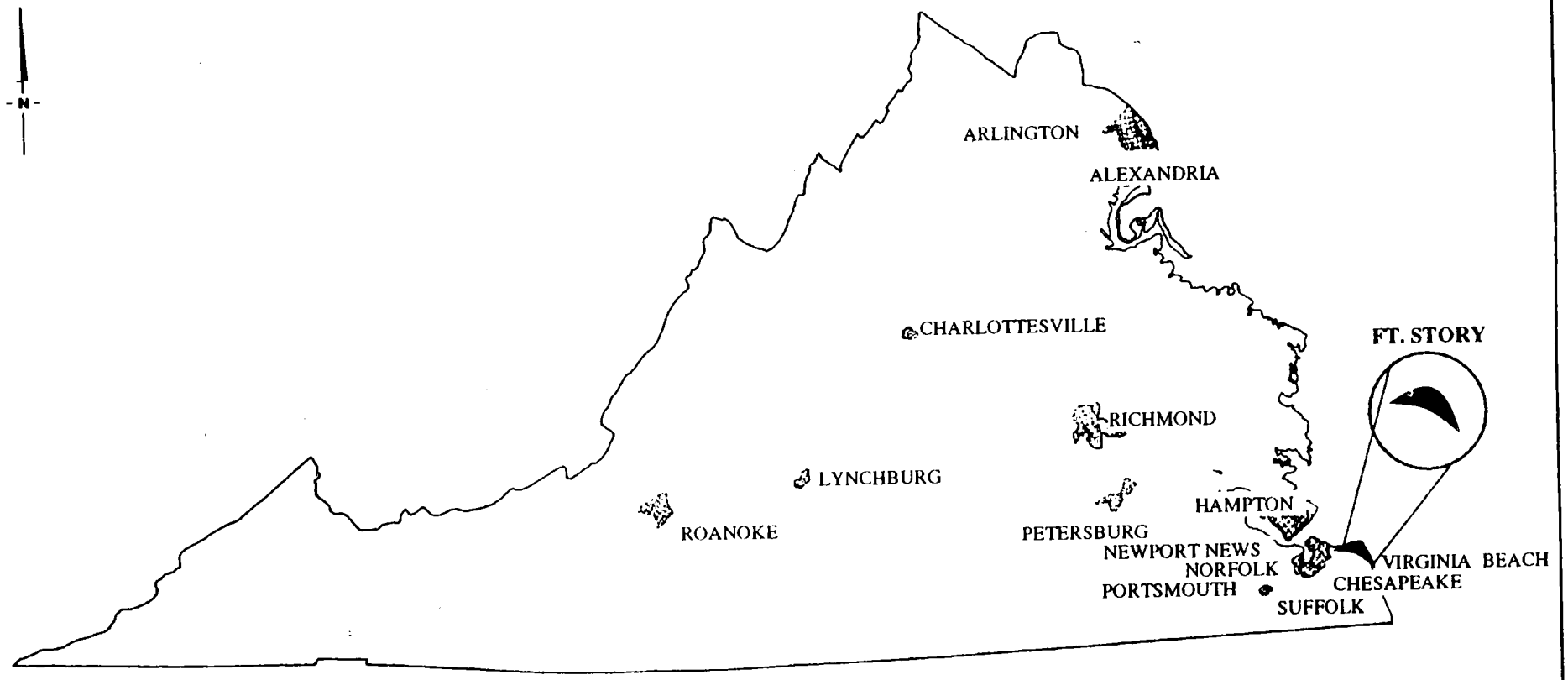
LANDFILL No. 2, FORT STORY

Parameter	Analytical Method	Sample ID	MDL	LRL
		IDW-1		
Full TCLP	1311	✓	See Appendix C	
	8260			
	8270			
	8080			
	8151			
	6010			
	7470			

Notes:

MDL Method Detection Limit

LRL Laboratory Reporting Limit



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FORT STORY, VIRGINIA
LANDFILL 2 CONFIRMATORY SAMPLING

FIGURE 1 - VICINITY MAP

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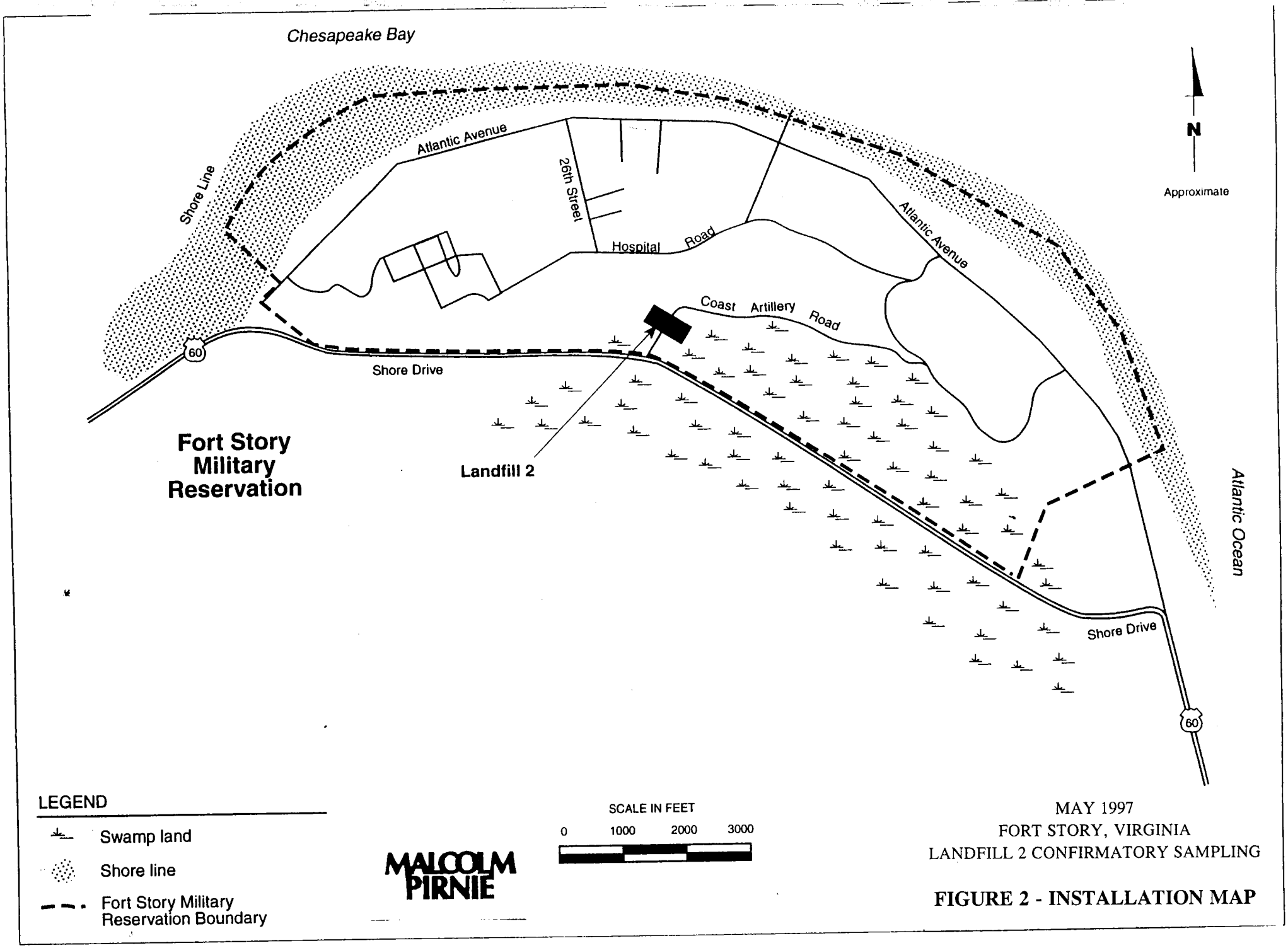
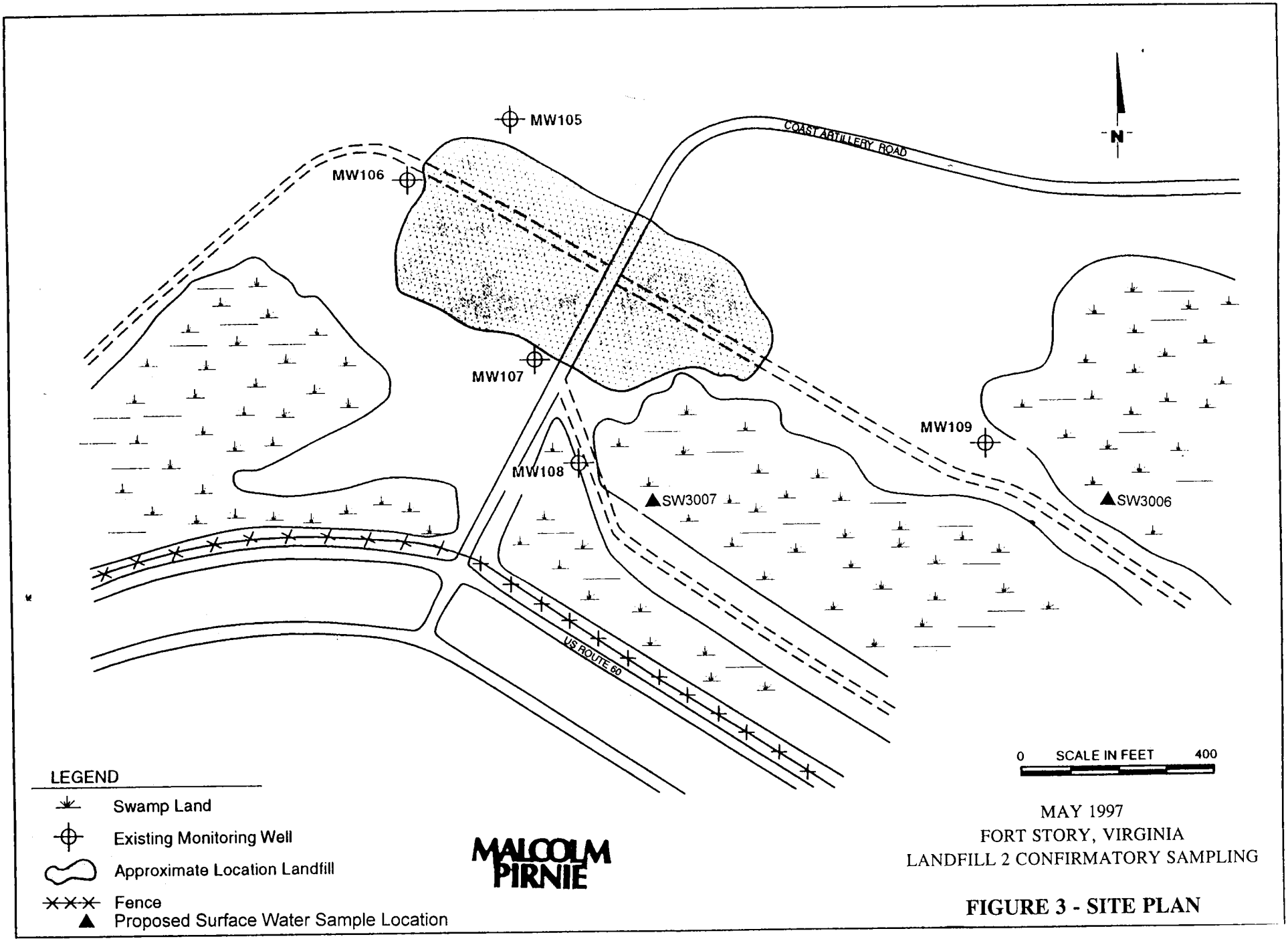


MAY 1997
FORT STORY, VIRGINIA
LANDFILL 2 CONFIRMATORY SAMPLING

FIGURE 2 - INSTALLATION MAP



MAY 1997
FORT STORY, VIRGINIA
LANDFILL 2 CONFIRMATORY SAMPLING

FIGURE 3 - SITE PLAN

APPENDIX A

SITE-SPECIFIC HEALTH AND SAFETY PLAN

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ATTACHMENT I
SITE-SPECIFIC SAFETY AND HEALTH PLAN

LANDFILL No. 2 SAMPLING PROGRAM
FORT STORY, VIRGINIA

I-1.0 SITE LOCATION AND DESCRIPTION

Landfill No. 2 is located within the wetland area along the southern margin of Ft. Story, and is immediately adjacent to the southern flank of a central sand ridge area near the junction of Coast Artillery Road and U.S. Route 60. Figure 1 shows the location of Fort Story, Figure 2 is the Fort Story installation map, and Figure 3 is a site map of Landfill No. 2.

According to the *Update of the Initial Installation Assessment of Ft. Story, Final Report* prepared by Environmental Science and Engineering in 1988, the landfill was in operation from 1956 to 1962. It was reported in the *Final Confirmatory Studies Report* by Montgomery Watson, 1995 that during the 1960s, a group of wooden buildings were reported to have been demolished and buried at this site, but no documentation was available to confirm this action. Reportedly, surface debris or evidence of buried debris was not evident during field observations for the PA/SI in 1990. Based on geographical and electromagnetic surveying conducted during the 1990 PA/SI the landfill was estimated to cover 3 acres. Five monitoring wells were installed at the site as shown on Figure 3. These wells were sampled to assess whether the landfill may have released contaminants to the environment.

During the PA/SI in 1990, cadmium was detected in groundwater collected from MW109 at a concentration of 87 ug/l. Although MW109 is cross-gradient to the landfill, it is downgradient of a marshy area suspected to have been impacted by the landfill. Additionally, elevated concentrations of copper were detected in soil samples collected from the boring of monitoring well MW107, located downgradient of the landfill.

In 1995, another groundwater sampling event was conducted. Each of the five wells were sampled for Volatile Organic Compounds, Base-Neutral Acid Extractable Compounds, Pesticides and Polychlorinated Biphenyls, Total Fuel Hydrocarbons, and Total Metals. Only Total Lead for samples at

MW107 and MW108 exceeded Federal MCLs, while zinc was detected in three wells at concentrations exceeding Virginia Groundwater Protection Limits (VPGLs). However, in all groundwater samples that exceeded regulatory levels for Total Metals, the dissolved metals were below regulatory levels. The surface water samples collected were below the Virginia Water Quality Standards (VWQS) for freshwater except for zinc which was detected in both surface water samples at concentrations greater than the VWQS for the protection of freshwater aquatic life.

Water level measurements collected in January 1995 at the five monitoring wells at Landfill No. 2 (MW105 through MW109) indicate that the hydraulic gradient at the site changes in head less than 0.1 feet across the site. Groundwater was interpreted to flow in a southerly direction towards the wetland area.

I-2.0 HAZARD ASSESSMENT

I-2.1 Description of Field Activities

Samples will be collected to physically and chemically characterize groundwater and surface water. The sampling locations are included on the site plan.

Groundwater - Five (5) groundwater samples will be collected from the existing monitoring wells. One groundwater sample will be collected from each of the five monitoring wells at the site. Refer to the Field Investigation Plan for more detailed sampling information.

Surface Water - Two (2) surface water samples will be collected from the swampy area downgradient (south) of the landfill.

I-2.2 Summary of Project Risks

Personnel must be aware of all hazards associated with the field activities to be performed and the physical environment in which the activities will be conducted. It should be noted that risks presented here are only speculated risks based on limited information from previous activities and investigations conducted at the site. Since unidentified risks may exist, all field personnel shall exercise extreme care during all field activities. As more specific information is obtained about the chemical contaminants, additional precautions may be implemented by the Site Safety and Health Officer (SSHO) and the Project Industrial Hygienist. A hazards analysis of each task is provided in Table I-1. These hazards are discussed below.

I-2.2.1 Chemical Hazards

While conducting site investigations, a potential exists for exposure to chemical contaminants through ingestion/inhalation and skin contact. Chemical contaminants previously detected at the site which are regulated by the Occupational Safety and Health Administration (OSHA) are listed in Table I-2.

Dermal contact and inhalation of these contaminants can be avoided through the use of proper personal protective equipment as described in Section I-4.0, Personal Protective Equipment.

In addition to the monitoring requirements stated in the GSSHP, a combustible gas indicator will be used to monitor for explosive or dangerous conditions during all site subsurface sampling activities. Action levels are described in Section 10.0 of the GSSHP.

General chemical, physical, and toxicological data, protective exposure standards, and first aid procedures for each contaminant of concern is given in Table I-2.

I-2.2.2 Physical Hazards

The primary physical hazard which may be encountered during site investigation is injury due to slips, trips, and falls. The surface water sampling is of particular concern because of the need to walk in wet, marshy areas to collect the samples. To address these hazards particular attention shall be paid to good housekeeping practices. All walkways shall be kept free of obstacles and care shall be taken while travelling in areas of uneven or slippery terrain. Personnel shall always work in pairs during field investigation activities. In the marshy areas, personnel shall wear slush boots to protect their feet from surface water in addition to the PPE requirements, if any, specified in Section I-4.0 for protection from chemical hazards.

I-3.0 SITE CONTROL

The following work zones for sampling activities will be established and communicated to all employees by the SSHO:

- Exclusion Zone ("Hot Zone"): The exclusion zone will be considered to be a 20-foot radius around the monitoring well being sampled.

- Contamination Reduction Zone (CRZ) and Support Zone ("Clean Zone"): The CRZ is the designated area where personnel and equipment decontamination will take place. The CRZ will be located between the Exclusion Zone and the Support Zone. The CRZ will be of sufficient size to permit decontamination activities to be conducted efficiently. the location of the Support Zone will be chosen by the SSHO, preferably upwind of and adjacent to the CRZ.

Figure 3 shows the general layout of the site. Specific boundary locations will be determined by the SSHO based on the sampling locations. Prior to the sampling activities, the work zones will be clearly marked using traffic cones and safety tape. If operations at the base or proximity to the road conflict with the zone requirements, zones will be established at the discretion of the SSHO.

I-4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) usage will be in accordance with Section 9.0 of the GSSHP.

Groundwater and surface water sampling activities will be conducted in Level D protection. To minimize dermal contact and spread of contamination from contact with groundwater and surface water, the following equipment will be required:

- Tyvek (poly coated if desired)
- Latex inner gloves
- Nitrile outer gloves
- Disposable booties or slush boots

Upgrading to higher levels of PPE will be based upon criteria outlined in Section 9.0 of the GSSHP.

I-5.0 DECONTAMINATION

I-5.1 Personnel Decontamination

Personnel decontamination will be conducted in accordance with Section 11.0 of the GSSHP. The CRZ shall be equipped with wash/rinse/disposal stations in accordance with the GSSHP. Stations shall be set up as appropriate for the required level of PPE being employed.

I-5.2 Equipment Decontamination

The Field Investigation Plan specifies the sequential decontamination procedures to be used in the preparation of the sampling equipment. Rinsewater generated by the decontamination process will be containerized for treatment and disposal if it contains decontamination solvents.

TABLE I-1

HAZARDS ANALYSIS

Work Task	Slip/Trip/Fall	Vapor/Gas Inhalation	Noise Exposure	Insects/ Bio Hazards	Exposure to Contaminated Media
Groundwater Sampling	X	X	X	X	X
Surface Water Sampling	X	X		X	X

TABLE 1-2

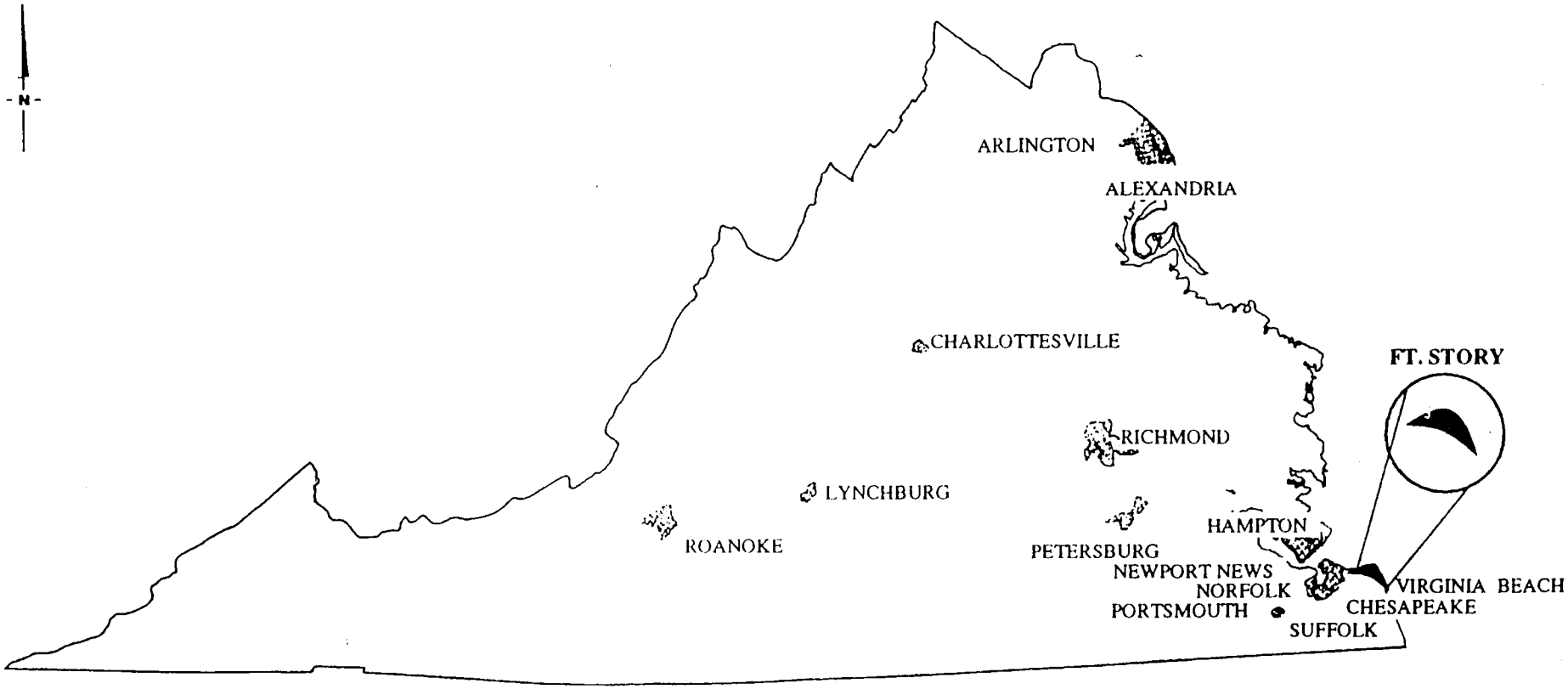
TOXICOLOGICAL SUMMARY

Compound	Vapor Pressure (mm HG)	Ionization Potential (eV)	PEL STEL IDLH	Action Level	Odor Threshold	Target Organs	Route of Entry	Symptoms and Toxicological Effects	First Aid
Inorganics									
Cadmium	0	N/A	0.005 mg/m^3 (PEL) 9 mg/m^3 (IDLH)	N/A	N/A	Respiratory system, kidneys, prostate, blood [prostatic and lung cancer]	Inhalation, Skin/eye contact, Ingestion	Pulmonary edema, dysplasia, coughing, chest tightness, substernal pain, headache, chills, muscle aches, nausea, vomiting, diarrhea, anosmia, emphysema, proteinuria, mild anemia, [carcinogen].	Eye: Irrigate immediately Skin: Wash with soap. Breath: Respiratory support. Swallow: Immediate medical attention
Copper	0	N/A	1 mg/m^3 (PEL)	N/A	N/A	Respiratory System, skin, liver, kidneys	Inhalation, Skin/eye contact, Ingestion	Eye, skin, mucous membrane irritation, metallic taste; In animals: lung, liver & kidney damage, anemia	Eye: Irrigate immediately. Skin: Wash with soap. Breath: Respiratory support. Swallow: Immediate medical attention
Lead	0	N/A	0.05 mg/m^3 (PEL) 700 mg/m^3 (IDLH)	N/A	N/A	GI tract, CNS, blood, kidneys, gingival tissue	Inhalation, Skin/eye contact, Ingestion	Weakness, insomnia, facial palor, tremor, abdominal pain, eye irritation, colic, anemia, constipation, low weight	Eye: Irrigate immediately. Skin: Wash with soap. Breath: Respiratory support. Swallow: Immediate medical attention
Zinc	1	N/A	N/A	N/A	N/A	GI tract, blood, immune system	Inhalation, Skin/eye contact, Ingestion	Digestive difficulties, anemia, altered immune system	Eye: Irrigate immediately. Skin: Wash with soap. Breath: Respiratory support. Swallow: Immediate medical attention
Organics									
Toluene	21	8.82	200 ppm (PEL) 300 ppm (Ceiling) 500 ppm (IDLH)	100 ppm	----	Eyes, skin, respiratory system, CNS, liver, kidneys	Inhalation, Skin/eye contact, Ingestion	Eyes and nose irritation, fatigue, weakness, confusion, euphoria, dizziness, headache, dilated pupils, lacrimation, necrosis, muscle fatigue, insomnia, paresthesia, dermatitis; liver and kidney damage	Eye: Irrigate immediately. Skin: Wash with soap. Breath: Respiratory support. Swallow: Immediate medical attention

N/A - Not Available

PEL - OSHA Permissible Exposure Limit; STEL - OSHA Short Term Exposure Limit

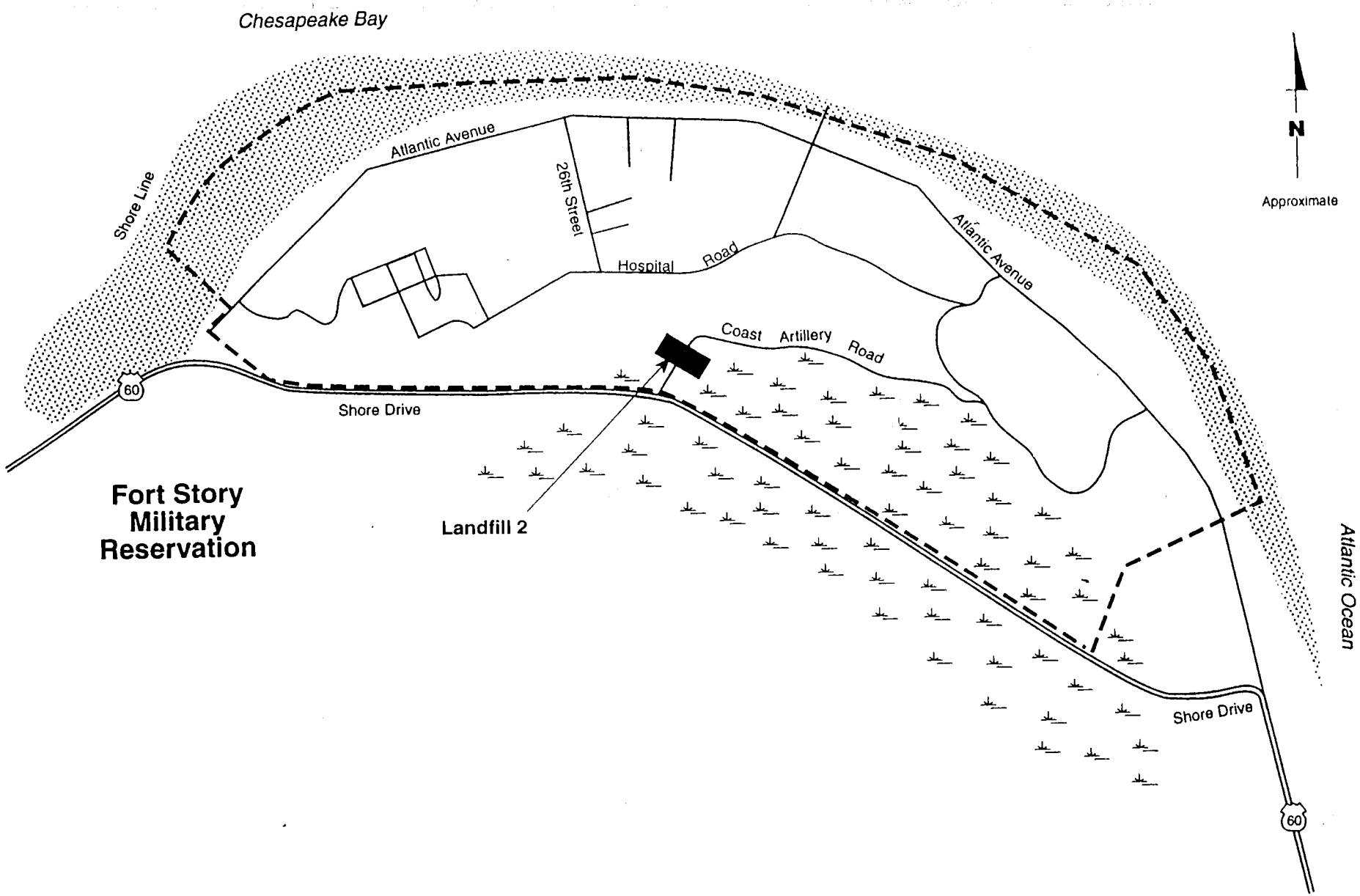
IDLH - Immediately Dangerous t o Life and Health; CNS - Central Nervous System



MAY 1997
FORT STORY, VIRGINIA
LANDFILL 2 CONFIRMATORY SAMPLING

MALCOLM PIRNIE

FIGURE 1 - VICINITY MAP



LEGEND

- Swamp land
- Shore line
- Fort Story Military Reservation Boundary

SCALE IN FEET

0 1000 2000 3000

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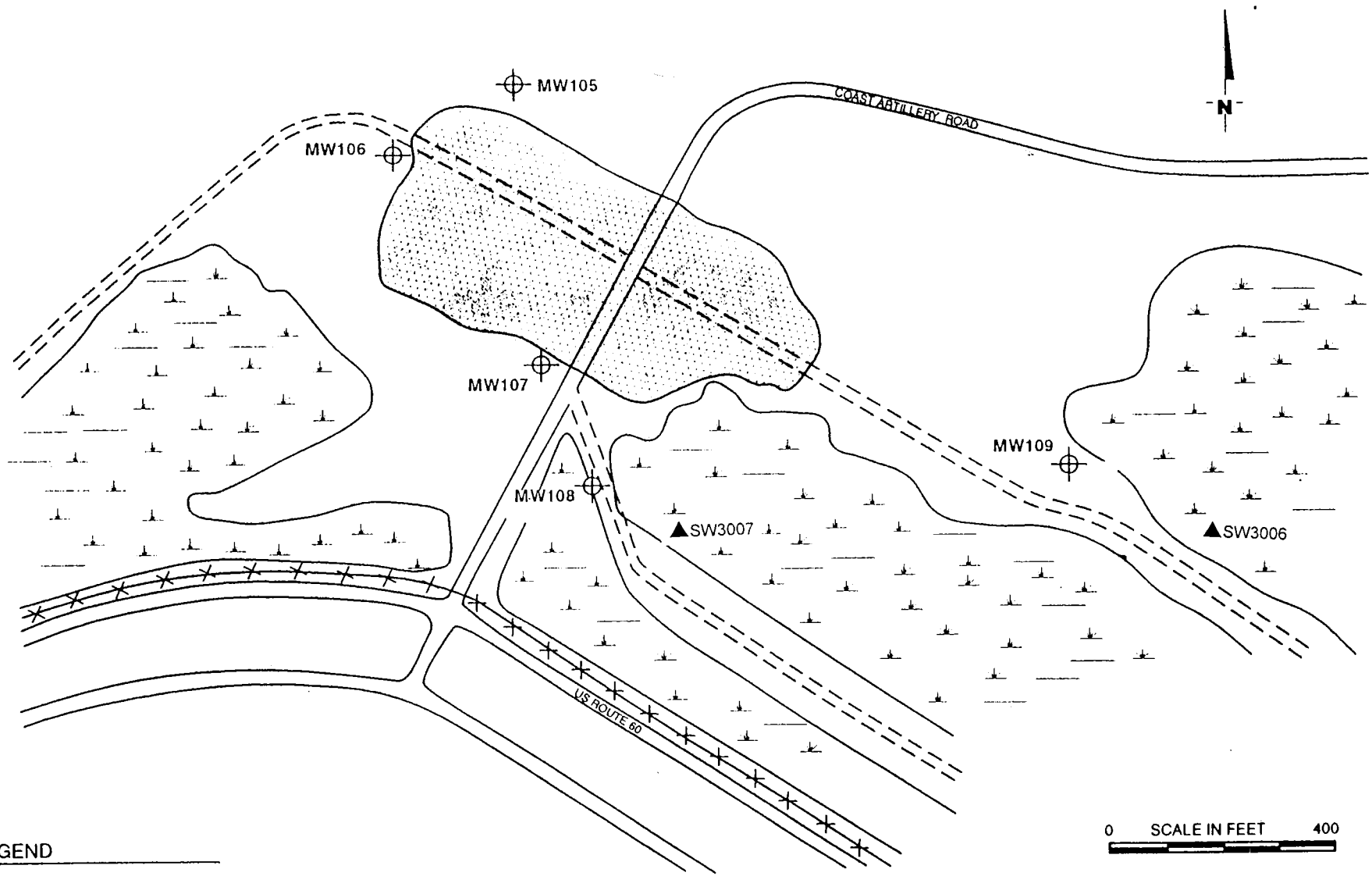
FORT STORY, VIRGINIA
LANDFILL 2 CONFIRMATORY SAMPLING

FIGURE 2 - INSTALLATION MAP



LEGEND

- Swamp Land
- Existing Monitoring Well
- Approximate Location Landfill
- Fence
- Proposed Surface Water Sample Location

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LANDFILL 2 CONFIRMATORY SAMPLING

FIGURE 3 - SITE PLAN

ATTACHMENT II

SITE-SPECIFIC
CHEMICAL DATA ACQUISITION PLAN

ATTACHMENT II

SITE-SPECIFIC CHEMICAL DATA ACQUISITION PLAN

LANDFILL No. 2 SAMPLING PROGRAM

FORT STORY, VIRGINIA

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ATTACHMENT II
SITE-SPECIFIC CHEMICAL DATA ACQUISITION PLAN

LANDFILL No. 2 SAMPLING PROGRAM
FORT STORY, VIRGINIA

This Site-Specific Chemical Data Acquisition Plan is an attachment to the Fort Eustis Installation Chemical Data Acquisition Plan (CDAP) prepared by Malcolm Pirnie, Inc., as part of the Final Work Plan for the Remedial Investigation for Building 1607 Storage Yard Site, dated July 1995.

II-1.0 SITE LOCATION AND DESCRIPTION

Fort Story is located in southeastern Virginia within the city of Virginia Beach, Virginia. Fort Story occupies an area of approximately 1,450 acres and is situated on Cape Henry which divides the waters of the Chesapeake Bay to the north and the Atlantic Ocean to the east. Figure 1 shows the location of Fort Story and Figure 2 shows the installation map.

II-1.1 Landfill No. 2

Landfill No. 2 is located within the wetland are along the southern margin of fort Story, adjacent to the southern flank of a central sand ridge area near the junction of Coast Artillery road and U.S. Route 60. Figure 3 shows the site map for Landfill No. 2.

According to the *Update of the Initial Installation Assessment of Ft. Story, Final Report* prepared by Environmental Science and Engineering in 1988, the landfill was in operation from 1956 to 1962. It was reported in the *Final Confirmatory Studies Report* by Montgomery Watson, 1995 that during the 1960s, a group of wooden buildings were reported to have been demolished and buried at this site, but no documentation was available to confirm this action. Reportedly, surface debris or evidence of buried debris was not evident during field observations for the PA/SI in 1990.

Based on geographical and electromagnetic surveying conducted during the 1990 PA/SI the landfill was estimated to cover 3 acres. Five monitoring wells were installed at the site as shown on Figure 3. These wells were sampled to assess whether the landfill may have released contaminants to the environment.

During the PA/SI in 1990, groundwater and soil were sampled and analyzed. Cadmium was detected in groundwater at elevated concentrations and copper was detected in soil samples collected from the monitoring well borings. In 1995, another sampling event was conducted. Five groundwater samples, two surface water samples, and five sediment samples were collected during this effort. Samples were analyzed for volatile organic compounds (VOCs), base-neutral acid extractable compounds (BNAs), pesticides and polychlorinated biphenyls (PCBs), total fuel hydrocarbons, and total metals. Elevated concentrations of total lead and zinc was detected in three wells at concentrations exceeding Virginia Groundwater Protection Limits (VPGLs). However, in all groundwater samples that exceeded regulatory levels for total metals, the dissolved metals were below regulatory levels. The surface water samples collected were below the Virginia Water Quality Standards (VWQS) for freshwater except for zinc which was detected in both surface water samples at concentrations greater than the VWQS for the protection of freshwater aquatic life. DDE, arsenic, lead, and mercury were detected above criteria in the sediment samples, however, these contaminants are not believed to be indicative of background concentration and not directly related to conditions at Landfill No. 2.

Water level measurements collected in January 1995 at the five monitoring wells at Landfill No. 2 (MW105 through MW109) indicate that the hydraulic gradient at the site changes in head less than 0.1 feet across the site. Groundwater was interpreted to flow in a southerly direction towards the wetland area.

II-2.0 FIELD ACTIVITIES

I1-2.1 Field Equipment

Equipment required to implement the groundwater and surface water sampling include:

- Photoionization detector (PID)

- Combustible gas indicator for methane monitoring
- Temperature, specific conductance, dissolved oxygen, pH meter
- Electronic water level indicator
- Teflon bailers
- Portable filtering kit including vacuum pump, 0.45 micron filters, plastic tubing and disposable flask
- Centifugial pump
- Sample containers
- Decontamination solutions (methanol and 0.1N nitric acid)
- Personal protective equipment including latex gloves, nitrile gloves, steel toed boots, and work gloves.
- Portable generator with extension cords

II-2.2 Sampling Locations

One additional round of confirmatory groundwater and surface water samples will be collected at Landfill No. 2. Groundwater gauging will be conducted prior to sampling activities. Figure 1-2 shows the five monitoring well locations and the two proposed surface water sampling locations.

II-2.3 Sampling and Preservation Procedures

Surface water samples will be collected at two (2) locations at Landfill No. 2. Standard surface water sampling procedures are detailed in Section 4.3.1 of the Fort Eustis CDAP.

Groundwater samples will be collected from five (5) existing monitoring wells at Landfill No. 2. All groundwater sampling and analyses will be performed in accordance with the Virginia Solid Waste Management Regulations (VR572-20-10). Monitoring well sampling procedures are not outlined in the general CDAP. Standard groundwater sampling procedures are detailed in Enclosure No. 1 of Attachment I in the *Final Work Plan for Groundwater, Surface Water and Gas Monitoring Program - Landfills 1, 7, and 15 Fort Eustis, Virginia.* Sample containers, preservation, and holding times for each sample parameter is provided in Table II-1

II-2.4 Quality Control Samples

Quality control samples will be collected at the following frequency. One blind duplicate sample will be collected from MW108 and analyzed for the parameters listed in Table 1. One trip blank will accompany the VOC sample containers during shipment to and from the labroatory and will remain in the cooler during sampling activities.

II-2.5 Field Documentation

For the confirmatory sampling round, entries shall be made in a field notebook and logbook as specified in Section 4.4 of the CDAP. Sample labels shall contain the information and be numbered as specified in Section 5.4 and Section 4.7 of the CDAP, respectively.

TABLE II-1

SAMPLE CONTAINER, PRESERVATIVE AND HOLDING TIME REQUIREMENTS

GROUNDWATER, SURFACE WATER, AND IDW SAMPLES

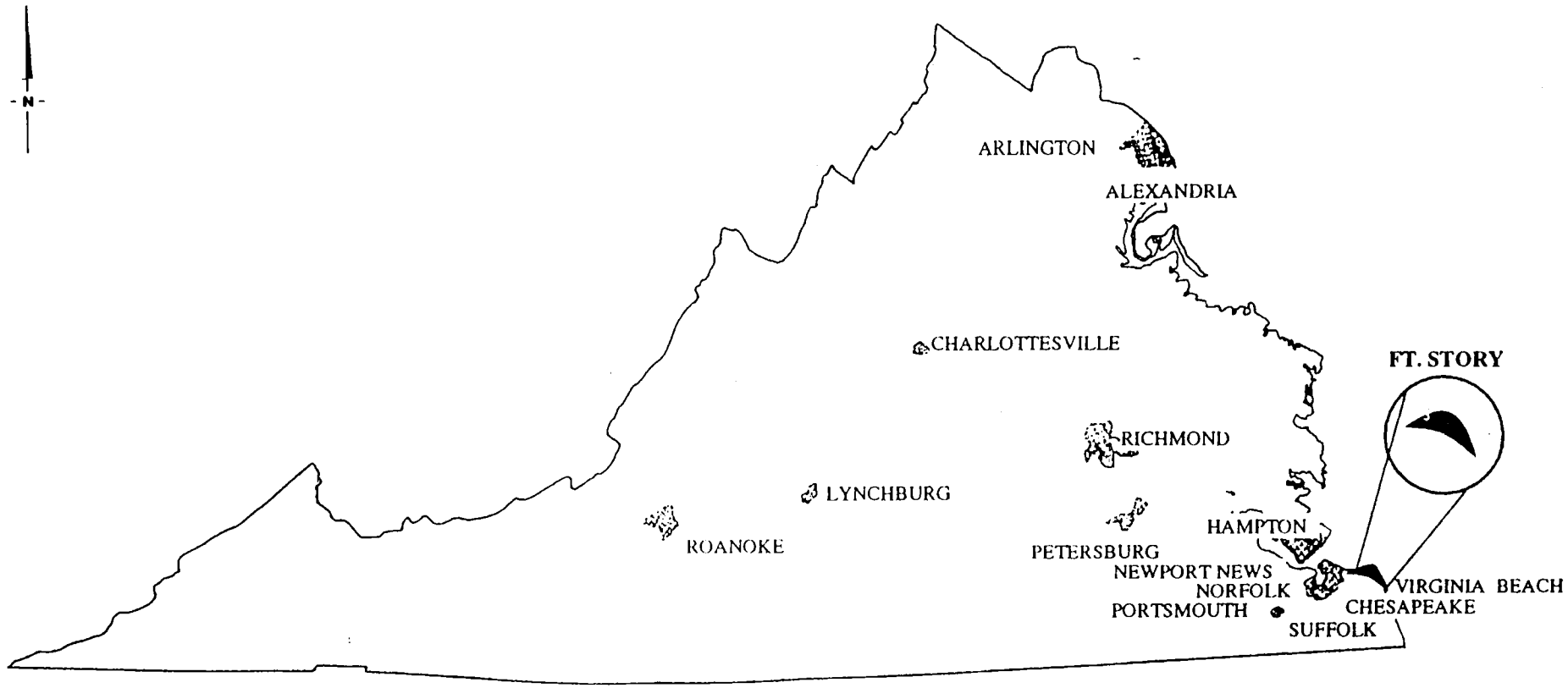
LANDFILL No. 2 FORT STORY, VIRGINIA

Analysis	Analytical Method	Container	Preservation	Holding Time
TCL VOC	8260	3-40 ml Glass	Cool 4^0C, HCL	14 days
TAL Metals - Total	6010-T /7470	1-500 ml 1-250 ml Plastic	Cool 4^0C,Nitric	6 months(2)
TAL Metals - Dissolved	6010-T /7470	1-500 ml 1-250 ml Plastic	Cool 4^0C, Nitric(1)	6 months(2)
Hardness	130.2	Included in metals	--	6 months
Ammonia	350.1	1-100 ml plastic	Cool 4^0C, Sulfuric	28 days
Chloride	325.2	1-250 ml plastic	Cool 4^0C	28 days
Nitrate-N	353.2	1-250 ml plastic	Cool 4^0C	48 hours
Orthophosphate-P	365.1	1-250 ml plastic	Cool 4^0C	48 hours
Sulfate	375.4	1-250 ml plastic	Cool 4^0C	28 days
TDS	160.1	1-500 ml plastic	Cool 4^0C	7 days
Phosphorus	365.4	1-250 ml plastic	Cool 4^0C, Sulfuric	28 days
Full TCLP	1311/8260/ 8270	3-40 ml glass 2-1L glass	Cool 4^0C, HCL Cool 4^0C	7 days

Notes:

(1) Field filtered metals will be preserved with nitric/Lab filtered metals are unpreserved.

(2) Mercury has a holding time of 28 days.



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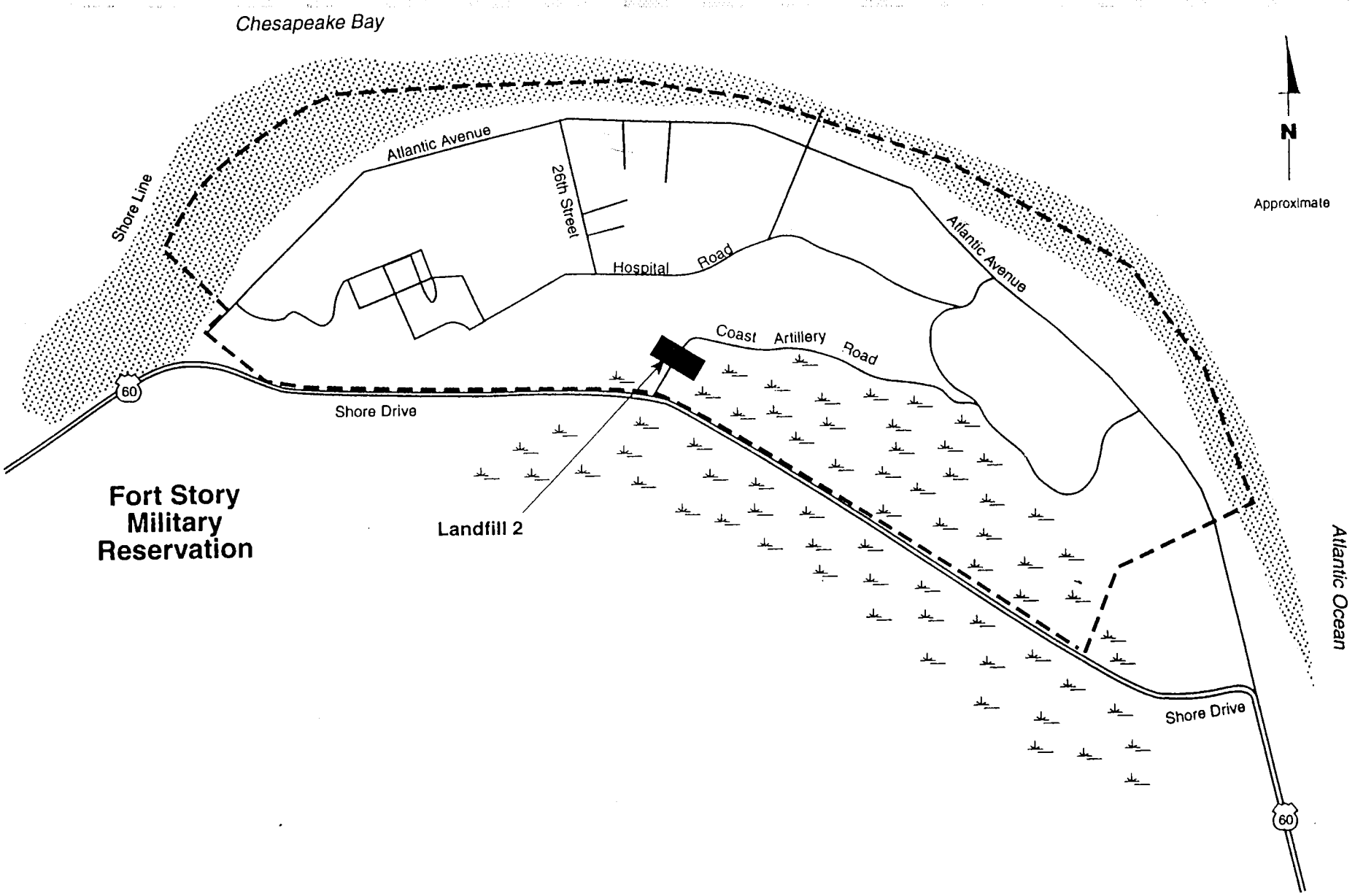
FORT STORY, VIRGINIA
LANDFILL 2 CONFIRMATORY SAMPLING

MALCOLM PIRNIE

FIGURE 1 - VICINITY MAP



LEGEND

- Swamp land
- Shore line
- Fort Story Military Reservation Boundary

SCALE IN FEET

0 1000 2000 3000

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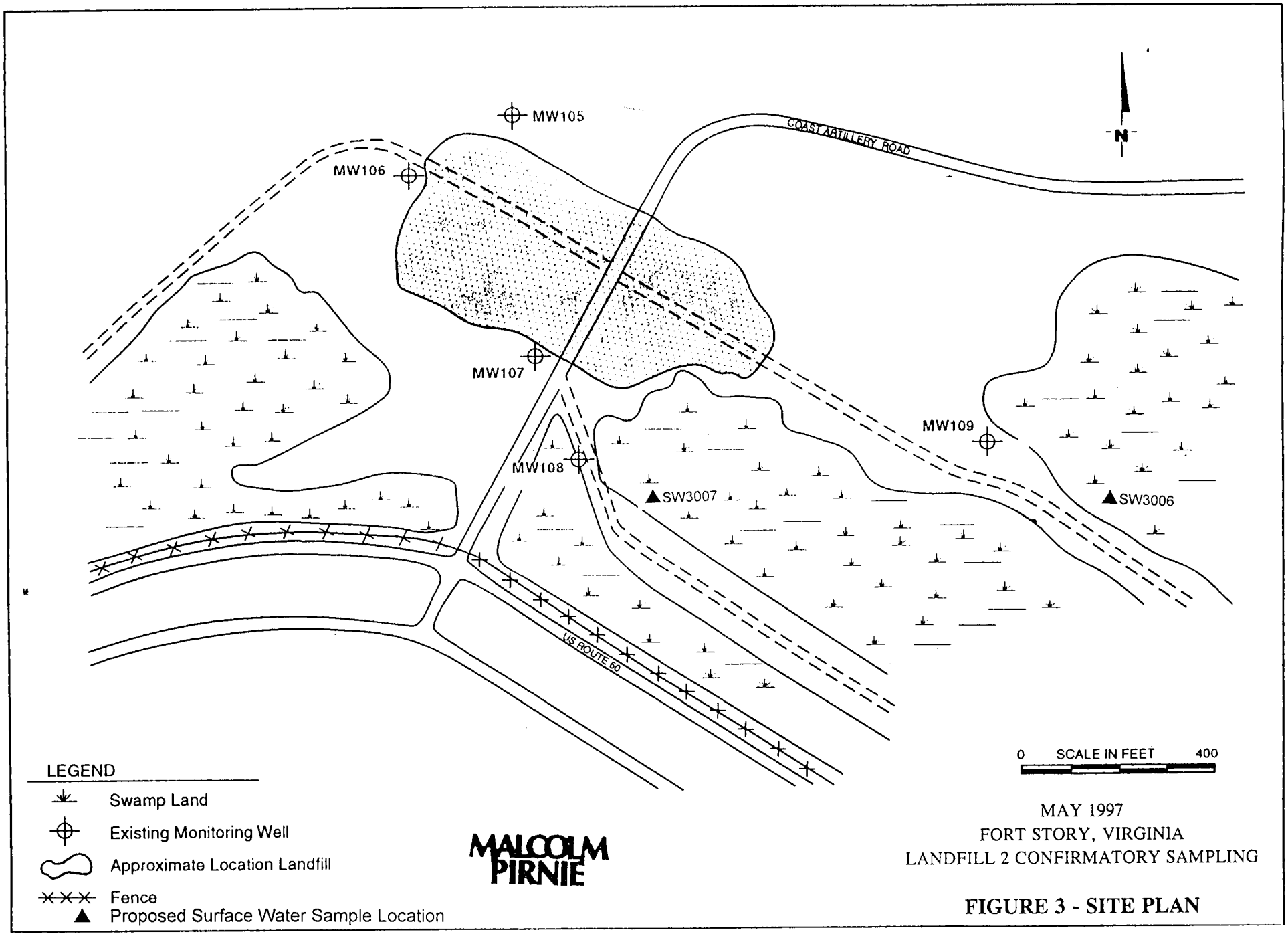
MAY 1997
FORT STORY, VIRGINIA
LANDFILL 2 CONFIRMATORY SAMPLING

FIGURE 2 - INSTALLATION MAP



MAY 1997
FORT STORY, VIRGINIA
LANDFILL 2 CONFIRMATORY SAMPLING

FIGURE 3 - SITE PLAN

APPENDIX C

ANALYTICAL METHODS
MDLs AND REPORTING LIMITS

COMPARABILITY

Savannah Laboratories strives for comparability of results through evaluation of data against established precision and accuracy limits. Strict adherence to QA/QC procedures promotes the comparability of one set of reference data to another or comparability of data among all facilities.

REPRESENTATIVENESS

The Savannah Laboratories objective for representativeness of field samples is to ensure that a set of data accurately depicts the chemical or biological characteristics of a sample source. Representativeness is enhanced by an attempt to mix samples prior to aliquot removal. Results are considered reliable and representative if the sample results distribution is within statistically defined bounds of the population mean and variance.

COMPLETENESS

Completeness is calculated for the aggregation of data for each analyte measured for any particular sampling event or other defined set of samples. The number of valid results divided by the number of possible individual analyte results, expressed as a percentage, determines the completeness of the data set. Savannah Laboratories strives to maintain 90 percent completeness. However, since completeness goals for individual projects include factors which are outside the laboratory's control (e.g., samples broken or lost in shipment, samples received outside holding times, field sampling problems, data impacted by matrix interferences), project completeness goals may not always be achieved by the laboratory. The formula for calculation of completeness appears below.

$$\% \text{ completeness} = \frac{\text{number of valid results}}{\text{maximum number of expected results}} \times 100$$

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMIT (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
luminum	6010(3010)	2	80-120	0-20	19	200
	200.7	3	85-115	0-20	32	200
	Chelation/Extraction	5	50-140	0-40	2.5	10
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	200	200
	6010(3010)-T	2	80-120	0-20	23	100
	200.7-T	3	85-115	0-20	11	100
ntimony	6010(3010)	2	80-120	0-20	16	50
	200.7	3	85-115	0-20	16	50
	7041(3005)	2	80-120	0-20	2.0	10
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	60	60
	204.2	3	80-120	0-20	0.86	5.0
	6010(3010)-T[1]	2	80-120	0-20	2.6	5.0
	6010(3010)-T[2]	2	80-120	0-20	3.7	20
	200.7-T[1]	3	85-115	0-20	3.2	5.0
	200.7-T[2]	3	85-115	0-20	5.0	20
	3113B	4	80-120	0-20	1.5	6.0
	200.9	86	85-115	0-20	1.2	6.0
rsenic	200.7 (4X) ■	3	85-115	0-20	4.2	10
	6010(3010)	3	80-120	0-20	17	100
	200.7	3	85-115	0-20	16	100
	7060A(3020)	2	80-120	0-20	1.1	10
	206.2	3	80-120	0-20	1.3	10
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	10	10
	6010(3010)-T	3	80-120	0-20	2.2	10
	200.7-T	3	75-125	0-20	2.6	10
	3113B	4	80-120	0-20	0.86	4.0
	3114B	4	80-120	0-20	1.1	2.0
	7062(3020)	3	80-120	0-20	1.1	2.0
	200.9	86	85-115	0-20	1.3	4.0
Barium	6010(3010)	2	80-120	0-20	2.9	10
	200.7	3	85-115	0-20	1.1	10
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	200	200
	6010(3010)-T	2	80-120	0-20	0.25	10
	200.7-T	3	85-115	0-20	0.36	10
Beryllium	6010(3010)	2	80-120	0-20	1.7	5.0
	200.7	3	85-115	0-20	0.43	5.0
	7091(3020)	2	80-120	0-20	1.2	5.0
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	5.0	5.0
	210.2	3	80-120	0-20	1.3	5.0
	6010(3010)-T	2	80-120	0-20	0.19	2.0
	200.7-T	3	85-115	0-20	0.28	2.0
Boron	6010(3010)	2	80-120	0-20	5.7	50
	200.7	3	85-115	0-20	7.7	50
Cadmium	6010(3010)	2	80-120	0-20	3.2	5.0
	200.7	3	85-115	0-20	4.2	5.0
	7131A(3020)	2	80-120	0-20	0.16	1.0
	Chelation/Extraction	5	60-140	0-40	0.050	0.050
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	5.0	5.0
	213.2	3	80-120	0-20	0.25	1.0
	6010(3010)-T[1]	2	80-120	0-20	0.58	1.0
	6010(3010)-T[2]	2	80-120	0-20	0.63	2.5
	200.7-T[1]	3	85-115	0-20	0.26	1.0
	200.7-T[2]	3	85-115	0-20	0.63	2.5
	3113B	4	80-120	0-20	0.03	1.0
	200.9	86	85-115	0-20	0.25	1.0
Calcium	6010(3010)	2	80-120	0-20	41	500
	200.7	3	85-115	0-20	48	500
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	5000	5000
	6010(3010)-T	2	80-120	0-20	28	500
	200.7-T	3	85-115	0-20	22	500

[1]Savannah Trace ICP Configuration

[2]Tallahassee Trace ICP Configuration

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMIT (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Chromium	6010(3010)	2	80-120	0-20	5.9	10
	200.7	3	85-115	0-20	2.8	10
	7191(3020)	2	80-120	0-20	0.84	10
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	10	10
	218.2	3	80-120	0-20	1.6	10
	6010(3010)-T	2	80-120	0-20	0.88	2.0
	200.7-T	3	85-115	0-20	0.77	2.0
	3113B	4	80-120	0-20	2.5	10
	200.9	86	85-115	0-20	2.5	10
Chromium, hexavalent	7196	2	85-115	0-20	2.4	10
	3500-Cr D	4	80-120	0-25	2.5	10
	7195	2	80-120	0-20	2.3	10
	200.7 (218.4)	3	56-91	0-35	4.0	5
Cobalt	6010(3010)	2	80-120	0-20	3.5	10
	200.7	3	85-115	0-20	2.3	10
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	50	50
	6010(3010)-T	2	80-120	0-20	0.53	5.0
	200.7-T	3	85-115	0-20	0.90	5.0
Copper	200.7 (4X) ■	3	85-115	0-20	1.7	2.5
	6010(3010)	2	80-120	0-20	5.9	25
	200.7	3	85-115	0-20	5.4	25
	220.2(3020)	3	80-120	0-20	3.0	10
	Chelation/Extraction	5	60-140	0-40	0.80	1.0
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	25	25
	6010(3010)-T	3	80-120	0-20	1.7	5.0
	200.7-T	2	75-125	0-20	0.97	5.0
	7211(3020)	3	80-120	0-20	1.4	10
Iron	6010(3010)	2	80-120	0-20	8.5	50
	200.7	3	85-115	0-20	12	50
	236.2(3020)	3	75-125	0-20	2.5	10
	Chelation/Extraction	5	60-140	0-40	2.0	2.0
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	100	100
	6010(3010)-T	2	80-120	0-20	18	50
	200.7-T	3	85-115	0-20	13	50
	3500-Fe D (Ferrous)	4	80-120	0-20	10	50
Lead	6010(3010)	2	80-120	0-20	14	50
	200.7	3	85-115	0-20	14	50
	239.2	3	80-120	0-20	0.69	5.0
	Chelation/Extraction	5	60-140	0-40	0.27	0.50
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	3.0	3.0
	7421(3020)	2	80-120	0-20	1.2	5.0
	6010(3010)-T	2	80-120	0-20	1.2	5.0
	200.7-T	3	85-115	0-20	1.9	5.0
	3113B	4	80-120	0-20	0.38	2.0
	200.9	86	85-115	0-20	1.3	2.0
Lithium	3500-Li B/7430	4	80-120	0-20	28	100
Magnesium	6010(3010)	2	80-120	0-20	14	500
	200.7	3	85-115	0-20	22	500
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	5000	5000
	6010(3010)-T	2	80-120	0-20	13	500
	200.7-T	3	85-115	0-20	5.7	500
Manganese	6010(3010)	2	80-120	0-20	2.0	10
	200.7	3	85-115	0-20	1.1	10
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	15	15
	6010(3010)-T	2	80-120	0-20	0.30	10
	200.7-T	3	85-115	0-20	0.47	10
Mercury	7470	2	80-120	0-20	0.050	0.20
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	0.20	0.20
	245.1	3	80-120	0-20	0.20	0.20
	3112B	4	80-120	0-20	0.19	0.20
Molybdenum	6010(3010)	2	80-120	0-20	3.9	10
	200.7	3	85-115	0-20	2.4	10
	6010(3010)-T	2	80-120	0-20	1.4	5.0
	200.7-T	3	85-115	0-20	1.7	5.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMIT (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
ickel	200.7 (4X) ■	3	85-115	0-20	3.6	4.0
	6010(3010)	2	80-120	0-20	7.5	40
	200.7	3	85-115	0-20	3.3	40
	249.2	3	75-125	0-20	2.6	10
	Chelation/Extraction	5	60-140	0-40	1.3	2.0
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	40	40
	6010(3010)-T	3	80-120	0-20	1.2	5.0
	200.7-T	2	85-115	0-20	2.9	5.0
	3113B	4	80-120	0-20	1.3	10
	200.9	86	85-115	0-20	2.5	10
hosphorus	200.7	3	85-115	0-20	50	50
	6010(3010)	2	80-120	0-20	50	50
otassium	6010(3010)	2	80-120	0-20	86	1000
	200.7	3	85-115	0-20	86	1000
	7610(3010)	2	80-120	0-20	25	100
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	5000	5000
	253.1	3	80-120	0-20	25	100
	6010(3010)-T	2	80-120	0-20	40	200
	200.7-T	3	85-115	0-20	27	200
enium	6010(3010)	2	80-120	0-20	42	500
	200.7	3	85-115	0-20	29	500
	270.2	2	80-120	0-20	1.7	5.0
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	5.0	5.0
	7740A(3020)	3	80-120	0-20	1.2	10
	6010(3010)-T	2	80-120	0-20	2.6	10
	200.7-T	3	85-115	0-20	4.0	10
	3113B	4	80-120	0-20	3.9	5.0
	3114B	4	80-120	0-20	0.43	2.0
	7742(3020)	3	80-120	0-20	0.43	2.0
	200.9	86	85-115	0-20	1.7	5.0
ilica, Dissolved	6010(3010)	2	80-120	0-30	100	500
	200.7	3	85-115	0-20	120	500
ilver	6010(3010)	2	80-120	0-20	3.4	10
	200.7	3	85-115	0-20	2.9	10
	272.1	3	80-120	0-20	2.5	10
	7761	2	80-120	0-20	0.031	1.0
	Chelation/Extraction	5	60-140	0-40	0.040	0.050
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	10	10
	272.2	3	80-120	0-20	0.085	1.0
	6010(3010)-T	2	80-120	0-20	0.85	5.0
	200.7-T	3	85-115	0-20	0.82	5.0
odium	6010(3010)	2	80-120	0-20	31	500
	200.7	3	85-115	0-20	11	500
	273.1	3	75-125	0-20	125	500
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	5000	5000
	6010(3010)-T	2	80-120	0-20	13	500
	200.7-T	3	85-115	0-20	5.6	500
ontium	200.7	3	85-115	0-20	0.42	10
	6010(3010)	2	80-120	0-20	0.88	10
hallium	6010(3010)	2	80-120	0-20	110	500
	200.7	3	85-115	0-20	120	500
	279.2	3	80-120	0-20	1.1	10
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	10	10
	7841(3020)	2	80-120	0-20	1.2	10
	6010(3010)-T	2	80-120	0-20	2.3	10
	200.7-T	3	85-115	0-20	4.4	10
	200.9	86	80-120	0-20	0.86	2.0
in	200.7	3	85-115	0-20	7.5	50
	282.2	3	75-125	0-20	10	50
	6010(3010)	2	80-120	0-20	11	50
	200.7-T	3	85-115	0-20	3.4	10
	6010(3010)-T	2	80-120	0-20	4.7	10
Titanium	200.7	3	85-115	0-20	2.2	10
	6010(3010)	2	80-120	0-20	2.2	10
Tributyl tin	Atomic absorption	40	60-140	0-40	0.0010	0.0010

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMIT (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Vanadium	6010(3010)	2	80-120	0-20	2.3	10
	200.7	3	85-115	0-20	1.8	10
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	50	50
	6010(3010)-T	2	80-120	0-20	0.77	10
	200.7-T	3	85-115	0-20	0.64	10
Zn	6010(3010)	2	80-120	0-20	4.3	20
	200.7	3	85-115	0-20	2.6	20
	Chelation/Extraction	5	60-140	0-40	0.25	1.0
	CLP ILM02.1/3.0/4.0	45	80-120	0-20	20	20
	6010(3010)-T	2	80-120	0-20	3.7	20
	200.7-T	3	85-115	0-20	1.4	20
	3111B	4	80-120	0-20	5.9	20
Zinc Phosphide	FDER Special Method	31	10-210	0-80	0.50	0.50

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (mg/L)	RL▲ (mg/L)
Acetate	300.0	82	75-125	0-30	0.25	1.0
Acidity	305.1/2310B	3/4	75-125	0-30	2.5	10
	305.2	3	75-125	0-30	2.5	10
Alkalinity	310.1/2320B	3/4	75-125	0-30	0.034	1.0
Ammonia (as N)	350.1	82	85-115	0-30	0.0099	0.030
	350.2	82	85-115	0-30	0.0099	0.030
	350.3	82	85-115	0-30	0.034	0.050
	4500NH$_3$-H	4	80-120	0-25	0.0099	0.030
Ammonia, un-ionized	FL-DER	60	NA	NA	NA	0.010
Bicarbonate	4500-CO$_2$ D	4	NA	NA	NA	1.0
BOD-5	405.1/5210B	3/4	80-120	0-30	0.41	2.0
Bromate	300.0	82	85-115	0-30	0.16	1.0
Bromide	300.0	82	85-115	0-30	0.15	1.0
	320.1	3	75-125	0-30	0.50	2.0
	9056	2	75-125	0-30	0.15	1.0
Carbon, total organic	415.1/9060	3/2	75-125	0-40	0.46	1.0
	5310B	4	80-120	0-25	0.46	1.0
	5310C	4	80-120	0-25	0.27	1.0
Carbonate	4500-CO$_2$ D	4	NA	NA	NA	1.0
CBOD	5210B	4	NA	0-30	NA	2.0
Chloride	325.2/9251	3/2	85-115	0-30	0.11	1.0
	325.3/9252A	3/2	75-125	0-30	0.24	1.0
	4500-Cl$^-$ C	4	75-125	0-30	0.25	1.0
	300.0	82	90-110	0-30	0.054	1.0
	4500-Cl$^-$ D	4	80-120	0-30	0.25	1.0
	4500-Cl$^-$E	4	85-115	0-30	0.11	1.0
	9056	2	75-125	0-30	0.054	1.0
Chlorine, residual	4500-Cl$^-$ G	4	NA	0-40	NA	0.05
	4500-Cl$^-$ B	4	NA	0-30	NA	1.0
	330.2	3	NA	0-30	NA	1.0
	330.3	3	NA	0-30	NA	1.0
	330.4	3	NA	0-30	NA	1.0
	330.5	3	NA	0-30	NA	1.0
Chlorate	300.0	82	90-110	0-30	0.073	1.0
Chlorite	300.0	82	90-110	0-30	0.097	1.0
Chlorophyll	10200H	4	NA	0-30	NA	0.00010
COD	5220C/H 8000	4/71	80-120	0-25	11	20
	5220D	4	60-140	0-30	13	20
	410.1	3	60-140	0-30	11	20
	410.2	3	60-140	0-30	5.0	20
	410.4	82	60-140	0-30	13	20
Coliform, fecal, MPN	9221E, C (non-potable)	4	NA	0-200	NA	2 MPN/100 mL
Coliform, fecal, MPN	9221E, C (potable)	4	NA	0-200	NA	1.1 MPN/100 mL
Coliform, fecal, MF	9222D	4	NA	0-200	NA	1 col/100 mL
Coliform, total, MPN	9131	2	NA	0-200	NA	2 MPN/100 mL
	9221B, C (non-potable)	4	NA	0-200	NA	2 MPN/100 mL
Coliform, total, MF	9132	2	NA	0-200	NA	1 col/100 mL
	9222B	4	NA	0-200	NA	1 col/100 mL
Coliform, total/e.coli (fecal), MMO MUG	9223/Colilert (Potable)	4/81	NA	NA	NA	NA
Color	110.2/2120B	3/4	NA	0-40	NA	5 PCU

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (mg/L)	RL▲ (mg/L)
orrosivity	2330B 1110(NACE)	4 2	NA NA	NA NA	NA NA	NA NA
Cyanate	4500-CN L	4	60-140	0-40	0.025	0.10
yanide, amenable to chlorination	9012 335.1/9010/4500CN G	2 2/3/4	NA NA	0-50 0-40	NA NA	0.010 0.010
Cyanide, reactive	7.3.3.2/9010	2	NA	0-50	NA	10 mg HCN/ Kg Waste
yanide, total	335.4 335.3/9012 335.2/9010/4500CN E CLP OLM02.1/3.0/4.0	82 3/2 2/3/4 45	85-115 85-115 85-115 85-115	0-20 0-20 0-20 0-20	0.0091 0.0014 0.0091 0.0091	0.010 0.010 0.010 0.010
yanide, weak and dissociable	4500-CN I	4	75-125	0-30	NA	0.010
luoride	340.2 300.0 4500-F C	3 3 4	85-115 85-115 80-120	0-30 0-30 0-25	0.023 0.0068 0.023	0.20 0.10 0.20
ormate	300.0	3	75-125	0-30	0.062	1.0
alogens, total organic	450.1/9020B	3/2	60-140	0-40	0.0070	0.010
Hardness, total	2340B 130.2	4 3	NA 75-125	NA 0-30	NA NA	3.3 10
ydrogen ion (pH)	150.1/9040	3/2	90-110	0-10	NA	NA
odide	300.0	3	85-115	0-30	NA	5.0
itrate (as N)	300.0 9056 353.2 352.1 353.3 4500-NO_3^-E 4500-NO_3^-F	82 3 3 3 3 4 4	90-110 75-125 85-115 75-125 75-125 80-120 80-120	0-30 0-30 0-30 0-30 0-30 0-25 0-25	0.066 0.066 0.0016 0.025 0.015 0.0052 0.014	0.10 0.10 0.050 0.10 0.050 0.050 0.050
Nitrate-Nitrite (as N)	353.1 353.2 353.3 4500-NO_3^-E 4500-NO_3^-F	3 3 3 4 4	80-120 80-120 75-125 80-120 80-120	0-30 0-30 0-30 0-25 0-25	0.035 0.0016 0.015 0.0052 0.014	0.050 0.050 0.050 0.050 0.050
Nitrite (as N)	300.0/9056 353.2 (w/o Cd redn) 354.1 353.3 (w/o Cd redn) 4500-NO_3^-E (w/o Cd redn) 4500-NO_3^-F (w/o CD redn)	2/3 82 3 3 4 4	75-125 90-110 75-125 75-125 80-120 80-120	0-30 0-30 0-30 0-30 0-25 0-25	0.044 0.0061 0.015 0.013 0.0013 0.061	0.050 0.050 0.050 0.050 0.050 0.050
Nitrogen, total Kjeldahl (TKN)	351.2 351.3	82 3	75-125 75-125	0-40 0-30	0.068 0.050	0.20 0.20
Nitrogen, organic	EPA-CE: 3-205	46	NA	NA	NA	0.20
Nitrogen, total	TKN + NO_2/NO_3	2/3	NA	NA	NA	0.25
Odor	140.1/2150B	3/4	NA	NA	NA	1 TON
Oil & Grease	413.1/5520B 413.2/5520C 1664 (HEM)	3/4 3/4 84	60-140 60-140 79-114	0-30 0-30 0-18	1.3 0.31 0.91	5.0 1.0 5.0
Orthophosphate (as P)	300.0 9056 365.1 365.2 365.3 4500P F	82 2 82 3 3 4	85-115 75-125 90-110 75-125 75-125 80-120	0-30 0-30 0-30 0-30 0-30 0-30	0.071 0.071 0.027 0.0072 0.013 0.027	0.50 0.50 0.050 0.050 0.050 0.050

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (mg/L)	RL▲ (mg/L)
Oxalate	300.0	3	75-125	0-30	NA	1.0
Oxygen, dissolved	360.1 360.2/4500-O-C 4500 O-G	3 3/4 4	NA NA NA	0-30 0-30 0-30	NA NA NA	0.10 0.10 0.10
Petroleum hydrocarbons	418.1 FL-PRO 5520F 1664 (SGT-HEM)	3/4 83 4 84	60-140 41-101 60-140 66-114	0-30 0-20 0-30 0-24	0.56 0.1 0.56 1.6	1.0 0.3 1.0 5.0
Phenolics, total recoverable	420.1/9065 420.1/9065 (chloroform extraction)	3/2 3/2	75-125 75-125	0-30 0-30	0.023 0.0095	0.050 0.01
Phosphorus, organic (as P)	365.4	3	NA	NA	0.023	0.10
Phosphorus, total (as P)	365.1 365.2 365.3 365.4/4500P-F	82 3 3 3/4	60-140 60-140 60-140 60-140	0-40 0-40 0-40 0-40	0.0059 0.0034 0.025 0.098	0.010 0.10 0.050 0.10
Plate count, heterotrophic	9215B	4	NA	NA	NA	1000 CFU/L
Redox potential	D1498-76	38	NA	NA	NA	NA
Residue, dissolved	160.1 2540C	3 4	75-125 80-120	0-30 0-25	4.6 4.6	5.0 5.0
Residue, suspended	160.2 2540D	3 4	75-125 80-120	0-30 0-25	3.6 3.6	5.0 5.0
Residue, total	160.3 2540B	3 4	75-125 80-120	0-40 0-25	NA NA	5.0 5.0
Residue, volatile	160.4/2540E	3/4	NA	0-40	NA	5.0
Salinity	2520B	4	NA	NA	NA	2
Settleable matter	160.5/2540F	3/4	NA	0-40	NA	0.20 mL
Silica, dissolved	370.1	3	75-125	0-30	2.5	10
Specific conductance	120.1/9050 2510B	3/2 4	90-110 80-120	0-10 0-25	0.075 µS/cm	1.0 µS/cm
Specific gravity	2710F	3	NA	NA	NA	NA
Streptococcus, fecal, MPN	9230B	4	NA	NA	NA	2 MPN/100 mL
Streptococcus, fecal, MF	9230C	4	NA	NA	NA	1 col/100 mL
Sulfate	300.0 375.4/9038/4500-SO_4^{2}-E 9056/4500-SO_4^{2}-B 375.3/4500-SO_4^{2}-D	82 3/4 2 3/4	85-115 75-125 75-125 75-125	0-30 0-30 0-30 0-30	1.7 1.1 0.18 1.2	5.0 5.0 1.0 5.0
Sulfide	376.1 (undistilled) 376.2 (undistilled) 4500-S^{2}-D 9030/4500-S^{2}-E (distilled)	3 3 4 2/4	75-125 75-125 80-120 50-150	0-30 0-30 0-25 0-50	0.93 0.02 0.20 0.20	1.0 0.40 0.40 1.0
Sulfide, reactive	7.3.4.2/9030	2	NA	0-50	NA	50 mg H_2S/ Kg Waste
Surfactants (MBAS)	425.1 5540C	3 4	70-130 70-130	0-30 0-30	0.049 0.038	0.10 0.10
Temperature	170.1	3	NA	0-10	NA	NA
Thiocyanate	4500-CN-M	4	60-140	0-40	0.021	0.10
THM formation potential	5710B	4	NA	NA	NA	0.010
Turbidity	180.1 2130B	82 4	90-110 80-120	0-30 0-25	0.067 NTU 0.067 NTU	0.10 NTU 0.10 NTU

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (%Rec)	PRECISION* (% RPD)	MDL** (pCi/L)	RL▲ (pCi/L)
ɔnuclides, alpha	900.0	54	64-145	0-31	1.5	3.0
ɔnuclides, beta	900.0	54	67-140	0-28	2.5	4.0
adium, total(as Ra 226)	903.0	54	48-145	0-49	0.70	2.0
ɯm 226	903.1	54	48-145	0-49	0.17	0.60
adium 228	Brooks 904.0/9320	66 54/2	45-150 27-149	0-50 0-86	0.47 1.6	1.0 2.0
m	906.0	54	41-133	0-20	806	1000

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Benzene	502.2	51	80-120	0-22	0.10	0.50
Bromobenzene	502.2	51	80-120	0-40	0.15	0.50
Bromochloromethane	502.2	51	80-120	0-40	0.16	0.50
Bromodichloromethane	502.2	51	80-120	0-40	0.44	0.50
Bromoform	502.2	51	80-120	0-40	0.91	1.0
Bromomethane	502.2	51	60-140	0-40	0.87	1.0
n-Butylbenzene	502.2	51	60-140	0-40	0.26	0.50
sec-Butylbenzene	502.2	51	60-140	0-40	0.14	0.50
tert-Butylbenzene	502.2	51	60-140	0-40	0.13	0.50
Carbon tetrachloride	502.2	51	80-120	0-40	0.12	0.50
Chlorobenzene	502.2	51	80-120	0-29	0.070	0.50
Chloroethane	502.2	51	60-140	0-50	0.91	1.0
Chloroform	502.2	51	80-120	0-40	0.31	0.50
Chloromethane	502.2	51	60-140	0-40	0.50	1.0
2-Chlorotoluene	502.2	51	60-140	0-40	0.19	0.50
4-Chlorotoluene	502.2	51	60-140	0-40	0.32	0.50
Dibromochloromethane	502.2	51	80-120	0-40	0.21	0.50
1,2-Dibromo-3-chloropropane	502.2	51	80-120	0-40	0.99	5.0
1,2-Dibromoethane	502.2	51	80-120	0-40	0.50	1.0
Dibromomethane	502.2	51	80-120	0-40	0.40	0.50
1,2-Dichlorobenzene	502.2	51	80-120	0-40	0.25	0.50
1,3-Dichlorobenzene	502.2	51	80-120	0-40	0.21	0.50
1,4-Dichlorobenzene	502.2	51	80-120	0-40	0.31	0.50
Dichlorodifluoromethane	502.2	51	60-140	0-50	0.62	1.0
1,1-Dichloroethane	502.2	51	80-120	0-40	0.50	0.50
1,2-Dichloroethane	502.2	51	80-120	0-40	0.38	0.50
1,1-Dichloroethene	502.2	51	80-120	0-29	0.42	0.50
cis-1,2-Dichloroethene	502.2	51	80-120	0-40	0.12	0.50
trans-1,2-Dichloroethene	502.2	51	80-120	0-40	0.22	0.50
1,2-Dichloropropane	502.2	51	80-120	0-40	0.50	0.50
1,3-Dichloropropane	502.2	51	80-120	0-40	0.12	0.50
2,2-Dichloropropane	502.2	51	80-120	0-40	0.12	0.50
1,1-Dichloropropene	502.2	51	80-120	0-40	0.12	0.50
cis-1,3-Dichloropropene	502.2	51	80-120	0-40	0.18	0.50
trans-1,3-Dichloropropene	502.2	51	80-120	0-40	0.43	0.50
Ethylbenzene	502.2	51	80-120	0-40	0.070	0.50
Hexachlorobutadiene	502.2	51	60-140	0-40	0.25	0.50
Isopropylbenzene	502.2	51	60-140	0-40	0.080	0.50
4-Isopropyltoluene	502.2	51	60-140	0-40	0.39	0.50
Methylene chloride	502.2	51	80-120	0-40	0.69	1.0
Methyl t-butyl ether (MTBE)	502.2	51	80-120	0-40	1.9	2.0
Naphthalene	502.2	51	60-140	0-40	0.12	0.50
n-Propylbenzene	502.2	51	60-140	0-40	0.12	0.50

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Styrene*2	502.2	51	80-120	0-40	0.16	0.50
1,1,1,2-Tetrachloroethane	502.2	51	80-120	0-40	0.46	0.50
1,1,2,2-Tetrachloroethane	502.2	51	80-120	0-40	0.89	1.0
Tetrachloroethene	502.2	51	80-120	0-40	0.12	0.50
Toluene	502.2	51	80-120	0-17	0.080	0.50
1,2,3-Trichlorobenzene	502.2	51	60-140	0-40	0.12	0.50
1,2,4-Trichlorobenzene	502.2	51	60-140	0-40	0.44	0.50
1,1,1-Trichloroethane	502.2	51	80-120	0-40	0.42	0.50
1,1,2-Trichloroethane	502.2	51	80-120	0-40	0.12	0.50
Trichloroethene	502.2	51	80-120	0-24	0.28	0.50
Trichlorofluoromethane	502.2	51	60-140	0-40	0.43	0.50
1,2,3-Trichloropropane	502.2	51	80-120	0-40	0.89	1.0
1,2,4-Trimethylbenzene	502.2	51	60-140	0-40	0.14	0.50
1,3,5-Trimethylbenzene	502.2	51	60-140	0-40	0.37	0.50
Vinyl chloride	502.2	51	60-140	0-40	0.42	1.0
o-Xylene*2	502.2	51	80-120	0-40	0.16	0.50
m-Xylene*1	502.2	51	80-120	0-40	0.15	0.50
p-Xylene*1	502.2	51	80-120	0-40	0.15	0.50
Surrogate - Fluorobenzene	502.2	51	50-136	NA	NA	NA
Surrogate* - 2-Bromo-1-chloropropane	502.2	51	70-130	NA	NA	NA
Surrogate* - 1-Bromo-3-chloropropane	502.2	51	50-136	NA	NA	NA

*# = Where the number is the same for any 2 compounds, these compounds cannot be routinely resolved chromatographically and are therefore reported as a combined result.

* = either of these 2 surrogates may be analyzed

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Chloropicrin	504	51	60-140	0-40	0.0025	0.010
1,1-Dichloropropane	504	51	60-140	0-40	0.50	2.0
1,3-Dichloropropene	504	51	60-140	0-40	0.25	1.0
Methyl isothiocyanate	504	51	60-140	0-40	5.0	20
Dibromochloropropane (DBCP)	504.1	78	60-140	0-40	0.013	0.020
Ethylene dibromide (EDB)	504.1	78	60-140	0-40	0.017	0.020
1,2,3-Trichloropropane	504.1	78	60-140	0-40	0.020	0.080

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Alachlor	505	51	62-142	0-30	0.25	1.0
Aldrin	505	51	56-116	0-30	0.0025	0.010
Atrazine	505	51	36-134	0-40	0.25	1.0
gamma BHC (Lindane)	505	51	61-121	0-18	0.0058	0.010
alpha Chlordane	505	51	35-137	0-30	0.0033	0.010
gamma Chlordane	505	51	31-142	0-30	0.0039	0.010
technical Chlordane	505	51	68-142	0-40	0.025	0.10
Dieldrin	505	51	36-138	0-46	0.0060	0.020
Endrin	505	51	30-208	0-23	0.0073	0.020
Heptachlor	505	5	46-108	0-22	0.012	0.010
Heptachlor epoxide	505	51	53-147	0-30	0.0035	0.020
Hexachlorobenzene	505	51	64-145	0-40	0.012	0.050
Hexachlorocyclopentadiene	505	51	38-108	0-40	0.050	0.20
Methoxychlor	505	51	37-163	0-40	0.057	0.50
cis-Nonachlor	505	51	64-156	0-30	0.012	0.050
trans-Nonachlor	505	51	21-151	0-30	0.005	0.020
Simazine	505	51	69-129	0-40	0.25	1.0
Toxaphene	505	51	74-155	0-40	0.25	1.0
PCB 1016	505	51	7-127	0-40	0.12	0.50
PCB 1221	505	51	62-122	0-40	0.12	0.50
PCB 1232	505	51	56-116	0-40	0.12	0.50
PCB 1242	505	51	66-126	0-40	0.12	0.50
PCB 1248	505	51	54-114	0-40	0.12	0.50
PCB 1254	505	51	55-115	0-40	0.12	0.50
PCB 1260	505	51	58-118	0-40	0.12	0.50

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Alachlor	507	51	62-128	0-30	0.50	1.0
Ametryn	507	51	61-121	0-30	0.25	1.0
Atraton	507	51	58-124	0-30	1.2	5.0
Atrazine	507	51	62-122	0-30	0.083	1.0
Bromacil	507	51	61-121	0-30	0.50	2.0
Butachlor	507	51	66-126	0-30	0.30	1.0
Butylate	507	51	34-160	0-76	0.86	2.0
Carboxin	507	51	72-132	0-30	0.58	1.0
Chlorpropham	507	51	60-126	0-30	0.25	1.0
Cycloate	507	51	59-119	0-47	0.83	2.0
Diazinon	507	51	85-145	0-30	0.49	1.0
Dichlorvos	507	51	67-127	0-30	0.79	1.0
Diphenamid	507	51	63-123	0-30	0.96	2.0
Disulfoton	507	51	59-119	0-60	1.3	2.0
EPTC	507	51	55-115	0-55	0.68	2.0
Ethoprop	507	51	73-133	0-30	0.84	2.5
Fenamiphos	507	51	60-120	0-30	0.25	1.0
Fenarimol	507	51	69-129	0-30	1.0	1.0
Fluridone	507	51	57-117	0-30	1.2	5.0
Hexazinone	507	51	60-120	0-30	0.25	1.0
Merphos	507	51	66-126	0-30	1.0	2.5
Metalaxyl	507	51	40-160	0-30	0.56	1.0
Methyl paraoxon	507	51	68-128	0-30	0.62	1.0
Metolachlor	507	51	63-123	0-30	0.71	1.0
Metribuzin	507	51	71-131	0-30	0.44	1.0
Mevinphos	507	51	62-128	0-30	1.1	10
MGK 264	507	51	70-130	0-30	3.0	20
Molinate	507	51	44-152	0-74	0.84	2.0
Napropamide	507	51	71-131	0-30	0.81	1.0
Norflurazon	507	51	64-124	0-30	0.44	1.0
Pebulate	507	51	64-124	0-30	0.79	2.0
Prometon	507	51	48-108	0-30	0.25	1.0
Prometryn	507	51	63-123	0-30	0.25	1.0
Pronamide	507	51	61-121	0-30	1.2	2.0
Propazine	507	51	62-122	0-30	0.25	1.0
Simazine	507	51	70-130	0-30	0.38	1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Simetryn	507	51	69-129	0-30	0.25	1.0
Stirophos	507	51	68-128	0-30	0.25	1.0
Tebuthiuron	507	51	54-114	0-30	1.8	5.0
Terbacil	507	51	67-127	0-30	1.2	10
Terbufos	507	51	67-127	0-30	0.16	1.0
Terbutryn	507	51	64-124	0-30	0.25	1.0
Triademefon	507	51	63-123	0-30	0.25	1.0
Vernolate	507	51	56-116	0-30	0.16	2.0
Surrogate - Triphenylphosphate	507	51	70-130	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Aldrin	508	51	56-116	0-30	0.0027	0.010
alpha BHC	508	51	62-122	0-30	0.0032	0.010
beta BHC	508	51	65-125	0-30	0.0082	0.020
delta BHC	508	51	68-136	0-30	0.0017	0.010
gamma BHC (Lindane)	508	51	59-119	0-18	0.0018	0.010
alpha Chlordane	508	51	63-135	0-30	0.0025	0.010
gamma Chlordane	508	51	63-135	0-30	0.0034	0.010
Chloroneb	508	51	62-132	0-30	0.012	0.50
Chlorobenzilate	508	51	78-138	0-30	0.0051	0.20
Chlorothalonil	508	51	61-121	0-30	0.0010	0.20
Dacthal (DCPA)	508	51	66-140	0-30	0.0010	0.20
4,4'-DDD	508	51	77-137	0-30	0.0063	0.020
4,4'-DDE	508	51	63-135	0-30	0.0033	0.020
4,4'-DDT	508	51	62-162	0-28	0.0142	0.050
Dieldrin	508	51	57-117	0-46	0.0023	0.020
Endosulfan I	508	51	57-117	0-30	0.0019	0.020
Endosulfan II	508	51	62-122	0-30	0.0050	0.050
Endosulfan sulfate	508	51	56-148	0-40	0.0110	0.10
Endrin	508	51	58-118	0-23	0.0036	0.020
Endrin aldehyde	508	51	58-118	0-30	0.0077	0.10
Etridiazole	508	51	73-133	0-30	0.0021	0.10
Heptachlor	508	5	63-133	0-22	0.0050	0.010
Heptachlor epoxide	508	51	57-117	0-30	0.0023	0.020
Hexachlorobenzene	508	51	34-164	0-40	0.0107	0.050
Methoxychlor	508	51	64-146	0-40	0.0022	0.50
cis-Permethrin	508	51	61-121	0-30	0.0061	1.0
trans-Permethrin	508	51	81-141	0-30	0.0038	1.0
Propachlor	508	51	73-133	0-30	0.676	1.0
Toxaphene	508	51	60-150	0-40	0.23	1.0
Trifluralin	508	51	73-133	0-30	0.0018	0.050
PCB 1016	508	51	60-150	0-40	0.14	0.50
PCB 1221	508	51	60-150	0-40	0.29	0.50
PCB 1232	508	51	60-150	0-40	0.20	0.50
PCB 1242	508	51	60-150	0-40	0.29	0.50
PCB 1248	508	51	60-150	0-40	0.058	0.50
PCB 1254	508	51	60-150	0-40	0.22	0.50

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
PCB 1260	508	51	60-150	0-40	0.042	0.50
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX)	508	51	70-130	NA	NA	NA
Surrogate - 4,4-Dichlorobiphenyl	508	51	70-130	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acifluorfen	515.1	51	74-168	0-40	0.023	1.0
Bentazon	515.1	51	70-170	0-40	0.081	1.0
Chloramben	515.1	51	68-154	0-40	0.047	1.0
2,4-D	515.1	51	49-214	0-60	0.21	0.50
Dalapon	515.1	51	48-126	0-50	1.5	10
2,4-DB	515.1	51	48-126	0-40	0.34	0.50
Dicamba	515.1	51	38-232	0-40	0.090	0.50
3,5-Dichlorobenzoic acid	515.1	51	53-151	0-40	0.027	1.0
Dichlorprop	515.1	51	46-168	0-40	0.070	0.50
Dinoseb	515.1	51	DL-85	0-40	0.170	0.50
5-Hydroxydicamba	515.1	51	54-153	0-40	0.25	1.0
4-Nitrophenol	515.1	51	60-202	0-40	0.066	1.0
Pentachlorophenol	515.1	51	37-224	0-40	0.013	1.0
Picloram	515.1	51	45-138	0-40	0.223	0.50
2,4,5-T	515.1	51	68-166	0-62	0.027	0.50
2,4,5-TP (Silvex)	515.1	51	42-226	0-81	0.071	0.50
Surrogate - 2,4-Dichlorophenylacetic Acid (DCAA)	515.1	51	70-130	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acifluorfen	515.2	51	60-140	0-40	0.25	1.0
Bentazon	515.2	51	60-140	0-40	0.25	1.0
2,4-D	515.2	51	60-140	0-60	0.12	0.50
2,4-DB	515.2	51	60-140	0-40	0.12	0.50
Dacthal	515.2	51	60-140	0-40	0.12	0.50
Dicamba	515.2	51	60-140	0-40	0.12	0.50
3,5-Dichlorobenzoic acid	515.2	51	60-140	0-40	0.25	1.0
Dichlorprop	515.2	51	60-140	0-40	0.12	0.50
Dinoseb	515.2	51	60-140	0-40	0.12	0.50
5-Hydroxydicamba	515.2	51	60-140	0-40	0.25	1.0
Pentachlorophenol	515.2	51	60-140	0-40	0.25	1.0
Picloram	515.2	51	60-140	0-40	0.12	0.50
2,4,5-T	515.2	51	60-140	0-62	0.12	0.50
2,4,5-TP (Silvex)	515.2	51	60-140	0-81	0.12	0.50
Surrogate - 2,4-Dichlorophenylacetic Acid (DCAA)	515.2	51	60-140	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Benzene	524.2	51	70-130	0-40	0.073	0.50
Bromobenzene	524.2	51	70-130	0-40	0.34	1.0
Bromochloromethane	524.2	51	70-130	0-40	0.20	1.0
Bromodichloromethane	524.2	51	70-130	0-40	0.23	1.0
Bromoform	524.2	51	70-130	0-40	0.49	1.0
Bromomethane	524.2	51	70-130	0-40	0.24	2.0
n-Butylbenzene	524.2	51	70-130	0-40	0.16	1.0
sec-Butylbenzene	524.2	51	70-130	0-40	0.16	1.0
tert-Butylbenzene	524.2	51	70-130	0-40	0.08	1.0
Carbon tetrachloride	524.2	51	70-130	0-40	0.22	0.50
Chlorobenzene	524.2	51	70-130	0-40	0.21	0.50
Chloroethane	524.2	51	70-130	0-40	0.15	2.0
Chloroform	524.2	51	70-130	0-40	0.10	1.0
Chloromethane	524.2	51	70-130	0-40	0.37	2.0
2-Chlorotoluene	524.2	51	70-130	0-40	0.11	1.0
4-Chlorotoluene	524.2	51	70-130	0-40	0.42	1.0
Dibromochloromethane	524.2	51	70-130	0-40	0.34	1.0
1,2-Dibromo-3-chloropropane	524.2	51	70-130	0-40	1.02	2.0
1,2-Dibromoethane	524.2	51	70-130	0-40	0.38	1.0
Dibromomethane	524.2	51	70-130	0-40	0.40	1.0
1,2-Dichlorobenzene	524.2	51	70-130	0-40	0.35	0.50
1,3-Dichlorobenzene	524.2	51	70-130	0-40	0.20	1.0
1,4-Dichlorobenzene	524.2	51	70-130	0-40	0.16	0.50
Dichlorodifluoromethane	524.2	51	70-130	0-40	0.33	1.0
1,1-Dichloroethane	524.2	51	70-130	0-40	0.06	1.0
1,2-Dichloroethane	524.2	51	70-130	0-40	0.41	0.50
1,1-Dichloroethene	524.2	51	70-130	0-40	0.18	0.50
cis-1,2-Dichloroethene	524.2	51	70-130	0-40	0.18	0.50
trans-1,2-Dichloroethene	524.2	51	70-130	0-40	0.21	0.50
1,2-Dichloropropane	524.2	51	70-130	0-40	0.18	0.50
1,3-Dichloropropane	524.2	51	70-130	0-40	0.33	1.0
2,2-Dichloropropane	524.2	51	70-130	0-40	0.15	1.0
1,1-Dichloropropene	524.2	51	70-130	0-40	0.22	1.0
cis-1,3-Dichloropropene	524.2	51	70-130	0-40	0.25	1.0
trans-1,3-Dichloropropene	524.2	51	70-130	0-40	0.28	1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Ethylbenzene	524.2	51	70-130	0-40	0.033	0.50
Hexachlorobutadiene	524.2	51	70-130	0-40	0.15	1.0
Isopropylbenzene	524.2	51	70-130	0-40	0.06	1.0
4-Isopropyltoluene	524.2	51	70-130	0-40	0.07	1.0
Methylene chloride	524.2	51	70-130	0-40	0.35	0.50
Methyl t-butyl ether (MTBE)	524.2	51	70-130	0-40	1.1	2.0
Naphthalene	524.2	51	70-130	0-40	0.91	1.0
n-Propylbenzene	524.2	51	70-130	0-40	0.09	1.0
Styrene	524.2	51	70-130	0-40	0.30	0.50
1,1,1,2-Tetrachloroethane	524.2	51	70-130	0-40	0.22	1.0
1,1,2,2-Tetrachloroethane	524.2	51	70-130	0-40	0.67	1.0
Tetrachloroethene	524.2	51	70-130	0-40	0.12	0.50
Toluene	524.2	51	70-130	0-40	0.27	0.50
1,2,3-Trichlorobenzene	524.2	51	70-130	0-40	0.78	1.0
1,2,4-Trichlorobenzene	524.2	51	70-130	0-40	0.38	0.50
1,1,1-Trichloroethane	524.2	51	70-130	0-40	0.27	0.50
1,1,2-Trichloroethane	524.2	51	70-130	0-40	0.36	0.50
Trichloroethene	524.2	51	70-130	0-40	0.087	0.50
Trichlorofluoromethane	524.2	51	70-130	0-40	0.099	1.0
1,2,3-Trichloropropane	524.2	51	70-130	0-40	0.86	1.0
1,2,4-Trimethylbenzene	524.2	51	70-130	0-40	0.12	1.0
1,3,5-Trimethylbenzene	524.2	51	70-130	0-40	0.05	1.0
Vinyl chloride	524.2	51	70-130	0-40	0.37	0.50
o-Xylene	524.2	51	70-130	0-40	0.14	0.50
m-Xylene, p-Xylene	524.2	51	70-130	0-40	0.11	0.50
Surrogate - p-Bromofluorobenzene	524.2	51	70-130	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acenaphthylene	525.2	51	70-130	0-50	0.01	0.50
Alachlor	525.2	51	70-130	0-50	0.10	1.0
Aldrin	525.2	51	35-130	0-50	0.04	1.0
Anthracene	525.2	51	70-130	0-50	0.005	0.50
Atrazine	525.2	51	70-130	0-50	0.06	2.0
Benz(a)anthracene	525.2	51	70-130	0-50	0.01	0.50
Benzo(b)fluoranthene	525.2	51	35-130	0-50	0.02	0.50
Benzo(k)fluoranthene	525.2	51	35-130	0-50	0.02	0.50
Benzo(a)pyrene	525.2	51	35-130	0-50	0.03	0.20
Benzo(g,h,i)perylene	525.2	51	35-130	0-50	0.04	0.50
Butyl benzyl phthalate	525.2	51	70-130	0-50	0.06	1.0
alpha Chlordane	525.2	51	35-130	0-50	0.19	1.0
gamma Chlordane	525.2	51	35-130	0-50	0.19	1.0
Chrysene	525.2	51	70-130	0-50	0.01	0.50
Dibenz(a,h)anthracene	525.2	51	35-130	0-50	0.04	0.50
Di-n-butyl phthalate	525.2	51	70-130	0-50	0.03	10
Diethylphthalate	525.2	51	70-130	0-50	0.07	2.0
bis(2-ethylhexyl)adipate	525.2	51	35-130	0-50	0.02	1.0
bis(2-ethylhexyl)phthalate	525.2	51	35-130	0-50	0.12	2.0
Dimethylphthalate	525.2	51	70-130	0-50	0.009	1.0
Endrin	525.2	51	35-130	0-50	0.20	5.0
Fluorene	525.2	51	70-130	0-50	0.015	0.50
Heptachlor	525.2	51	35-130	0-50	0.05	1.0
Heptachlor epoxide	525.2	51	35-130	0-50	0.023	1.0
Hexachlorobenzene	525.2	51	35-130	0-50	0.029	0.50
Hexachlorocyclopentadiene	525.2	51	35-130	0-50	0.035	0.50
Indeno(1,2,3-cd)pyrene	525.2	51	35-130	0-50	0.044	0.50
Lindane	525.2	51	35-130	0-50	0.25	1.0
Methoxychlor	525.2	51	35-130	0-50	0.56	1.0
trans-Nonachlor	525.2	51	35-130	0-50	0.26	1.0
Pentachlorophenol	525.2	51	35-130	0-50	0.75	3.0
Phenanthrene	525.2	51	70-130	0-50	0.02	0.50
Pyrene	525.2	51	70-130	0-50	0.02	0.50
Simazine	525.2	51	70-130	0-50	0.02	2.0
Toxaphene	525.2	51	35-130	0-50	12	50

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
PCBs:						
2-Chlorobiphenyl	525.2	51	70-130	0-50	0.15	5.0
2,3-Dichlorobiphenyl	525.2	51	70-130	0-50	0.20	5.0
2,4,5-Trichlorobiphenyl	525.2	51	35-130	0-50	0.03	5.0
2,2',4,4'-Tetrachlorobiphenyl (MS)	525.2	51	35-130	0-50	0.07	5.0
2,2',3',4,6-Pentachlorobiphenyl	525.2	51	35-130	0-50	0.03	5.0
2,2',4,4',5,6'-Hexachlorobiphenyl	525.2	51	35-130	0-50	0.21	5.0
2,2',3,3',4,4',6-Heptachlorobiphenyl	525.2	51	35-130	0-50	0.27	5.0
2,2',3,3',4,5',6,6'-Octachlorobiphenyl	525.2	51	35-130	0-50	0.04	5.0
Surrogate - Perylene-d12	525.2	51	35-130	NA	NA	NA
Surrogate - Pyrene-d10	525.2	51	70-130	NA	NA	NA
Surrogate - 1,3-dimethyl-2-nitrobenzene	525.2	51	70-130	NA	NA	NA
Surrogate - Triphenylphosphate	525.2	51	70-130	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Aldicarb (MS)	531.1	33/51	61-123	0-20	0.23	0.50
Aldicarb sulfone	531.1	33/51	71-131	0-20	0.30	0.50
Aldicarb sulfoxide	531.1	33/51	67-127	0-40	0.15	0.50
Carbaryl	531.1	33/51	67-127	0-30	0.37	1.0
Carbofuran (MS)	531.1	33/51	55-121	0-20	0.18	1.0
3-Hydroxycarbofuran	531.1	33/51	72-132	0-20	0.33	1.0
Methiocarb	531.1	51	64-124	0-40	0.35	5.0
Methomyl	531.1	33/51	75-135	0-20	0.40	1.0
Oxamyl (MS)	531.1	33/51	64-128	0-30	0.30	1.0
Propoxur (Baygon)	531.1	33/51	76-136	0-40	0.36	1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Glyphosate	547	51	53-125	0-50	35	150
Endothall	548.1	51	15-122	0-50	6.3	25
Diquat	549.1	51/56	16-120	0-50	0.11	1.0
Paraquat	549.1	51/56	27-127	0-50	0.17	1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Bromodichloromethane	601	1	42-172	0-20	0.30	1.0
Bromoform	601	1	13-159	0-30	0.86	5.0
Bromomethane	601	1	D-144	0-31	0.32	1.0
Carbon tetrachloride	601	1	43-143	0-20	0.30	1.0
Chlorobenzene	601	1	38-150	0-18	0.26	1.0
Chloroethane	601	1	46-137	0-18	0.45	1.0
Chloroform	601	1	49-133	0-15	0.18	1.0
2-Chloroethylvinyl ether	601	1	14-186	0-25	0.43	10
Chloromethane	601	1	D-193	0-57	0.34	1.0
Dibromochloromethane	601	1	24-191	0-20	0.20	1.0
1,2-Dichlorobenzene	601	1	D-208	0-18	0.26	1.0
1,3-Dichlorobenzene	601	1	7-187	0-18	0.33	1.0
1,4-Dichlorobenzene	601	1	42-143	0-18	0.21	1.0
Dichlorodifluoromethane	601	1	50-130	0-30	0.29	1.0
1,1-Dichloroethane	601	1	47-132	0-20	0.31	1.0
1,2-Dichloroethane	601	1	51-147	0-20	0.33	1.0
1,1-Dichloroethene	601	1	28-167	0-20	0.52	1.0
cis-1,2-Dichloroethene	601	1	38-155	0-20	0.25	1.0
trans-1,2-Dichloroethene	601	1	38-155	0-20	0.31	1.0
Methylene chloride	601	1	25-162	0-20	0.83	5.0
1,2-Dichloropropane	601	1	44-156	0-18	0.30	1.0
cis-1,3-Dichloropropylene	601	1	22-178	0-20	0.20	1.0
trans-1,3-Dichloropropylene	601	1	22-178	0-17	0.20	1.0
1,1,2,2-Tetrachloroethane	601	1	8-184	0-20	0.33	1.0
Tetrachloroethylene	601	1	26-162	0-30	0.33	1.0
1,1,1-Trichloroethane	601	1	41-138	0-19	0.24	1.0
1,1,2-Trichloroethane	601	1	39-136	0-16	0.52	1.0
Trichloroethene	601	1	35-146	0-16	0.53	1.0
Trichlorofluoromethane	601	1	21-156	0-16	0.79	1.0
Vinyl chloride	601	1	28-163	0-20	0.90	1.0
Surrogate - Bromochloromethane	601	1	12-152	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Benzene	602	1	39-150	0-34	0.21	1.0
Chlorobenzene	602	1	55-135	0-10	0.17	1.0
1,2-Dichlorobenzene	602	1	37-154	0-14	0.16	1.0
1,3-Dichlorobenzene	602	1	50-141	0-7	0.10	1.0
1,4-Dichlorobenzene	602	1	42-143	0-15	0.080	1.0
Ethylbenzene	602	1	32-160	0-15	0.19	1.0
Methyl Tert-Butyl Ether (MTBE)	602	1	50-150	0-30	2.2	10
Toluene	602	1	46-148	0-25	0.17	1.0
Xylenes, m and p	602	1	50-150	0-30	0.35	1.0
Xylenes, o	602	1	50-150	0-30	0.29	1.0
Xylenes, total	602	1	50-150	0-30	0.81	2.0
Surrogate - a,a,a-Trifluorotoluene	602	1	41-150	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (%RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acrolein	603	1	88-118	0-30	8.3	20
Acrylonitrile	603	1	71-135	0-30	6.3	20
Surrogate - a,a,a-Trifluorotoluene	603	1	41-150	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2-Chlorophenol	604	1	38-126	0-28	4.1	10
4-Chloro-3-methylphenol	604	1	49-122	0-16	4.1	10
2,4-Dichlorophenol	604	1	44-119	0-21	4.0	10
2,4-Dimethylphenol	604	1	24-118	0-30	4.0	10
2,4-Dinitrophenol	604	1	12-145	0-36	5.6	50
2-Methyl-4,6-dinitrophenol	604	1	30-136	0-33	4.2	50
2-Nitrophenol	604	1	43-117	0-26	3.4	10
4-Nitrophenol	604	1	13-110	0-33	2.9	50
Pentachlorophenol	604	1	36-134	0-24	4.2	50
Phenol	604	1	23-108	0-56	4.9	10
2,4,6-Trichlorophenol	604	1	53-119	0-30	3.6	10
Surrogate - 2,4,6-Tribromophenol	604	1	14-144	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Bis(2-ethylhexyl) phthalate	606	1	D-158	0-82	1.2	10
Butyl benzyl phthalate	606	1	30-136	0-73	1.3	10
Diethyl phthalate	606	1	D-149	0-47	1.8	10
Dimethyl phthalate	606	1	D-156	0-63	1.8	10
Di-n-butyl phthalate	606	1	23-136	0-46	1.8	10
Di-n-octyl phthalate	606	1	D-114	0-52	2.7	10
Surrogate - 2-Fluorobiphenyl	606	1	24-160	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
N-Nitrosodimethylamine	607	1	13-109	0-38	1.7	2.0
N-Nitrosodi-n-propylamine	607	1	45-146	0-75	1.8	2.0
N-Nitrosodiphenylamine	607	1	D-139	0-67	2.1	3.0
Surrogate - Triphenylphosphate	607	1	40-140	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Aldrin	608	1	42-122	0-28	0.024	0.050
alpha BHC	608	1	37-134	0-28	0.021	0.050
beta BHC	608	1	17-147	0-25	0.047	0.050
delta BHC	608	1	19-140	0-17	0.0009	0.050
gamma BHC (Lindane)	608	1	32-127	0-23	0.0019	0.050
technical Chlordane	608	1	45-119	0-30	0.11	0.50
4,4'-DDD	608	1	31-141	0-20	0.0016	0.10
4,4'-DDE	608	1	30-145	0-21	0.0007	0.10
4,4'-DDT	608	1	25-160	0-19	0.0079	0.10
Dieldrin	608	1	36-146	0-35	0.0019	0.10
Endosulfan I	608	1	45-153	0-20	0.0033	0.050
Endosulfan II	608	1	D-202	0-20	0.0055	0.10
Endosulfan sulfate	608	1	26-144	0-20	0.0047	0.10
Endrin	608	1	30-147	0-66	0.0008	0.10
Endrin aldehyde	608	1	49-169	0-58	0.0046	0.10
Heptachlor	608	1	34-111	0-43	0.0015	0.050
Heptachlor epoxide	608	1	37-142	0-20	0.0016	0.050
Toxaphene	608	1	41-126	0-30	1.6	5.0
PCB 1016	608	1	50-114	0-30	0.079	1.0
PCB 1221	608	1	15-178	0-30	0.51	1.0
PCB 1232	608	1	10-215	0-30	0.16	1.0
PCB 1242	608	1	39-150	0-30	0.22	1.0
PCB 1248	608	1	38-158	0-30	0.26	1.0
PCB 1254	608	1	29-131	0-30	0.068	1.0
PCB 1260	608	1	8-127	0-30	0.14	1.0
Surrogate - Dibutylchlorendate (DBC)	608	1	23-174	NA	NA	NA
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX)	608	1	10-127	NA	NA	NA
Surrogate - Decachlorobiphenyl (DCB)	608	1	10-158	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Chloroneb	608.1	10/2	49-125	0-30	0.091	0.40
Chloropropylate	608.1	10/2	51-125	0-30	0.070	0.50
Chlorobenzilate (MS)	608.1	10/2	53-125	0-30	0.17	0.50
Etridiazole	608.1	10/2	60-125	0-30	0.0018	0.020
PCNB	608.1	10/2	60-125	0-30	0.0033	0.60
Propachlor	608.1	10/2	51-125	0-30	0.020	0.50
Chlorothalonil	608.2	57/2	55-125	0-30	0.016	0.20
DCPA (Dacthal)	608.2	57/2	50-150	0-40	0.0031	0.50
Dichloran	608.2	57	56-110	0-40	0.017	5.0
Methoxychlor	608.2	57/2	50-140	0-40	0.0047	0.50
Permethrin	608.2	57/2	50-130	0-40	0.081	1.0
Surrogate - Dibutylchlorendate (DBC)	608.1/608.2	10/57	23-174	NA	NA	NA
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX)	608.1/608.2	10/57	10-127	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2,4-Dinitrotoluene	609(FID) 609(ECD)	1 1	6-125 6-125	0-40 0-40	2.5 0.075	10 0.30
2,6-Dinitrotoluene	609(FID) 609(ECD)	1 1	8-126 8-126	0-40 0-40	2.5 0.075	10 0.30
Isophorone	609	1	D-117	0-40	1.2	10
Nitrobenzene	609	1	6-118	0-40	1.5	10
Surrogate - 2-Fluorobiphenyl	609(FID)	1	27-123	NA	NA	NA
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX)	609(ECD)	1	10-127	NA	NA	NA
Surrogate - Decachlorobiphenyl (DCB)	609(ECD)	1	10-158	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acenaphthene	610	1	D-124	0-21	1.6	10
Acenaphthylene	610	1	D-139	0-30	2.0	10
Anthracene#1	610	1	D-126	0-28	2.4	10
Benzo(a)anthracene#2	610	1	12-135	0-38	3.9	10
Benzo(a)pyrene	610	1	D-128	0-40	1.6	10
Benzo(b)fluoranthene#3	610	1	6-150	0-51	3.4	10
Benzo(k)fluoranthene#3	610	1	6-150	0-51	3.4	10
Benzo(g,h,i)perylene	610	1	D-116	0-61	1.3	10
Chrysene#2	610	1	12-135	0-38	3.9	10
Fluoranthene	610	1	14-123	0-23	1.6	10
Fluorene	610	1	D-142	0-23	1.6	10
Indeno(1,2,3-cd) pyrene#4	610	1	D-116	0-52	3.1	10
Dibenzo(a,h)anthracene#4	610	1	D-116	0-52	3.1	10
Naphthalene	610	1	D-122	0-28	1.4	10
Phenanthrene#1	610	1	D-126	0-28	2.4	10
Pyrene	610	1	D-140	0-28	0.95	10
Surrogate - 2-Fluorobiphenyl	610	1	22-142	NA	NA	NA
Surrogate - o-Terphenyl	610	1	10-185	NA	NA	NA

*# = where the number is the same for any 2 compounds, these compounds cannot be routinely resolved chromatographically and are therefore reported as a combined result.

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Bis(2-chloroethoxy)methane	611	1	12-128	0-50	1.0	5.0
Bis(2-chloroethyl)ether	611	1	11-152	0-50	1.8	20
Bis(2-chloroisopropyl)ether	611	1	9-165	0-50	2.5	10
4-Bromophenyl phenyl ether	611	1	D-189	0-50	1.3	5.0
4-Chlorophenyl phenyl ether	611	1	D-170	0-50	8.8	40
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX)	611	1	10-127	NA	NA	NA
Surrogate - Decachlorobiphenyl (DCB)	611	1	10-158	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2-Chloronaphthalene	612	1	9-148	0-50	1.4	10
1,2-Dichlorobenzene	612	1	9-160	0-50	0.20	10
1,3-Dichlorobenzene	612	1	D-150	0-50	0.24	10
1,4-Dichlorobenzene	612	1	13-137	0-50	0.57	10
Hexachlorobenzene	612	1	15-159	0-50	0.002	0.10
Hexachlorobutadiene	612	1	D-139	0-50	0.005	0.10
Hexachlorocylcopentadiene	612	1	D-111	0-50	0.003	0.10
Hexachloroethane	612	1	8-139	0-50	0.001	0.10
1,2,4-Trichlorobenzene	612	1	5-149	0-50	0.06	1.0
Surrogate - 2,3,4,5,6-Tetrachloro-m-xylene (TCMX)	612	1	10-127	NA	NA	NA
Surrogate - Decachlorobiphenyl (DCB)	612	1	10-158	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) (MS)	613	1	63-137	0-40	0.0042	0.0050
Internal Standard - $^{13}C_{12}$-2,3,7,8-TCDD	613	1	> 50	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Aspon	622.1	8	62-104	0-40	0.25	1.0
Azinphos methyl	614/622	14/2	16-129	0-50	0.55	1.0
Bolstar	622	14/2	58-156	0-40	0.57	1.0
Chlorpyrifos	622	52/14/2	55-115	0-40	0.25	1.0
Chlorpyrifos methyl	622	14	20-130	0-40	0.43	1.0
Coumaphos	622	14/2	51-147	0-40	0.53	1.0
Demeton-o	614/622	52/14/2	36-120	0-40	0.40	2.5
Demeton-s	614/622	52/14/2	36-120	0-40	0.40	2.5
Diazinon (MS)	614/622	52/14/2	36-124	0-40	0.30	1.0
Dichlofenthion	622.1	52/2/8	62-104	0-40	0.25	1.0
Dichlorvos	622	14/2	49-120	0-40	0.35	2.0
Dioxathion	614.1	52/2	25-140	0-40	2.5	10
Disulfoton	614/622	52/14/2	10-178	0-66	0.34	2.0
EPN	614.1	58/2	48-124	0-40	0.59	1.0
Ethion	614/614.1	52/58/2	40-138	0-40	0.11	0.50
Ethoprop	622	52/14/2	58-113	0-40	0.44	0.50
Famphur	622.1	2/8	10-129	0-60	1.0	2.0
Fenamiphos	614	52	40-160	0-40	0.59	2.0
Fenitrothion	622.1	8	61-103	0-40	0.50	2.0
Fensulfothion	622	14/2	43-145	0-40	1.0	5.0
Fenthion	622	14/2	10-128	0-60	0.37	1.0
Fonophos	622.1	8	53-133	0-40	0.25	1.0
Isofenphos	614	52	40-160	0-40	0.060	0.50
Malathion	614	52	60-140	0-40	0.50	1.0
Merphos	622	14/2	50-130	0-40	0.56	1.0
Metalaxyl	614	52	38-141	0-72	0.54	1.0
Metribuzin	614	52	75-177	0-20	0.31	2.0
Mevinphos	622	52/14/2	34-125	0-40	0.38	2.0
Naled	622	14/2	54-102	0-40	0.45	5.0
Parathion, ethyl (MS)	614	52/2	10-163	0-34	0.50	1.0
Parathion, methyl (MS)	614/622	52/14/2	16-148	0-32	0.36	0.50
Phorate	622	14/2	36-125	0-40	0.49	1.0
Phosmet	622.1	8	50-150	0-40	0.25	1.0
Ronnel (MS)	622	14/2	45-135	0-35	0.36	1.0
Stirophos (Tetrachlorvinphos)	622	14/2	48-125	0-40	0.25	1.0
Terbufos	614.1	58	40-160	0-40	0.50	0.50

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Thionazin (MS)	622.1	2/8	25-160	0-60	0.56	1.0
Tokuthion (Prothiofos)	622	14/2	44-125	0-40	0.50	1.0
Trichloronate	622	14/2	49-161	0-40	0.42	1.0
Surrogate - Triphenylphosphate	614/622.1/622	14/20/2	40-140	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Captan (MS)	617	26	55-125	0-40	0.016	0.10
Carbophenothion	617	26	50-110	0-40	0.17	1.0
Dichloran	617	26	56-110	0-40	0.071	5.0
Dicofol	617	26	55-115	0-40	0.0067	0.10
Isodrin (MS)	617	26	55-110	0-40	0.0089	0.050
Mirex	617	26	54-104	0-40	0.027	0.50
PCNB	617	26	54-100	0-40	0.0033	0.020
Pendimethalin	617	26	75-146	0-20	0.0021	0.020
Perthane	617	26	55-115	0-40	1.2	5.0
Strobane	617	26	48-127	0-40	0.50	2.0
Trifluralin	617	26	54-124	0-40	0.0067	0.025
Chloropicrin	618	27	62-134	0-40	0.25	1.0
Ethylene dibromide	618	27	48-90	0-40	0.12	0.50
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX)	617/618	26/27	10-127	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Alachlor	619	7	45-140	0-30	0.20	2.0
Ametryn	619	7/2	60-120	0-40	0.089	2.0
Atraton	619	7	50-115	0-40	0.086	5.0
Atrazine (MS)	619	7/2	40-125	0-30	0.068	2.0
Bromacil	619	7	55-127	0-30	0.24	2.0
Hexazinone	619	7	50-130	0-30	0.72	2.0
Metalachlor	619	7	39-125	0-27	1.2	5.0
Metalaxyl	619	7	50-130	0-40	0.25	1.0
Metribuzin	619	7	61-141	0-30	0.50	2.0
Norflurazon	619	7	54-134	0-30	0.24	2.0
Prometon	619	7/2	55-124	0-40	0.10	2.0
Prometryn	619	7/2	55-120	0-40	0.080	2.0
Propazine (MS)	619	7/2	32-127	0-20	0.080	2.0
Secbumeton	619	7	30-130	0-45	0.042	5.0
Simetryn	619	7	50-200	0-40	0.059	2.0
Simazine	619	7/2	25-174	0-50	0.21	2.0
Terbuthylazine	619	7/2	60-130	0-40	0.093	2.0
Terbutryn	619	7	53-113	0-40	0.066	2.0
Triadimefon	619	7	61-125	0-30	0.31	2.0
Diphenylamine	620	23	56-125	0-30	0.50	2.0
Surrogate - Triphenylphosphate	619/620	7/23	40-140	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Benzene	624 624(25-mL purge)	1 1	37-151 37-151	0-31 0-35	0.80 0.14	5.0 1.0
Bromodichloromethane	624 624(25-mL purge)	1 1	35-155 35-155	0-16 0-16	0.42 0.18	5.0 1.0
Bromoform	624 624(25-mL purge)	1 1	45-169 45-169	0-30 0-30	0.83 0.30	5.0 1.0
Bromomethane	624 624(25-mL purge)	1 1	D-242 D-242	0-32 0-32	3.5 0.34	10 1.0
Carbon tetrachloride	624 624(25-mL purge)	1 1	70-140 70-140	0-21 0-21	0.34 0.22	5.0 1.0
Chlorobenzene	624 624(25-mL purge)	1 1	37-160 37-160	0-22 0-16	0.41 0.22	5.0 1.0
Chloroethane	624 624(25-mL purge)	1 1	14-230 14-230	0-36 0-36	1.1 0.71	10 1.0
2-Chloroethyl vinyl ether	624 624(25-mL purge)	1 1	D-305 D-305	0-96 0-96	2.2 0.17	50 10
Chloroform	624 624(25-mL purge)	1 1	51-138 51-138	0-62 0-62	0.65 0.17	5.0 1.0
Chloromethane	624 624(25-mL purge)	1 1	D-273 D-273	0-65 0-65	1.1 0.58	10 1.0
Dibromochloromethane	624 624(25-mL purge)	1 1	53-149 53-149	0-15 0-15	0.67 0.29	5.0 1.0
1,2-Dichlorobenzene	624 624(25-mL purge)	1 1	18-190 18-190	0-21 0-21	0.40 0.24	5.0 1.0
1,3-Dichlorobenzene	624 624(25-mL purge)	1 1	59-156 59-156	0-23 0-23	0.83 0.31	5.0 1.0
1,4-Dichlorobenzene	624 624(25-mL purge)	1 1	18-190 18-190	0-28 0-28	0.61 0.28	5.0 1.0
1,1-Dichloroethane	624 624(25-mL purge)	1 1	59-155 59-155	0-40 0-40	0.61 0.19	5.0 1.0
1,2-Dichloroethane	624 624(25-mL purge)	1 1	49-155 49-155	0-26 0-26	0.56 0.64	5.0 1.0
trans-1,2-Dichloroethene	624 624(25-mL purge)	1 1	54-156 54-156	0-40 0-40	0.77 0.31	5.0 1.0
1,1-Dichloroethene	624 624(25-mL purge)	1 1	D-234 D-234	0-16 0-16	0.62 0.44	5.0 1.0
1,2-Dichloropropane	624 624(25-mL purge)	1 1	D-210 D-210	0-15 0-15	0.80 0.28	5.0 1.0
cis-1,3-Dichloropropene	624 624(25-mL purge)	1 1	D-227 D-227	0-19 0-19	0.52 0.25	5.0 1.0
trans-1,3-Dichloropropene	624 624(25-mL purge)	1 1	17-183 17-183	0-18 0-18	0.47 0.50	5.0 1.0
Ethylbenzene	624 624(25-mL purge)	1 1	37-162 37-162	0-23 0-23	0.68 0.24	5.0 1.0
Methylene chloride	624 624(25-mL purge)	1 1	D-221 D-221	0-37 0-37	0.72 0.48	5.0 5.0
1,1,2,2-Tetrachloroethane	624 624(25-mL purge)	1 1	46-157 46-157	0-25 0-25	1.3 0.19	5.0 1.0
Tetrachloroethene	624 624(25-mL purge)	1 1	64-148 64-148	0-19 0-19	0.73 0.27	5.0 1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL** (ug/L)
Toluene	624 624(25-mL purge)	1 1	47-150 47-150	0-24 0-24	0.59 0.20	5.0 1.0
1,1,1-Trichloroethane	624 624(25-mL purge)	1 1	52-162 52-162	0-11 0-11	0.59 0.17	5.0 1.0
1,1,2-Trichloroethane	624 624(25-mL purge)	1 1	52-150 52-150	0-16 0-16	0.37 0.34	5.0 1.0
Trichloroethene	624 624(25-mL purge)	1 1	71-157 71-157	0-24 0-24	0.45 0.16	5.0 1.0
Trichlorofluoromethane	624 624(25-mL purge)	1 1	17-181 17-181	0-65 0-65	0.92 0.14	5.0 1.0
Vinyl chloride	624 624(25-mL purge)	1 1	D-251 D-251	0-33 0-33	1.4 0.65	10 1.0
Surrogate - Toluene-d8	624 624(25-mL purge)	1 1	59-133 83-119	NA NA	NA NA	NA NA
Surrogate - p-Bromofluorobenzene	624 624(25-mL purge)	1 1	60-136 79-121	NA NA	NA NA	NA NA
Surrogate - 1,2-Dichloroethane-d4	624 624(25-mL purge)	1 1	49-144 71-141	NA NA	NA NA	NA NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acenaphthene	625	1	47-145	0-30	0.16	10
Acenaphthylene	625	1	33-145	0-38	0.16	10
Aldrin	625	1	D-166	0-17	0.77	10
Anthracene	625	1	27-133	0-27	0.12	10
Benzidine	625	1	D-200	0-100	62	80
Benzo(a)anthracene	625	1	33-143	0-32	0.10	10
Benzo(b)fluoranthene	625	1	24-159	0-31	0.072	10
Benzo(k)fluoranthene	625	1	11-162	0-36	0.085	10
Benzo(g,h,i)perylene	625	1	D-219	0-32	0.080	10
Benzo(a)pyrene	625	1	17-163	0-39	0.11	10
alpha-BHC	625	1	10-150	0-50	0.95	10
beta-BHC	625	1	24-149	0-12	1.0	10
delta-BHC	625	1	D-110	0-16	1.0	10
gamma-BHC	625	1	10-150	0-50	1.3	10
Bis(2-chloroethoxy) methane	625	1	33-184	0-35	1.0	10
Bis(2-chloroethyl) ether	625	1	12-158	0-28	0.67	10
Bis(2-chloroisopropyl) ether (2,2-Oxybis(1-chloropropane)	625	1	36-166	0-25	0.85	10
Bis(2-ethylhexyl) phthalate	625	1	8-158	0-39	0.56	10
4-Bromophenyl phenyl ether	625	1	53-127	0-32	0.64	10
Butyl benzyl phthalate	625	1	D-152	0-30	4.3	10
Technical Chlordane	625	1	34-136	0-26	12	50
4-Chloro-3-methyl-phenol	625	1	22-147	0-29	0.14	10
2-Chloronaphthalene	625	1	60-118	0-23	0.65	10
2-Chlorophenol	625	1	23-134	0-35	0.33	10
4-Chlorophenylphenyl ether	625	1	25-158	0-54	0.59	10
Chrysene	625	1	17-168	0-26	0.19	10
4,4'-DDD	625	1	D-145	0-27	1.4	10
4,4'-DDE	625	1	4-136	0-26	1.1	10
4,4'-DDT	625	1	D-203	0-39	1.9	10
Dibenz(a,h)anthracene	625	1	D-227	0-37	0.077	10
Di-n-butyl phthalate	625	1	1-118	0-21	0.54	10
1,2-Dichlorobenzene	625	1	32-129	0-41	0.62	10
1,3-Dichlorobenzene	625	1	D-172	0-52	0.60	10
1,4-Dichlorobenzene	625	1	20-124	0-43	0.52	10
3,3'-Dichlorobenzidine	625	1	D-262	0-193	14	20

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2,4-Dichlorophenol	625	1	39-135	0-24	0.096	10
Dieldrin	625	1	29-136	0-20	3.0	10
Diethyl phthalate	625	1	D-114	0-32	0.46	10
2,4-Dimethylphenol	625	1	32-119	0-44	0.13	10
Dimethylphthalate	625	1	D-112	0-20	0.54	10
4,6-Dinitro-2-methylphenol	625	1	D-181	0-39	0.26	50
2,4-Dinitrophenol	625	1	D-191	0-94	0.38	50
2,4-Dinitrotoluene	625	1	39-139	0-54	0.30	10
2,6-Dinitrotoluene	625	1	50-158	0-37	0.44	10
Di-n-octyl phthalate	625	1	4-146	0-32	0.43	10
Diphenylamine N-nitrosodiphenylamine	625	1	10-150	0-50	1.8	10
Endosulfan I	625	1	10-150	0-50	1.2	20
Endosulfan II	625	1	10-150	0-50	1.9	20
Endosulfan sulfate	625	1	D-107	0-25	1.5	20
Endrin	625	1	10-150	0-50	2.2	20
Endrin aldehyde	625	1	D-209	0-59	3.0	50
Fluoranthene	625	1	26-137	0-27	0.066	10
Fluorene	625	1	59-121	0-17	0.13	10
Heptachlor	625	1	D-192	0-36	1.5	20
Heptachlor epoxide	625	1	26-155	0-25	1.7	20
Hexachlorobenzene	625	1	D-152	0-20	0.58	10
Hexachlorobutadiene	625	1	24-116	0-28	0.70	10
Hexachlorocyclopentadiene	625	1	D-200	0-50	0.22	10
Hexachloroethane	625	1	40-113	0-55	0.61	10
Indeno(1,2,3-cd)pyrene	625	1	D-171	0-37	0.13	10
Isophorone	625	1	21-196	0-22	0.61	10
Naphthalene	625	1	21-133	0-36	0.093	10
Nitrobenzene	625	1	35-180	0-33	1.0	10
2-Nitrophenol	625	1	29-182	0-28	0.21	10
4-Nitrophenol	625	1	D-132	0-39	0.39	50
N-Nitrosodimethylamine	625	1	10-150	0-41	1.1	10
N-Nitrosodi-n-propylamine	625	1	D-230	0-39	0.79	10
PCB-1016	625	1	D-164	0-50	120	500
PCB-1221	625	1	10-150	0-50	120	500
PCB-1232	625	1	44-94	0-50	120	500

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
PCB-1242	625	1	60-102	0-50	120	500
PCB-1248	625	1	65-83	0-50	120	500
PCB-1254	625	1	10-150	0-50	120	500
PCB-1260	625	1	10-116	0-50	120	500
Pentachlorophenol	625	1	14-176	0-37	0.062	50
Phenanthrene	625	1	54-120	0-27	0.092	10
Phenol	625	1	5-112	0-37	0.22	10
Pyrene	625	1	52-115	0-36	0.088	10
Toxaphene	625	1	10-200	0-80	500	2000
1,2,4-Trichlorobenzene	625	1	44-142	0-28	0.73	10
2,4,6-Trichlorophenol	625	1	37-144	0-30	0.18	10
Surrogate - Nitrobenzene-d5	625	1	29-120	NA	NA	NA
Surrogate - 2-Fluorobiphenyl	625	1	25-129	NA	NA	NA
Surrogate - Phenol-d5	625	1	14-136	NA	NA	NA
Surrogate - 2-Fluorophenol	625	1	18-123	NA	NA	NA
Surrogate - 2,4,6-Tribromophenol	625	1	10-162	NA	NA	NA
Surrogate - p-Terphenyl-d14	625	1	11-144	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Benfluralin	627	9	40-140	0-40	0.0025	0.010
Ethalfluralin	627	9	40-140	0-50	0.50	2.0
Isopropalin	627	9	48-140	0-50	0.025	0.10
Profluralin	627	9	55-140	0-50	0.050	0.20
Trifluralin (MS)	627	9	17-140	0-50	0.0025	0.010
Surrogate - 2,4,5,6-Tetrachloro-m-xylene	627	9	22-126	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Cyazine	629	25	27-133	0-40	1.9	10
Amobam	630	63	70-130	0-20	♦	♦
Ferbam	630	63	70-130	0-20	♦	♦
Mancozeb	630	63	70-130	0-20	♦	♦
Maneb	630	63	70-130	0-20	♦	♦
Metham	630	63	70-130	0-20	♦	♦
Nabam	630	63	70-130	0-20	♦	♦
Polyram	630	63	70-130	0-20	♦	♦
Zineb	630	63	70-130	0-20	♦	♦
Ziram	630	63	70-130	0-20	1.5	20
Benomyl (as Carbendazim)	631	55	13-137	0-50	0.046	0.50

♦ All compounds reported as Ziram

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Aminocarb	632	13	60-125	0-30	0.25	1.0
Barban	632	13	55-125	0-30	0.25	1.0
Bromacil	632	13	52-125	0-30	0.19	2.0
Carbaryl (MS)	632	13	55-125	0-30	0.31	2.0
Carbofuran	632	13	55-125	0-30	2.5	10
Chlorphropham	632	13	55-125	0-30	0.25	1.0
Diuron (MS)	632	13	55-125	0-30	0.026	0.20
Fenuron	632	13	60-125	0-30	1.2	5.0
Fluomethuron	632	13	59-125	0-40	0.25	1.0
Linuron	632	13	55-125	0-30	0.080	0.50
Methomyl	632	13	52-132	0-30	0.28	5.0
Methiocarb	632	13	51-137	0-30	1.2	5.0
Monuron	632	13	56-132	0-30	0.25	1.0
Neburon	632	13	54-126	0-30	0.25	1.0
Oxamyl	632	13	57-125	0-30	0.25	10
Propham	632	13	50-125	0-30	0.25	1.0
Propoxur	632	13	56-125	0-30	0.76	5.0
Siduron♦♦	632	13	55-125	0-30	0.25	1.0
Swep	632	13	58-125	0-30	0.25	1.0

♦♦ Requires separate analysis from other 632 compounds

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Bromacil	633	41	52-125	0-30	0.50	2.0
DEET	633	41	52-125	0-30	1.2	5.0
Hexazinone	633	41	52-125	0-30	0.12	0.50
Metribuzin	633	41	50-125	0-30	0.25	1.0
Terbacil	633	41	50-130	0-30	1.2	5.0
Triadimefon	633	41	48-125	0-30	0.25	1.0
Tricyclazole	633	41	53-125	0-30	1.2	5.0
Surrogate - Triphenylphosphate	633	41	40-140	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Butylate (MS)	634	15	38-145	0-76	0.28	2.0
Cycloate	634	15	46-159	0-47	0.24	2.0
EPTC	634	15	46-154	0-55	0.42	2.0
Molinate (MS)	634	15	37-127	0-74	0.21	2.0
Pebulate	634	15	22-172	0-50	0.23	2.0
Vernolate	634	15	39-147	0-45	0.19	2.0
Surrogate - Tokuthion	634	15	44-125	NA	NA	NA
Surrogate - Triphenylphosphate	634	15	40-140	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Rotenone	635	19	59-125	0-30	0.33	2.0
Bensulide	636	16	22-140	0-50	0.096	0.50
Oryzalin	638	21	50-130	0-30	0.50	1.0
Bendiocarb	639	20	10-165	0-50	0.60	3.0
Bentazon	643	59	40-130	0-40	1.1	5.0
Picloram	644	64	44-138	0-40	0.12	0.50

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Alachlor (MS)	645	28	45-140	0-30	0.25	1.0
Butachlor	645	28	50-124	0-40	0.25	1.0
Diphenamid	645	28	57-119	0-40	0.25	1.0
Fluridone	645	28	45-154	0-40	0.25	1.0
Lethane	645	28	33-153	0-50	0.25	1.0
Norflurazon	645	28	48-110	0-40	0.25	1.0
Surrogate - Triphenylphosphate	645	28	40-140	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Benzyl chloride	8010(5030)	2	50-150	0-30	0.25	5.0
Bromobenzene	8010(5030)	2	70-130	0-30	2.5	5.0
Bromodichloromethane	8010(5030)	2	73-123	0-20	0.30	1.0
Bromoform	8010(5030)	2	62-147	0-30	0.86	5.0
Bromomethane	8010(5030)	2	41-135	0-31	0.32	1.0
Carbon tetrachloride	8010(5030)	2	83-128	0-20	0.30	1.0
Chlorobenzene (MS)	8010(5030)	2	38-176	0-30	0.26	1.0
Chloroethane	8010(5030)	2	79-128	0-30	0.45	1.0
Chloroform	8010(5030)	2	72-131	0-15	0.18	1.0
1-Chlorohexane	8010(5030)	2	50-150	0-30	0.017	1.0
2-Chloroethylvinyl ether	8010(5030)	2	52-124	0-25	0.43	10
Chloromethane	8010(5030)	2	66-143	0-57	0.34	1.0
2-Chlorotoluene	8010(5030)	2	70-130	0-30	0.35	5.0
4-Chlorotoluene	8010(5030)	2	70-130	0-30	0.76	5.0
Dibromochloromethane	8010(5030)	2	64-118	0-20	0.20	1.0
Dibromomethane	8010(5030)	2	70-130	0-30	0.52	1.0
1,2-Dichlorobenzene	8010(5030)	2	57-157	0-20	0.26	1.0
1,3-Dichlorobenzene	8010(5030)	2	62-156	0-20	0.33	1.0
1,4-Dichlorobenzene	8010(5030)	2	52-166	0-20	0.21	1.0
Dichlorodifluoromethane	8010(5030)	2	80-106	0-30	0.29	1.0
1,1-Dichloroethane	8010(5030)	2	79-108	0-20	0.31	1.0
1,2-Dichloroethane	8010(5030)	2	70-120	0-20	0.33	1.0
1,1-Dichloroethene (MS)	8010(5030)	2	10-232	0-20	0.52	1.0
cis-1,2-Dichloroethene	8010(5030)	2	80-125	0-20	0.25	1.0
trans-1,2-Dichloroethene	8010(5030)	2	80-125	0-20	0.31	1.0
Dichloromethane (methylene chloride)	8010(5030)	2	72-136	0-20	0.83	5.0
1,2-Dichloropropane	8010(5030)	2	62-134	0-20	0.30	1.0
cis-1,3-Dichloropropylene	8010(5030)	2	65-129	0-20	0.20	1.0
trans-1,3-Dichloropropylene	8010(5030)	2	54-144	0-20	0.20	1.0
1,1,2,2-Tetrachloroethane	8010(5030)	2	50-171	0-20	0.33	1.0
1,1,1,2-Tetrachloroethane	8010(5030)	2	70-130	0-30	0.18	1.0
Tetrachloroethylene	8010(5030)	2	70-145	0-30	0.33	1.0
1,1,1-Trichloroethane	8010(5030)	2	52-171	0-20	0.24	1.0
1,1,2-Trichloroethane	8010(5030)	2	53-146	0-20	0.52	1.0
Trichloroethene (MS)	8010(5030)	2	28-196	0-20	0.53	1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Trichlorofluoromethane	8010(5030)	2	77-118	0-20	0.79	1.0
1,2,3-Trichloropropane	8010(5030)	2	50-150	0-30	0.47	1.0
Vinyl chloride	8010(5030)	2	76-130	0-20	0.90	1.0
1,2-Dibromoethane (EDB)	8010(5030)	2	75-125	0-30	0.20	5.0
Surrogate - Bromochloromethane	8010(5030)	2	12-152	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
hloropicrin	8011	51	60-140	0-40	0.0025	0.010
ibromoethane (EDB)	8011	51/2	60-140	0-40	0.0061	0.020
Dibromo 3-chloropropane DBCP)	8011	51/2	60-140	0-40	0.0041	0.020
Dichloropropane	8011	51	60-140	0-40	0.50	2.0
1,3-Dichloropropene	8011	51	60-140	0-40	0.25	1.0
Methyl isothiocyanate	8011	51	60-140	0-40	5.0	20

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acetone (MS)	8015(5030)	2	40-130	0-30	6.8	25
2-Butanone (MEK) (MS)	8015(5030)	2	60-130	0-40	8.8	25
Diethyl ether (Ethyl ether)	8015(5030)	2	10-130	0-50	2.0	25
Ethanol	8015(5030)	2	20-140	0-45	3.9	25
Ethyl methacrylate	8015(5030)	2	42-125	0-40	2.5	10
2-Hexanone	8015(5030)	2	50-150	0-50	1.6	25
Isobutanol	8015(5030)	2	50-125	0-40	100	1000
Isopropanol	8015(5030)	2	30-140	0-40	140	1000
Methacrylonitrile	8015(5030)	2	10-140	0-60	25	100
Methanol	8015(5030)	2	50-150	0-40	110	1000
Methyl methacrylate	8015(5030)	2	42-132	0-42	2.5	10
4-Methyl-2-pentanone (MIBK) (MS)	8015(5030)	2	65-125	0-40	4.0	25
Methyl t-butyl ether (MTBE)	8015(5030)	2	50-150	0-30	3.6	25
Propionitrile	8015(5030)	2	10-130	0-50	25	100
Mineral Spirits	8015 (modified)	12	40-140	0-50	12	50
Gasoline	GRO 8015(modified)	70 12	50-150 13-147	0-20 0-40	15 17	36 50
Lacolene	8018 (modified)	2	40-140	0-40	50	200
Surrogate - a,a,a-Trifluorotoluene	8015	2	41-150	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acetone	8015 (DAI*)	2	50-150	0-50	510	1000
tert-Amyl alcohol	8015 (DAI*)	2	50-150	0-50	130	1000
sec-Butanol	8015 (DAI*)	2	50-150	0-50	190	1000
n-Butanol	8015 (DAI*)	2	50-150	0-50	220	1000
tert-Butanol	8015 (DAI*)	2	50-150	0-50	160	1000
n-Butyl acetate	8015 (DAI*)	2	50-150	0-50	2200	5000
sec-Butyl acetate	8015 (DAI*)	2	50-150	0-50	1800	5000
Butyl cellosolve	8015 (DAI*)	2	50-150	0-50	580	5000
Ethyl cellosolve (2-Ethoxyethanol)	8015 (DAI*)	2	20-180	0-50	ND	20000
Cellosolve acetate	8015 (DAI*)	2	50-150	0-50	270	5000
Cyclohexanone	8015 (DAI*)	2	50-150	0-50	200	5000
Diacetone alcohol	8015 (DAI*)	2	50-150	0-50	1400	5000
1,4-Dioxane	8015 (DAI*)	2	50-150	0-50	300	1000
Ethanol (MS)	8015 (DAI*)	2	50-150	0-50	210	1000
Ethyl acetate	8015 (DAI*)	2	50-150	0-50	1200	5000
Methanol (MS)	8015 (DAI*)	2	50-150	0-50	110	1000
n-Propanol	8015 (DAI*)	2	50-150	0-50	390	1000
Isopropanol (MS)	8015 (DAI*)	2	50-150	0-50	140	1000
Diethylene glycol	8015 (DAI*)	2	50-150	0-50	1200	5000
Ethylene glycol (MS)	8015 (DAI*)	2	50-150	0-50	890	5000
2-Hexanone	8015 (DAI*)	2	50-150	0-50	2100	5000
Isoamyl acetate	8015 (DAI*)	2	50-150	0-50	4000	5000
Isobutanol	8015 (DAI*)	2	50-150	0-50	100	1000
Isobutyl acetate	8015 (DAI*)	2	50-150	0-50	2400	5000
Isopropyl acetate	8015 (DAI*)	2	50-150	0-50	1600	5000
2-Butanone (MEK)	8015 (DAI*)	2	50-150	0-50	960	5000
Mesityl oxide	8015 (DAI*)	2	50-150	0-50	650	5000
Methyl acetate	8015 (DAI*)	2	50-150	0-50	1100	5000
4-Methyl-2-pentanone (MIBK)	8015 (DAI*)	2	50-150	0-50	1700	5000
2-Nitropropane	8015 (DAI*)	2	50-150	0-50	440	5000
n-Propyl acetate (MS)	8015 (DAI*)	2	50-150	0-50	1200	5000
Propylene glycol (MS)	8015 (DAI*)	2	50-150	0-50	600	5000
Quick Dri	8015, Modifed	2	40-140	0-40	50	200
Rubber Solvent	8015, Modifed	2	40-140	0-40	50	200
Tetraethylene glycol	8015 (DAI*)	2	50-150	0-50	1200	25000
Tetrahydrofuran (MS)	8015 (DAI*)	2	50-150	0-50	790	5000

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Triethylene glycol	8015 (DAI*)	2	50-150	0-50	2200	5000
Vinyl acetate	8015 (DAI*)	2	50-150	0-50	4400	5000

* DAI = Direct Aqueous Injection

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Benzene (MS)	8020(5030)	2	23-168	0-34	0.22	1.0
Chlorobenzene (MS)	8020(5030)	2	57-153	0-20	0.12	1.0
1,2-Dichlorobenzene	8020(5030)	2	37-154	0-20	0.17	1.0
1,3-Dichlorobenzene	8020(5030)	2	50-141	0-15	0.21	1.0
1,4-Dichlorobenzene	8020(5030)	2	42-143	0-15	0.21	1.0
Ethylbenzene	8020(5030)	2	32-160	0-15	0.12	1.0
Methyl t-butyl ether(MTBE)	8020(5030)	2	50-150	0-30	2.2	10
Toluene (MS)	8020(5030)	2	33-167	0-25	0.22	1.0
Xylene, m and p	8020(5030)	2	50-150	0-30	0.35	1.0
Xylene, o	8020(5030)	2	50-150	0-30	0.29	1.0
Xylenes (total)	8020(5030)	2	50-150	0-30	0.81	2.0
Surrogate - a,a,a-Trifluorotoluene	8020(5030)	2	41-150	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Benzene (MS)	8021(5030)	2	61-131	0-31	0.19	1.0
Bromobenzene	8021(5030)	2	46-195	0-56	0.50	10
Bromochloromethane	8021(5030)	2	34-128	0-52	0.27	1.0
Bromodichloromethane	8021(5030)	2	46-143	0-54	0.14	1.0
Bromoform	8021(5030)	2	31-131	0-40	0.13	5.0
Bromomethane	8021(5030)	2	25-167	0-78	0.39	1.0
n-Butylbenzene	8021(5030)	2	50-150	0-22	0.17	1.0
sec-Butylbenzene	8021(5030)	2	50-150	0-21	0.14	1.0
tert-Butylbenzene	8021(5030)	2	49-188	0-48	0.18	1.0
Carbon tetrachloride	8021(5030)	2	42-141	0-50	0.18	1.0
Chlorobenzene (MS)	8021(5030)	2	48-143	0-24	0.060	1.0
Chloroethane	8021(5030)	2	43-158	0-52	0.40	1.0
Chloroform	8021(5030)	2	53-134	0-36	0.24	1.0
Chloromethane	8021(5030)	2	40-172	0-53	0.26	1.0
2-Chlorotoluene	8021(5030)	2	70-140	0-27	0.30	10
4-Chlorotoluene	8021(5030)	2	77-136	0-27	0.28	10
Dibromochloromethane	8021(5030)	2	44-150	0-56	0.13	1.0
1,2-Dibromo-3-chloropropane (DBCP)	8021(5030)	2	24-145	0-56	0.25	1.0
1,2-Dibromoethane (EDB)	8021(5030)	2	34-168	0-77	0.52	1.0
Dibromomethane	8021(5030)	2	41-147	0-59	0.53	1.0
1,2-Dichlorobenzene	8021(5030)	2	52-141	0-39	0.24	1.0
1,3-Dichlorobenzene	8021(5030)	2	68-123	0-28	0.19	1.0
1,4-Dichlorobenzene	8021(5030)	2	65-131	0-42	0.090	1.0
Dichlorodifluoromethane	8021(5030)	2	49-196	0-50	0.41	1.0
1,1-Dichloroethane	8021(5030)	2	61-137	0-36	0.19	1.0
1,2-Dichloroethane	8021(5030)	2	38-148	0-58	0.18	1.0
1,1-Dichloroethene (MS)	8021(5030)	2	48-155	0-35	0.31	1.0
cis-1,2-Dichloroethene	8021(5030)	2	40-138	0-39	0.10	1.0
trans-1,2-Dichloroethene	8021(5030)	2	64-139	0-43	0.18	1.0
1,2-Dichloropropane	8021(5030)	2	53-129	0-45	0.18	1.0
1,3-Dichloropropane	8021(5030)	2	53-150	0-57	0.12	1.0
2,2-Dichloropropane	8021(5030)	2	40-138	0-39	0.48	1.0
1,1-Dichloropropene	8021(5030)	2	42-141	0-50	0.62	1.0
cis-1,3-Dichloropropene	8021(5030)	2	44-146	0-45	0.23	1.0
trans-1,3-Dichloropropene	8021(5030)	2	30-152	0-55	0.080	1.0
Ethylbenzene	8021(5030)	2	68-118	0-29	0.21	1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Hexachlorobutadiene	8021(5030)	2	52-145	0-41	0.35	1.0
Isopropylbenzene	8021(5030)	2	50-150	0-27	0.16	1.0
p-Isopropyltoluene	8021(5030)	2	50-150	0-24	0.21	1.0
Methylene chloride	8021(5030)	2	60-177	0-40	0.40	5.0
Naphthalene	8021(5030)	2	67-133	0-42	0.69	1.0
n-Propylbenzene	8021(5030)	2	50-150	0-19	0.15	1.0
Styrene	8021(5030)	2	81-108	0-18	0.39	1.0
1,1,1,2-Tetrachloroethane	8021(5030)	2	62-141	0-41	0.54	1.0
1,1,2,2-Tetrachloroethane	8021(5030)	2	61-148	0-48	0.28	1.0
Tetrachloroethene	8021(5030)	2	53-150	0-57	0.25	1.0
Toluene (MS)	8021(5030)	2	64-144	0-22	0.070	1.0
1,2,3-Trichlorobenzene	8021(5030)	2	77-125	0-26	0.26	1.0
1,2,4-Trichlorobenzene	8021(5030)	2	44-139	0-53	0.30	1.0
1,1,1-Trichloroethane	8021(5030)	2	59-136	0-47	0.37	1.0
1,1,2-Trichloroethane	8021(5030)	2	64-160	0-53	0.12	1.0
Trichloroethene (MS)	8021(5030)	2	51-140	0-48	0.14	1.0
Trichlorofluoromethane	8021(5030)	2	58-152	0-37	0.30	1.0
1,2,3-Trichloropropane	8021(5030)	2	61-148	0-48	1.8	2.0
1,2,4-Trimethylbenzene	8021(5030)	2	32-132	0-44	0.20	1.0
1,3,5-Trimethylbenzene	8021(5030)	2	50-150	0-16	0.33	1.0
Vinyl Chloride	8021(5030)	2	44-173	0-61	0.26	1.0
o-Xylene	8021(5030)	2	50-150	0-18	0.36	1.0
m&p-Xylene	8021(5030)	2	62-138	0-49	0.29	1.0
Surrogate* - 2-Bromo-1-chloropropane	8021(5030)	2	70-130	NA	NA	NA
Surrogate - Fluorobenzene	8021(3520)	2	50-136	NA	NA	NA
Surrogate* - 1-Bromo-3-chloropropane	8021(5030)	2	50-136	NA	NA	NA

* - either of these 2 surrogates may be analyzed.

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acrolein	8030(5030)	2	88-118	0-30	8.3	20
Acrylonitrile	8030(5030)	2	71-135	0-30	6.3	20
Surrogate - a,a,a-Trifluorotoluene	8030(5030)	2	41-150	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2-Chlorophenol (MS)	8040(3520)	2	10-164	0-28	4.1	10
4-Chloro-3-methylphenol (MS)	8040(3520)	2	10-165	0-33	4.1	10
2,4-Dichlorophenol	8040(3520)	2	56-106	0-21	4.0	10
2,6-Dichlorophenol	8040(3520)	2	68-110	0-23	1.4	10
2,4-Dimethylphenol	8040(3520)	2	56-111	0-30	4.0	10
2,4-Dinitrophenol	8040(3520)	2	28-119	0-36	5.6	50
2-Methyl-4,6-dinitrophenol	8040(3520)	2	28-154	0-33	4.2	50
3- and 4- Methyl phenol (m & p cresol)	8040(3520)	2	10-150	0-50	3.3	10
2-Methyl phenol (o-cresol)	8040(3520)	2	10-150	0-50	1.8	10
Cresols (total)	8040(3520)	2	NA	NA	2.5	10
2-Nitrophenol	8040(3520)	2	49-111	0-26	3.4	10
4-Nitrophenol (MS)	8040(3520)	2	10-171	0-33	2.9	50
Pentachlorophenol (MS)	8040(3520)	2	10-216	0-28	4.2	50
Phenol (MS)	8040(3520)	2	10-147	0-56	4.9	10
Trichlorophenols (2,4,5 & 2,4,6)	8040(3520)	2	NA	NA	5.0	10
2,3,4,5-Tetrachlorophenol	8040(3520)	2	50-150	0-40	2.5	20
2,3,4,6-Tetrachlorophenol	8040(3520)	2	50-150	0-40	3.1	20
Tetrachlorophenols (2,3,4,5 & 2,3,4,6)	8040(3520)	2	NA	NA	5.0	20
2,4,5-Trichlorophenol	8040(3520)	2	53-119	0-40	4.4	10
2,4,6-Trichlorophenol	8040(3520)	2	56-114	0-30	3.6	10
Surrogate - 2,4,6-Tribromophenol	8040A(3520B)	2	14-144	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Bis(2-ethylhexyl) phthalate (MS)	8060(3520)	2	11-204	0-82	1.2	10
Butyl benzyl phthalate (MS)	8060(3520)	2	34-214	0-73	1.3	10
Diethyl phthalate (MS)	8060(3520)	2	40-202	0-47	1.8	10
Dimethyl phthalate (MS)	8060(3520)	2	24-221	0-63	1.8	10
Di-n-butyl phthalate (MS)	8060(3520)	2	32-211	0-46	1.8	10
Di-n-octyl phthalate (MS)	8060(3520)	2	38-204	0-52	2.7	10
Surrogate - 2-Fluorobiphenyl	8060(3520)	2	24-160	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (%Rec)	PRECISION (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
N-Nitrosodimethylamine	8070(3520)	2	13-109	0-38	1.7	2.0
N-Nitrosodi-n-propylamine	8070(3520)	2	45-146	0-75	1.8	2.0
1,3-Dinitrobenzene	8070(3520)	2	67-115	0-30	0.96	3.0
N-Nitrosodiphenylamine	8070(3520)	2	10-139	0-67	2.1	3.0
p-Dimethylaminoazobenzene	8070(3520)	2	69-140	0-48	0.94	3.0
Surrogate - Triphenylphosphate	8070(3520)	2	40-140	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Alachlor	8081(3520)	2	62-128	0-30	0.405	2.0
Aldrin (MS - Except CLP OLC02.1)	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	39-133 40-120 NA	0-40 0-22 NA	0.0024 0.050 0.010	0.050 0.050 0.010
Benfluralin	8080(3520)	2	40-140	0-40	0.0025	0.020
alpha BHC	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	65-128 NA NA	0-28 NA NA	0.0021 0.050 0.010	0.050 0.050 0.010
beta BHC	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	55-139 NA NA	0-25 NA NA	0.0047 0.050 0.010	0.050 0.050 0.010
delta BHC	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	49-151 NA NA	0-17 NA NA	0.0009 0.050 0.010	0.050 0.050 0.010
gamma BHC (Lindane) (MS - All methods)	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	25-179 56-123 56-123	0-44 0-15 NA	0.0019 0.050 0.010	0.050 0.050 0.010
alpha Chlordane	8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	14-183 NA NA	0-22 NA NA	0.0012 0.050 0.010	0.050 0.050 0.010
gamma Chlordane (MS - CLP OLC02.1)	8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	89-117 NA 33-130	0-26 NA NA	0.0023 0.050 0.010	0.050 0.050 0.010
technical Chlordane	8080/8081(3520)	2	54-140	0-30	0.11	0.50
Chlorobenzilate	8081(3520)	2	50-150	0-40	0.0061	0.50
Chloroneb	8081(3520)	2	49-125	0-30	0.091	0.40
Chloropropylate	8081(3520)	2	51-125	0-30	0-70	0.50
Chlorothalonil	8081(3520)	2	55-125	0-30	0.050	0.20
Dacthal	8081(3520)	2	77-125	0-23	0.014	0.020
4,4'-DDD	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	68-153 NA NA	0-20 NA NA	0.0016 0.10 0.020	0.10 0.10 0.020
4,4'-DDE (MS - CLP OLC02.1)	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	54-138 NA 50-150	0-21 NA NA	0.0007 0.10 0.020	0.10 0.10 0.020
4,4'-DDT (MS - Except CLP OLC02.1)	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	36-154 38-127 NA	0-40 0-27 NA	0.0079 0.10 0.020	0.10 0.10 0.020
Dicofol (Kelthane)	8081(3520)	2	55-115	0-40	0.0067	0.050
Dieldrin (MS - All methods)	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	40-157 52-126 33-130	0-35 0-18 NA	0.0019 0.10 0.020	0.10 0.10 0.020
Endosulfan I	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	34-130 NA NA	0-20 NA NA	0.0033 0.050 0.010	0.050 0.050 0.010
Endosulfan II	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	44-124 NS NA	0-20 NA NA	0.0055 0.10 0.020	0.10 0.10 0.020

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
E...osulfan sulfate (MS - CLP OLC02.1)	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	54-166 NA 50-120	0-20 NA NA	0.0047 0.10 0.020	0.10 0.10 0.020
E...rin (M... - All methods)	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	28-151 56-121 56-121	0-66 0-21 NA	0.0008 0.10 0.020	0.10 0.10 0.020
E...rin aldehyde	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	49-169 NA NA	0-58 NA NA	0.0046 0.10 0.020	0.10 0.10 0.020
Endrin ketone	8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	55-100 NA NA	0-20 NA NA	0.0023 0.10 0.020	0.10 0.10 0.020
Etradiazole	8081(3520)	2	60-125	0-30	0.0018	0.020
...ptachlor (...S - Except CLP OLC02.1)	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	32-155 40-131 NA	0-43 0-20 NA	0.0015 0.050 0.010	0.050 0.050 0.010
...ptachlor epoxide (...S - CLP OLC02.1)	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	43-153 NA 74-150	0-20 NA NA	0.0016 0.050 0.010	0.050 0.050 0.010
Hexachlorobenzene	8081(3520)	2	25-112	0-33	0.0028	0.050
...drin	8081(3520)	2	55-110	0-40	0.0091	0.050
Methoxychlor	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2/26 62/85 6	50-140 NA NA	0-40 NA NA	0.013 0.50 0.10	0.50 0.50 0.10
...ex	8081(3520)	2	52-112	0-37	0.28	0.50
PCNB	8081(3520)	2	60-125	0-30	0.0033	0.60
...ndimethalin	8080A/8081/3520	2	75-146	0-20	0.0021	0.050
Permethrin	8081(3520)	2	50-130	0-40	0.081	1.0
...opachlor	8081(3520)	2	51-125	0-30	0.020	0.50
...oxaphene	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	12-130 NA NA	0-30 NA NA	1.6 5.0 1.0	5.0 5.0 1.0
...ifluralin	8081(3520)	2	54-124	0-40	0.0067	0.020
PCB 1016	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	59-140 NA NA	0-30 NA NA	0.079 1.0 0.20	1.0 1.0 0.20
PCB 1221	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	15-178 NA NA	0-30 NA NA	0.51 2.0 0.40	2.0 2.0 0.40
...CB 1232	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-215 NA NA	0-30 NA NA	0.16 1.0 0.20	1.0 1.0 0.20
...CB 1242	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	39-150 NA NA	0-30 NA NA	0.22 1.0 0.20	1.0 1.0 0.20
PCB 1248	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	38-158 NA NA	0-30 NA NA	0.26 1.0 0.20	1.0 1.0 0.20

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
PCB 1254	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	66-122 NA NA	0-30 NA NA	0.068 1.0 0.20	1.0 1.0 0.20
PCB 1260	8080/8081(3520) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	60-135 NA NA	0-30 NA NA	0.14 1.0 0.20	1.0 1.0 0.20
Surrogate - Dibutylchlorendate (DBC)	8080(3520)	2	23-174	NA	NA	NA
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX)	8080/8081(3520) CLP OLM01.9 CLP OLM03.1 CLP OLC02.1	2 62 85 6	10-127 60-150 30-150 30-150	NA NA NA NA	NA NA NA NA	NA NA NA NA
Surrogate - Decachlorobiphenyl (DCB)	8080/8081(3520) CLP OLM01.9 CLP OLM03.1 CLP OLC02.1	2 62 85 6	10-158 60-150 30-150 30-150	NA NA NA NA	NA NA NA NA	NA NA NA NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2,4-Dinitrotoluene (MS)	8090(3520)(FID) 8090(3520)(ECD)	2	10-125 10-125	0-40 0-40	2.5 0.0317	10 0.30
2,6-Dinitrotoluene (MS)	8090(3520)(FID) 8090(3520)(ECD)	2	10-126 10-126	0-40 0-40	2.5 0.0110	10 0.30
Isophorone (MS)	8090(3520)	2	10-117	0-40	1.2	10
Nitrobenzene (MS)	8090(3520)	2	10-118	0-40	1.5	10
Surrogate - 2-Fluorobiphenyl	8090(3520)(FID)	2	27-123	NA	NA	NA
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX)	8090(3520)(ECD)	2	10-127	NA	NA	NA
Surrogate - Decachlorobiphenyl (DCB)	8090(3520)(ECD)	2	10-158	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Anthracene*4	8100(3520)	2	29-164	0-28	2.4	10
Acenaphthene (MS)	8100(3520)	2	25-153	0-21	1.6	10
Acenaphthylene	8100(3520)	2	28-134	0-30	2.0	10
Benzo(a)anthracene*1	8100(3520)	2	65-125	0-38	3.9	10
Benzo(a)pyrene (MS)	8100(3520)	2	18-134	0-40	1.6	10
Benzo(b)fluoranthene*2	8100(3520)	2	58-132	0-51	3.4	10
Benzo(k)fluoranthene*2	8100(3520)	2	58-132	0-51	3.4	10
Benzo(g,h,i)perylene	8100(3520)	2	22-160	0-61	1.3	10
Carbazole	8100(3520)	2	16-140	0-40	1.3	10
Chrysene*1	8100(3520)	2	65-125	0-38	3.9	10
Dibenzo(a,h)anthracene*3	8100(3520)	2	30-153	0-52	3.1	10
Fluoranthene	8100(3520)	2	66-122	0-23	1.6	10
Fluorene (MS)	8100(3520)	2	17-167	0-23	1.6	10
Indeno(1,2,3-cd) pyrene*3	8100(3520)	2	30-153	0-52	3.1	10
1-Methyl naphthalene	8100(3520)	2	20-140	0-50	1.4	10
2-Methyl naphthalene	8100(3520)	2	20-140	0-50	1.4	10
Naphthalene (MS)	8100(3520)	2	45-120	0-28	1.4	10
Phenanthrene*4	8100(3520)	2	29-164	0-28	2.4	10
Pyrene (MS)	8100(3520)	2	21-159	0-28	0.95	10
Mineral Spirits	8100(mod)	2	42-145	0-46	88	300
Diesel	DRO 8100 (mod)	69 12	40-140 10-114	0-40 0-40	75 75	100 300
Surrogate - 2-Fluorobiphenyl	8100(3520)	2	22-142	NA	NA	NA
Surrogate - o-Terphenyl	DRO 8100(mod)(3520)	69 2	50-150 10-185	NA NA	NA NA	NA NA

*# = Where the number is the same for any 2 compounds, these compounds cannot be routinely resolved chromatographically and are therefore reported as a combined result.

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
is(2-chloroethoxy)methane	8110	2	12-128	0-50	1.0	5.0
is(2-chloroethyl)ether	8110	2	11-152	0-50	1.8	20
Bi -chloroisopropyl)ether	8110	2	9-165	0-50	2.5	10
4-Bromophenyl phenyl ether	8110	2	D-189	0-50	1.3	5.0
lorophenyl phenyl ether	8110	2	D-170	0-50	8.8	40
urrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX)	8110	2	10-127	NA	NA	NA
ogate - achlorobiphenyl (DCB)	8110	2	10-158	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2-Chloronaphthalene	8120	2	9-148	0-50	1.40	10
1,2-Dichlorobenzene	8120	2	9-160	0-50	0.20	10
1,3-Dichlorobenzene	8120	2	D-150	0-50	0.24	10
1,4-Dichlorobenzene	8120	2	13-137	0-50	0.57	10
Hexachlorobenzene	8120	2	15-159	0-50	0.002	0.10
Hexachlorobutadiene	8120	2	D-139	0-50	0.005	0.10
Hexachlorocylcopentadiene	8120	2	D-111	0-50	0.003	0.10
Hexachloroethane	8120	2	8-139	0-50	0.001	0.10
1,2,4-Trichlorobenzene	8120	2	5-149	0-50	0.06	1.0
Surrogate - 2,4,5,6-Tetrachloro-m-xylene (TCMX)	8120	2	10-127	NA	NA	NA
Surrogate - Decachlorobiphenyl (DCB)	8120	2	10-158	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acephate	1657	72	25-140	0-50	1.2	5.0
Methamidophos	1657	72	36-106	0-46	0.10	2.0
Alachlor	8141(3520)	2	62-128	0-30	0.405	1.0
Ametryn	8141(3520)	7/2	60-120	0-40	0.089	2.0
Atrazine (MS)	8141(3520)	7-2	40-125	0-30	0.54	2.0
Azinphos methyl	8141(3520)	14/2	16-129	0-50	0.55	1.0
Bolstar	8141(3520)	14/2	58-156	0-40	0.57	1.0
Carbophenothion	8141(3520)	2	20-150	0-40	0.25	1.0
Chlorpyrifos	8141(3520)	52/14/2	55-115	0-40	0.43	1.0
Chlorpyrifos methyl	8141(3520)	14	20-130	0-40	0.25	1.0
Coumaphos	8141(3520)	14/2	51-147	0-40	0.53	1.0
Demeton-o+s	8141(3520)	52/14/2	36-120	0-40	0.40	2.5
Diazinon (MS)	8141(3520)	52/14/2	36-124	0-40	0.30	1.0
Dichlofenthion	8141(3520)	52/2/8	62-104	0-40	0.25	1.0
Dichlorvos	8141(3520)	14/2	49-120	0-40	0.35	2.0
Dimethoate	8141(3520)	2	38-120	0-40	0.60	2.0
Dioxathion	8141(3520)	52/2	25-140	0-40	2.5	10
Disulfoton	8141(3520)	52/14/2	10-178	0-66	0.34	2.0
EPN	8141(3520)	58/2	48-124	0-40	0.59	1.0
Ethion	8141(3520)	52/58/2	40-138	0-40	0.11	0.50
Ethoprop	8141(3520)	52/14/2	58-113	0-40	0.44	0.50
Famphur	8141(3520)	2/8	10-129	0-60	1.0	2.0
Fensulfothion	8141(3520)	14/2	43-145	0-40	1.0	5.0
Fenthion	8141(3520)	14/2	10-128	0-60	0.37	1.0
Malathion	8141(3520)	52	60-140	0-40	0.50	1.0
Merphos	8141(3520)	14/2	50-130	0-40	0.56	1.0
Methamidophos	1657	72	36-106	0-46	0.10	2.0
Metolachlor	8141(3520)	52/2	53-133	0-40	0.71	1.0
Mevinphos	8141(3520)	52/14/2	34-125	0-40	0.38	2.0
Monocrotophos	8141(3520)	52/2	25-140	0-50	9.5	10
Naled	8141(3520)	14/2	54-102	0-40	0.45	5.0
Parathion, ethyl (MS)	8141(3520)	52/2	10-163	0-34	0.50	1.0
Parathion, methyl (MS)	8141(3520)	52/14/2	16-148	0-32	0.36	0.50
Phorate	8141(3520)	14/2	36-125	0-40	0.49	1.0
Prometon	8141(3520)	7/2	55-124	0-40	1.9	2.0
Prometryn	8141(3520)	7/2	55-120	0-40	0.23	2.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Propazine	8141(3520)	7/2	32-127	0-30	0.25	2.0
Ronnel (MS)	8141(3520)	14/2	45-135	0-35	0.36	1.0
Simazine	8141(3520)	7/2	25-174	0-50	0.31	2.0
Stirophos (Tetrachlorvinphos)	8141(3520)	14/2	48-125	0-40	0.25	1.0
Sulfotepp	8141(3520)	2	10-241	0-40	0.45	0.50
Terbufos	8141(3520)	58	40-160	0-40	0.50	1.0
Terbutylazine	8141(3520)	7/2	60-130	0-40	0.33	2.0
Terbutryn	8141(3520)	7	53-113	0-40	0.066	2.0
Thionazin (MS)	8141(3520)	2/8	25-160	0-60	0.56	1.0
Tokuthion (Prothiofos)	8141(3520)	14/2	44-125	0-40	0.50	1.0
Trichloronate	8141(3520)	14/2	49-161	0-40	0.42	1.0
Tris-(2,3-dibromopropyl) phosphate	8141(3520)	2	56-126	0-40	6.4	50
Surrogate - Triphenylphosphate	8141	14/20/2	40-140	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Bentazon	8151	2	68-131	0-48	0.50	2.0
2,4-D (MS)	8150/8151	53/2	20-163	0-65	0.12	0.50
2,4-DB	8150/8151	53/2	40-140	0-50	0.12	0.50
2,4,5-T (MS)	8150/8151	53/2	31-156	0-54	.031	0.50
2,4,5-TP (Silvex) (MS)	8150/8151	53/2	41-135	0-45	0.066	0.50
Dalapon	8150/8151	53/2	10-160	0-80	1.5	120
Dicamba	8150/8151	53/2	10-317	0-86	0.057	1.2
Dichlorprop	8150/8151	53/2	10-258	0-103	0.78	6.0
Dinoseb	8150/8151	53/2	10-143	0-157	0.13	6.0
MCPA	8150/8151	53/2	10-231	0-91	53	120
MCPP	8150/8151	53/2	10-210	0-91	42	120
Pentachlorophenol	8151	53/2	10-150	0-80	0.013	1.0
Picloram	8151	53/2	10-150	0-40	0.22	0.50
Surrogate - 2,4-Dichlorophenylacetic acid (DCAA)	8150/8151	53/2	20-164	NA	NA	NA
Surrogate - 2,4-Dichlorophenoxy butyric acid (2,4-DB)	8150/8151	53/2	40-140	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acetone	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	10-161 10-161 NA NA	0-40 0-40 NA NA	5.1 4.0 10 5.0	50 25 10 5.0
Acetonitrile	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	52-170 52-170	0-40 0-40	393 8.9	1000 200
Acrolein	8240(5030)/8260(5030) 8240(5030)/8260(5030) (25-mL purge)	2 2	60-132 60-132	0-40 0-40	55 12	100 20
Acrylonitrile	8240(5030)/8260(5030) 8240(5030)/8260(5030) (25-mL purge)	2 2	77-108 77-108	0-40 0-40	18 12	100 20
Benzene (MS - All Methods)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	52-143 68-147 76-127 60-140	0-31 0-35 0-11 NA	0.80 0.14 10 1.0	5.0 1.0 10 1.0
Benzyl chloride	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	10-130 10-130	0-70 0-70	25 12	100 50
Bromobenzene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	0.55 0.26	5.0 1.0
Bromochloromethane	8260(5030) 8260(5030)(25-mL purge) CLP OLC02.1	2 2 6	50-150 50-150 NA	0-40 0-40 NA	0.60 0.26 1.0	5.0 1.0 1.0
Bromodichloromethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	91-120 91-120 NA NA	0-16 0-16 NA NA	0.42 0.18 10 1.0	5.0 1.0 10 1.0
Bromoform (MS - CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	45-169 45-169 NA 60-140	0-30 0-30 NA NA	0.83 0.30 10 1.0	5.0 1.0 10 1.0
Bromomethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	45-151 45-151 NA NA	0-32 0-32 NA NA	3.5 0.34 10 1.0	10 1.0 10 1.0
2-Butanone (MEK)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	79-208 79-208 NA NA	0-40 0-40 NA NA	2.5 2.7 10 5.0	25 10 10 5.0
n-Butylbenzene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	1.1 0.39	5.0 1.0
sec-Butylbenzene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	1.2 0.18	5.0 1.0
tert-Butylbenzene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	1.1 0.44	5.0 1.0
Carbon disulfide	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	37-138 37-138 NA NA	0-40 0-40 NA NA	0.78 0.15 10 1.0	5.0 1.0 10 1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Carbon tetrachloride (MS - CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	67-129 67-129 NA 60-140	0-21 0-21 NA NA	0.34 0.22 10 1.0	5.0 1.0 10 1.0
Chlorobenzene (MS - except CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	52-145 55-154 75-130 NA	0-22 0-16 0-13 NA	0.41 0.22 10 1.0	5.0 1.0 10 1.0
2-Chloro-1,3-butadiene (Chloroprene)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	21-163 21-163	0-50 0-50	0.83 0.25	5.0 1.0
Chloroethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	32-179 32-179 NA NA	0-36 0-36 NA NA	1.1 0.71 10 1.0	10 1.0 10 1.0
2-Chloroethyl vinyl ether	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	22	12-237 12-237	0-96 0-96	2.2 0.17	50 10
Chloroform	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	58-140 58-140 NA NA	0-62 0-62 NA NA	0.65 0.17 10 1.0	5.0 1.0 10 1.0
Chloromethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	10-273 10-273 NA NA	0-65 0-65 NA NA	1.1 0.58 10 1.0	10 1.0 10 1.0
3-Chloropropene (Allyl chloride)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	81-112 81-112	0-40 0-40	1.5 0.25	5.0 1.0
2-Chlorotoluene	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	58-125 58-125	0-40 0-40	0.93 0.48	5.0 1.0
4-Chlorotoluene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	0.73 0.56	5.0 1.0
Cyclohexanone	8260(5030)(25mL purge)	2	58-170	0-56	59	250
Dibromochloromethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	65-138 65-138 NA NA	0-15 0-15 NA NA	0.67 0.29 10 1.0	5.0 1.0 10 1.0
1,2-Dibromo-3-chloropropane (DBCP)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLC02.1	2 2 6	37-127 37-127 NA	0-40 0-40 NA	0.59 0.43 1.0	5.0 1.0 1.0
1,2-Dibromoethane (MS - CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLC02.1	2 2 6	70-112 70-112 60-140	0-40 0-40 NA	0.45 0.33 1.0	5.0 1.0 1.0
Dibromomethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	78-110 78-110	0-40 0-40	0.65 0.43	5.0 1.0
1,2-Dichlorobenzene	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLC02.1	2 2 6	75-131 73-131 60-140	0-21 0-21 NA	0.40 0.24 NA	5.0 1.0 1.0
1,3-Dichlorobenzene	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLC02.1	2 2 6	77-119 77-119 60-140	0-23 0-23 NA	0.83 0.31 NA	5.0 1.0 1.0
1,4-Dichlorobenzene (MS - CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLC02.1	2 2 6	72-130 72-130 60-140	0-28 0-28 NA	0.61 0.28 1.0	5.0 1.0 1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
trans-1,4-Dichloro-2-butene	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	11-129 11-129	0-40 0-40	5.7 0.27	10 2.0
Dichlorodifluoromethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	72-146 72-146	0-40 0-40	1.0 0.33	5.0 1.0
1,1-Dichloroethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	64-132 64-132 NA NA	0-40 0-40 NA NA	0.61 0.19 10 1.0	5.0 1.0 10 1.0
1,2-Dichloroethane (MS - CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	54-156 54-156 NA 60-140	0-26 0-26 NA NA	0.56 0.64 10 1.0	5.0 1.0 10 1.0
Dichloroethene(Total)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1	2 2 62/8 5	54-156 54-156 NA	0-40 0-40 NA	1.3 0.19 10	5.0 1.0 10
cis-1,2-Dichloroethene	8240(5030)/8260 8240(5030)/8260(5030)(25-mL purge) CLP OLC02.1	2 2 6	54-156 54-156 NA	0-40 0-40 NA	0.59 0.24 1.0	5.0 1.0 1.0
trans-1,2-Dichloroethene	8240(5030)/8260 8240(5030)/8260(5030)(25-mL purge) CLP OLC02.1	2 2 6	54-156 54-156 NA	0-40 0-40 NA	0.77 0.31 1.0	5.0 1.0 1.0
1,1-Dichloroethene (MS - except CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	18-181 60-149 61-145 NA	0-16 0-16 0-14 NA	0.62 0.44 10 1.0	5.0 1.0 10 1.0
1,2-Dichloropropane (MS - CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	75-130 75-130 NA 60-140	0-15 0-15 NA NA	0.80 0.28 10 1.0	5.0 1.0 10 1.0
1,3-Dichloropropane	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	0.78 0.31	5.0 1.0
2,2-Dichloropropane	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	1.2 0.22	5.0 1.0
1,1-Dichloropropene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	1.3 0.26	5.0 1.0
cis-1,3-Dichloropropene (MS - CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	71-126 71-126 NA 60-140	0-19 0-19 NA NA	0.52 0.25 10 1.0	5.0 1.0 10 1.0
trans-1,3-Dichloropropene	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	64-134 64-134 NA NA	0-18 0-18 NA NA	0.47 0.50 10 1.0	5.0 1.0 10 1.0
Diethyl ether	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	2.5 0.50	10 2.0
Ethanol	8260(5030)(25-mL purge)	2	40-160	0-40	250	1000
Ethylbenzene	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 5	80-117 80-117 NA NA	0-23 0-23 NA NA	0.68 0.24 10 1.0	5.0 1.0 10 1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Ethyl methacrylate	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	37-139 37-139	0-40 0-40	0.53 0.25	5.0 1.0
Ethylene oxide	8240(5030)/8260(5030)(25-mL purge)	2	DL-169	0-164	99	120
Hexachlorobutadiene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	1.2 0.23	5.0 1.0
2-Hexanone	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	10-164 10-164 NA NA	0-40 0-40 NA NA	2.0 2.6 10 5.0	25 10 10 5.0
Iodomethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	37-137 37-137	0-40 0-40	0.95 0.28	5.0 1.0
Isobutyl alcohol	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	51-179 51-179	0-40 0-40	310 30	1000 200
Isopropylbenzene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	1.2 0.40	5.0 1.0
p-Isopropyltoluene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	1.2 0.35	5.0 1.0
Methacrylonitrile	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	76-111 76-111	0-40 0-40	8.4 0.21	100 20
Methylene chloride	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	63-136 63-136 NA NA	0-37 0-37 NA NA	0.72 0.48 10 2.0	5.0 5.0 10 2.0
Methylmethacrylate	8240(5030) 8240(5030)(25-mL purge)	2 2	50-130 50-130	0-40 0-40	0.66 0.25	5.0 1.0
4-Methyl-2-pentanone (MIBK)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	68-111 68-111 NA NA	0-40 0-40 NA NA	0.79 7.8 10 5.0	25 10 10 5.0
Methyl t-butyl ether (MTBE)	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	2.5 0.50	10 10
Naphthalene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	2.0 0.30	5.0 1.0
n-Octane	8260	2	50-150	0-40		5.0
Pentachloroethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	10-276 10-276	0-65 0-65	11 0.22	25 5
Propionitrile (ethylcyanide)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	63-112 63-112	0-40 0-40	7.2 1.3	100 20
n-Propylbenzene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	0.99 0.33	5.0 1.0
Styrene	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	60-109 60-109 NA NA	0-40 0-40 NA NA	0.29 0.25 10 1.0	5.0 1.0 10 1.0
1,1,1,2-Tetrachloroethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	34-138 34-138	0-40 0-40	1.2 0.19	5.0 1.0
1,1,2,2-Tetrachloroethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	66-157 66-157 NA NA	0-25 0-25 NA NA	1.3 0.22 10 1.0	5.0 1.0 10 1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Tetrachloroethene (MS - CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	70-124 70-124 NA 60-140	0-19 0-19 NA NA	0.73 0.27 10 1.0	5.0 1.0 10 1.0
Toluene (MS - except CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	57-134 76-131 76-125 NA	0-24 0-24 0-13 NA	0.59 0.20 10 1.0	5.0 1.0 10 1.0
1,2,3-Trichlorobenzene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	0.94 0.25	5.0 1.0
1,2,4-Trichlorobenzene	8260(5030) 8260(5030)(25-mL purge) CLP OLC02.1	2 2 6	50-150 50-150 50-150	0-40 0-40 0-40	0.60 0.42 1.0	5.0 1.0 1.0
1,1,1-Trichloroethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	72-134 72-134 NA NA	0-11 0-11 NA NA	0.59 0.17 10 1.0	5.0 1.0 10 1.0
1,1,2-Trichloroethane (MS - CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	61-151 61-151 NA 60-140	0-16 0-16 NA NA	0.37 0.34 10 1.0	5.0 1.0 10 1.0
Trichloroethene (MS - All methods)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	48-145 83-122 71-120 60-140	0-24 0-24 0-14 NA	0.45 0.16 10 1.0	5.0 1.0 10 1.0
Trichlorofluoromethane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	17-181 17-181	0-65 0-65	0.92 0.14	5.0 1.0
1,2,3-Trichloropropane	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	44-103 44-103	0-40 0-40	0.69 0.79	5.0 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	8240(5030) 8240(5030)(25-mL purge)	2 2	82-130 82-130	0-23 0-23	0.26 0.25	5.0 1.0
1,2,4-Trimethylbenzene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0.40 0-40	0.84 0.36	5.0 1.0
1,3,5-Trimethylbenzene	8260(5030) 8260(5030)(25-mL purge)	2 2	50-150 50-150	0-40 0-40	0.95 0.46	5.0 1.0
Vinyl acetate	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	49-147 49-147	0-40 0-40	0.33 0.21	10 2.0
Vinyl chloride (MS - CLP OLC02.1)	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	43-137 43-137 NA 60-140	0-33 0-33 NA NA	0.88 0.65 10 1.0	10 1.0 10 1.0
Xylenes (total)	8240(5030)/8260(5030) 8240(5030)/8260(5030) (25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	66-114 66-114 NA NA	0-40 0-40 NA NA	1.5 0.19 10 1.0	5.0 2.0 10 1.0
o-Xylene	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge)	2 2	66-114 48-122	0-40 0-25	0.61 0.12	5.0 1.0
m+p-Xylene	8260(5030) 8260(5030)(25-mL purge)	2 2	66-114 48-126	0-40 0-33	1.2 0.31	5.0 1.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
urrogate - Toluene-d8	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1	2 2 62/8 5	59-133 83-119 88-110	NA NA NA	NA NA NA	NA NA NA
urrogate - p-Bromofluorobenzene	8240(5030)/8260(5030) 8240(5030)/8260(5030)(25-mL purge) CLP OLM01.9/OLM03.1 CLP OLC02.1	2 2 62/8 5 6	60-136 79-121 86-115 80-120	NA NA NA NA	NA NA NA NA	NA NA NA NA
Surrogate - Dibromofluoromethane	8260(5030) 8260(5030)(25-mL purge)	2 2	76-145 66-126	NA NA	NA NA	NA NA
Surrogate - 1,2-Dichloroethane-d4	8240(5030) 8240(5030)(25-mL purge) CLP OLM01.9/OLM03.1	2 2 62/8 5	49-144 71-141 76-114	NA NA NA	NA NA NA	NA NA NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acenaphthene (MS - Except CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	34-134 46-118 NA	0-30 0-31 NA	0.16 10 5.0	10 10 5.0
Acenaphthylene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	34-152 NA NA	0-38 NA NA	0.16 10 5.0	10 10 5.0
Acetophenone	8270(3520)◇	2	10-150	0-50	4.3	10
2-Acetylaminofluorene	8270(3520)◇	2	25-150	0-50	5.4	10
Aldrin	8270(3520)◇	2	30-160	0-17	1.1	10
4-Aminobiphenyl	8270(3520)◇	2	10-150	0-50	3.0	10
Aniline	8270(3520)◇	2	10-150	0-50	9.5	20
Anthracene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	44-139 NA NA	0-27 NA NA	0.12 10 5.0	10 10 5.0
Aramite	8270(3520)◇	2	40-150	0-50	3.5	10
Benzidine	8270(3520)◇	2	10-200	0-100	62	80
Benzoic acid	8270(3520)◇	2	10-150	0-50	1.4	50
Benzo(a)anthracene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1 SIM	2 62/85 6 73	47-110 NA NA 64-100	0-32 NA NA 0-25	0.10 10 5.0 0.042	10 10 5.0 0.10
Benzo(b)fluoranthene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1 SIM	2 62/85 6 73	51-98 NA NA 60-103	0-31 NA NA 0-25	0.072 10 5.0 0.036	10 10 5.0 0.10
Benzo(k)fluoranthene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1 SIM	2 62/85 6 73	60-165 NA NA 63-101	0-36 NA NA 0-25	0.085 10 5.0 0.038	10 10 5.0 0.10
Benzo(g,h,i)perylene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	29-121 NA NA	0-32 NA NA	0.080 10 5.0	10 10 5.0
Benzo(a)pyrene (MS - CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	52-104 NA 50-120	0-39 NA NA	0.11 10 5.0	10 10 5.0
Benzyl alcohol	8270(3520)◇	2	10-150	0-50	0.85	10
Benzyl chloride	8270(3520)◇	2	10-150	0-50	2.5	10
alpha-BHC	8270(3520)◇	2	10-150	0-50	0.95	10
alpha-Pinene	8270(3520)◇	2	12-105	0-20	1.3	100
alpha-Terpinene	8270(3520)◇	2	DL-94	0-96	1.2	10
beta-BHC	8270(3520)◇	2	87-139	0-12	1.0	10
beta-Phellandrene	8270(3520)◇	2	33-65	0-25	1.9	10
beta-Pinene	8270(3520)◇	2	DL-155	0-56	2.0	100
delta-BHC	8270(3520)◇	2	78-152	0-16	1.0	10
gamma-BHC	8270(3520)◇	2	10-150	0-50	1.3	10

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Bis(2-chloroethoxy) methane	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	30-158 NA NA	0-35 NA NA	1.0 10 5.0	10 10 5.0
Bis(2-chloroethyl) ether (MS- CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	37-143 NA 50-110	0-28 NA NA	0.67 10 5.0	10 10 5.0
Bis(2-chloroisopropyl) ether (2,2-Oxybis(1-chloropropane)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-152 NA NA	0-25 NA NA	0.85 10 5.0	10 10 5.0
Bis(2-ethylhexyl) phthalate	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	7-190 NA NA	0-39 NA NA	0.56 10 5.0	10 10 5.0
4-Bromophenyl phenyl ether	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	55-133 NA NA	0-32 NA NA	0.64 10 5.0	10 10 5.0
Butyl benzyl phthalate	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	30-168 NA NA	0-30 NA NA	4.3 10 5.0	10 10 5.0
Carbazole	8270(3520)◇ CLP OLM01.9/OLM03.1	2 62/85	10-150 NA	0-50 NA	0.99 10	10 10
technical Chlordane	8270(3520)◇	2	34-136	0-26	12	50
4-Chloroaniline (MS - CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-150 NA 10-120	0-50 NA NA	2.9 10 5.0	20 10 5.0
4-Chloro-3-methyl-phenol (MS - Except CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	25-141 23-97 NA	0-29 0-42 NA	0.14 10 5.0	10 10 5.0
1-Chloronaphthalene	8270(3520)◇	2	10-150	0-50	2.5	10
2-Chloronaphthalene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	72-106 NA NA	0-23 NA NA	0.65 10 5.0	10 10 5.0
2-Chlorophenol (MS - All methods)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	37-119 27-123 50-110	0-35 0-40 NA	0.33 10 5.0	10 10 5.0
4-Chlorophenylphenyl ether	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	50-163 NA NA	0-54 NA NA	0.59 10 5.0	10 10 5.0
Chrysene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1 SIM	2 62/85 6 73	38-170 NA NA 72-109	0-26 NA NA 0-25	0.19 10 5.0 0.044	10 10 5.0 0.10
1,8-Cineole	8270(3520)◇	2	50-101	0-20	0.80	10
p-Cymene	8270(3520)◇	2	52-110	0-21	1.6	10
2-Methyl phenol (o-Cresol)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-150 NA NA	0-50 NA NA	0.13 10 5.0	10 10 5.0
3 and 4-Methyl phenol (m- and p-Cresol)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-150 NA NA	0-50 NA NA	0.15 10 5.0	10 10 5.0
4,4'-DDD	8270(3520)◇	2	25-198	0-27	1.4	10
4,4'-DDE	8270(3520)◇	2	49-172	0-26	1.1	10

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
4,4'-DDT	8270(3520)◇	2	40-184	0-39	1.9	10
Diallate	8270(3520)◇	2	10-150	0-50	2.2	10
Dibenz(a,h)anthracene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1 SIM	2 62/85 6 73	36-119 NA NA 47-117	0-37 NA NA 0-25	0.077 10 5.0 0.042	10 10 5.0 0.10
Dibenzofuran	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-150 NA NA	0-50 NA NA	0.60 10 5.0	10 10 5.0
Dibenzo(a,e)pyrene	8270(3520)◇	2	29-177	0-60	2.5	10
Di-n-butyl phthalate	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	18-168 NA NA	0-21 NA NA	0.54 10 5.0	10 10 5.0
1,2-Dichlorobenzene	8270(3520)◇ CLP OLM01.9/OLM03.1	2 62/85	40-96 NA	0-41 NA	0.62 10	10 10
1,3-Dichlorobenzene	8270(3520)◇ CLP OLM01.9/OLM03.1	2 62/85	38-89 NA	0-52 NA	0.60 10	10 10
1,4-Dichlorobenzene (MS - All methods)	8270(3520)◇ CLP OLM01.9/OLM03.1	2 62/85	28-126 36-97	0-43 0-28	0.52 10	10 10
3,3'-Dichlorobenzidine	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-139 NA NA	0-193 NA NA	12 10 5.0	20 10 5.0
2,4-Dichlorophenol	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	42-140 NA NA	0-24 NA NA	0.096 10 5.0	10 10 5.0
2,6-Dichlorophenol	8270(3520)◇	2	10-150	0-50	4.9	10
Dieldrin	8270(3520)◇	2	10-209	0-20	3.0	10
Di(2-ethylhexyl)adipate	8270(3520)	2	35-130	0-50	0.02	10
Diethyl phthalate (MS - CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	44-162 NA 50-120	0-32 NA NA	0.46 10 5.0	10 10 5.0
p-(Dimethylamino)azobenzene	8270(3520)◇	2	10-150	0-50	1.7	10
7,12-Dimethylbenz(a)anthracene	8270(3520)◇	2	10-150	0-50	1.3	10
3,3'-Dimethylbenzidine	8270(3520)◇	2	10-200	0-100	3.4	10
a,a-Dimethylphenethylamine	8270(3520)◇	2	10-200	0-50	3.1	10
2,4-Dimethylphenol	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	33-111 NA NA	0-44 NA NA	0.13 10 5.0	10 10 5.0
Dimethylphthalate	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	78-119 NA NA	0-20 NA NA	1.5 10 5.0	10 10 5.0
m-Dinitrobenzene	8270(3520)◇	2	10-150	0-50	4.0	10
p-Dinitrobenzene	8270(3520)◇	2	44-125	0-58	8.0	50
4,6-Dinitro-2-methylphenol	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	56-152 NA NA	0-39 NA NA	0.26 25 20	50 25 20

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2,4-Dinitrophenol	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-158 NA NA	0-94 NA NA	0.38 25 20	50 25 20
2,4-Dinitrotoluene (MS - All methods)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	31-145 24-96 30-120	0-54 0-38 NA	0.30 10 5.0	10 10 5.0
2,6-Dinitrotoluene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	61-134 NA NA	0-37 NA NA	0.44 10 5.0	10 10 5.0
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)	8270(3520)◇	2	10-150	0-50	2.2	10
Di-n-octyl phthalate	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-374 NA NA	0-32 NA NA	0.43 10 5.0	10 10 5.0
1,4-Dioxane	8270(3520)◇	2	10-150	0-50	0.76	10
1,2-Diphenyl hydrazine	8270(3520)◇	2	10-150	0-50	1.6	10
Endosulfan I	8270(3520)◇	2	10-150	0-50	1.2	20
Endosulfan II	8270(3520)◇	2	10-150	0-50	1.9	20
Endosulfan sulfate	8270(3520)◇	2	45-171	0-25	1.5	20
Endrin	8270(3520)◇	2	10-150	0-50	2.2	20
Endrin aldehyde	8270(3520)◇	2	10-234	0-59	3.0	50
Endrin ketone	8270(3520)◇	2	10-150	0-50	12	50
Ethyl carbamate	8270(3520)◇	2	52-100	0-24	2.5	10
Ethyl methanesulfonate	8270(3520)◇	2	10-150	0-50	3.8	10
Fluoranthene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	57-104 NA NA	0-27 NA NA	0.066 10 5.0	10 10 5.0
Fluorene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	80-131 NA NA	0-17 NA NA	0.13 10 5.0	10 10 5.0
Heptachlor	8270(3520)◇	2	33-178	0-36	1.5	20
Heptachlor epoxide	8270(3520)◇	2	48-184	0-25	1.7	20
Hexachlorobenzene (MS - CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	61-132 NA 40-120	0-20 NA NA	0.58 10 5.0	10 10 5.0
Hexachlorobutadiene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	26-106 NA NA	0-28 NA NA	0.70 10 5.0	10 10 5.0
Hexachlorocyclopentadiene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	D-200 NA NA	0-50 NA NA	0.22 10 5.0	10 10 5.0
Hexachloroethane (MS - CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	23-97 NA 20-110	0-55 NA NA	0.61 10 5.0	10 10 5.0
Hexachlorophene	8270(3520)◇	2	10-200	0-80	1200	5000
Hexachloropropene	8270(3520)◇	2	10-150	0-50	1.6	10

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Indeno(1,2,3-cd)pyrene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1 SIM	2 62/85 6 73	38-118 NA NA 38-100	0-37 NA NA 0-35	0.13 10 5.0 0.043	10 10 5.0 0.10
Isophorone (MS - CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	68-134 NA 50-110	0-22 NA NA	0.61 10 5.0	10 10 5.0
Isosafrole	8270(3520)◇	2	10-150	0-50	4.4	10
Kepone	8270(3520)◇	2	10-150	0-50	5.3	10
d-Limonene	8270(3520)◇	2	36-74	0-18	1.4	10
Methapyrilene	8270(3520)◇	2	10-150	0-50	27	50
4,4-Methylbis(2-chloroaniline)	8270(3520)◇	2	39-121	0-73	92	500
3-Methylcholanthrene	8270(3520)◇	2	10-150	0-50	4.1	10
Methylmethanesulfonate	8270(3520)◇	2	10-150	0-50	3.6	10
2-Methylnaphthalene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-150 NA NA	0-50 NA NA	0.73 10 5.0	10 10 5.0
1-Methylnaphthalene	8270(3520)◇	2	10-150	0-50	0.4	10
2,4(8)-p-Menthadiene	8270(3520)◇	2	22-85	0-42	1.6	10
Naphthalene (MS - CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	47-118 NA 30-110	0-36 NA NA	0.093 10 5.0	10 10 5.0
1,4-Napthoquinone	8270(3520)◇	2	10-150	0-50	3.0	10
1-Napthylamine	8270(3520)◇	2	10-150	0-50	2.9	10
2-Napthylamine	8270(3520)◇	2	10-150	0-50	1.1	10
Nicotine	8270(3520)◇	2	10-150	0-50	25	100
2-Nitroaniline	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-150 NA NA	0-50 NA NA	0.46 25 20	50 25 20
3-Nitroaniline	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-150 NA NA	0-50 NA NA	0.74 25 20	50 25 20
4-Nitroaniline	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-150 NA NA	0-50 NA NA	0.59 25 20	50 25 20
Nitrobenzene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	56-114 NA NA	0-33 NA NA	1.0 10 5.0	10 10 5.0
2-Nitrophenol	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	40-142 NA NA	0-28 NA NA	0.21 10 5.0	10 10 5.0
4-Nitrophenol (MS - Except CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-144 10-80 NA	0-39 0-50 NA	0.39 25 20	50 25 20
4-Nitroquinoline-1-oxide	8270(3520)◇	2	10-150	0-50	5.7	20
N-Nitrosodi-n-butylamine	8270(3520)◇	2	10-150	0-50	3.1	10

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
N-Nitrosodiethylamine	8270(3520)◇	2	10-150	0-50	3.1	10
N-Nitrosodimethylamine	8270(3520)◇	2	58-133	0-41	1.1	10
N-Nitrosodi-n-propylamine (MS - All methods)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	33-157 41-116 30-110	0-39 0-38 NA	0.79 10 5.0	10 10 5.0
N-nitrosodiphenylamine/ Diphenylamine (MS - CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-150 NA 30-110	0-50 NA NA	1.8 10 5.0	10 10 5.0
N-Nitrosomethylethylamine	8270(3520)◇	2	10-150	0-50	3.0	10
N-Nitrosomorpholine	8270(3520)◇	2	10-150	0-50	4.2	10
N-Nitrosopiperidine	8270(3520)◇	2	10-150	0-50	3.8	10
N-Nitrosopyrrolidine	8270(3520)◇	2	10-150	0-50	3.6	10
5-Nitro-o-toluidine	8270(3520)◇	2	10-150	0-50	4.5	10
PCB-1016	8270(3520)◇	2	10-150	0-50	120	500
PCB-1221	8270(3520)◇	2	10-150	0-50	120	500
PCB-1232	8270(3520)◇	2	44-94	0-50	120	500
PCB-1242	8270(3520)◇	2	60-102	0-50	120	500
PCB-1248	8270(3520)◇	2	65-83	0-50	120	500
PCB-1254	8270(3520)◇	2	10-150	0-50	120	500
PCB-1260	8270(3520)◇	2	10-116	0-50	120	500
Pentachlorobenzene	8270(3520)◇	2	10-150	0-50	4.5	10
Pentachloronitrobenzene	8270(3520)◇	2	10-150	0-50	3.6	10
Pentachlorophenol (MS - All methods)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1■	2 62/85 6	17-120 9-103 NA	0-37 0-50 NA	0.062 25 20	50 25 20
Phenacetin	8270(3520)◇	2	10-150	0-50	2.0	10
Phenanthrene	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	42-139 NA NA	0-27 NA NA	0.092 10 5.0	10 10 5.0
Phenol (MS - All methods)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	13-134 12-110 40-120	0-37 0-42 NA	0.22 10 5.0	10 10 5.0
p-Phenylenediamine	8270(3520)◇	2	10-200	0-50	10	20
2-Picoline	8270(3520)◇	2	10-150	0-50	2.3	10
cis-Pinane	8270(3520)◇	2	50-103	0-29	2.9	10
Pronamide	8270(3520)◇	2	10-150	0-50	3.3	10
Pyrene (MS - Except CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	34-160 26-127 NA	0-36 0-31 NA	0.088 10 5.0	10 10 5.0
Pyridine	8270(3520)◇	2	10-150	0-50	19	50
Resorcinol	8270(3520)◇	2	6-110	0-54	2.2	200

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PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Safrole	8270(3520)◇	2	10-150	0-50	4.6	10
Strychnine	8270(3520)◇	2	10-150	0-50	25	100
Terpineol	8270(3520)◇	2	80-161	0-20	0.82	10
Terpinolene	8270(3520)◇	2	28-81	0-45	1.7	10
1,2,4,5-Tetrachlorobenzene	8270(3520)◇	2	10-150	0-50	4.2	10
Trichlorophenols (2,4,5 and 2,4,6)	8270(3520)◇	2	NA	NA	0.57	10
2,3,4,5-Tetrachlorophenol	8270(3520)◇	2	10-150	0-50	12	50
2,3,4,6-Tetrachlorophenol	8270(3520)◇	2	34-118	0-31	4.3	10
o-Toluidine	8270(3520)◇	2	10-150	0-50	4.6	10
Toxaphene	8270(3520)◇	2	10-200	0-80	500	2000
1,2,4-Trichlorobenzene (MS - All methods)	8270(3520)◇ CLP OLM01.9/OLM03.1	2 62/85	39-123 39-98	0-28 0-28	0.73 10	10 10
Tetrachlorophenols (2,3,4,5 and 2,3,4,6)	8270(3520)◇	2	NA	NA	4.3	50
2,4,5-Trichlorophenol	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	45-113 NA NA	0-21 NA NA	0.098 25 20	10 25 20
2,4,6-Trichlorophenol (MS - CLP OLC02.1)	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	34-138 NA 40-120	0-30 NA NA	0.18 10 5.0	10 10 5.0
o,o,o-Triethyl-phosphorothioate	8270(3520)◇	2	10-150	0-50	4.4	10
1,3,5-Trinitrobenzene	8270(3520)◇	2	10-150	0-50	2.0	10
Surrogate - Nitrobenzene-d5	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	29-120 35-114 40-112	NA NA NA	NA NA NA	NA NA NA
Surrogate - 2-Fluorobiphenyl	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	25-129 43-116 42-110	NA NA NA	NA NA NA	NA NA NA
Surrogate - p-Terphenyl-d14	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	11-144 33-141 24-140	NA NA NA	NA NA NA	NA NA NA
Surrogate - Phenol-d5	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	14-136 10-110 17-113	NA NA NA	NA NA NA	NA NA NA
Surrogate - 2-Fluorophenol	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	18-123 21-110 16-108	NA NA NA	NA NA NA	NA NA NA
Surrogate - 2,4,6-Tribromophenol	8270(3520)◇ CLP OLM01.9/OLM03.1 CLP OLC02.1	2 62/85 6	10-162 10-123 18-126	NA NA NA	NA NA NA	NA NA NA
Surrogate - 2-Chlorophenol-d4	CLP OLM01.9/OLM03.1	62/85	33-110	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Surrogate - 1,2-Dichlorobenzene-d4	CLP OLM01.9/OLM03.1	62/85	16-110	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) (MS)	8280 8270 (Screen)	2 2	63-137 NA	0-40 NA	0.0042 10	0.0050 10
Polychlorinated Dibenzo-p-dioxin and Dibenzofuran classes						
tetra-CDD (MS)	8280	2	63-137	0-40	0.0042	0.0050
tetra-CDF (MS)	8280	2	60-142	0-40	0.0037	0.0050
penta-CDD (MS)	8280	2	37-163	0-40	0.0035	0.0050
penta-CDF (MS)	8280	2	52-148	0-40	0.0038	0.0050
hexa-CDD (MS)	8280	2	42-158	0-40	0.0041	0.0050
hexa-CDF (MS)	8280	2	58-142	0-40	0.0029	0.0050
hepta-CDD (MS)	8280	2	20-170	0-50	0.0025	0.010
hepta-CDF (MS)	8280	2	20-170	0-50	0.0056	0.010
octa-CDD (MS)	8280	2	20-170	0-50	0.0095	0.010
octa-CDF (MS)	8280	2	20-170	0-50	0.0072	0.010
Internal Standard - $^{13}C_{12}$-2,3,7,8-TCDD	8280	2	40-120	NA	NA	NA
Internal Standard - $^{13}C_{12}$-OCDD	8280	2	40-120	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acenaphthene (MS)	8310(3550)	2	44-162	0-52	0.18	1.0
Acenaphthylene	8310(3550)	2	10-139	0-40	0.20	1.0
Anthracene	8310(3550)	2	10-126	0-40	0.0044	0.20
Benzo(a)anthracene	8310(3550)	2	12-135	0-40	0.0099	0.20
Benzo(b)fluoranthene	8310(3550)	2	6-150	0-40	0.0048	0.20
Benzo(k)fluoranthene	8310(3550)	2	10-159	0-40	0.0039	0.50
Benzonitrile	8310(3550)	2	10-200	0-40	2.50	10
Benzo(g,h,i)perylene	8310(3550)	2	10-120	0-40	0.017	0.50
Benzo(a)pyrene	8310(3550)	2	10-128	0-40	0.0082	0.20
Carbazole	8310(3550)	2	10-150	0-40	0.25	1.0
Chrysene (MS)	8310(3550)	2	10-199	0-40	0.0056	0.20
Dibenz(a,h)acridine	8310(3550)	2	NA	NA	NA	NA
Dibenzo(a,h)anthracene	8310(3550)	2	10-110	0-40	0.036	1.0
Fluoranthene	8310(3550)	2	41-155	0-54	0.014	0.50
Fluorene (MS)	8310(3550)	2	10-142	0-40	0.018	0.50
Indene	8310(3550)	2	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	8310(3550)	2	10-116	0-40	0.0089	0.50
6-Methyl chrysene	8310(3550)	2	NA	NA	NA	NA
1-Methylnaphthalene	8310(3550)	2	10-125	0-40	0.073	1.0
2-Methylnaphthalene	8310(3550)	2	10-125	0-40	0.072	1.0
Naphthalene (MS)	8310(3550)	2	27-112	0-40	0.26	1.0
Phenanthrene	8310(3550)	2	10-155	0-40	0.0068	0.20
Pyrene (MS)	8310(3550)	2	50-158	0-43	0.025	0.50
Thiophenol	8310(3550)	2	NA	NA	NA	NA
Surrogate - 4-Terphenyl-d14	8310(3550)	2	25-163	NA	NA	NA

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Acetaldehyde	8315	2	30-110	0-40	19	200
Formaldehyde	8315	2	50-155	0-30	14	50
Acrylamide	8316	2	60-140	0-30	5.9	100
Acrylonitrile	8316	2	60-140	0-30	26	200
Acrolein	8316	2	60-140	0-30	49	400
Aldicarb (Temik) (MS)	8318	2	34-124	0-40	0.98	10
Aldicarb sulfone	8318	2	54-116	0-40	0.55	5.0
Aldicarb sulfoxide	8318	2	17-51	0-49	0.25	5.0
Carbaryl (Sevin)	8318	2	55-125	0-40	1.3	5.0
Carbofuran (Furadan) (MS)	8318	2	55-125	0-40	1.5	10
Dioxacarb	8318	2	56-124	0-40	1.1	5.0
3-Hydroxycarbofuran	8318	2	47-123	0-40	1.5	5.0
Methiocarb (Mesurol)	8318	2	51-137	0-40	1.4	5.0
Methomyl (Lannate)	8318	2	57-125	0-40	1.8	5.0
Oxamyl (MS)	8318	2	31-103	0-40	1.6	5.0
Promecarb	8318	2	48-122	0-40	1.4	5.0
Propoxur (Baygon)	8318	2	47-127	0-40	1.5	5.0

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
2-Amino-4,6-dinitrotoluene-Low Level▾▾	8330	2	65-135	0-30	0.043	0.20
2-Amino-4,6-dinitrotoluene-High Level	8330	2	65-135	0-30	16	100
4-Amino-2,6-dinitrotoluene-Low Level▾▾	8330	2	37-140	0-30	0.12	0.50
4-Amino-2,6-dinitrotoluene-High Level	8330	2	37-140	0-30	20	100
1,3-Dinitrobenzene (MS)-Low Level▾▾	8330	2	17-113	0-30	0.019	0.20
1,3-Dinitrobenzene (MS)-High Level	8330	2	60-140	0-30	5.2	50
2,4-Dinitrotoluene (MS)-Low Level▾▾	8330	2	16-104	0-30	0.018	0.20
2,4-Dinitrotoluene (MS)-High Level	8330	2	60-140	0-30	14	100
2,6-Dinitrotoluene-Low Level▾▾	8330	2	60-140	0-30	0.031	0.50
2,6-Dinitrotoluene-High Level	8330	2	60-140	0-30	25	100
Diphenylamine-High Level	8330	2	65-140	0-30	1.0	10
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)-Low Level▾▾	8330	2	54-166	0-30	0.17	1.0
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)-High Level	8330	2	54-166	0-30	15	100
Methyl-2,4,6-trinitro-phenylnitramine (Tetryl)-Low Level▾▾	8330	2	41-165	0-30	0.12	0.50
Methyl-2,4,6-trinitro-phenylnitramine (Tetryl)-High Level	8330	2	41-165	0-30	13	100
Nitrobenzene-Low Level▾▾	8330	2	52-152	0-30	0.086	0.20
Nitrobenzene-High Level	8330	2	52-152	0-30	10	50
Nitroglycerin-High Level	8330	2	71-121	0-22	7.1	30
n-Nitrosodiphenylamine-High Level	8330	2	55-121	0-30	2.1	10
2-Nitrotoluene (MS)-Low Level▾▾	8330	2	18-108	0-30	0.12	0.50
2-Nitrotoluene (MS)-High Level	8330	2	50-144	0-30	22	100
3-Nitrotoluene-Low Level▾▾	8330	2	50-144	0-30	0.048	0.50
3-Nitrotoluene-High Level	8330	2	55-165	0-30	35	100
4-Nitrotoluene-Low Level▾▾	8330	2	54-166	0-30	0.12	0.50
4-Nitrotoluene-High Level	8330	2	54-166	0-30	50	100
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)-Low Level▾▾	8330	2	54-162	0-30	0.12	1.0
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)-High Level	8330	2	54-162	0-30	15	100
Pentaerythritol tetranitrate (PETN)-High Level	8330	2	50-150	0-30	13	20
1,3,5-Trinitrobenzene-Low Level▾▾	8330	2	50-150	0-30	0.089	0.20
1,3,5-Trinitrobenzene-High Level	8330	2	50-150	0-30	9.8	50
2,4,6-Trinitrotoluene-Low Level▾▾	8330	2	50-170	0-30	0.0076	0.20
2,4,6-Trinitrotoluene-High Level	8330	2	50-170	0-30	15	100
Surrogate - 3,4-Dinitrotoluene	8330	2	40-140	NA	NA	NA
Asulam	SL-SOP	68	34-155	0-34	0.50	2.0
Ethylenethiourea	SL-SOP	68	60-111	0-36	1.2	5.0
Maleic acid	SL-SOP	68	60-140	0-30	1.7	10
Nitrocellulose	SL-SOP	68	30-110	0-52	130	600
Phthalic acid/Phthalic anhydride	SL-SOP	68	66-127	0-30	0.50	10
Resorcinol	SL-SOP	68	52-140	0-40	2.9	20

TABLE 5.1. LABORATORY ANALYTICAL METHODS, QA OBJECTIVES AND METHOD DETECTION LIMITS (MDL) FOR WATER AND OTHER LIQUIDS

PARAMETER	METHOD (Prep)	REF	ACCURACY* (% Rec)	PRECISION* (% RPD)	MDL** (ug/L)	RL▲ (ug/L)
Thiodiglycol	SL-SOP	68	57-141	0-32	25	100

APPENDIX D

DAILY QUALITY CONTROL REPORT

DATE _____

DAY

S	M	T	W	TH	F	S

DAILY QUALITY CONTROL REPORT

USACE PROJECT MGR.

PROJECT

JOB NO.

CONTRACT NO.

WEATHER	BRIGHT SUN	CLEAR	OVERCAST	RAIN	SNOW
TEMPERATURE	<32	32-50	50-70	70-85	>85
WIND	STILL	MODERATE	HIGH	REPORT NO.	
HUMIDITY	DRY	MODERATE	HUMID		

CONTRACTORS ON-SITE:

EQUIPMENT ON SITE:

WORK PERFORMED (INCLUDING SAMPLING):

SHEET OF

PROJECT REPORT NO._____

JOB NO. DATE_____

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):
HEALTH AND SAFETY LEVELS AND ACTIVITIES:
PROBLEMS ENCOUNTERED/CORRECTIVE ACTION TAKEN:
SPECIAL NOTES:
TOMORROW'S EXPECTATIONS:

BY_____ TITLE_____