GW - 60

REPORTS

YEAR(S):

2001 - 1995

STORMWATER
POLLUTION PREVENTION PLAN

MILAGRO GAS CONDITIONING PLANT

Williams Field Services Company

August 2001

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Storm Water Pollution Prevention Plan Certification

Name of Facility: Milagro Gas Conditioning and Cogeneration Plant

Type of Facility: The Milagro Plant is a natural gas conditioning and cogeneration plant. The plant's Standard Industrial Code number is 1321. In the National Pollutant Elimination System (NPDES) Multi Sector General Permit (MSGP), the plant is categorized as a Sub-sector 2-Natural Gas Liquids Facility in Sector I-Oil and Gas Extraction and Refining.

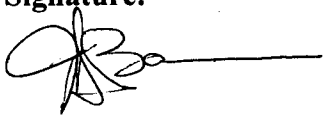
Location: Milagro Gas Conditioning Plant is located in the W/2 of SE/4, Section 12, Township 29 North, Range 11 West, in San Juan County, New Mexico, in approximately 2.5 miles east of Bloomfield, New Mexico.

Site Address:
192 County Road 4900
Bloomfield, NM 87413

Storm Water Pollution Prevention Plan Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: JEFFREY D. BAUMER

Signature:



Date:
8/15/01

1.0 INTRODUCTION

This Storm Water Pollution Prevention Plan (SWP3) is developed for implementation at the Milagro Gas Conditioning and Cogeneration Plant for storm water discharges associated with industrial activity. This SWP3 shall be implemented to fulfill the requirements of Section 405 of the Water Quality Act of 1987, which added Section 402(p) to the Clean Water Act. This section dictated that the Environmental Protection Agency (EPA) establish regulations setting forth National Pollutant Discharge Elimination System (NPDES) permit application requirements for storm water discharges associated with industrial activity and discharges from municipal separate storm sewer systems. The SWP3 outlined herein is designed to fulfill permit requirements.

1.1 Site Name and Location

Milagro Gas Conditioning and Cogeneration Plant is located in the W/2 of SE/4, Section 12, Township 29 North, Range 11 West, in San Juan County, New Mexico, approximately 2.5 mile east of Bloomfield, New Mexico. A site location map is attached (USGS 7.5 Min. Quadrangle: Bloomfield, New Mexico) as Figure 1. A facility plot plan is attached as Figure 2.

The site address is:
192 County Road 4900
Bloomfield, NM 87413

1.2 Site Operator

The Milagro Gas Conditioning Plant is operated by Williams Field Services (WFS).

1.3 Plan Organization

This SWP3 is consistent with the Federal Water Pollution Control Act and the New Mexico 401 Water Quality Certification. Storm water discharges are allowed under the general National Pollutant Discharge Elimination System (NPDES) Storm Water Multi-Sector General Permit (MSGP). On March 28, 2001, the EPA issued permit number NMR05A883 for the facility. The active date of permit coverage was March 14, 2001.

This plan concentrates on the identification of personnel responsible for implementation of the SWP3, identification of potential pollutants, description of structural controls to prevent pollution of storm water pollution, maintenance, inspection and evaluation, and record keeping.

1.4 Industrial Activity Description

The Milagro Plant is a natural gas conditioning and cogeneration plant. The plant's Standard Industrial Code number is 1321. In the MSGP, the plant is categorized as a Sub-sector 2-Natural Gas Liquids Facility in Sector I-Oil and Gas Extraction and Refining.

1.5 Consistency with Other Plans

This SWP3 has been developed in conjunction with the existing environ-mental and operating plans listed below.

- The Milagro Gas Conditioning Plant currently implements a Spill Prevention Control and Countermeasure (SPCC) Plan, 42.13.001. This SPCC Plan is in accordance with Section 311 of the CWA, CFR Title 40, Part 112.7, State and Local Government Requirements.
- Emergency Plan for Milagro (ref. Emergency Operating Procedures, 42.01.001 and 42.01.002).
- Discharges or Spills of Oil or Hazardous Substances (ref. Operating and Maintenance Procedure, 21.10.020).
- New Mexico Oil Conservation Division Discharge Plan

2.0 EXISTING CONDITIONS

2.1 Facility Description

This facility, built in 1991, is a natural gas conditioning and cogeneration plant. The conditioning plant is designed to remove carbon dioxide and water from raw natural gas. Plant processes include gas dehydration using triethylene glycol, CO_2 removal by contacting natural gas with methyldiethanolamine (MDEA) and glycol and MDEA regeneration. The processes used to separate hydrocarbons from field gas includes compressors, heat exchangers, separators, dehydrators, power generating equipment, aboveground storage tanks and other supporting equipment.

The cogeneration plant generates electricity using natural gas fuel. The exhaust gas heat is used to generate steam for use in the gas conditioning plant. In addition, there are various storage tanks, support structures and ancillary equipment. The product and waste storage tank descriptions, capacities, and locations are summarized in Table 1 and Figure 2.

TABLE 1
PRODUCT AND WASTE STORAGE TANKS

#	Number of Tanks	Capacity (approximate)	Description	Drainage Basin
(a)	1	1,175 gallon	diesel tank	Area 2
(b)	1	233 gallon	transformer	Area 2
(c)	1	100 barrel	ambitrol/water tank	Area 2
(d)	1	100 barrel	triethylene glycol tank	Area 2
(e)	2	250 barrel	amine tanks	Area 2
(f)	1	500 barrel	amine/water tank	Area 2
(g)	1	100 barrel	amine/water tank	Area 2
(h)	1	300 gallon	solvent tank	Area 2
(i)	1	400 gallon	polymer tank	Area 2
(j)	1	400 gallon	cortrol tank	Area 2
(k)	1	400 gallon	steamate tank	Area 2
(l)	2	100 barrel	triethylene glycol / water tanks	Area 2
(m)	1	500 gallon	gasoline/diesel tank	Area 2
(n)	2	456 gallon	transformers	Area 3a
(o)	4	233 gallon	transformers	Area 3a
(p)	2	2,300 gallon	lube oil tanks	Area 3a
(q)	1	1,250 gallon	diesel tank	Area 3a
(r)	2	4,233 gallon	transformers	Area 3b
(s)	3	5,024 barrel	evaporation tanks	Area 8
(t)	1	100 barrel	used oil tank	Area 8
(u)	1	250 barrel	slop oil tank	Area 8
(v)	1	1,000 gallon	used oil tank	Area 8
(x)	1	250 barrel	inlet/outlet filter liquids tank	Area 8

2.2 Storm Water Drainage Patterns

The Milagro Plant occupies approximately 40 acres of land with the elevation of the facility ranging from approximately 5,720 to 5,645 feet above mean sea level. Regional surface water drainage is to the south-southeast along Hare Canyon Wash towards San Juan River. Milagro Plant storm water drainage consists of Hare Canyon Wash located west of the facility and an unnamed arroyo located south of the facility. The unnamed arroyo drains into Hare Canyon Wash approximately 1 mile south of Milagro Plant.

Nine discrete storm water drainage basins were identified at the facility during the site inspection. Storm water drainage basins. Figure 3 identifies each of the site drainage basins and their points of storm water discharge. Each area is discussed in the following sections:

- Plant Process Area Gas Tranes 1 through 4 (Area 1a)

  This process area includes Gas Tranes 1 through 4. Storm water flows towards the west. In the Trane #1 area, a surface drain system collects storm water. A french drain system collects storm water in the area of Tranes 2 through 4. The surface drain and french drain systems discharge southwest of the area.

- Plant Process Area Gas Trane 5 (Area 1b)

  This process area includes Gas Trane 5. Storm water flows towards the south into a drainage conveyance. The drainage conveyance discharges to the south portion of the property.

- Utility Area (Area 2)

  The area consists of glycol regeneration skids, water treating building, auxiliary boiler, generator building, air compressor building, and storage tank area. Storm water from this area flows northwest to a conveyance consisting of piping and ditch. The conveyance discharges west of the facility into the Hare Canyon Wash.

- Cogeneration Area (Area 3a)

  The area consists of electric generators powered by a natural gas fired turbine. Storm water from this area flows west to diversion conveyance consisting of piping and ditch. The conveyance discharges west of the facility into the Hare Canyon Wash.

- Switch Yard (Area 3b)

  The area consists of electric switchgear equipment. Storm water from this area flows west to conveyance consisting of a wide ditch. The conveyance discharges west of the facility into the Hare Canyon Wash.

- Wastewater Evaporation Pond Area (Area 4)

  The evaporation pond area is located at the immediately west of the main facility. The area consists of three evaporation ponds. The evaporation ponds capture storm water runoff in this area. No storm water is discharged from this area.

- Slope Drainage Area (Area 5)

  Storm water from the western slope collects in a ditch and is directed either west towards Hare Canyon Wash or into the south discharge area.

- South Embankment Area (Area 6)

  Storm water is collected by a conveyance along the lip of the embankment to a drainage conveyance that discharges at the base of the embankment.

- Plant Parking Area (Area 7)

  Storm water flows from this area towards the southwest and enters a conveyance towards the west. Storm water is discharged into an unnamed ditch that flows into Hare Canyon Wash.

- North 40 Lay-Down Area (Area 8)

  Storm water from this area flows west to Hare Canyon Wash.

- South Discharge Area (Area 9)

  This area receives storm water from Areas 1a, 1b, 5, 6 and 7. Storm water flows southwest and discharges through gate valve and conduit.

2.3 Non-Storm Water Discharges

The SWP3 team conducted a visual assessment of each of the storm water outfalls that discharge off-site on June 26, 2001. Storm water outfalls were inspected for evidence of non-authorized discharges (staining, odors, discharge pipes, etc.) from the facility. There were no visual indications of; non-authorized discharges observed. Certification of the assessment for the presence of non-authorized discharges is presented in Appendix A.

Non-storm water discharges that potentially flow to the storm water management system include the following:

- Discharges from emergency fire-fighting activities, fire equipment flushings and tests,
- Air conditioning condensate,
- Routine exterior building wash downs (non-detergent),
- Potable water from fire water pumps, and
- Routine pavement wash downs (non-detergent) where spills or leaks have not occurred.

The discharges identified above are authorized under the MSGP based on their identification in this SWP3. Non-storm water discharges that are not authorized under the MSGP include the following:

- Cooling tower water,
- Process area waste water,
- Compressor wash water,
- Maintenance slab wash water, and
- Sanitary wastewater.

With the exception of sanitary wastewater that flows to the facility septic system, the above referenced, non-authorized discharges flow to the evaporation ponds via underground piping. Wastewater flows from the process area floor drains flow to an oil/water separator prior to discharging to the evaporation ponds.

2.4 Prior Spills and Leaks

Releases at the Milagro Plant are recorded and documented on Spill Reports maintained in the facility's environmental files. A reportable quantity (RQ spill occurred at the facility in late January 1999 that triggered the requirement for this SWP3. A summary of this spill is summarized below. No other significant spill events in the past three years.

- In late January 1999, water was observed flowing from a junction box approximately 300 feet west of the Milagro Plant Office Building. The estimated volume of discharged water was 9,540 gallons. The discharged water consisted of a mixture of septic and wastewater. Significant settlement of the building's foundation caused failure of the drain lines. The drain line were tested and repaired. The affected soils were assessed and clean up was performed.

2.5 Endangered Species

The NOI requires MSGP applicants to identify whether threatened and endangered (T&E) species are present in proximity to storm water discharges. The threatened and endangered species have been identified in San Juan County are the Bald Eagle, Mexican-Spotted Owl, the Back-Footed Ferret and Knowlton Cactus. According to the Threatened and Endangered Species Conflict Map located at the Bureau of Land Management (BLM) Farmington, New Mexico office, no threatened or endangered species were identified in the Milagro Plant area.

Based on existing storm water discharges under the MSGP and the established storm water management system, only minimal land disturbing activities (i.e. berm repairs, ditch cleanings) are anticipated at this time. With the exception of the incidental occurrence of Bald Eagles, no T&E species are known to be "In Proximity" to the facility. Based on visual inspection, the industrial nature of the Milagro Plant, and minimal disturbance of natural habitat, adverse effects to these species are not likely.

2.6 Historic Properties

The NOI requires MSGP applicants to identify historical properties that are present in proximity to storm water discharges. The historical property must be either listed or eligible for listing on the National Register of Historical Places. A search of the National Register Information System did not reveal any historical properties in the proximity of Milagro Plant. A subsequent visual inspection of the facility did not identify any historic properties that would be affected by implementation of this plan.

3.0 STORM WATER MANAGEMENT CONTROLS

3.1 Pollution Prevention Team

The Pollution Prevention Team consists of specific individuals responsible for the development and revision, implementation, and maintenance of the SWP3. The Team will consist of management personnel responsible for overseeing the plan, conducting quarterly inspections, conducting annual evaluations, and preparing reports. The Team will also include on-site technical personnel responsible for the day-to-day activities and maintenance of the SWP3. Team members are comprised of the following:

Name	Team Position	Telephone No.
Mark Bareta	Coordinator	(505) 632-4634
Eric Edmanson Bryan Salazar	Manager/Administer	(505) 632-4613 (505) 632-4735
J.D. Brow or Designee	Inspector	(505) 632-4607

3.1.1 SWP3 Coordinator

The SWP3 Coordinator for the Milagro Gas Processing Plant will be located at the San Juan Area office of Williams Field Services (WFS) in Bloomfield, New Mexico. The Coordinator will be responsible for the following SWP3 activities:

- Coordination with Regulatory Agencies: The Coordinator will be prime contact with the regulatory agencies involved in the NPDES permit process and shall be responsible for compiling and submitting requested information.

- Maintenance of Required Documentation: The Coordinator will be responsible for ensuring that required documentation is maintained at the head office and on-site, including records of inspection, maintenance, spills/leaks, annual evaluation for compliance, revisions to the plan, and activities of Team members, records of training, and monitoring records.

- Review of Inspection and Maintenance Schedule: The Coordinator will review the inspection and maintenance schedule at least once annually to ensure that it fulfills the purpose of the plan. The schedule will be discussed with the Manager/Administrator, and any revisions agreed upon will be documented. The Coordinator shall also review inspection and maintenance reports to ensure that the schedule is being implemented.

- Review of Employee Training Program: The Coordinator shall review the schedule and content of the Employee training program to ensure that it fulfills the intent of the Plan and is keeping with the latest regulations and practices. The Coordinator will be available to conduct training efforts and assist the Manager/Administrator in formulation of training programs.

- Annual comprehensive Site Compliance Evaluation: The Coordinator shall conduct an annual on-site compliance evaluation with the Manager/Administrator. The Coordinator

shall be responsible for intermediate evaluations if observations during the annual evaluation indicate that the intent of the plan is not being fulfilled. The Coordinator shall prepare a report following the evaluation in accordance with the plan.

- Revisions to the SWP3: The Coordinator shall review the SWP3 on an annual basis and implement revisions or additions as needed to bring the plan current with the latest regulations and procedures and with any change in site conditions. These recommendations will be coordinated with the Manager/Administrator for implementation.

3.1.2 SWP3 Manager/Administrator

The SWP3 Manager/Administrator shall visit the facility on a regular basis and shall report directly to the Coordinator. The Manager/Administrator shall be responsible for the following Plan activities:

- Inspection and maintenance schedule: The Manager/Administrator will be responsible for developing and implementing the inspection and maintenance schedule and for assigning the tasks related to the schedule to the Inspector. The Manager/Administrator shall review the inspection and maintenance reports prepared by the Inspector and approve the reports prior to submitting copies to the Coordinator. The Manager/Administrator will be responsible for ensuring that the schedule is implemented and proper documentation is completed. The Manager/Administrator will maintain a file of all documentation on-site. The Manager/ Administrator shall ensure that any deficiency found during inspection is rectified in a timely manner and documented in the file.

- Employee Training Program: The Manager/Administrator shall be responsible for developing and implementing an employee-training program for site personnel involved in activities related to the plan. The Manager/Administrator shall ensure that all personnel are aware of permit and regulatory requirements associated with their activities and are familiar with the contents of the plan.

- Annual comprehensive Site Compliance Evaluation: The Manager/Administrator shall accompany the Coordinator during site evaluations to provide information and ensure that any deficiency found during evaluation is rectified in a timely and well-documented manner. The Manager/Administrator will maintain a record of evaluation reports and resulting actions on-site.

- Spills and Leaks: The Manager/Administrator shall respond immediately to spills and leaks and take appropriate action to repair and mitigate such events. The Manager/Administrator shall notify the Coordinator immediately when any event threatens to pollute the storm water system. The Manager/Administrator will be responsible for documenting all events, actions taken, and the extent, if any, of storm water contamination. This documentation shall be maintained on-site and a copy forwarded to the Coordinator.

- Revisions to the SWP3: The Manager/Administrator shall review the SWP3 on an annual basis and recommend revisions or additions as needed to bring the plan current with the latest regulations and procedures and with any change in site conditions. These recommendations will be coordinated with the Coordinator for implementation.

3.1.3 SWP3 Inspector

The SWP3 Inspector shall be located on-site on a day-to-day basis and shall report directly to the Manager/Administrator. The Inspector shall be responsible for the following SWP3 activities:

- Inspection and Maintenance: The Inspector shall conduct routine scheduled inspections and prepare a report of the inspection to be submitted to the Coordinator. The Inspector shall oversee routine scheduled maintenance and request any replacement, repairs, or unscheduled maintenance needed and report to the Manager/Administrator on all work performed. The inspector shall perform storm water monitoring according to the requirements of this plan.

- Employee Training Program: The Inspector shall participate in the employee-training program and shall alert site personnel to any activity not in conformance with the intent of the plan. Any activity not in conformance with the plan shall be reported to the Manager/Administrator.

- Spills and Leaks: The Inspector shall immediately report any spill or leak according to the WFS SPCC Plan and Emergency Operating Procedures and take appropriate action to remedy the event, contain any spilled substance, and mitigate any damage. The Inspector shall provide a written report to the Manager/Administrator following any spills or leaks, describing the event, personnel involved, cause, and actions taken.

- Revisions to the Plan: The Inspector shall be thoroughly familiar with the requirements of the SWP3 and may offer comments or recommendations to the Manager/Administrator concerning revisions or additions to the plan to better suit the site-specific conditions.

3.2 Risk Identification and Assessment

Eight drainage areas of the site, shown in Figure 3, have been assessed for their potential as storm water pollution sources. Preventative measures that have been implemented for each area are described below.

- Plant Process Area Gas Tranes 1 through 4 (Area 1a)

  The potential pollutants are methyldiethanolamine (MDEA), glycol, and steam condensate. Concrete containment structures reduce the risk of amine releases to the ground surface.

- Plant Process Area Gas Trane 5 (Area 1b)

  The potential pollutants are MDEA, glycol, and steam condensate. Concrete containment structures are located to reduce the risk of amine releases to the ground surface.

- Utility Area (Area 2)

  The potential pollutants are MDEA, ambitrol, cortrol, dielectric oil, diesel, gasoline, polymer, solvent, steamate, and triethylene glycol. Product and waste storage tanks are located in this area. Potential leaks and spills associated with transfer activities from

these tanks could contribute pollutants to the storm water management system. The storage tanks have secondary containment capable of containing releases and preventing discharge of contents to the storm watercourses. Where experience indicates a reasonable potential for failure such as a tank overflow, rupture, or leakage, appropriate containment, diversionary structures, or equipment to prevent a discharge from reaching a watercourse are provided. In event of a spill, the SPCC Plan will be implemented.

- Cogeneration Area (Area 3a)

  The potential pollutants are ambitrol, oil, glycol and steam condensate. The storage tanks have secondary containment capable of containing releases and preventing discharge of contents to the storm water system. In event of a spill, the SPCC Plan will be implemented.

- Switch Yard (Area 3b)

  The potential pollutant is dielectric oil contained in the transformer. In event of a spill, the SPCC Plan will be implemented.

- Wastewater Evaporation Pond Area (Area 4)

  The potential pollutants are oil and process wastewater. Process wastewater may consist of oil, glycol, ambitrol and amine. Since the tanks do not discharge to the surface, they are not a storm water pollution source. Storm water that falls or drains into the pond is evaporated along with the process wastewater. The evaporation tank levels are inspected daily. The storage tanks have secondary containment capable of containing releases and preventing discharge of contents to the storm water system. In event of a spill, the SPCC Plan will be implemented.

- Slope Drainage Area (Area 5)

  The potential pollutants are oil, glycol and amine. A filter draining operation consisting of filter draining apparatus in a concrete containment and disposal dumpster could contribute petroleum hydrocarbons and process fluids. The filter draining operation is located with in a concrete-curbed area to contain runoff.

- South Embankment Area (Area 6)

  The potential pollutant is steam condensate.

- Plant Parking Area (Area 7)

  The potential pollutants are oil, glycol and septic wastewater from vehicle parking lot. The potential impact to storm water is minimal.

- North 40 Lay-Down Area (Area 8)

  The potential pollutants are oil and process wastewater. Process wastewater may consist of glycol and amine. Equipment and material storage in this area could contribute petroleum hydrocarbons to off site drainages. Good housekeeping measures and

enforcement of appropriate storage practices that include draining of equipment fluids prior to storage will minimize storm water impact

- Southwest Discharge Area (Area 9)

  No potential pollutant sources are located in this area. In the event of a spill, the gate located in the southwest corner of the site will be closed to contain potentially impacted storm water.

3.3 Best Management Practices

This section identifies the Best Management Practices (BMPs) currently being implemented to prevent or mitigate pollution to storm water.

3.3.1 Good Housekeeping

All areas on-site are routinely maintained and kept free from waste material and debris. All waste material and debris is properly collected in appropriate container and disposed of on an on-going basis. Any temporary storage of potential pollutant sources is located in a contained hazardous material area with appropriate controls for storm water protection. All raw materials are protected from precipitation by storage in containers or coverage. All containers are clearly labeled with an accurate description of the substance contained. Personnel are to ensure that any reused containers are clearly marked with the current contents description and date. The previous descriptions shall be removed or voided. All containers are sealed; no open storage of liquid wastes is permitted.

3.3.2 Preventive Maintenance

Periodic inspection and maintenance of storm water management devices as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.

- Open Channels: Periodic inspection of the open channels shall be performed at least once quarterly and after any large precipitation event. The channels shall be cleared of debris and sediment deposits and repaired and maintained as necessary.

- Culverts: Periodic inspection of the culverts shall be performed at least once quarterly and after any large precipitation event. Sediment deposits and debris shall be removed from the culverts, any erosion damage at entrance or outfall shall be repaired and extra protection considered if this is an on-going problem. Any damaged culvert shall be repaired or replaced.

- Containment Structures: Periodic inspection of the containment structures around process equipment, product and waste storage tanks, and the truck loading equipment shall be performed at least once quarterly and after any large precipitation event.

Process Wastewater System: Periodic inspection of the process wastewater system shall be performed at least once quarterly. The system will be evaluated and necessary maintenance

performed to ensure proper flow from the process area drains through the oil/water separator to the evaporation ponds.

3.3.3 Spill Prevention and Response Procedures

Detailed policy and procedures for preventing, controlling, and reporting discharges or spills can be found in WFS Operating and Maintenance procedure, entitled Discharges or Spills of Oil or Hazardous Substances: Preventing, Controlling and Reporting of, 21.10.020 and the Milagro Plant SPCC Plan, 42.13.001.

3.3.4 Inspections and Evaluation

In addition to or as part of the Annual Comprehensive Compliance Evaluation Report required by the permit, the qualified Inspector will conduct visual inspections of the Plant annually. The Inspector shall include quarterly visual inspections as part of his routine preventive maintenance site check. Records of annual inspections shall be maintained for a minimum of five years.

The objective of the visual inspections is to survey equipment and storage areas on a regular basis and to identify problems and ensure that appropriate actions are taken. A work order will be prepared describing corrective measures shall be used to ensure that appropriate actions are taken in response to the inspection.

Specifically, the Inspector will visually check for:

- Corroded or damaged drums, tanks, or pipes;
- Broken or breached earthen dikes;
- Broken or cracked concrete containment walls;
- Clogged catchment ponds;
- Collapsed or clogged culverts; and
- Stained soil.

3.3.5 Sediment and Erosion Control

The following BMPs for sediment and erosion control are maintained and upgraded as needed to minimize the entrainment of fine-grained soils into storm water discharges.

- Maintain vegetative cover to the extent possible in exposed soil areas.
- Minimize soil erosion by reducing storm water runoff velocity and providing drainage pathways.
- Minimize exposure of bare soil areas to precipitation following any new construction or other ground disturbing activities. This can be accomplished by slope protection, flow diversions, and/or soil stabilization (mulching, matting, geotextiles).
- Allow sediments to settle out of storm water by utilizing the storm water detention pond.
- Ground stabilization at non-paved surfaces, such as parking, loading, unloading, and open areas. This may include re-grading the unpaved surface to remove ruts and erosion scars that have formed, followed by the application of gravel over non-paved areas.
- The majority of the plant process area has been covered with a layer of gravel to minimize erosion and potential contamination problems.
- Stabilize steep slopes.
- Minimize offsite runoff flows on to the facility by maintaining berms and diversions.

3.3.6 Process and Materials Management

Materials management practices include the identification of toxic and hazardous substances stored on-site and the organization and handling procedures for these substances. By minimizing the exposure of materials to storm water, facilities can eliminate the possibility of storm water discharges coming into contact with pollutants. Specific practices emphasized include:

- Neatly organizing drums, boxes, and other containers for storage at designed storage areas;
- Identification of all substances stored and handled on-site;
- Development of handling procedures for these materials; and
- Revision of the SPCC and this Plan to include new materials stored or handled on-site.

3.3.7 Employee Training

The SWP3 manager and inspector will conduct and coordinate employee training annually to inform and educate plant personnel about the SWP3. The following subjects will be covered:

- SPCC plan and associated spill response procedures;
- Good house keeping and preventative maintenance procedures;
- Proper tank filling, emptying, and material loading and unloading procedures;
- Drum handling, labeling and disposal procedures;
- Waste handling and disposal procedures; and
- Storm water monitoring and sampling procedures.

4.0 IMPLEMENTATION

4.1 Best Management Practices (BMP) Implementation

The Best Management Practices described in this plan have been implemented or will be initiated. These BMPs will be incorporated into the existing preventive maintenance schedule. Implementation will be monitored through inspections. The BMP, inspection interval, and responsible party are listed below.

Best Management Practice	Inspection Interval	Responsible Party
Good Housekeeping	Annual	Inspector
Preventative Maintenance	Annual	Inspector
Spill Prevention and Response Procedures	Annual	Inspector
Visual Inspection	Annual	Inspector
Sediment and Erosion Control	Annual	Inspector
Process and Materials Management	Annual	Inspector
Employee Training	Annual	Manager/Administrator

4.2 Visual Monitoring

Visual monitoring of storm water from each outfall are requirements of the MSGP. Visual monitoring of storm water discharge from the outfalls described in the section below must be conducted at least once per quarter to inspect storm water quality associated with snowmelt, or storm water runoff. Monitoring will be conducted during the following periods:

- 1st Quarter - January through March,
- 2nd Quarter - April through June,
- 3rd Quarter - July through September, and
- 4th Quarter - October through December.

Outfall sampling locations are shown in Figure 3 and include the following:

- Outfall 1 (Areas 1a, 1b, 4, 5, 6 and 9) – Outfall location is the culvert located at the southwest boundary when flowing,
- Outfall 2 (Area 7) - Outfall location to unnamed drainage when flowing,
- Outfall 3 (Areas 2, 3a, and 7) - Outfall location to parking pavement when flowing, and,
- Outfall 4 (Areas 2, 3a, 3b, and 6) - Outfall location to unnamed drainage when flowing.
- Outfall 5(Area 8) - Outfall location to unnamed drainage when flowing.

Visual examinations are conducted during daylight hours within the first 30 minutes, or as soon as possible thereafter, after runoff or snowmelt begins discharging. All samples will be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inches rainfall) storm event. The 72-hour storm interval is waived when the preceding measurable storm did not yield a measurable discharge, or it can be documented that less than 72-hour interval is representative for local storm events during the sampling period.

The grab sample must be collected in the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is not possible, a grab sample can be collected during the first hour of the discharge, and the discharger must submit with the monitoring report a description of why a grab sample during the first 30 minutes was impracticable. A grab sample of the discharge is collected in a clear container. The visual examination is conducted in a well lit area during daylight hours and include any observations related to color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, or other indicators of storm water pollution.

In some of the above-described areas, there are several outfalls within the same area that discharge offsite. A single sample for visual monitoring from one of the outfalls is deemed as a "representative discharge" based on the similar nature of industrial activities, type of materials, and management practices conducted within these areas.

Visual monitoring worksheets must be maintained onsite and filed with the SWP3. Blank worksheets are included in Appendix B. Information on the worksheets includes examination dates, times, personnel, nature of discharge (snowmelt, rainstorm, etc.), visual quality of the discharge, and probable sources of any observed pollution. If no discharges occur within a quarter then visual monitoring is not required and "no discharge" is recorded on the monitoring worksheets.

4.3 Employee Training

An employee-training program shall be developed and implemented to inform personnel of storm water BMPs identified in this Plan. Training will be provided annually and records of said training shall be retained for three years. The employee training programs shall inform personnel responsible for storm water management and employees at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training addresses topics such as spill response, good housekeeping and material management practices.

The purpose of the training program is to inform and teach on-site personnel with regard to the components of the discharge regulations, permit, and storm water pollution prevention plan. The program will prepare individuals to effectively minimize and/or eliminate pollutants from entering the storm drainage system.

The goal of the program is to produce trained personnel who have the know-how to prevent spills and to respond safely and effectively, and who recognize and report potential storm water contamination situations.

4.4 Record Keeping & Internal Reporting Procedures

All records of inspections and maintenance activities must be incorporated in Appendix C of this plan and maintained on-site. Documenting all inspections, training programs and incidents is an excellent preventive maintenance technique. A log will be developed and followed to record all maintenance, monitoring, and inspection activities with regard to the storm water drainage system. This log will become incorporated into the preventive maintenance log. Records of spills, leaks, or other pollutant discharges, inspections, monitoring events and maintenance activities must be retained for at least five years.

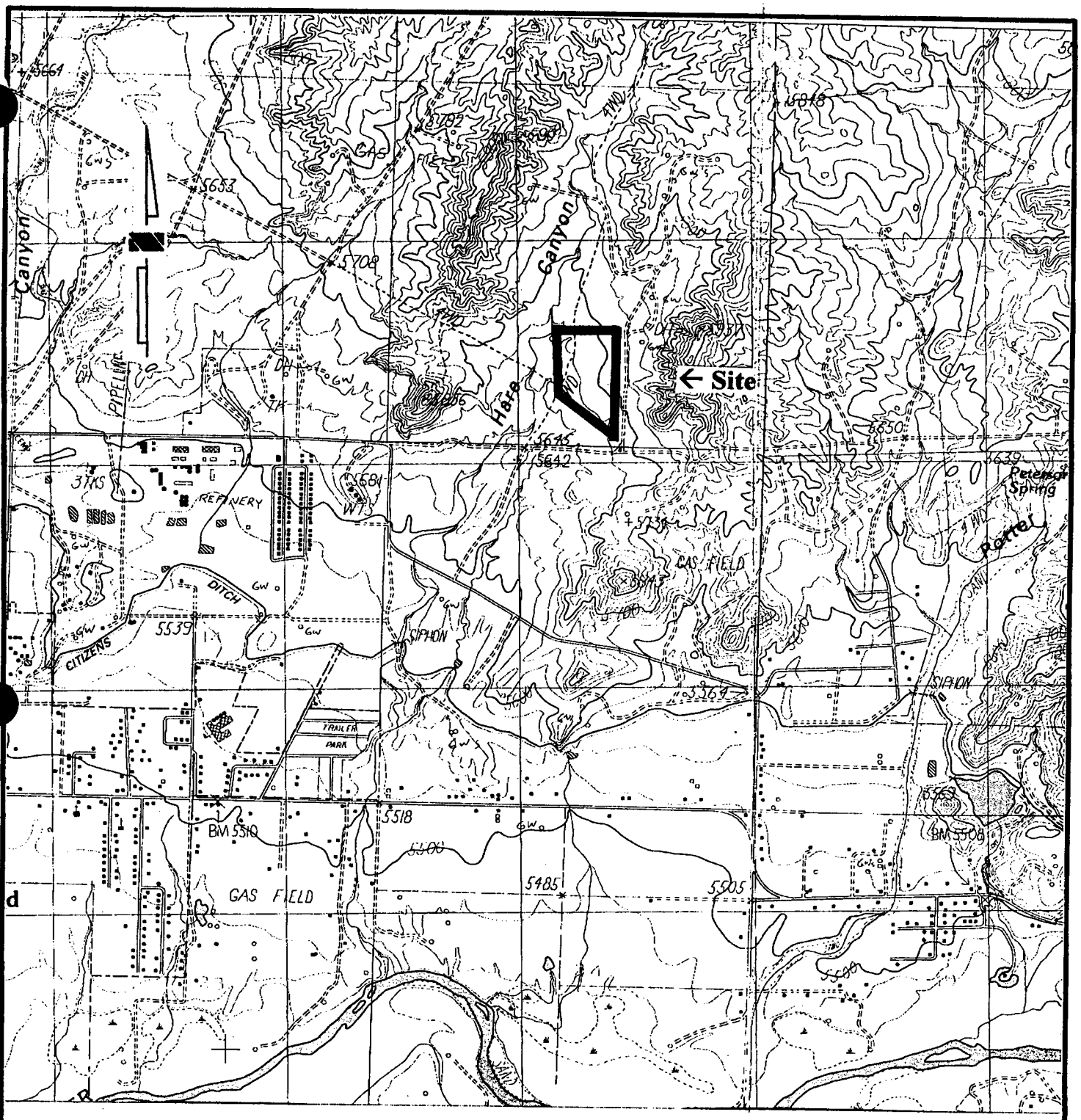
4.5 Annual Comprehensive Storm Water Compliance Evaluation

The Plan Coordinator and Plan Inspector shall conduct annual site compliance inspection. This annual inspection will provide a basis for evaluating the effectiveness of the SWP3. The inspection will evaluate measures to reduce pollutant loadings: structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the SWP3. Measures shall be evaluated to determine whether they are adequate and properly implemented in accordance with terms of the permit or whether additional control measures are needed. A visual inspection of equipment needed to implement the SWP3, such as spill response equipment, shall be made. Areas contributing to any storm water discharge shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Specifically, the site evaluation will include:

- Inspect storm water drainage areas;
- Observe structural measures, culverts, earthen berms, and concrete dikes for proper operation;
- Evaluate effectiveness of storm water pollution prevention measures and BMPs;
- Review and evaluate quarterly monitoring data;
- Revise SWP3 to reflect new construction areas and changes in the storm water drainage system;
- Implement changes as required; and
- Complete and sign the Storm Water Compliance Evaluation Report.

A Storm Water Compliance Evaluation Report summarizing the scope of the inspection, personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWP3, and actions taken shall be prepared. If the report describes deficiencies in pollution control structures or procedures, such deficiencies shall be corrected and the SWP3 shall be modified to reflect the required changes. The report shall be signed by the Coordinator and Inspector. The report shall be retained as part of the SWP3 for at least five years.

Figures



Source:USGS Bloomfield Quadrangle, New Mexico

Scale: 1" = 2,000'

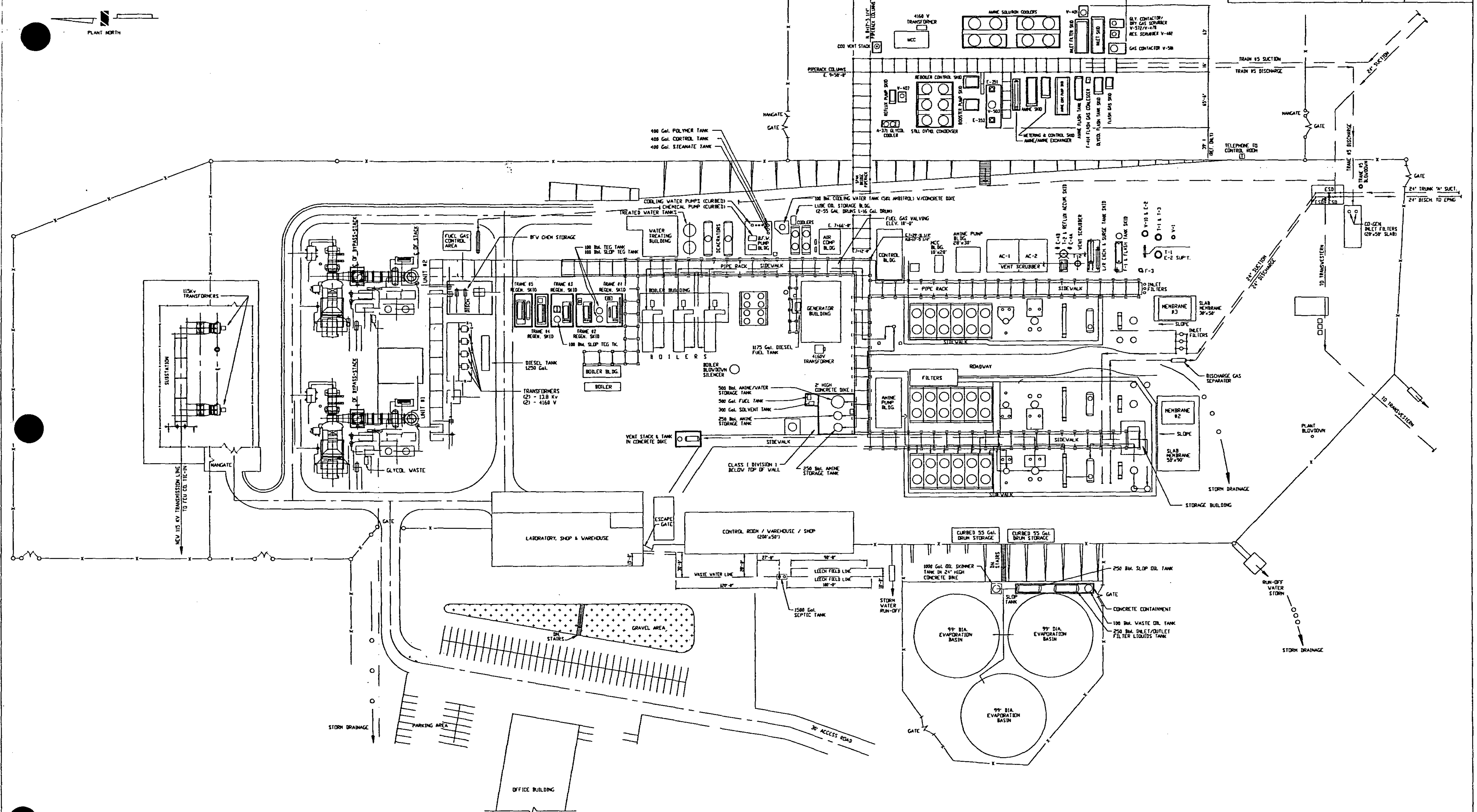
Williams

Figure 1 Site Vicinity / Topographic Map

Milagro Plant

Section 12, Township 29N Range 11W

San Juan County, New Mexico


PLANT NORTH
115Kv TRANSFORMERS
SUBSTATION
HANGATE
NEW 115 KV TRANSMISSION LINE TO PNM CO. TIE-IN
GLYCOL WASTE
UNIT #2
UNIT #1
FUEL GAS CONTROL AREA
BFW CHEM STORAGE
DIESEL TANK 1250 Gal.
TRANSFORMERS (2) - 13.8 Kv (2) - 4160 V
BOILER BLDG.
BOILER
BOILERS
BOILER BUILDING
WATER TREATING BUILDING
DEAERATORS
GENERATOR BUILDING
1175 Gal. DIESEL FUEL TANK
4160V TRANSFORMER
BOILER BLOWDOWN SILENCER
VENT STACK & TANK IN CONCRETE DIKE
CLASS I DIVISION 1 BELOW TOP OF WALL
250 Bbl. AMINE STORAGE TANK
CONTROL BLDG.
AIR COMP BLDG
MCC BLDG.
AMINE PUMP BLDG.
VENT SCRUBBER
PIPE RACK
SIDEWALK
ROADWAY
FILTERS
MEMBRANE #3
MEMBRANE #2
SLAB MEMBRANE 50'x90'
INLET FILTERS
DISCHARGE GAS SEPARATOR
STORAGE BUILDING
STORM DRAINAGE
PLANT BLOWDOWN
10 TRANSWESTERN
24" SUCTION
24" DISCHARGE
TRAIN #5 SUCTION
TRAIN #5 DISCHARGE
TELEPHONE TO CONTROL ROOM
ESD
CO-GEN INLET FILTERS (20'x50' SLAB)
24" TRUNK "A" SUCT.
24" DISCH. TO EPNG
GATE
LABORATORY, SHOP & WAREHOUSE
ESCAPE GATE
CONTROL ROOM / WAREHOUSE / SHOP (200'x50')
WASTE WATER LINE
LEECH FIELD LINE
1500 Gal. SEPTIC TANK
STORM WATER RUN-OFF
CURBED 55 Gal. DRUM STORAGE
250 Bbl. SLOP OIL TANK
SLOP TANK
CONCRETE CONTAINMENT
100 Bbl. WASTE OIL TANK
250 Bbl. INLET/OUTLET FILTER LIQUIDS TANK
99' DIA. EVAPORATION BASIN
RUN-OFF WATER STORM
GRAVEL AREA
STAIRS
PARKING AREA
30' ACCESS ROAD
OFFICE BUILDING
MCC
4160 V TRANSFORMER
AMINE SOLUTION COOLERS
INLET FILTER SKID
INLET SKID
GAS CONTACTOR V-501
REBOILER CONTROL SKID
REFLUX PUMP SKID
BOOSTER PUMP SKID
AMINE SKID
STILL OVHD. CONDENSER
A-371 GLYCOL COOLER
METERING & CONTROL SKID
AMINE/AMINE EXCHANGER
FLASH GAS SKID
PIPERACK COLUMNS
CO2 VENT STACK

DRAFTING	BY	DATE	STATE: NEW MEXICO	WILLIAMS FIELD SERVICES
DRAWN BY	BES	6/4/98	COUNTY: SAN JUAN	ONE OF THE WILLIAMS COMPANIES
CHECKED BY			MILAGRO GAS CONDITIONING PLANT PLOT PLAN	
APPROVED BY				
ENGINEER	BY	DATE	**Figure 2**	
DESIGNED BY			SCALE: 1" = 50'-0"	DWG NO. MLG-1-P229 SHEET 1 REV 1
PROJ. APPROVED			W.O. NO.	

NO.	DATE	BY	DESCRIPTION	W.O.NO.	CHK.	APP.
1	6/4/98	BES	EOS DRAWING REDRAWN ON 24"x36" BORDER			

DRAWING NO.	TITLE	DRAWING NO.	TITLE

REFERENCE DRAWINGS

REFERENCE DRAWINGS

REVISIONS

WILLIAMS GAS PROCESSING

MILAGRO
GAS CONDITIONING PLANT
FIGURE 3

1

BY	DATE
DRAWN	
CHECKED	
APPROVED	

DWG. NO.

AREA 1b

AREA 6

AREA 3b

AREA 3a

AREA 2

AREA 1a

AREA 8

AREA 5

OUTFALL 4 *

* OUTFALL 3

AREA 7

AREA 4

AREA 9

January 1999 *
Spill Location

OUTFALL 2 *

* OUTFALL 5

OUTFALL 1 *

Appendix A

SWP3 Documentation

NPDES Form 3510-6

United States Environmental Protection Agency
Washington, DC 20460

Form Approved
OMB No. 2040-0086

Notice of Intent for Storm Water Discharges Associated with INDUSTRIAL ACTIVITY Under the Multi-sector NPDES General Permit

Submission of this completed Notice of Intent (NOI) constitutes notice that the entitiy in Section B intends to be authorized to discharge pollutants to waters of the United States, from the facility or site identified in Section C, under EPA's Storm Water Multi-sector General Permit (MSGP). Submission of the NOI also constitutes notice that the party identified in Section B of this form has read, understands, and meets the eligibility conditions of Part I of the MSGP; agrees to comply with all applicable terms and conditions of the MSGP; understands that continued authorization under the MSGP is contigent on maintaining eligibility for coverage, and that implementation of the permittee's pollution prevention plan is required two days after a complete NOI is mailed. In order to be granted coverage, all information required on this form must be completed. Please read and make sure you comply with all permit requirements, including the requirement to prepare and implement a storm water pollution prevention plan.

A. Permit Selection
If new, enter generic permit, otherwise enter previous permit: [ ]

New Permit Number(EPA Use Only) [ ] R05[ ]

B. Facility Operator Information

1. Name: WILLIAMS FIELD SERVICES 2. Phone: 5056324634
3. Mailing Address: a. Street or P.O. Box: 188 CR 4900
b. City: BLOOMFIELD c. State: NM d. Zip Code: 87413

C. Facility/Site Information

1. Facility/Site Name: MILAGRO GAS PROCESSING PLANT
2. Location Address: a. Street: 192 CR 4900
b. City: Bloomfield c. County: San Juan
d. State: NM e. Zip Code: 87413 f. Latitude: [ ] g. Longitude: [ ]
3. If you are filing as a co-permittee, enter storm water general permit number: [ ]
4. a. Permit Applicant: ☐ Federal ☐ State ☐ Tribal ☑ Private ☐ Other public entity
b. Is the facility located on Indian Country Lands? ☐ Yes ☑ No
5. Does the facility discharge storm water into:
a. Receiving water(s)? ☑ Yes ☐ No If yes, name(s) of receiving water(s): unnamed ditch
b. A municipal separate storm sewer system (MS4)? ☐ Yes ☑ No
If yes, name of the MS4 operator: [ ]
6. The 4-digit Standard Industrial Classification (SIC) codes or the 2-letter Activity Codes that best represent the principal products produced or services rendered by your facility and major co-located activities:
Primary: 1321 Secondary (if applicable): [ ]
7. Applicable sector(s) of industrial activity, as designated in Part 1.2.1 of the MSGP, that include associated discharges that you seek to have covered under this permit (choose up to three):

☐ Sector A	☐ Sector F	☐ Sector K	☐ Sector P	☐ Sector U	☐ Sector Z
☐ Sector B	☐ Sector G	☐ Sector L	☐ Sector Q	☐ Sector V	☐ Sector AA
☐ Sector C	☐ Sector H	☐ Sector M	☐ Sector R	☐ Sector W	☐ Sector AB
☐ Sector D	☑ Sector I	☐ Sector N	☐ Sector S	☐ Sector X	☐ Sector AC
☐ Sector E	☐ Sector J	☐ Sector O	☐ Sector T	☐ Sector Y	☐ Sector AD

8. Additional Facility/Site Requirements:
a. Based on the instructions provided in Addendum A of the MSGP, have the eligibility criteria for "listed species" and critical habitat been met? ☑ Yes ☐ No
b. Based on the instructions provided in Addendum B of the MSGP, have the eligibility criteria for protection of historic properties been met? ☑ Yes ☐ No

D. Certification

Do you certify under penalty of law that this document and all attachments were prepared under your direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted? Based on your inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, do you certify that the information submitted is, to the best of your knowledge and belief, true, accurate, and complete? Do you certify that you are aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations?

Print Name: JEFF BAUMER

Signature: [signature] Date: 01/25/04

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STORM WATER NOTICE OF INTENT CENTER

NMR05A883

Dear Operator: **03/28/2001**

The EPA has processed your Notice of Intent (NOI) application for the facility noted below. **This facility is authorized to discharge storm water associated with multi-sector activity under the terms and conditions imposed by the EPA's NPDES Storm Water Multi-Sector Permit.** The facility permit number is listed above and the active date of permit coverage is 3/14/2001.

EPA's multi-sector permit requires certain pollution prevention and control measures, possible monitoring and reporting, and annual inspections. Among the conditions and requirements of this permit, you must prepare and implement a pollution prevention plan (PPP) that is tailored to your industrial site. You may also be required to submit monitoring data for your facility's storm water discharges. As a facility authorized to discharge under this storm water multi-sector permit, all terms and conditions must be complied with to maintain coverage and avoid possible penalties.

FACILITY:
MILAGRO GAS PROCESSING PLANT
192 CR 4900
BLOOMFIELD, NM
87143

OPERATOR:
WILLIAMS FIELD SERVICES
188 CR 4900
BLOOMFIELD, NM
87413

To obtain a copy of the EPA's storm water multi-sector permit terms and conditions to which you are now held accountable, please call the EPA Office of Water Resource Center at (202) 260-7786. If you have general questions concerning the storm water program, please call the EPA Region **06** contact: **Brent Larsen, (214) 665-7523.**

NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION	Worksheet #5 Completed by: Mark J. Bareta Title: Senior Environmental Specialist Date: 7/22/2001

Date of Test or Evaluation	Outfall Directly Observed During the Test (identify as indicated on the site map)	Method Used to Test or Evaluate Discharge	Describe Results from Test for the Presence of Non-Storm Water Discharge	Identify Potential Significant Sources	Name of Person Who Conducted the Test or Evaluation
					Mark J. Bareta

CERTIFICATION

I, JEFFREY BAUMER (responsible corporate official), certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name & Official Title (type or print)	B. Area Code and Telephone No.
JEFFREY BAUMER, DIRECTOR	505 632 4601
C. Signature	D. Date Signed
	8/15/01

Milagro Gas Processing Plant

Appendix B

Inspection and Monitoring Worksheets

Quarterly Inspection Report
Milagro Gas Conditioning Plant

Inspection Date: _____

Name of Inspector: _____ **Title:** _____

Pollutant Reduction Measures Evaluation:

Structural and Sediment Controls	Physical Condition of Control Features	Required Actions
Berms		
Concrete Containment		
Gravel and Paving		
Rip-Rap and Filter Fabric		
Ditches		
Culverts and Piping		
Ponds		

Best Management Practices Evaluation:

Best Management Practice	Condition of Practice	Required Actions
Good Housekeeping		
Preventative Maintenance		
Spill Prevention and Response Procedures		
Sediment and Erosion Control		
Process and Materials Control		
Process and Materials Management		
Employee Training		

Additional Comments:

Quarterly Storm Water Visual Monitoring Report
Milagro Gas Conditioning Plant

Quarter: _____ **Year:** _____

Inspection Date: _____

Name of Inspector: _____ **Title:** _____

Nature of Discharge: (Rain or Snowmelt)

Outfall Observation Location	Date and time	Color	Unusual Odor	Clarity / Opacity	Floating Solids	Suspended Solids	Settled Solids	Foam	Oil Sheen	Comments
Outfall 1										
Outfall 2										
Outfall 3										
Outfall 4										
Outfall 5										

Comments:

Annual Comprehensive Compliance Evaluation Report
Milagro Gas Conditioning Plant

Inspection Date: _____

Name of Inspector: _____ **Title:** _____

Others Present: _____

_____

Pollutant Source Evaluation:

Pollutant Source Area	Pollutant Sources Observed	Required Actions
Plant Process Area Gas Tranes 1 - 4 (Area 1a)		
Plant Process Area Gas Trane 5 (Area 1b)		
Utility Area (Area 2)		
Cogeneration Area (Area 3a)		
Switch Yard (Area 3b)		
Wastewater Evaporation Pond Area (Area 4)		
Slope Drainage Area (Area 5)		
South Embankment Area (Area 6)		
Plant Parking Area (Area 7)		
North 40 Lay-Down Area (Area 8)		
South Discharge Area (Area 9)		

Comments:

Pollutant Reduction Measures Evaluation:

Structural and Sediment Controls	Physical Condition of Control Features	Required Actions
Berms		
Concrete Containment		
Gravel and Paving		
Rip-Rap and Filter Fabric		
Ditches		
Culverts and Piping		
Detention Ponds		

Best Management Practices Evaluation:

Best Management Practice	Condition of Practice	Required Actions
Good Housekeeping		
Preventative Maintenance		
Spill Prevention and Response Procedures		
Sediment and Erosion Control		
Process and Materials Control		
Process and Materials Management		
Employee Training		

Additional Comments:

Notes: Supplementary documentation to the inspection report may include field notebooks, timed and dated photographs or videotapes, drawings, sketches, and maps.

Based on the comprehensive evaluation, the Multi-Sector General Permit (MSGP) requires that any potential pollutant sources or pollution prevention measures that are not adequately addressed in the Storm Water Pollution Prevention Plan (SWP3) need to be revised within 2 weeks of the evaluation. Any identified issues or measures that are revised in the SWMP must be implemented within 12 weeks after the evaluation as specified in the MSGP.

If no incidents of non-compliance are identified during the evaluation, the following certification of compliance with the SWP3 must be signed by the Plant Manager or other authorized individual within Williams Field Services organization. This authorization should be filed with the SWP3.

Certification of Compliance

I certify under penalty of law that this Comprehensive Compliance Evaluation Report was prepared under my direction or supervision and that the Milagro Gas Conditioning Plant is in compliance with the MSGP as specified in the SWP3. Based on my inquiry of the persons who conducted the evaluation, and those responsible for implementing the required actions, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Name:

Signature:

Date:

Annual Comprehensive Compliance Evaluation Report
Milagro Gas Conditioning Plant

Inspection Date: 6/26/2001

Name of Inspector: Clara Garcia **Title:** Environmental Compliance Administrator

Others Present: Eric Edmanson, Greg Millikin, J.D. Brow

Pollutant Source Evaluation:

Pollutant Source Area	Pollutant Sources Observed	Required Actions
Plant Process Area Gas Tranes 1 - 4 (Area 1a)	OK	None
Plant Process Area Gas Trane 5 (Area 1b)	OK	None
Utility Area (Area 2)	Steam Condensate and D.I. Water discharge	Stop Discharge
Cogeneration Area (Area 3a)	OK	None
Switch Yard (Area 3b)	OK	None
Wastewater Evaporation Pond Area (Area 4)	OK	None
Slope Drainage Area (Area 5)	OK	None
South Embankment Area (Area 6)	OK	None
Plant Parking Area (Area 7)	See Area 2	See Area 2
North 40 Lay-Down Area (Area 8)	OK	None
South Discharge Area (Area 9)	OK	None

Comments:

Steam condensate line was observed discharging outside the containment area. The condensate line will be redirected to discharge into the environmental drain system.

Evidence D.I. water discharge was observed outside the Water Treatment Building. D.I. water was discharged during filter renewal operations. D.I. water will be reused and not be discharged.

Pollutant Reduction Measures Evaluation:

Structural and Sediment Controls	Physical Condition of Control Features	Required Actions
Berms	OK	None
Concrete Containment	OK	None
Gravel and Paving	OK	None
Rip-Rap and Filter Fabric	OK	None
Ditches	OK	None
Culverts and Piping	OK	None
Ponds	OK	None

Best Management Practices Evaluation:

Best Management Practice	Condition of Practice	Required Actions
Good Housekeeping	OK	None
Preventative Maintenance	OK	None
Spill Prevention and Response Procedures	OK	None
Sediment and Erosion Control	OK	None
Process and Materials Control	OK	None
Process and Materials Management	OK	None
Employee Training	OK	None

Additional Comments:

Notes: Supplementary documentation to the inspection report may include field notebooks, timed and dated photographs or videotapes, drawings, sketches, and maps.

Based on the comprehensive evaluation, the Multi-Sector General Permit (MSGP) requires that any potential pollutant sources or pollution prevention measures that are not adequately addressed in the Storm Water Pollution Prevention Plan (SWP3) need to be revised within 2 weeks of the evaluation. Any identified issues or measures that are revised in the SWMP must be implemented within 12 weeks after the evaluation as specified in the MSGP.

If no incidents of non-compliance are identified during the evaluation, the following certification of compliance with the SWP3 must be signed by the Plant Manager or other authorized individual within Williams Field Services organization. This authorization should be filed with the SWP3.

Certification of Compliance

I certify under penalty of law that this Comprehensive Compliance Evaluation Report was prepared under my direction or supervision and that the Milagro Gas Conditioning Plant is in compliance with the MSGP as specified in the SWP3. Based on my inquiry of the persons who conducted the evaluation, and those responsible for implementing the required actions, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Name: Clara M Garcia

Signature: Clara M. Garcia

Date: August 13, 2001

WEEKLY CONTAINMENT INSPECTION REPORT
MILAGRO GAS CONDITIONING PLANT

Inspection Date: 9-5-01

Name of Inspector: JD Brow

Title: Maint. Tech

Pollutant Reduction Measures Evaluation:

Structural and Sediment Controls	Physical Condition of Control Features	Required Actions
Berms	OK	NONE
Concrete Containment	OK	NONE
Gravel and Paving	OK	NONE
Rip-Rap and Filter Fabric	OK	NONE
Ditches	OK	NONE
Culverts and Piping	OK	NONE
Ponds	OK	NONE
Good Housekeeping	OK	NONE
Preventative Maintenance	OK	NONE

Additional Comments:

Quarterly Inspection Report
Milagro Gas Conditioning Plant

Inspection Date: 95-01

Name of Inspector: JD BROW **Title:** Maint. Tech.

Pollutant Reduction Measures Evaluation:

Structural and Sediment Controls	Physical Condition of Control Features	Required Actions
Berms	OK	NONE
Concrete Containment	OK	NONE
Gravel and Paving	OK	NONE
Rip-Rap and Filter Fabric	OK	NONE
Ditches	OK	NONE
Culverts and Piping	OK	NONE
Ponds	OK	NONE

Best Management Practices Evaluation:

Best Management Practice	Condition of Practice	Required Actions
Good Housekeeping	OK	NONE
Preventative Maintenance	OK	NONE
Spill Prevention and Response Procedures	OK	NONE
Sediment and Erosion Control	OK	NONE
Process and Materials Control	OK	NONE
Process and Materials Management	OK	NONE
Employee Training	OK	NONE

Additional Comments:

Quarterly Storm Water Visual Monitoring Report
Milagro Gas Conditioning Plant

Quarter: 3rd **Year:** 2001

Inspection Date: 7-11-01

Name of Inspector: J D Brow **Title:** Maint. Tech

Nature of Discharge: (Rain or Snowmelt)

Outfall Observation Location	Date and time	Color	Unusual Odor	Clarity / Opacity	Floating Solids	Suspended Solids	Settled Solids	Foam	Oil Sheen	Comments
Outfall 1	7-11-01 10.00	CLEAR	NONE	CLEAR	NONE	NONE	NONE	NONE	NONE	OK
Outfall 2	7-11-01									NO Discharge
Outfall 3	7-11-01									NO Discharge
Outfall 4	7-11-01 10.15	CLEAR	NONE	CLEAR	NONE	NONE	Less than Tan %	NONE	NONE	OK
Outfall 5	7-11-01									NO Discharge

Comments:

Appendix C

Storm Water Visual Monitoring Procedure

Storm Water Visual Monitoring Procedure

Outfalls and Drainage Points

The Storm Water Pollution Prevention Plan (SWP3) includes a section that describes the outfall locations and the area drained by each outfall. A site drainage map provides a visual reference for the location of the outfalls and the outline of the drainage area to each outfall. Visual inspection and monitoring (if required) must usually be performed at all outfalls. If characteristics of storm water discharge are expected to be similar for different outfalls, then a facility may choose to report the test results from one outfall as representative of all outfalls.

Sheet Flow Run-off

Sheet flow run-off occurs in areas that have no discernible discrete discharge point. Vacant land and open parking lots are examples of sheet flow run-off areas. These areas should be described in the SWP3 and shown on the site drainage map.

Regulatory Requirements for Visual Inspection and Monitoring of Storm Water Discharges

Each facility covered under the multi-sector general storm water permit must conduct quarterly visual monitoring of storm water discharges at each outfall during qualifying storm events and must document the results.

In accordance with the general permit, visual examinations of storm water quality must be performed and documented at least once each calendar quarter. The visual inspections of storm water discharge at each outfall must be completed during a qualifying storm event during daylight hours. A qualifying storm event is defined as rainfall of at least 0.1 inches, with no previous storm events having occurred within the previous 72 hours (3-days). Realistically, however, based on conditions present at typical industrial sites, a rainfall rate of 0.3 to 0.5 inches is often required before an appreciable amount of flow occurs that can be collected for a representative observation. A rain gauge mounted in an accessible area outside, away from traffic and the possibility of disturbance, should be used to record the total amount of rainfall at the site over the duration of the storm event (e.g. 1.2 inches over 4.5 hours).

Visual inspections should be made within 30 minutes to 1 hour after the beginning of storm water flow through the outfalls. The inspections shall document observations for the following discharge characteristics:

- Color
- Unusual odor
- Clarity/opacity
- Floating, suspended, or settled solids
- Foam
- Oil sheen
- Other obvious indications of contamination or pollution (e.g. residues or foreign matter)

The examinations must be conducted in a well-lit area. No analytical testing is required for the quarterly visual monitoring requirements beyond the recording of physical observations. Documented results must be retained in the SWP3.

Resources/Coordination Needed to Conduct Visual Storm Water Monitoring

Storm water quarterly visual monitoring can be documented on a worksheet-type checklist with fields for entering comments. The worksheet can be formatted to include physical inspections of plant areas drained by each outfall, so that potential sources of contamination can be identified if such evidence is observed in the discharge. Take into consideration appropriate safety precautions and other logistics regarding outfall access during inspection planning. The following items are recommended to conduct the visual inspection at each outfall, or to gather additional data:

- Mounted rain gauge located outside in an accessible location of the plant,
- Watch or clock,

- Umbrella or rain-protective clothing,
- Skid resistant rubber or plastic safety boots,
- Clean, unused white plastic bucket with handle and plastic lid, at least 2-gallon capacity,
- Chemical resistant rope,
- 1-quart or equivalent unused clear glass sample jar or clear plastic container,
- Blank quarterly monitoring form.

The bucket(s) and jar(s) used for visual inspection of storm water discharges should be clean and reserved for this purpose only. The goal is to capture a representative volume of storm water at each outfall and record the observations made regarding physical appearance and characteristics of the discharge. The run off should be observed during the first thirty minutes to one hour after flow at the outfall begins. Once a storm event occurs, the period before a sufficient amount of flow is discharged can be as little as ten minutes or as much as an hour, depending on factors such as how far from the drainage area the actual outfall discharge point is.

Steps To Complete The Visual Inspection

1. Once the storm event begins, note the time. Check the flow at the closest outfall approximately every 15 minutes. The flow must be sufficient to collect at least half a bucket within a minute or two (approximately 1 gal/min). If sufficient flow is never achieved after the first hour, then the storm event will be insufficient for observation.

2. If sufficient flow is achieved within the first thirty minutes to one hour, record the date and beginning time that the outfall observations are made in the appropriate field on the worksheet form. Proceed to the first outfall.

3. Note the physical appearance of any run-on from adjacent property, if such is present. If the appearance of storm water coming from adjacent property appears to be different from that being discharged from the site, note such differences on the visual observation worksheet.

4. Except where noticeable unusual odors of a chemical nature are detected, it is presumed that storm water discharges may have a characteristic "earthy" or "moldy" smell, especially if there is decayed vegetation or algae growth in the discharge area. Some discharges may have no odor at all. It is helpful to record a baseline observation of the typical characteristics of an "unpolluted" discharge for reference. Unusual odors should be recorded on the worksheet, otherwise it is presumed that no unusual odor was present.

5. Collect at least half a bucket of run-off for visual inspection. Tie the rope to the bucket handle if needed to maneuver the bucket into the drainage point. Catch the flow in the most rapid portion of the stream without scraping dirt or debris from the ground.

6. As soon as a sufficient volume of run off is collected in the bucket, fill the sample jar with some of the collected run off. Keep the remaining water in the bucket, cover the container, and set aside temporarily.

7. Note the following parameters and quality of the discharge in the sample jar and record on the worksheet:

Color: Should normally be able to see through the water. Presence of dirt or excessive silt may indicate soil erosion or washout, or presence of other types of residues.

Excess floating, settled, and suspended solids: Solids may be present in the collected water, and these solids may float on the water, settle out in the bottom of the container, or remain suspended in the water. The source of these solids may be dirt, material washed out from a stockpile, construction area, etc., depending on the color. Normally these should not prevent seeing through the liquid in the jar. Note the presence of suspended and settleable solids by color, opacity of the liquid, and nature of the material if known.

8. Note the following parameters and quality of discharge from inspecting the water in the sample jar and comparing with the run-off left in the bucket, recording observations on the worksheet:

Foam: Presence of foam suggests that detergent residues, emulsifiers, or surfactants may have been deposited on pavements from illicit washing of vehicles or equipment outside. Also look at the outfall for signs of foaming.

Oil sheen: Use a flashlight if needed to observe the surface of the collected run-off in the bucket. Visible oil sheen indicates that petroleum or other oil-like residues have washed off pavement. In many cases, this can be attributed to oil staining from vehicles in parking lots, docks, or traffic areas, or from outside storage of containers that may be leaking or which have residues on the outside.

Excess settled solids and debris: Use flashlight if needed to look at collected run-off in the bucket and sample jar. Have solids settled at the bottom in a layer more than 0.25 inches? Are there any unidentified pieces of debris or trash other than grass, pebbles, or dirt?

9. Note the following parameters by observing the condition of the outfall drainage point and recording on the worksheet:

Staining: Does the outfall bear evidence of unusual staining other than that attributable to rust from metal storm grates or other identified sources?

Evidence of chemical dumping: Is there any evidence of debris associated with chemical residues or container remnants? Is there a tar-like discolored layer or film, or does the drainage area appear pitted or worn away from exposure to a corrosive material?

Dry Weather Flow: Prior to the storm event, was there any noticeable dry weather flow? If so, was the source determined? If yes, record this data on the worksheet.

10. After observations are complete at the first outfall, proceed to the next outfall or sheet flow run-off area to make similar observations, following Steps 1 - 9. If the storm event ceases prior to completing observations at all outfalls and sheet flow areas, note this on the worksheet. A separate qualifying storm event during the same quarter will be needed to complete observations for remaining outfalls or sheet flow areas.

After the visual inspection is completed, rinse the bucket and sample jar with potable water and stored dry in a secure area until next storm event.

11. After the storm event has ceased, record the total rainfall amount received at the mounted rain gauge at the facility, and the duration of the storm event (as best determined) on the worksheet. After collecting the rainfall data, empty the rain gauge for the next storm event.

Notes on collection of rainfall data: The rain gauge must be checked and emptied after each storm event, whether visual inspections are conducted or not, to ensure the accuracy of the data collected for the next storm event. An on-site rain gauge is generally more accurate than reports from nearby weather stations, as rainfall amounts may vary widely even over short distances.

The same worksheet used to record visual storm water quality inspection results may also be used to record physical plant area inspections, either before or after the qualifying storm event. After the form is completed, turn in to the SWP3 Team Coordinator for review; follow up action if needed, and archiving in the SWP3.

The following conditions should be recorded on a quarterly monitoring form if they occur:

- Lack of a qualifying storm event during a calendar quarter,
- Inability to conduct visual observations due to facility shut down,
- Occurrence of storm event when facility is unoccupied,
- Inability to conduct visual observations because storm event begins after daylight hours,
- Inability to conduct visual observation because of lack of sufficient flow, and
- Storm event occurs within three days of previous rainfall.

<OCD File Copy>
See LTTR. DATED February 25, 1997 from WFS, Leigh E. Goodwyn.

REPORT ON THE FIELD WORK FOR THE SUBSURFACE INVESTIGATION OF THE MILAGRO PLANT SEPTIC LEACH FIELD SAN JUAN BASIN, NEW MEXICO

January 1997

3 1997

Prepared For

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1.0 INTRODUCTION

On December 12, 1996, Philip Environmental Services Corporation (Philip) initiated field work for a subsurface investigation of Williams Field Services (WFS) Milagro Plant Septic Leach Field. The Milagro Plant (the Plant) is located northeast of Bloomfield, New Mexico, in Township - 29 North, Range - 11 West, Section 11. This investigation was required based on the plant laboratories past practice of disposing chemical wastes into the septic system. Chemical wastes are no longer disposed of in this manner; they are currently stored on-site prior to disposal at a licensed facility.

Prior to commencing with the field work for this project, Philip developed a work plan detailing the method of investigation, and the analytical parameters for samples. The work plan was approved, with modifications, on September 9, 1996, by the New Mexico Oil Conservation Division (NMOCD). Philip completed the following scope of work for this project.

2.0 SCOPE OF WORK

As part of the Scope of Work for this project, Philip completed three separate tasks, detailed below, to determine the extent, if any, of contamination from the discharged chemical wastes within the septic leach field.

2.1 Subsurface Investigation

One soil boring was drilled within the approximate center of the septic leach field. One soil sample was collected from within the septic leach field area and one soil sample was collected from approximately 10 feet beneath the bottom of the leach field. Both samples were submitted for laboratory analysis.

In addition, two soil borings were drilled on the estimated downgradient edge of the leach field. Soil samples were collected from each boring at approximately 10 feet beneath the bottom of the leach field. Both samples were submitted for laboratory analysis. Boring locations, septic lines, and the septic tank locations are presented in Figure 1.

2.2 Sample Septic Tank

One sludge sample and one waste water sample was collected from the Plant septic tank, and both samples were submitted for laboratory analysis. The sludge sample was submitted for Hazardous Waste Identification analysis. The waste water sample was submitted for the New Mexico Water Quality Control Commission (NMWQCC) parameters of concern, as per the NMOCD's request.

2.3 Profile Laboratory Waste

In addition to the field investigation, the laboratory chemical wastes were profiled for disposal, and accepted by Laidlaw Environmental Services' Clive, Utah, facility for disposal.

3.0 METHODOLOGY

All soil samples were submitted for total Resource Conservation and Recovery Act (RCRA) metals (Method SW 6010/7470), semi-volatile organics (Method SW 8270), and volatile organics (Method SW 8260). Septic tank sludge samples were submitted for Hazardous Waste Identification, including Toxicity Characteristic Leaching Procedure (TCLP), ignitability, corrosivity, and reactivity. Septic tank waste water samples were submitted for NMWQCC parameters of concern, which included metals (SW846 6010), volatile organics (SW846 8260), and semi-volatile organics (SW846 8270). All sample containers were labeled with the appropriate analysis, date and time of collection, sample number, sample location, and sample collector. All sample identification numbers and requested analysis were documented on a Chain-of-Custody form. Samples were placed on ice, and shipped via overnight delivery to Zenon Environmental Laboratories following strict Chain-of-Custody procedures. All field documentation forms are presented in Appendix A.

3.1 Subsurface Investigation

One soil boring (BH-1) was advanced in the approximate center of the leach field using a CME-75 drill rig and 4 1/4-inch inside diameter hollow-stem augers. Soil samples were collected at 5 foot intervals, using a split-spoon soil sampler. The samples were screened for volatiles with a photoionization detector (PID). No volatiles were detected with the

PID. One soil sample was collected from approximately 3 - 5 feet below ground surface (bgs) for laboratory analysis. This sample appeared to exhibit the most moisture, indicating the sample was collected from within the discharge area of the leach field. A second sample was collected from approximately 10 - 12 feet bgs and submitted for laboratory analysis. The boring was then grouted to the surface with a neat cement slurry containing 5 percent bentonite. A description of soils encountered in each boring was recorded on individual Record of Subsurface Exploration forms, found in Appendix A.

A second boring (BH-2) was advanced on the approximate downgradient side of the leach field. Soil samples were collected at 5 foot intervals, and were screened for volatiles using a PID. No volatiles were detected with the PID. One soil sample was collected from approximately 15 - 17 feet bgs for laboratory analysis. The boring was then grouted to the surface in the same manner as BH-1.

A third boring (BH-3) was advanced to 15 feet bgs. BH-3 is located southwest of BH-1, on the outside edge of the leach field. Soil samples were collected at 5 foot intervals, and were screened for volatiles using a PID. No volatiles were detected with the PID. Refusal was encountered in cobbles at approximately 13 feet bgs, and the soil sample from 13 - 15 feet bgs was submitted for laboratory analysis. The boring was then grouted to the surface in the same manner as BH-1.

One background sample was collected on September 23, 1996, using a stainless-steel hand auger. The sample was collected topographically upgradient from the septic tank. The hand auger was advanced to approximately 5 feet bgs, and a soil sample was collected for laboratory analysis. A separate aliquot of soil was collected at this depth and screened for volatiles. No volatiles were detected with the PID. The boring was then backfilled with native soil.

3.2 Sample Septic Tank

On January 24, 1997, Philip sampled the septic tank associated with the Plant laboratory. Two samples were collected from the tank (sludge, and waste water) and submitted for laboratory analysis. The sludge was collected using a steel grab sampler which was decontaminated with a potable water and Alconox™ soap wash, followed by a distilled

water rinse, prior to use. The waste water was collected using a disposable polyethylene bailer.

4.0 RESULTS

The leach field soil analytical results are presented in Table 1, with the laboratory report presented in Appendix B. The septic tank sludge and waste water analytical results are presented in Table 2 and Table 3, respectively, with the laboratory report presented in Appendix B.

4.1 Soil Samples

With the exception of barium, all metals were at or below method detection limits (MDL). In all samples, including the background sample, acetone, and methylene chloride, were detected at levels slightly above the MDL. Toluene was detected in BH-1 (3-5) at the MDL. After evaluation of the laboratory report, the presence of acetone, methylene chloride, and toluene, were attributed to laboratory interference. Documentation of the data evaluation is presented in Appendix D. All semi-volatiles were at or below the MDL for each parameter. In addition, groundwater was not encountered at any of the boring locations.

4.2 Sludge/Waste Water

The septic tank sludge was analyzed for Hazardous Waste Identification, including TCLP, ignitability, corrosivity, and reactivity. The TCLP volatiles, semi-volatiles, and metals analyses were all below regulatory limits. In addition, results for ignitability, corrosivity, and reactivity were within regulatory limits, which classifies the septic sludge as non-hazardous.

The septic waste water was analyzed for NMWQCC parameters of concern. All of the parameters with the exception of phenol were below NMWQCC levels. Phenol was reported at 11 micrograms per Liter (µg/L), slightly above the NMWQCC limit of 5 µg/L. Based on the analytical results for the leach field soil samples, it does not appear that the soil was impacted by phenols. Several non-NMWQCC parameters were detected at levels above the corresponding MDL. Benzoic acid, which is not listed under NMWQCC and

does not appear to be listed as a Hazardous Waste, was detected at 620 µg/L. Based on telephone discussions with the RCRA hotline, benzoic acid by itself does not meet the requirements for toxicity. The Plant laboratory personnel indicated they were not aware of using any chemicals containing benzoic acid. Based on the analytical results for the leach field soil samples, it does not appear that the soil has been impacted by benzoic acid.

4.3 Chemical Waste Profile

Used laboratory chemical wastes were profiled, and accepted for disposal at a permitted Laidlaw Environmental Services' facility. The waste was profiled as RCRA Non Hazardous/Exempt. The Waste Profile sheet is presented in Appendix C. The chemical wastes will be lab-packed prior to transporting, and will be picked up from the laboratory for disposal at Laidlaw's facility on an as needed basis.

5.0 SUMMARY

The laboratory analytical results indicate minimal impact to the soils from discharged used chemical wastes, within and downgradient of the septic leach field. Analytical results for the septic tank sludge/waste water also indicate minimal impact from the discharged chemical wastes. The local geology indicates shallow bedrock (sandstone), as documented in the boring log for BH-2. Also, groundwater was not encountered in any boring within or downgradient of the septic leach field. On average, depth to groundwater in the vicinity of the Plant ranges from 30 feet to 100 feet bgs ("Hydrogeology and Water Resources of San Juan Basin, New Mexico" 1983, & "Availability of Hydrologic Data in San Juan County, New Mexico", 1984). In addition, laboratory chemical wastes are no longer disposed of into the septic leach field, and are currently stored on-site prior to disposal at a permitted facility. Based on these factors, Philip believes no further action is warranted at this site.

TABLE 1 - SOIL ANALYTICAL RESULTS

MILAGRO PLANT SEPTIC FIELD

TABLE 1

SOIL ANALYTICAL RESULTS
MILAGRO SEPTIC FIELD

PART I - METALS						
PARAMETER	BH-1 (3-5)	BH-1 (10-12)	BH-2 (15-17)	BH-3 (13-15)	BG-1* (5-7)	MDL
TOTAL RCRA METALS						
Arsenic	<10	<10	<10	<10	2.2	5.0
Barium	280	130	190	150	140	0.1
Cadmium	<0.4	<0.4	<0.4	<0.4	<0.4	0.2
Chromium	<10	<10	<10	<10	<10	5
Lead	<20	<20	<20	<20	<20	10
Mercury	<0.04	<0.04	<0.04	<0.04	<0.04	0.04
Selenium	<20	<20	<20	<20	<0.5	10
Silver	<1.0	<1.0	<1.0	<1.0	<1.0	0.5

All results reported in milligrams per kilogram (mg/kg)

MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)

< - Less than MDL

* - BG-1 collected on 9/23/96

TABLE 1
(Continued)

SOIL ANALYTICAL RESULTS
MILAGRO SEPTIC FIELD

PART II - VOLATILE ORGANICS						
PARAMETER	BH-1 (3-5)	BH-1 (10-12)	BH-2 (15-17)	BH-3 (13-15)	BG-1 (5-7)	MDL
VOLATILE ORGANICS						
Acetone	0.18	0.15	0.14	0.12	0.072	0.030
Acrolein	<	<	<	<	<	0.010
Acrylonitrile	<	<	<	<	<	0.010
Benzene	<	<	<	<	<	0.005
Bromoform	<	<	<	<	<	0.010
Bromomethane	<	<	<	<	<	0.010
2-Butanone	<	<	<	<	<	0.015
Carbon Disulfide	<	<	<	<	<	0.010
Carbon Tetrachloride	<	<	<	<	<	0.010
Chlorobenzene	<	<	<	<	<	0.005
Chlorodibromomethane	<	<	<	<	<	0.005
Chloroethane	<	<	<	<	<	0.010
2-Chloroethylvinylether	<	<	<	<	<	0.010
Chloroform	<	<	<	<	<	0.005
Chloromethane	<	<	<	<	<	0.010
1,2-Dichlorobenzene	<	<	<	<	<	0.005
1,3-Dichlorobenzene	<	<	<	<	<	0.005
1,4-Dichlorobenzene	0.005	<	<	<	0.008	0.005
Dichlorobromomethane	<	<	<	<	<	0.005
1,1-Dichloroethane	<	<	<	<	<	0.005
1,2-Dichloroethane	<	<	<	<	<	0.005
1,1-Dichloroethene	<	<	<	<	<	0.010
cis-1,2-Dichloroethene	<	<	<	<	<	0.010
trans-1,2-Dichloroethene	<	<	<	<	<	0.010
1,2-Dichloropropane	<	<	<	<	<	0.005
cis-1,3-Dichloropropene	<	<	<	<	<	0.005
trans-1,3-Dichloropropene	<	<	<	<	<	0.005
Ethylbenzene	<	<	<	<	<	0.005
2-Hexanone	<	<	<	<	<	0.010

All results reported in milligrams per kilogram (mg/kg)

MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)

< - Less than MDL

TABLE 1
(Continued)

SOIL ANALYTICAL RESULTS
MILAGRO SEPTIC FIELD

PART II - VOLATILE ORGANICS (Continued)						
PARAMETER	**BH-1** (3-5)	**BH-1** (10-12)	**BH-2** (15-17)	**BH-3** (13-15)	**BG-1** (5-7)	**MDL**
VOLATILE ORGANICS						
Methylene Chloride	0.039	0.034	0.29	0.033	0.091	0.010
4-Methyl-2-Pentanone	<	<	<	<	<	0.010
Styrene	<	<	<	<	<	0.005
1,1,1,2-Tetrachloroethane	<	<	<	<	<	0.010
1,1,2,2-Tetrachloroethane	<	<	<	<	<	0.010
Tetrachloroethene	<	<	<	<	<	0.020
Toluene	0.005	<	<	<	0.005	0.005
1,1,1-Trichloroethane	<	<	<	<	<	0.005
1,1,2-Trichloroethane	<	<	<	<	<	0.010
Trichloroethene	<	<	<	<	<	0.005
Vinyl Acetate	<	<	<	<	<	0.010
Vinyl Chloride	<	<	<	<	<	0.010
Xylenes (Total)	<	<	<	<	0.005	0.005

All results reported in milligrams per kilogram (mg/kg)

MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)

< - Less than MDL

TABLE 1
(Continued)

SOIL ANALYTICAL RESULTS
MILAGRO SEPTIC FIELD

PART III - SEMI-VOLATILE ORGANICS						
PARAMETER	BH-1 (5-7)	BH-1 (25-27)	BH-2 (17-18)	BH-3 (20-22)	BG-1 (5-7)	MDL
SEMI-VOLATILE ORGANICS						
Phenol	<0.22	<0.22	<0.22	<0.22	<0.22	0.11
Bis(2-chloroethyl)ether	<0.36	<0.36	<0.36	<0.36	<0.36	0.18
2-Chlorophenol	<0.54	<0.54	<0.54	<0.54	<0.54	0.27
1,3-Dichlorobenzene	<0.40	<0.40	<0.40	<0.40	<0.40	0.20
1,4-Dichlorobenzene	<0.40	<0.40	<0.40	<0.40	<0.40	0.20
1,2-Dichlorobenzene	<0.40	<0.40	<0.40	<0.40	<0.40	0.20
Bis(2-chloroisopropyl)ether	<0.30	<0.30	<0.30	<0.30	<0.30	0.15
Hexachloroethane	<0.40	<0.40	<0.40	<0.40	<0.40	0.20
N-Nitrosodi-N-Propylamine	<0.42	<0.42	<0.42	<0.42	<0.42	0.21
Nitrobenzene	<0.40	<0.40	<0.40	<0.40	<0.40	0.20
Isophorone	<0.80	<0.80	<0.80	<0.80	<0.80	0.40
2-Nitrophenol	<0.28	<0.28	<0.28	<0.28	<0.28	0.14
2,4-Dimethylphenol	<0.34	<0.34	<0.34	<0.34	<0.34	0.17
Bis(2-chloroethoxy)methane	<0.26	<0.26	<0.26	<0.26	<0.26	0.13
2,4-Dichlorophenol	<0.24	<0.24	<0.24	<0.24	<0.24	0.12
1,2,4-Trichlorobenzene	<0.40	<0.40	<0.40	<0.40	<0.40	0.20
Naphthalene	<0.06	<0.06	<0.06	<0.06	<0.06	0.03
Hexachlorobutadiene	<0.40	<0.40	<0.40	<0.40	<0.40	0.20
4-Chloro-3-Methylphenol	<0.28	<0.28	<0.28	<0.28	<0.28	0.14
Hexachlorocyclopentadiene	<0.40	<0.40	<0.40	<0.40	<0.40	0.20
2,4,6-Trichlorophenol	<0.24	<0.24	<0.24	<0.24	<0.24	0.12
2-Chloronaphthalene	<0.18	<0.18	<0.18	<0.18	<0.18	0.09
Acenaphthylene	<0.08	<0.08	<0.08	<0.08	<0.08	0.04
Dimethyl phthalate	<0.22	<0.22	<0.22	<0.22	<0.22	0.11
2,6-Dinitrotoluene	<0.12	<0.12	<0.12	<0.12	<0.12	0.06
Acenaphthene	<0.14	<0.14	<0.14	<0.14	<0.14	0.07
2,4-Dinitrophenol	<0.96	<0.96	<0.96	<0.96	<0.96	0.48
2,4-Dinitrotoluene	<0.10	<0.10	<0.10	<0.10	<0.10	0.05
4-Nitrophenol	<0.28	<0.28	<0.28	<0.28	<0.28	0.14
Fluorene	<0.06	<0.06	<0.06	<0.06	<0.06	0.03
4-Chlorophenylphenylether	<0.18	<0.18	<0.18	<0.18	<0.18	0.09
Diethyl phthalate	<0.22	<0.22	<0.22	<0.22	<0.22	0.11
4,6-Dinitro-2-methylphenol	<0.30	<0.30	<0.30	<0.30	<0.30	0.15
N-Nitrosodiphenylamine	<0.38	<0.38	<0.38	<0.38	<0.38	0.19

All results reported in milligrams per kilogram (mg/kg)
MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)
< - Less than MDL

TABLE 1

(Continued)

SOIL ANALYTICAL RESULTS
MILAGRO SEPTIC FIELD

PART III - SEMI-VOLATILE ORGANICS *(Continued)*						
PARAMETER	BH-1 (5-7)	BH-1 (25-27)	BH-2 (17-18)	BH-3 (20-22)	BG-1 (5-7)	MDL
SEMI-VOLATILE ORGANICS						
4-Bromophenylphenylether	<0.06	<0.06	<0.06	<0.06	<0.06	0.03
Hexachlorobenzene	<0.40	<0.40	<0.40	<0.40	<0.40	0.20
Pentachlorophenol	<0.22	<0.22	<0.22	<0.22	<0.22	0.11
Phenanthrene	<0.06	<0.06	<0.06	<0.06	<0.06	0.03
Anathracene	<0.04	<0.04	<0.04	<0.04	<0.04	0.02
Di-n-butyl phthalate	<0.22	<0.22	<0.22	<0.22	<0.22	0.11
Fluoranthene	<0.04	<0.04	<0.04	<0.04	<0.04	0.02
Pyrene	<0.06	<0.06	<0.06	<0.06	<0.06	0.03
Benzyl butyl phthalate	<0.12	<0.12	<0.12	<0.12	<0.12	0.06
3,3-Dichlorobenzidine	<0.20	<0.20	<0.20	<0.20	<0.20	0.10
Benzo(a)anthracene	<0.04	<0.04	<0.04	<0.04	<0.04	0.02
Chrysene	<0.06	<0.06	<0.06	<0.06	<0.06	0.03
Bis(2-ethylhexyl)phthalate	<0.28	<0.28	<0.28	<0.28	<0.28	0.14
Di-n-octyl phthalate	<0.22	<0.22	<0.22	<0.22	<0.22	0.11
Benzo(b)fluoranthene	<0.08	<0.08	<0.08	<0.08	<0.08	0.04
Benzo(k)fluoranthene	<0.08	<0.08	<0.08	<0.08	<0.08	0.04
Benzo(a)pyrene	<0.10	<0.10	<0.10	<0.10	<0.10	0.05
Indeno(1,2,3-cd)pyrene	<0.12	<0.12	<0.12	<0.12	<0.12	0.06
Dibenzo(a,h)anthracene	<0.08	<0.08	<0.08	<0.08	<0.08	0.04
Benzo(g,h,i)perylene	<0.08	<0.08	<0.08	<0.08	<0.08	0.04
N-Nitrosodimethylamine	<2.0	<2.0	<2.0	<2.0	<2.0	1.0
Aniline	<1.0	<1.0	<1.0	<1.0	<1.0	0.50
Benzyl alcohol	<1.0	<1.0	<1.0	<1.0	<1.0	0.50
Carbazole	<1.0	<1.0	<1.0	<1.0	<1.0	0.50
2-Methylphenol	<1.0	<1.0	<1.0	<1.0	<1.0	0.50
Benzoic acid	<1.0	<1.0	<1.0	<1.0	<1.0	0.50
4-Chloroaniline	<1.0	<1.0	<1.0	<1.0	<1.0	0.50
2-Methylnaphthalene	<0.20	<0.20	<0.20	<0.20	<0.20	0.10
2,4,5-Trichlorophenol	<0.20	<0.20	<0.20	<0.20	<0.20	0.10
2-Nitroaniline	<1.0	<1.0	<1.0	<1.0	<1.0	0.50
3-Nitroaniline	<1.0	<1.0	<1.0	<1.0	<1.0	0.50
Dibenzofuran	<1.0	<1.0	<1.0	<1.0	<1.0	0.50
Benzidine	<1.0	<1.0	<1.0	<1.0	<1.0	0.50
4-Nitroaniline	<1.0	<1.0	<1.0	<1.0	<1.0	0.50

All results reported in milligrams per kilogram (mg/kg)

MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)

< - Less than MDL

TABLE 2 - SLUDGE ANALYTICAL RESULTS

MILAGRO PLANT SEPTIC TANK

TABLE 2

SLUDGE ANALYTICAL RESULTS
MILAGRO SEPTIC TANK

PART I - TCLP METALS			
PARAMETER	STS-12497 (Sludge)	TCLP LIMITS	MDL
Mercury	<	0.2	0.05
Arsenic	<0.55	5.0	0.50
Barium	1.2	100.0	0.001
Cadmium	0.002	1.0	0.002
Chromium	<	5.0	0.004
Lead	<0.022	5.0	0.020
Selenium	<0.066	1.0	0.060
Silver	<0.011	5.0	0.010

All results reported in milligrams per liter (mg/L)

MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)

< - Less than MDL

TCLP Metals analyzed using SW 846 Method 6010 except Mercury

Mercury analyzed via SW 846 Method 7470

TABLE 2
(Continued)

SLUDGE ANALYTICAL RESULTS
MILAGRO SEPTIC TANK

PART II - TCLP VOLATILE ORGANICS			
PARAMETER	**STS-12497** (Sludge)	**TCLP LIMITS**	**MDL**
Benzene	<2.0	500	0.2
2-Butanone	<50	NA	5.0
Carbon Tetrachloride	<3.0	500	0.3
Chlorobenzene	<6.0	10000	0.6
Chloroform	<4.0	6000	0.4
1,2-Dichloroethane	<4.0	500	0.4
1,1-Dichloroethene	<4.0	700	0.4
Pyridine	<2500	5000	250
Tetrachloroethene	<2.0	NA	0.2
Trichloroethene	<3.0	NA	0.3
Vinyl Chloride	<29	200	2.9
1,4-Dichlorobenzene	13	7500	0.2
All results reported in micrograms per liter (µg/L) MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments) < - Less than MDL			

TABLE 2

(Continued)

SLUDGE ANALYTICAL RESULTS
MILAGRO SEPTIC TANK

PART III - TCLP SEMI-VOLATILE ORGANICS			
PARAMETER	STS-12497 (Sludge)	TCLP LIMITS	MDL
o-Cresol	<	200000	1.7
m & p-Cresol	<	200000	3.5
1,4-Dichlorobenzene	7.4	7500	2.0
2,4-Dinitrotoluene	<	130	0.5
Nitrobenzene	<	2000	2.0
Pentachlorophenol	<	100000	1.1
2,4,5-Trichlorophenol	<	400000	0.6
2,4,6-Trichlorophenol	<	2000	1.2
Hexachloroethane	<	3000	2.0
Hexachlorobutadiene	<	500	2.0
Hexachlorobenzene	<	130	2.0

All results reported in micrograms per Liter(μg/L)
MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)
< - Less than MDL

TABLE 2
(Continued)

SLUDGE ANALYTICAL RESULTS
MILAGRO SEPTIC TANK

PART IV- CORROSIVITY, REACTIVITY, IGNITABILITY		
PARAMETER	**Units**	**STS-12497 (Sludge)**
Corrosivity	pH	7.85
Reactivity (reaction/flume/dust/gas)	Deg C	0
Reactivity (temperature change 10 min)	Deg C	0
Reactivity (temperature change - initial)	Deg C	0
Ignitability	mm/min	<
pH analyzed via SW 846 9045 Reactivity analyzed via ASTMD 5058C		

TABLE 3 - WASTE WATER ANALYTICAL RESULTS

MILAGRO PLANT SEPTIC TANK

TABLE 3

WASTE WATER ANALYTICAL RESULTS
MILAGRO SEPTIC TANK

PART I - METALS			
PARAMETER	ST-12497 (Water)	NMWQCC LIMITS	MDL
Arsenic	<	0.1	0.0020
Selenium	<	0.05	0.0020
Aluminum	0.26	NA	0.030
Barium	0.49	1.0	0.001
Beryllium	<	NA	0.001
Cadmium	0.004	0.01	0.002
Calcium	39	NA	0.20
Chromium	<	0.05	0.004
Cobalt	<0.011	0.05	0.010
Copper	0.11	1.0	0.005
Iron	0.38	1.0	0.010
Lead	<0.022	0.05	0.020
Magnesium	7.5	NA	0.050
Manganese	0.031	0.2	0.006
Molybdenum	0.017	1.0	0.010
Nickel	<0.011	0.2	0.010
Phosphorus	8.6	NA	0.060
Potassium	23	NA	1.00
Silver	<0.011	0.05	0.010
Sodium	44	NA	0.10
Thallium	<0.066	NA	0.060
Vanadium	<0.006	NA	0.005
Zinc	0.21	10.0	0.005

All results reported in milligrams per liter (mg/L)
MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)
< - Less than MDL
Metals analyzed using SW 846 Method 6010 except Arsenic and Selenium
Arsenic analyzed via SW 846 Method 7060
Selenium analyzed via SW 846 Method 7740

TABLE 3
(Continued)

WASTE WATER ANALYTICAL RESULTS
MILAGRO SEPTIC FIELD

PART II - VOLATILE ORGANICS			
PARAMETER	ST-12497 (Water)	NMWQCC LIMITS(µG/L)	MDL
Acetone	14	NA	0.030
Acrolein	<	NA	0.010
Acrylonitrile	<	NA	0.010
Benzene	<	10.0	0.005
Bromoform	<	NA	0.010
Bromomethane	<	NA	0.010
2-Butanone	<	NA	0.015
Carbon Disulfide	<	NA	0.010
Carbon Tetrachloride	<	10.0	0.010
Chlorobenzene	<	NA	0.005
Chlorodibromomethane	<	NA	0.005
Chloroethane	<	NA	0.010
2-Chloroethylvinylether	<	NA	0.010
Chloroform	4.8	100.0	0.005
Chloromethane	<	NA	0.010
1,2-Dichlorobenzene	<	NA	0.005
1,3-Dichlorobenzene	<	NA	0.005
1,4-Dichlorobenzene	37	NA	0.005
Dichlorobromomethane	<	NA	0.005
1,1-Dichloroethane	<	25.0	0.005
1,2-Dichloroethane	<	10.0	0.005
1,1-Dichloroethene	<	NA	0.010
cis-1,2-Dichloroethene	<	NA	0.010
trans-1,2-Dichloroethene	<	NA	0.010
1,2-Dichloropropane	<	NA	0.005
cis-1,3-Dichloropropene	<	NA	0.005
trans-1,3-Dichloropropene	<	NA	0.005
Ethylbenzene	<	750.0	0.005
2-Hexanone	<	NA	0.010

All results reported in micrograms per liter (µg/L)

MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)

< - Less than MDL

TABLE 3
(Continued)

WASTE WATER ANALYTICAL RESULTS
MILAGRO SEPTIC FIELD

PART II - VOLATILE ORGANICS (Continued)			
PARAMETER	**ST-12497 (Water)**	**NMWQCC LIMITS(µg/L)**	**MDL**
Methylene Chloride	39	100.0	2.0
4-Methyl-2-Pentanone	<	NA	2.0
Styrene	<	NA	1.0
1,1,1,2-Tetrachloroethane	<	NA	2.0
1,1,2,2-Tetrachloroethane	<	10.0	2.0
Tetrachloroethene	<	NA	4.0
Toluene	<	750.0	1.0
1,1,1-Trichloroethane	<	60.0	1.0
1,1,2-Trichloroethane	<	10.0	2.0
Trichloroethene	<	NA	1.0
Vinyl Acetate	<	NA	2.0
Vinyl Chloride	<	1.0	2.0
Xylenes (Total)	<	620.0	1.0

All results reported in micrograms per liter (µg/L)

MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)

< - Less than MDL

TABLE 3

(Continued)

WASTE WATER ANALYTICAL RESULTS
MILAGRO SEPTIC FIELD

PART III - SEMI-VOLATILE ORGANICS			
PARAMETER	ST-12497 (Water)	NMWQCC LIMITS	MDL
Phenol	11	5.0	1.1
Bis(2-chloroethyl)ether	<	NA	1.8
2-Chlorophenol	<	NA	2.7
1,3-Dichlorobenzene	<	NA	2.0
1,4-Dichlorobenzene	20	NA	2.0
1,2-Dichlorobenzene	<	NA	2.0
Bis(2-chloroisopropyl)ether	<	NA	1.5
Hexachloroethane	<	NA	2.0
N-Nitrosodi-N-Propylamine	<	NA	2.1
Nitrobenzene	<	NA	2.0
Isophorone	<	NA	4.0
2-Nitrophenol	<	NA	1.4
2,4-Dimethylphenol	<	NA	1.7
Bis(2-chloroethoxy)methane	<	NA	1.3
2,4-Dichlorophenol	<	NA	1.2
1,2,4-Trichlorobenzene	<	NA	2.0
Naphthalene	<	30	0.3
Hexachlorobutadiene	<	NA	2.0
4-Chloro-3-Methylphenol	<	NA	1.4
Hexachlorocyclopentadiene	<	NA	2.0
2,4,6-Trichlorophenol	<	NA	1.2
2-Chloronaphthalene	<	NA	0.9
Acenaphthylene	<	NA	0.4
Dimethyl phthalate	<	NA	1.1
2,6-Dinitrotoluene	<	NA	0.6
Acenaphthene	<	NA	0.7
2,4-Dinitrophenol	<	NA	4.8
2,4-Dinitrotoluene	<	NA	0.5
4-Nitrophenol	<	NA	1.4
Fluorene	<	NA	0.3
4-Chlorophenylphenylether	<	NA	0.9
Diethyl phthalate	<	NA	1.1
4,6-Dinitro-2-methylphenol	<	NA	1.5
N-Nitrosodiphenylamine	<	NA	1.9

All results reported in micrograms per Liter(μg/L)
MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)
< - Less than MDL

TABLE 3

(Continued)

WASTE WATER ANALYTICAL RESULTS
MILAGRO SEPTIC FIELD

PART III - SEMI-VOLATILE ORGANICS *(Continued)*			
PARAMETER	**ST-12497 (Water)**	**NMWQCC LIMITS**	**MDL**
4-Bromophenylphenylether	<	NA	0.3
Hexachlorobenzene	<	NA	2.0
Pentachlorophenol	<	NA	1.1
Phenanthrene	<	NA	0.3
Anathracene	<	NA	0.2
Di-n-butyl phthalate	<	NA	1.1
Fluoranthene	<	NA	0.2
Pyrene	<	NA	0.3
Benzyl butyl phthalate	1.0	NA	0.6
3,3-Dichlorobenzidine	<	NA	1.0
Benzo(a)anthracene	<	NA	0.2
Chrysene	<	NA	0.3
Bis(2-ethylhexyl)phthalate	2.1	NA	1.4
Di-n-octyl phthalate	<	NA	1.1
Benzo(b)fluoranthene	<	NA	0.4
Benzo(k)fluoranthene	<	NA	0.4
Benzo(a)pyrene	<	0.7	0.5
Indeno(1,2,3-cd)pyrene	<	NA	0.6
Dibenzo(a,h)anthracene	<	NA	0.4
Benzo(g,h,i)perylene	<	NA	0.4
N-Nitrosodimethylamine	<	NA	10
Aniline	<	NA	5.0
Benzyl alcohol	<	NA	2.0
Carbazole	<	NA	5.0
2-Methylphenol	<	NA	1.7
Benzoic acid	620	NA	1.0
4-Chloroaniline	<	NA	5.0
2-Methylnaphthalene	<	NA	1.0
2,4,5-Trichlorophenol	<	NA	0.6
2-Nitroaniline	<	NA	5.0
3-Nitroaniline	<	NA	5.0
Dibenzofuran	<	NA	5.0
Benzidine	<	NA	10
4-Nitroaniline	<	NA	5.0

All results reported in micrograms per liter (µg/L))
MDL - Method Detection Limit (See Laboratory Report Cover Sheet for MDL comments)
< - Less than MDL

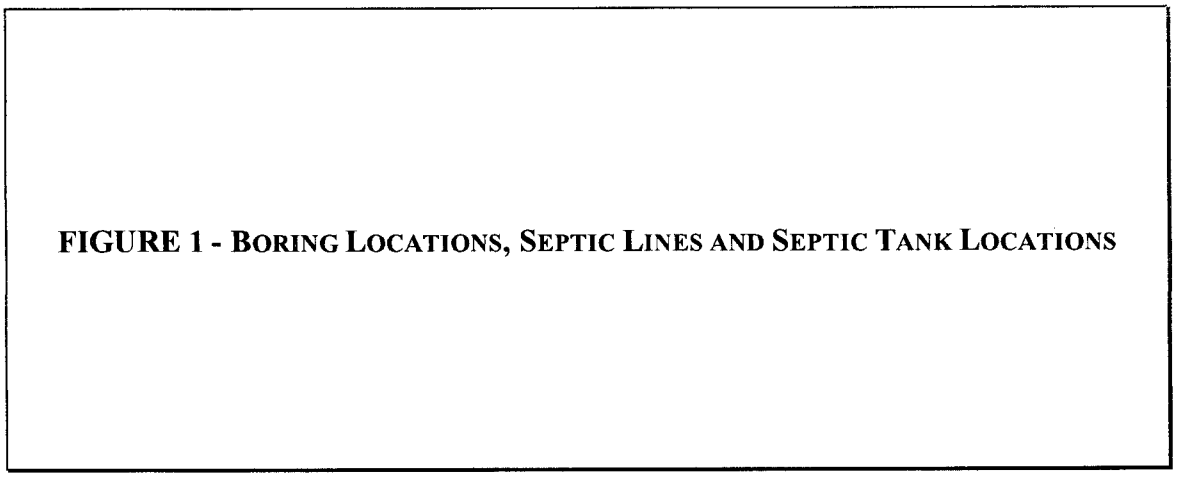
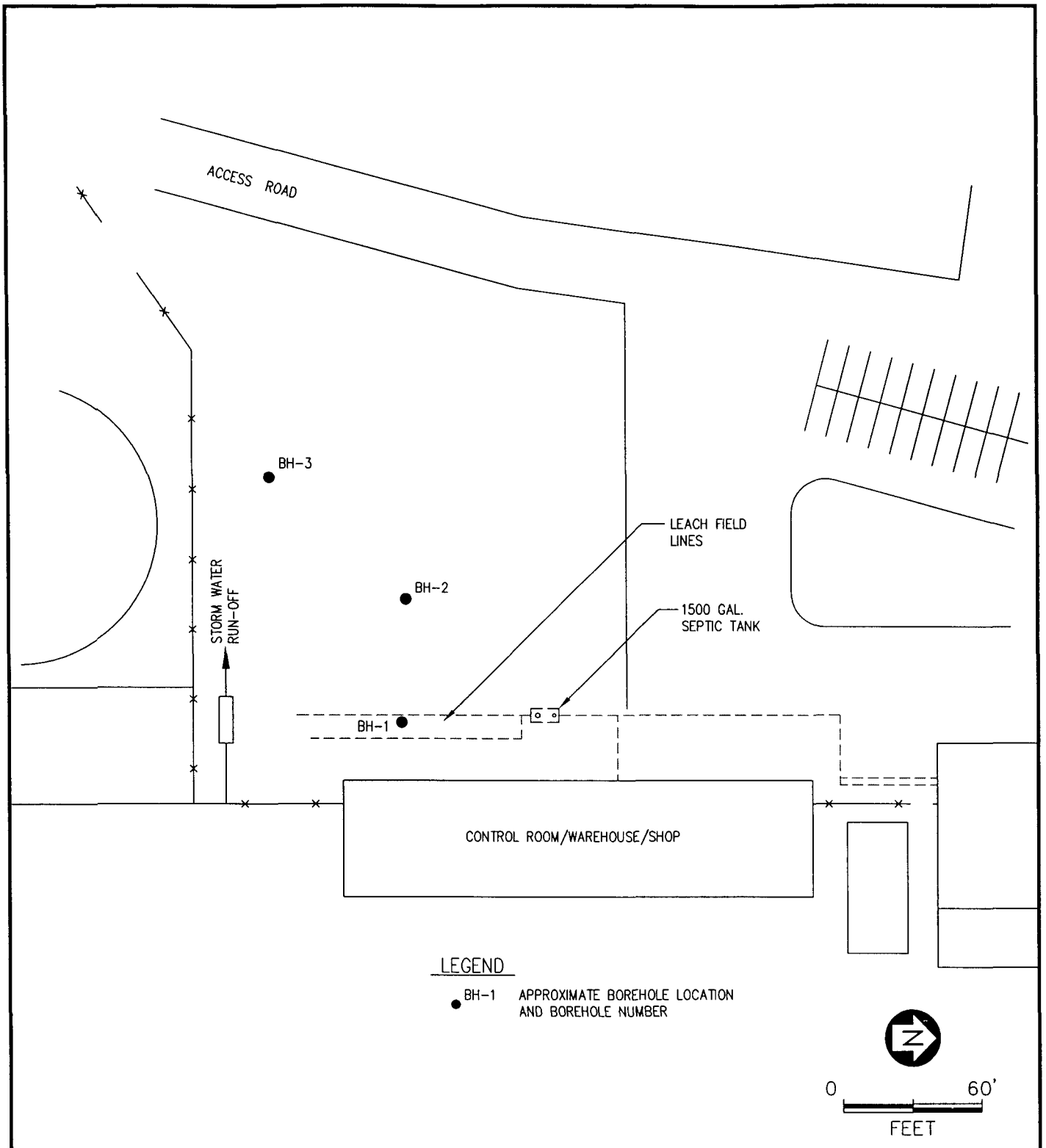


FIGURE 1 - BORING LOCATIONS, SEPTIC LINES AND SEPTIC TANK LOCATIONS



NOTE: THIS FIGURE WAS PREPARED FROM AN AS-BUILT SKETCH PROVIDED BY WILLIAMS FIELD SERVICES.

PHILIP ENVIRONMENTAL

NO.	REVISION	BY	APPR.	DATE
△				

TITLE:

PLAN – SEPTIC LEACH FIELD
MILAGRO PLANT

SCALE	AS NOTED	DATE
DWN:	M.R.W.	12/18/96
DES:		
CHKD:		
APPD:		

PROJECT NO: 17309
WFS SEPTIC LEACH FIELD
BLOOMFIELD, NM

FIGURE 1

REV: 0

COL. J:\17309\CIV\CL01-1

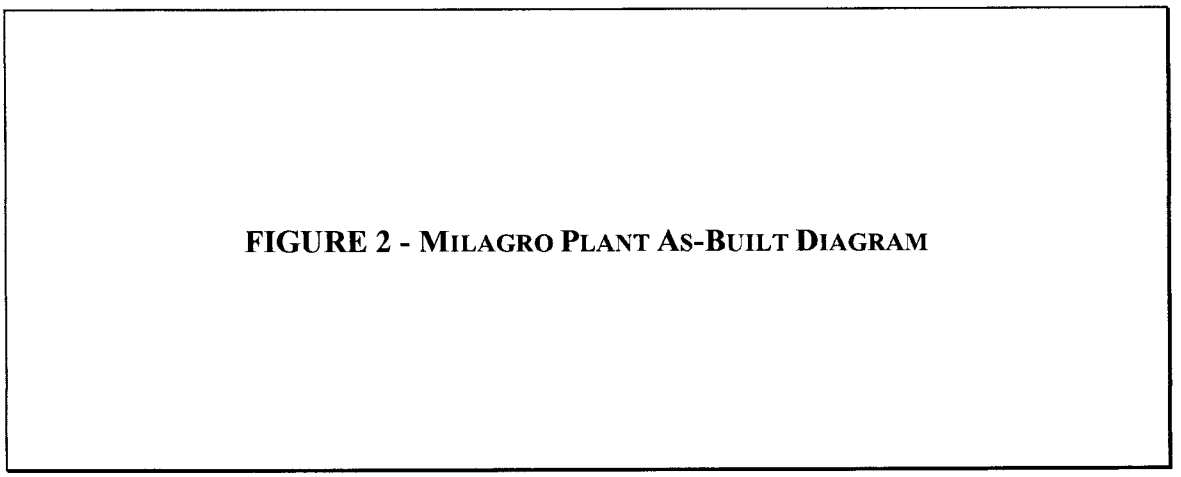
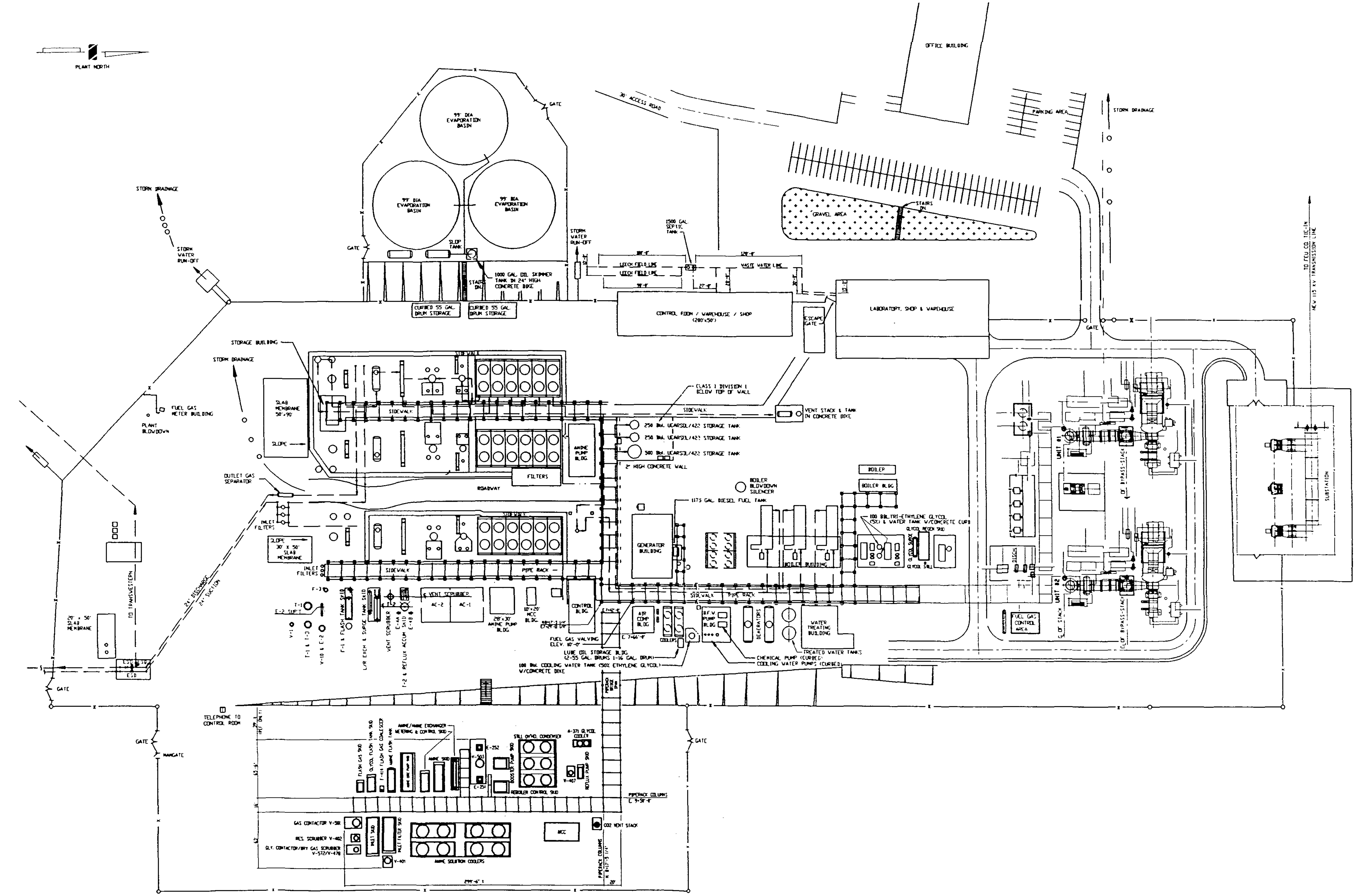


FIGURE 2 - MILAGRO PLANT AS-BUILT DIAGRAM


PLANT NORTH
OFFICE BUILDING
30' ACCESS ROAD
PARKING AREA
STORM DRAINAGE
GRAVEL AREA
STAIRS
99' DIA EVAPORATION BASIN
GATE
STORM WATER RUN-OFF
1500 GAL SEPTIC TANK
LEECH FIELD LINE
WASTE WATER LINE
SLOP TANK
1000 GAL OIL SKIMMER TANK IN 24" HIGH CONCRETE DIKE
CURBED 55 GAL DRUM STORAGE
CONTROL ROOM / WAREHOUSE / SHOP (200'x50')
ESCAPE GATE
LABORATORY, SHOP & WAREHOUSE
STORAGE BUILDING
SLAB MEMBRANE 50'x90'
FUEL GAS METER BUILDING
PLANT BLOWDOWN
SIDEWALK
CLASS 1 DIVISION 1 BELOW TOP OF WALL
VENT STACK & TANK IN CONCRETE DIKE
250 Bbl. UCARSOL/422 STORAGE TANK
500 Bbl. UCARSOL/422 STORAGE TANK
AMINE PUMP BLDG
2' HIGH CONCRETE WALL
OUTLET GAS SEPARATOR
ROADWAY
FILTERS
BOILER BLOWDOWN SILENCER
BOILER
BOILER BLDG
1175 GAL DIESEL FUEL TANK
GENERATOR BUILDING
BOILER BUILDING
100 Bbl TRI-ETHYLENE GLYCOL (5%) & WATER TANK W/CONCRETE CURB
INLET FILTERS
30' X 50' SLAB MEMBRANE
PIPE RACK
VENT SCRUBBER
AMINE PUMP BLDG
MCC BLDG
CONTROL BLDG
AIR COMP BLDG
COOLERS
DEAERATORS
WATER TREATING BUILDING
TREATED WATER TANKS
CHEMICAL PUMP (CURBED)
COOLING WATER PUMPS (CURBED)
FUEL GAS VALVING
LUBE OIL STORAGE BLDG (2-55 GAL DRUMS 1-16 GAL DRUM)
100 Bbl COOLING WATER TANK (50% ETHYLENE GLYCOL) W/CONCRETE DIKE
UNIT #1
UNIT #2
FUEL GAS CONTROL AREA
SUBSTATION
TO FEU CO. TIE-IN NEW 115 KV TRANSMISSION LINE
TO TRANSWESTERN
24" DISCHARGE
24" SUCTION
30' x 50' SLAB MEMBRANE
TELEPHONE TO CONTROL ROOM
MANGATE
FLASH GAS SKID
AMINE/AMINE EXCHANGER METERING & CONTROL SKID
STILL OVHD. CONDENSER
A-371 GLYCOL COOLER
REFLUX PUMP SKID
REBOILER CONTROL SKID
PIPERACK COLUMNS
GAS CONTACTOR V-501
RCS. SCRUBBER V-402
INLET SKID
INLET FILTER SKID
AMINE SOLUTION COOLERS
MCC
CO2 VENT STACK

PRELIMINARY

LEGEND	REFERENCE DRAWINGS				REVISIONS								
	DRAWING NO.	TITLE	DRAWING NO.	TITLE	NO.	DATE	BY	DESCRIPTION	W.O.NO.	CHK.	APP.		
					11	11/26/96	BES	ADDED WASTE WATER, SEPTIC TANK, LEECH FLD.					
					10	11-12-96	PW	REVISED PER TRANE V ADDITION	--				

DRAFTING	BY	DATE
DRAWN	Phil	9-4-90
CHECKED	JG	9-21-90
APPROVED	KWB	12-10-90
ENGINEERING	BY	DATE
PROJ. APPROVED		

WILLIAMS FIELD SERVICES
ONE OF THE WILLIAMS COMPANIES

MILAGRO GAS CONDITIONING PLANT
PLOT PLAN
SAN JUAN COUNTY, NEW MEXICO

SCALE: 1"= 50
W.O. NO. --
DWG. NO. MLG-1-P1
REV. 11

APPENDIX A - FIELD DOCUMENTATION

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH- 1
Well #
Page 1 of 1

PHILIP ENVIRONMENTAL SERVICES INC.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name WFS Milagro
Project Number 17039 Phase 6001.77
Project Location Milagro Plant, Bloomfield, NM

Elevation
Borehole Location Center of Leach Field
GWL Depth N/A
Logged By CM Chance
Drilled By K Padilla
Date/Time Started 12/12/96 - 0830
Date/Time Completed 12/12/96 - 093

Well Logged By CM Chance
Personnel On-Site F. Rivera
Contractors On-Site
Client Personnel On-Site L. Gooding

Drilling Method 4 1/4 ID Hollow Stem Auger
Air Monitoring Method PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
0										
5	1	3-5	6	Brown sandy Clay, medium plastic, soft very moist			0	0	0	-0830 hour - Sample
10	2	10-12	24	Brown siltly SAND, fine-medium sand, loose, grades to clayey sand, trace gypsum parting, dry			0	0	0	-0839 hour - Sample
				TOB 12'						
15										
20										
25										
30										
35										
40										

Comments: Boring terminated at 12 foot BGS. (Approximately 10 feet beneath the bottom of the leach line). Samples collected from 3-5' (BH1-3-5) and 10-12' (BH1-10-12) and submitted for laboratory analysis. Groundwater not encountered.

Geologist Signature Cory Chance

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH- 2
Well #
Page 1 of 1

PHILIP ENVIRONMENTAL SERVICES INC.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name WFS Milagro
Project Number 17039 Phase 6001.77
Project Location Milagro Plant, Bloomfield, NM

Elevation
Borehole Location West of Leach Field
GWL Depth N/A
Logged By CM Chance
Drilled By K Padilla
Date/Time Started 12/12/96 - 0915
Date/Time Completed 12/12/96 - 1000

Well Logged By CM Chance
Personnel On-Site F. Rivera
Contractors On-Site
Client Personnel On-Site L. Gooding

Drilling Method 4 1/4 ID Hollow Stem Auger
Air Monitoring Method PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
0										
5				Brown silty CLAY, soft, low plastic, dry			0	0	0	-Cuttings
10				Light brown sandy SILT, trace v. fine-fine sand, loose, dry			0	0	0	-Cuttings
15	1	15-17	6	Light brown SANDSTONE, v. fine sand, hard, slight cementation, trace gypsum parting			0	0	0	-0930 hour - Sample
				TOB 17'						
20										
25										
30										
35										
40										

Comments: Boring terminated at 17 feet BGS. Sample collected from 15-17 feet BGS (BH2-15-17) and submitted for laboratory analysis. Borehole grouted to the surface. Groundwater not encountered.

Geologist Signature Cory Chance

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH- 3
Well #
Page 1 of 1

PHILIP ENVIRONMENTAL SERVICES INC.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name WFS Milagro
Project Number 17039 Phase 6001.77
Project Location Milagro Plant, Bloomfield, NM

Elevation
Borehole Location SW of Leach Field
GWL Depth N/A
Logged By CM Chance
Drilled By K Padilla
Date/Time Started 12/12/96 - 1015
Date/Time Completed 12/12/96 - 1100

Well Logged By CM Chance
Personnel On-Site F. Rivera
Contractors On-Site
Client Personnel On-Site L. Gooding

Drilling Method 4 1/4 ID Hollow Stem Auger
Air Monitoring Method PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
0										
5				Brown sandy CLAY, soft, medium plastic, slightly moist			0	0	0	-Cuttings Cobbles @ 6'
10				Light grey/off white silty SAND, slightly cemented, fine-v. fine sand, gravel			0	0	0	Cobbles @ 10'
	1	13-15								Refusal w/ augers @ 13'
15				As Above			0	0	0	-1046 hour - Sample
				TOB 15'						
20										
25										
30										
35										
40										

Comments: Boring terminated at 15 foot BGS. Sample collected from 13-15 feet (BH3-13-15) submitted for laboratory analysis. Borehole grouted to surface. Groundwater not encountered.

Geologist Signature Cory Chance

PHILIP ENVIRONMENTAL

SOIL/SEDIMENT/SLUDGE SAMPLING DATA

Serial No. SSSSD

Date 1/24/97

Project Name WFS ~~Chem~~ cmd/swl97 Milagro Septic

Project No. 17309

Project Manager CM Chance

Phase.Task No. 6000.77

Client Company Williams Field Services

Site Name Milagro Plant Septic Tank

Site Address Bloomfield, NM

Sampling Method
- ☐ Hand Auger
- ☐ Spoon
- ☐ Backhoe
- ☐ Drill Rig
- ☑ Other Thief

QA
- ☐ Primary
- ☐ Duplicate

Reason For Collection
- ☑ Lab Analysis
- ☐ On-Site Headspace
- ☐ Physical Testing
- ☐ Other

Type of Sample
- ☑ Grab
- ☐ Composite

Portable Screening Instrument Used ☑ None

Type	Manufacturer	Model
☐ PID (Lamp ____ eV)		
☐ FID		
☐ CGI		
☐ Other		
☐ Other		

Sample No.	Location	Time Collected	Sample Type: Soil	Sample Type: Sed.	Sample Type: Slg.	Volume Collected	Field Instrument Reading
WFS-STS-12497	Septic Tank	1015			✓	1-250ml	NA
WFS-STS-12497	"	1015			✓	1-250ml	NA

Chain-of-Custody Form Number C3020

Comments Sample septic sludge For TCLP, Ign, Corrosivity Reac.

Signature Cory Chance Date 1/24/97 Reviewer _____ Date _____

PHILIP ENVIRONMENTAL

Location No. _____

Serial No. WSD- _____

WATER SAMPLING DATA

Group List Number _____

Sample Type: ☐ Groundwater ☐ Surface Water ☑ Other Septic Water Date 1/24/97

Project Name WFS Milagro Septic Field Project No. 17309

Project Manager CM Chance Phase.Task No. 6000.77

Site Name Milagro Plant, Bloomfield, NM

Sampling Specifications

Requested Sampling Depth Interval (feet) _____

Requested Wait Following Development/Purging (hours) _____

Initial Measurements

Time Elapsed From Final Development/Purging (hours) _____

Initial Water Depth (feet) _____

Nonaqueous Liquids Present (Describe) _____

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data					Notes (Explain in Comment Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (ft)	Bail	Final Water Depth ft)	
						NA						

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Sample Containers

Preservatives: H = HCl; N = HNO_3; S = H_2SO_4; A = NaOH; O = Other (Specify); — = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments	
	Number	Type	Volume (mL)	Yes	No		Yes	No	Sample I.D.	Time
Metals	1	P	250		✓	HNO_3	✓		WFS-ST-12497	1000
VOA's	3	V	40		✓	HCL	✓		↓	↓
Semi-VOA's	2	A	1000		✓	—	✓			

Chance 1/24/97

Filter Type NA Chain-of-Custody Form Number C3020

Comments _____

Signature Cory Chance Date 1/24/97 Reviewer _____ Date _____

APPENDIX B - LABORATORY REPORTS

ZENON
LABORATORIES

5555 North Service Road
Burlington, Ontario, Canada L7L 5H7
Tel: (905) 332-8788
Fax: (905) 332-9169

Certificate of Analysis

CLIENT INFORMATION

Attention: Cory Chance
Client Name: Philip Environmental Inc.
Project: 17039
Project Desc: WFS Septic Leach Field

Address: 4000 Monroe Road
Farmington, NM
87401
Fax Number: 505 326-2388
Phone Number: 505 326-2262

LABORATORY INFORMATION

Contact: Ada Blythe, B.Sc., C.Chem.
Project: AN961368
Date Received: 96/12/13
Date Reported: 97/01/02

Submission No.: 6L0416
Sample No.: 055066-055069

NOTES: *'-' = not analysed '<' = less than Method Detection Limit (MDL) 'NA' = no data available*
LOQ can by determined for all analytes by multiplying the appropriate MDL X 3.33
Solids data is based on dry weight except for biota analyses.
Organic analyses are not corrected for extraction recovery standards except for isotope dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by Zenon are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Seventeenth Edition. Other methods are based on the principles of MISA or EPA methodologies.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at Zenon for a period of three weeks from receipt of data or as per contract.

COMMENTS:

Certified by: _____

			Method		BH1	BH2
	Client ID:		Blank	BH1-3-5	10-12	15-17
	Zenon ID:		055065 96	055066 96	055067 96	055068 96
	Date Sampled:		96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**				
Mercury via SW846 Method 7471						
Mercury	0.04	mg/kg	<	<	<	<
Metals via SW846 Method 6010						
Arsenic	5.0	mg/kg	<10	<10	<10	<10
Selenium	10	"	<20	<20	<20	<20
Barium	0.1	"	<0.2	280	130	190
Cadmium	0.2	"	<0.4	<0.4	<0.4	<0.4
Chromium	5	"	<10	<10	<10	<10
Lead	10	"	<20	<20	<20	<20
Silver	0.5	"	<1.0	<1.0	<1.0	<1.0
Volatiles via SW846 Method 8260						
Acetone	0.030	mg/kg	0.17	0.18	0.15	0.14
Acrolein	0.010	"	<	<	<	<
Acrylonitrile	0.010	"	<	<	<	<
Benzene	0.005	"	<	<	<	<
Bromoform	0.010	"	<	<	<	<
Bromomethane	0.010	"	<	<	<	<
2-Butanone	0.015	"	<	<	<	<
Carbon Disulfide	0.010	"	<	<	<	<
Carbon Tetrachloride	0.010	"	<	<	<	<
Chlorobenzene	0.005	"	<	<	<	<
Chlorodibromomethane	0.005	"	<	<	<	<
Chloroethane	0.010	"	<	<	<	<
2-Chloroethylvinylether	0.010	"	<	<	<	<
Chloroform	0.005	"	<	<	<	<
Chloromethane	0.010	"	<	<	<	<
1,2-Dichlorobenzene	0.005	"	<	<	<	<
1,3-Dichlorobenzene	0.005	"	<	<	<	<
1,4-Dichlorobenzene	0.005	"	<	0.005	<	<
Dichlorobromomethane	0.005	"	<	<	<	<
1,1-Dichloroethane	0.005	"	<	<	<	<
1,2-Dichloroethane	0.005	"	<	<	<	<
1,1-Dichloroethene	0.010	"	<	<	<	<
cis-1,2-Dichloroethene	0.010	"	<	<	<	<
trans-1,2-Dichloroethene	0.010	"	<	<	<	<
1,2-Dichloropropane	0.005	"	<	<	<	<
cis-1,3-Dichloropropene	0.005	"	<	<	<	<
trans-1,3-Dichloropropene	0.005	"	<	<	<	<
Ethylbenzene	0.005	"	<	<	<	<
2-Hexanone	0.010	"	<	<	<	<
Methylene Chloride	0.010	"	0.020	0.039	0.034	0.029
4-Methyl-2-Pentanone	0.010	"	<	<	<	<
Styrene	0.005	"	<	<	<	<
1,1,1,2-Tetrachloroethane	0.010	"	<	<	<	<
1,1,2,2-Tetrachloroethane	0.010	"	<	<	<	<
Tetrachloroethene	0.020	"	<	<	<	<
Toluene	0.005	"	<	0.005	<	<

			Method		BH1	BH2
	Client ID:		Blank	BH1-3-5	10-12	15-17
	Zenon ID:		055065 96	055066 96	055067 96	055068 96
	Date Sampled:		96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**				
1,1,1-Trichloroethane	0.005	"	<	<	<	<
1,1,2-Trichloroethane	0.010	"	<	<	<	<
Trichloroethene	0.005	"	<	<	<	<
Vinyl Acetate	0.010	"	<	<	<	<
Vinyl Chloride	0.010	"	<	<	<	<
Xylenes(Total)	0.005	"	<	<	<	<
Surrogate Recoveries		%				
d4-1,2-Dichloroethane			95	97	103	98
d8-Toluene			98	99	94	98
Bromofluorobenzene			95	95	95	91
Semi Volatiles via SW846 Method 8270						
Phenol	0.11	mg/kg	<0.22	<0.22	<0.22	<0.22
Bis(2-chloroethyl)ether	0.18	"	<0.36	<0.36	<0.36	<0.36
2-Chlorophenol	0.27	"	<0.54	<0.54	<0.54	<0.54
1,3-Dichlorobenzene	0.20	"	<0.40	<0.40	<0.40	<0.40
1-4-Dichlorobenzene	0.20	"	<0.40	<0.40	<0.40	<0.40
1,2-Dichlorobenzene	0.20	"	<0.40	<0.40	<0.40	<0.40
Bis(2-chloroisopropyl)ether	0.15	"	<0.30	<0.30	<0.30	<0.30
Hexachloroethane	0.20	"	<0.40	<0.40	<0.40	<0.40
N-Nitroso-di-N-Propylamine	0.21	"	<0.42	<0.42	<0.42	<0.42
Nitrobenzene	0.20	"	<0.40	<0.40	<0.40	<0.40
Isophorone	0.40	"	<0.80	<0.80	<0.80	<0.80
2-Nitrophenol	0.14	"	<0.28	<0.28	<0.28	<0.28
2,4-Dimethylphenol	0.17	"	<0.34	<0.34	<0.34	<0.34
Bis(2-chloroethoxy)methane	0.13	"	<0.26	<0.26	<0.26	<0.26
2,4-Dichlorophenol	0.12	"	<0.24	<0.24	<0.24	<0.24
1,2,4-Trichlorobenzene	0.20	"	<0.40	<0.40	<0.40	<0.40
Naphthalene	0.03	"	<0.06	<0.06	<0.06	<0.06
Hexachlorobutadiene	0.20	"	<0.40	<0.40	<0.40	<0.40
4-Chloro-3-Methylphenol	0.14	"	<0.28	<0.28	<0.28	<0.28
Hexachlorocyclopentadiene	0.20	"	<0.40	<0.40	<0.40	<0.40
2,4,6-Trichlorophenol	0.12	"	<0.24	<0.24	<0.24	<0.24
2-Chloronaphthalene	0.09	"	<0.18	<0.18	<0.18	<0.18
Acenaphthylene	0.04	"	<0.08	<0.08	<0.08	<0.08
Dimethyl phthalate	0.11	"	<0.22	<0.22	<0.22	<0.22
2,6-Dinitrotoluene	0.06	"	<0.12	<0.12	<0.12	<0.12
Acenaphthene	0.07	"	<0.14	<0.14	<0.14	<0.14
2,4-Dinitrophenol	0.48	"	<0.96	<0.96	<0.96	<0.96
2,4-Dinitrotoluene	0.05	"	<0.10	<0.10	<0.10	<0.10
4-Nitrophenol	0.14	"	<0.28	<0.28	<0.28	<0.28
Fluorene	0.03	"	<0.06	<0.06	<0.06	<0.06
4-Chlorophenylphenylether	0.09	"	<0.18	<0.18	<0.18	<0.18
Diethyl phthalate	0.11	"	<0.22	<0.22	<0.22	<0.22
4,6-Dinitro-2-methylphenol	0.15	"	<0.30	<0.30	<0.30	<0.30
N-Nitrosodiphenylamine	0.19	"	<0.38	<0.38	<0.38	<0.38
4-Bromophenylphenylether	0.03	"	<0.06	<0.06	<0.06	<0.06
Hexachlorobenzene	0.20	"	<0.40	<0.40	<0.40	<0.40

			Method		BH1	BH2
	Client ID:		Blank	BH1-3-5	10-12	15-17
	Zenon ID:		055065 96	055066 96	055067 96	055068 96
	Date Sampled:		96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**				
Pentachlorophenol	0.11	"	<0.22	<0.22	<0.22	<0.22
Phenanthrene	0.03	"	<0.06	<0.06	<0.06	<0.06
Anthracene	0.02	"	<0.04	<0.04	<0.04	<0.04
Di-n-butyl phthalate	0.11	"	<0.22	<0.22	<0.22	<0.22
Fluoranthene	0.02	"	<0.04	<0.04	<0.04	<0.04
Pyrene	0.03	"	<0.06	<0.06	<0.06	<0.06
Benzyl butyl phthalate	0.06	"	<0.12	<0.12	<0.12	<0.12
3,3-Dichlorobenzidine	0.10	"	<0.20	<0.20	<0.20	<0.20
Benzo(a)anthracene	0.02	"	<0.04	<0.04	<0.04	<0.04
Chrysene	0.03	"	<0.06	<0.06	<0.06	<0.06
Bis(2-ethylhexyl)phthalate	0.14	"	<0.28	<0.28	<0.28	<0.28
Di-n-octyl phthalate	0.11	"	<0.22	<0.22	<0.22	<0.22
Benzo(b)fluoranthene	0.04	"	<0.08	<0.08	<0.08	<0.08
Benzo(k)fluoranthene	0.04	"	<0.08	<0.08	<0.08	<0.08
Benzo(a)pyrene	0.05	"	<0.10	<0.10	<0.10	<0.10
Indeno(1,2,3-cd)pyrene	0.06	"	<0.12	<0.12	<0.12	<0.12
Dibenzo(a,h)anthracene	0.04	"	<0.08	<0.08	<0.08	<0.08
Benzo(ghi)perylene	0.04	"	<0.08	<0.08	<0.08	<0.08
N-Nitrosodimethylamine	1.0	mg/kg	<2.0	<2.0	<2.0	<2.0
Aniline	0.50	"	<1.0	<1.0	<1.0	<1.0
Benzyl alcohol	0.50	"	<1.0	<1.0	<1.0	<1.0
Carbazole	0.50	"	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	0.50	"	<1.0	<1.0	<1.0	<1.0
Benzoic acid	0.50	"	<1.0	<1.0	<1.0	<1.0
4-Chloroaniline	0.50	"	<1.0	<1.0	<1.0	<1.0
2-Methylnaphthalene	0.10	"	<0.20	<0.20	<0.20	<0.20
2,4,5-Trichlorophenol	0.10	"	<0.20	<0.20	<0.20	<0.20
2-Nitroaniline	0.50	"	<1.0	<1.0	<1.0	<1.0
3-Nitroaniline	0.50	"	<1.0	<1.0	<1.0	<1.0
Dibenzofuran	0.50	"	<1.0	<1.0	<1.0	<1.0
Benzidine	0.50	"	<1.0	<1.0	<1.0	<1.0
4-Nitroaniline	0.50	"	<1.0	<1.0	<1.0	<1.0
Surrogate Recoveries		%				
2-Fluorophenol			25	40	39	43
d5-Phenol			58	68	66	65
d5-Nitrobenzene			19	42	41	43
2-Fluorobiphenyl			73	59	60	62
2,4,6-Tribromophenol			101	69	61	64
d14-p-Terphenyl			105	75	72	70

			BH3	BH3	BH3	BH3
	Client ID:		13-15	13-15	13-15	13-15
	Zenon ID:		055069 96	055069 96	055069 96	055069 96
	Date Sampled:		96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**		MS	% recoveries	MSD
Mercury via SW846 Method 7471						
Mercury	0.04	mg/kg	<	-	-	-
Metals via SW846 Method 6010						
Arsenic	5.0	mg/kg	<10	-	-	-
Selenium	10	"	<20	-	-	-
Barium	0.1	"	150	-	-	-
Cadmium	0.2	"	<0.4	-	-	-
Chromium	5	"	<10	-	-	-
Lead	10	"	<20	-	-	-
Silver	0.5	"	<1.0	-	-	-
Volatiles via SW846 Method 8260						
Acetone	0.030	mg/kg	0.12	0.41	160	0.33
Acrolein	0.010	"	<	0.42	83	0.36
Acrylonitrile	0.010	"	<	0.40	80	0.39
Benzene	0.005	"	<	0.23	94	0.23
Bromoform	0.010	"	<	0.26	110	0.26
Bromomethane	0.010	"	<	0.29	120	0.29
2-Butanone	0.015	"	<	0.21	83	0.19
Carbon Disulfide	0.010	"	<	0.22	88	0.20
Carbon Tetrachloride	0.010	"	<	0.26	110	0.26
Chlorobenzene	0.005	"	<	0.23	91	0.23
Chlorodibromomethane	0.005	"	<	0.25	100	0.25
Chloroethane	0.010	"	<	0.27	110	0.25
2-Chloroethylvinylether	0.010	"	<	0.16	64	0.15
Chloroform	0.005	"	<	0.24	95	0.23
Chloromethane	0.010	"	<	0.27	110	0.24
1,2-Dichlorobenzene	0.005	"	<	0.24	94	0.23
1,3-Dichlorobenzene	0.005	"	<	0.22	88	0.21
1,4-Dichlorobenzene	0.005	"	<	0.22	87	0.22
Dichlorobromomethane	0.005	"	<	0.25	100	0.25
1,1-Dichloroethane	0.005	"	<	0.23	93	0.22
1,2-Dichloroethane	0.005	"	<	0.24	97	0.23
1,1-Dichloroethene	0.010	"	<	0.24	97	0.22
cis-1,2-Dichloroethene	0.010	"	<	0.22	89	0.21
trans-1,2-Dichloroethene	0.010	"	<	0.22	88	0.21
1,2-Dichloropropane	0.005	"	<	0.23	92	0.24
cis-1,3-Dichloropropene	0.005	"	<	0.23	90	0.23
trans-1,3-Dichloropropene	0.005	"	<	0.22	89	0.23
Ethylbenzene	0.005	"	<	0.23	91	0.23
2-Hexanone	0.010	"	<	0.18	73	0.18
Methylene Chloride	0.010	"	0.033	0.25	99	0.24
4-Methyl-2-Pentanone	0.010	"	<	0.20	80	0.19
Styrene	0.005	"	<	0.22	88	0.22
1,1,1,2-Tetrachloroethane	0.010	"	<	0.26	100	0.26
1,1,2,2-Tetrachloroethane	0.010	"	<	0.15	61	0.14
Tetrachloroethene	0.020	"	<	0.24	97	0.25
Toluene	0.005	"	<	0.23	94	0.24

			BH3	BH3	BH3	BH3
	Client ID:		13-15	13-15	13-15	13-15
	Zenon ID:		055069 96	055069 96	055069 96	055069 96
	Date Sampled:		96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**		MS	% recoveries	MSD
1,1,1-Trichloroethane	0.005	"	<	0.25	100	0.25
1,1,2-Trichloroethane	0.010	"	<	0.23	94	0.23
Trichloroethene	0.005	"	<	0.31	130	0.31
Vinyl Acetate	0.010	"	<	0.10	41	0.072
Vinyl Chloride	0.010	"	<	0.24	95	0.21
Xylenes(Total)	0.005	"	<	0.68	91	0.68
Surrogate Recoveries		%				
d4-1,2-Dichloroethane			99	99	99	95
d8-Toluene			95	99	99	101
Bromofluorobenzene			92	108	108	100
Semi Volatiles via SW846 Method 8270						
Phenol	0.11	mg/kg	<0.22	-	-	-
Bis(2-chloroethyl)ether	0.18	"	<0.36	-	-	-
2-Chlorophenol	0.27	"	<0.54	-	-	-
1,3-Dichlorobenzene	0.20	"	<0.40	-	-	-
1-4-Dichlorobenzene	0.20	"	<0.40	-	-	-
1,2-Dichlorobenzene	0.20	"	<0.40	-	-	-
Bis(2-chloroisopropyl)ether	0.15	"	<0.30	-	-	-
Hexachloroethane	0.20	"	<0.40	-	-	-
N-Nitroso-di-N-Propylamine	0.21	"	<0.42	-	-	-
Nitrobenzene	0.20	"	<0.40	-	-	-
Isophorone	0.40	"	<0.80	-	-	-
2-Nitrophenol	0.14	"	<0.28	-	-	-
2,4-Dimethylphenol	0.17	"	<0.34	-	-	-
Bis(2-chloroethoxy)methane	0.13	"	<0.26	-	-	-
2,4-Dichlorophenol	0.12	"	<0.24	-	-	-
1,2,4-Trichlorobenzene	0.20	"	<0.40	-	-	-
Naphthalene	0.03	"	<0.06	-	-	-
Hexachlorobutadiene	0.20	"	<0.40	-	-	-
4-Chloro-3-Methylphenol	0.14	"	<0.28	-	-	-
Hexachlorocyclopentadiene	0.20	"	<0.40	-	-	-
2,4,6-Trichlorophenol	0.12	"	<0.24	-	-	-
2-Chloronaphthalene	0.09	"	<0.18	-	-	-
Acenaphthylene	0.04	"	<0.08	-	-	-
Dimethyl phthalate	0.11	"	<0.22	-	-	-
2,6-Dinitrotoluene	0.06	"	<0.12	-	-	-
Acenaphthene	0.07	"	<0.14	-	-	-
2,4-Dinitrophenol	0.48	"	<0.96	-	-	-
2,4-Dinitrotoluene	0.05	"	<0.10	-	-	-
4-Nitrophenol	0.14	"	<0.28	-	-	-
Fluorene	0.03	"	<0.06	-	-	-
4-Chlorophenylphenylether	0.09	"	<0.18	-	-	-
Diethyl phthalate	0.11	"	<0.22	-	-	-
4,6-Dinitro-2-methylphenol	0.15	"	<0.30	-	-	-
N-Nitrosodiphenylamine	0.19	"	<0.38	-	-	-
4-Bromophenylphenylether	0.03	"	<0.06	-	-	-
Hexachlorobenzene	0.20	"	<0.40	-	-	-

			BH3	BH3	BH3	BH3
	Client ID:		13-15	13-15	13-15	13-15
	Zenon ID:		055069 96	055069 96	055069 96	055069 96
	Date Sampled:		96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**		MS	% recoveries	MSD
Pentachlorophenol	0.11	"	<0.22	-	-	-
Phenanthrene	0.03	"	<0.06	-	-	-
Anthracene	0.02	"	<0.04	-	-	-
Di-n-butyl phthalate	0.11	"	<0.22	-	-	-
Fluoranthene	0.02	"	<0.04	-	-	-
Pyrene	0.03	"	<0.06	-	-	-
Benzyl butyl phthalate	0.06	"	<0.12	-	-	-
3,3-Dichlorobenzidine	0.10	"	<0.20	-	-	-
Benzo(a)anthracene	0.02	"	<0.04	-	-	-
Chrysene	0.03	"	<0.06	-	-	-
Bis(2-ethylhexyl)phthalate	0.14	"	<0.28	-	-	-
Di-n-octyl phthalate	0.11	"	<0.22	-	-	-
Benzo(b)fluoranthene	0.04	"	<0.08	-	-	-
Benzo(k)fluoranthene	0.04	"	<0.08	-	-	-
Benzo(a)pyrene	0.05	"	<0.10	-	-	-
Indeno(1,2,3-cd)pyrene	0.06	"	<0.12	-	-	-
Dibenzo(a,h)anthracene	0.04	"	<0.08	-	-	-
Benzo(ghi)perylene	0.04	"	<0.08	-	-	-
N-Nitrosodimethylamine	1.0	mg/kg	<2.0	-	-	-
Aniline	0.50	"	<1.0	-	-	-
Benzyl alcohol	0.50	"	<1.0	-	-	-
Carbazole	0.50	"	<1.0	-	-	-
2-Methylphenol	0.50	"	<1.0	-	-	-
Benzoic acid	0.50	"	<1.0	-	-	-
4-Chloroaniline	0.50	"	<1.0	-	-	-
2-Methylnaphthalene	0.10	"	<0.20	-	-	-
2,4,5-Trichlorophenol	0.10	"	<0.20	-	-	-
2-Nitroaniline	0.50	"	<1.0	-	-	-
3-Nitroaniline	0.50	"	<1.0	-	-	-
Dibenzofuran	0.50	"	<1.0	-	-	-
Benzidine	0.50	"	<1.0	-	-	-
4-Nitroaniline	0.50	"	<1.0	-	-	-
Surrogate Recoveries		%				
2-Fluorophenol			43	-	-	-
d5-Phenol			68	-	-	-
d5-Nitrobenzene			46	-	-	-
2-Fluorobiphenyl			65	-	-	-
2,4,6-Tribromophenol			57	-	-	-
d14-p-Terphenyl			72	-	-	-

			BH3
	Client ID:		13-15
	Zenon ID:		055069 96
	Date Sampled:		96/12/12
Component	**MDL**	**Units**	% recoveries
Mercury via SW846 Method 7471			
Mercury	0.04	mg/kg	-
Metals via SW846 Method 6010			
Arsenic	5.0	mg/kg	-
Selenium	10	"	-
Barium	0.1	"	-
Cadmium	0.2	"	-
Chromium	5	"	-
Lead	10	"	-
Silver	0.5	"	-
Volatiles via SW846 Method 8260			
Acetone	0.030	mg/kg	130
Acrolein	0.010	"	73
Acrylonitrile	0.010	"	78
Benzene	0.005	"	92
Bromoform	0.010	"	100
Bromomethane	0.010	"	120
2-Butanone	0.015	"	75
Carbon Disulfide	0.010	"	82
Carbon Tetrachloride	0.010	"	100
Chlorobenzene	0.005	"	92
Chlorodibromomethane	0.005	"	100
Chloroethane	0.010	"	98
2-Chloroethylvinylether	0.010	"	60
Chloroform	0.005	"	91
Chloromethane	0.010	"	94
1,2-Dichlorobenzene	0.005	"	91
1,3-Dichlorobenzene	0.005	"	86
1,4-Dichlorobenzene	0.005	"	88
Dichlorobromomethane	0.005	"	100
1,1-Dichloroethane	0.005	"	90
1,2-Dichloroethane	0.005	"	91
1,1-Dichloroethene	0.010	"	89
cis-1,2-Dichloroethene	0.010	"	85
trans-1,2-Dichloroethene	0.010	"	84
1,2-Dichloropropane	0.005	"	97
cis-1,3-Dichloropropene	0.005	"	92
trans-1,3-Dichloropropene	0.005	"	94
Ethylbenzene	0.005	"	90
2-Hexanone	0.010	"	70
Methylene Chloride	0.010	"	95
4-Methyl-2-Pentanone	0.010	"	77
Styrene	0.005	"	89
1,1,1,2-Tetrachloroethane	0.010	"	100
1,1,2,2-Tetrachloroethane	0.010	"	57
Tetrachloroethene	0.020	"	99
Toluene	0.005	"	95

			BH3
	Client ID:		13-15
	Zenon ID:		055069 96
	Date Sampled:		96/12/12
Component	**MDL**	**Units**	% recoveries
1,1,1-Trichloroethane	0.005	"	100
1,1,2-Trichloroethane	0.010	"	93
Trichloroethene	0.005	"	120
Vinyl Acetate	0.010	"	28
Vinyl Chloride	0.010	"	84
Xylenes(Total)	0.005	"	90
Surrogate Recoveries		%	
d4-1,2-Dichloroethane			95
d8-Toluene			101
Bromofluorobenzene			100
Semi Volatiles via SW846 Method 8270			
Phenol	0.11	mg/kg	-
Bis(2-chloroethyl)ether	0.18	"	-
2-Chlorophenol	0.27	"	-
1,3-Dichlorobenzene	0.20	"	-
1-4-Dichlorobenzene	0.20	"	-
1,2-Dichlorobenzene	0.20	"	-
Bis(2-chloroisopropyl)ether	0.15	"	-
Hexachloroethane	0.20	"	-
N-Nitroso-di-N-Propylamine	0.21	"	-
Nitrobenzene	0.20	"	-
Isophorone	0.40	"	-
2-Nitrophenol	0.14	"	-
2,4-Dimethylphenol	0.17	"	-
Bis(2-chloroethoxy)methane	0.13	"	-
2,4-Dichlorophenol	0.12	"	-
1,2,4-Trichlorobenzene	0.20	"	-
Naphthalene	0.03	"	-
Hexachlorobutadiene	0.20	"	-
4-Chloro-3-Methylphenol	0.14	"	-
Hexachlorocyclopentadiene	0.20	"	-
2,4,6-Trichlorophenol	0.12	"	-
2-Chloronaphthalene	0.09	"	-
Acenaphthylene	0.04	"	-
Dimethyl phthalate	0.11	"	-
2,6-Dinitrotoluene	0.06	"	-
Acenaphthene	0.07	"	-
2,4-Dinitrophenol	0.48	"	-
2,4-Dinitrotoluene	0.05	"	-
4-Nitrophenol	0.14	"	-
Fluorene	0.03	"	-
4-Chlorophenylphenylether	0.09	"	-
Diethyl phthalate	0.11	"	-
4,6-Dinitro-2-methylphenol	0.15	"	-
N-Nitrosodiphenylamine	0.19	"	-
4-Bromophenylphenylether	0.03	"	-
Hexachlorobenzene	0.20	"	-

			BH3
	Client ID:		13-15
	Zenon ID:		055069-96
	Date Sampled:		96/12/12
Component	**MDL**	**Units**	% recoveries
Pentachlorophenol	0.11	"	-
Phenanthrene	0.03	"	-
Anthracene	0.02	"	-
Di-n-butyl phthalate	0.11	"	-
Fluoranthene	0.02	"	-
Pyrene	0.03	"	-
Benzyl butyl phthalate	0.06	"	-
3,3-Dichlorobenzidine	0.10	"	-
Benzo(a)anthracene	0.02	"	-
Chrysene	0.03	"	-
Bis(2-ethylhexyl)phthalate	0.14	"	-
Di-n-octyl phthalate	0.11	"	-
Benzo(b)fluoranthene	0.04	"	-
Benzo(k)fluoranthene	0.04	"	-
Benzo(a)pyrene	0.05	"	-
Indeno(1,2,3-cd)pyrene	0.06	"	-
Dibenzo(a,h)anthracene	0.04	"	-
Benzo(ghi)perylene	0.04	"	-
N-Nitrosodimethylamine	1.0	mg/kg	-
Aniline	0.50	"	-
Benzyl alcohol	0.50	"	-
Carbazole	0.50	"	-
2-Methylphenol	0.50	"	-
Benzoic acid	0.50	"	-
4-Chloroaniline	0.50	"	-
2-Methylnaphthalene	0.10	"	-
2,4,5-Trichlorophenol	0.10	"	-
2-Nitroaniline	0.50	"	-
3-Nitroaniline	0.50	"	-
Dibenzofuran	0.50	"	-
Benzidine	0.50	"	-
4-Nitroaniline	0.50	"	-
Surrogate Recoveries		%	
2-Fluorophenol			-
d5-Phenol			-
d5-Nitrobenzene			-
2-Fluorobiphenyl			-
2,4,6-Tribromophenol			-
d14-p-Terphenyl			-

ZEL Summary of Analysis Pre. Dates

Batch Code:	**1220ASA1**
Mercury	055066 96
	055067 96
	055068 96
	055069 96
Date analysed:	96/12/20
Date prepared:	96/12/20
Batch Code:	**1223ASC1**
Metals	055066 96
	055067 96
	055068 96
	055069 96
Date analysed:	96/12/30
Date prepared:	96/12/23
Batch Code:	**1220SM01**
Volatiles via 8240	055066 96
	055067 96
	055068 96
	055069 96
Date analysed:	96/12/20
Date prepared:	96/12/20
Batch Code:	**1217PB02**
Volatiles via 8270	055066 96
	055067 96
	055068 96
	055069 96
Date analysed:	96/12/20
Date prepared:	96/12/17

PHILIP

Chain of Custody Record

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

MB-55065

COC Serial No. C 3017

Project Name	WFS Septic Leach Field
Project Number	17039
Phase . Task	6006 . 77
Samplers	CM Chance
Laboratory Name	Zenon
Laboratory Location	Burlington, Ontario Canada

Sample Number (and depth)		Date	Time	Matrix	Total Number of Bottles	Total RCRA Metals SW6010/7470	Semi-VOA's SW8270	VOA's SW8260		Comments
BH1-3-5	55066	12/12/96	0830	SOIL	2	X	X	X	9520A6, 9520A6	
BH1-10-12	67	↓	0839	↓	2	X	X	X	↓	
BH2-15-17	68	↓	0930	↓	2	X	X	X	↓	
BH3-13-15	69	↓	1046	↓	2	X	X	X	↓	

CMC 12/12/96

Relinquished by:

Signature	Date	Time
Cory Chance	12/12/96	1500

Received By:

Signature	Date	Time
[signature]	961213	12:30pm

Samples Iced: ☑ Yes ☐ No

Carrier: FedEX

Airbill No. 7482872401

Preservatives (ONLY for Water Samples)

- ☐ Cyanide .... Sodium hyroxide (NaOH)
- ☐ Volatile Organic Analysis .... Hydrochloric acid (HCl)
- ☐ Metals .... Nitric acid (HNO_3)
- ☐ TPH (418.1) .... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify)
- ☐ Other (Specify)

Shipping and Lab Notes: Standard Turnaround, Fax + mail results to Cory Chance @ Farmington

PE-176 4/95

ZENON
ENVIRONMENTAL

5555 North Service Road
Burlington, Ontario, Canada L7L 5H7
Tel: (905) 332-8788
Fax: (905) 332-9169

Certificate of Analysis

CLIENT INFORMATION

Attention:	Cory Chance
Client Name:	Philip Environmental Inc.
Project:	17039
Project Desc:	WFS Septic Leach Field
Address:	4000 Monroe Road Farmington, NM 87401
Fax Number:	505 326-2388
Phone Number:	505 326-2262

LABORATORY INFORMATION

Contact:	Ada Blythe, B.Sc., C.Chem.
Project:	AN961368
Date Received:	97/01/27
Date Reported:	97/02/04
Submission No.:	7A0483
Sample No.:	-002309

NOTES: *'-' = not analysed '<' = less than Method Detection Limit (MDL) 'NA' = no data available*
LOQ can by determined for all analytes by multiplying the appropriate MDL X 3.33
Solids data is based on dry weight except for biota analyses.
Organic analyses are not corrected for extraction recovery standards except for isotope dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by Zenon are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Seventeenth Edition. Other methods are based on the principles of MISA or EPA methodologies.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at Zenon for a period of three weeks from receipt of data or as per contract.

COMMENTS:
"*" Suspect chloride interference on silver recovery

"*" There are no recoveries of 2-chlorovinylether, as this compound degrades very rapidly at room temperature. It can degrade in the time elapsing from sample set up to the time it is actually injected on the GC/MS.

Certified by:

Client ID:			Method Blank	Blank Spike	Blank Spike	WFS ST-12497	WFS ST-12497	WFS ST-12497	WFS ST-12497	WFS ST-12497	WFS ST-12497
Zenon ID:			002309 97	002309 97	002309 97	002311 97	002311 97	002311 97	002311 97	002311 97	002311 97
Date Sampled:			97/01/24	97/01/24	97/01/24	97/01/24	97/01/24	97/01/24	97/01/24	97/01/24	97/01/24
Component	**MDL**	Units			%Recovery		Duplicate	M. Spike	MS % Rec.	MS Dup	MSD % Rec.
Arsenic via SW846 Method 7060											
Arsenic (gfaa)	0.0020	mg/L	<	0.049	90	<	<	0.047	86	0.043	78
Selenium via SW846 Method 7740											
Selenium (gfaa)	0.0020	mg/L	<	0.050	89	<	0.0026	0.045	78	0.043	74
Metals via SW846 Method 6010											
Aluminum	0.030	mg/L	<0.033	2.3	110	0.26	0.33	2.7	110	2.6	100
Barium	0.001	"	0.002	1.1	100	0.49	0.45	1.6	100	1.6	100
Beryllium	0.001	"	<	0.58	110	<	<	0.61	110	0.59	110
Cadmium	0.002	"	0.004	0.56	100	0.004	0.004	0.59	110	0.57	100
Calcium	0.20	"	<0.22	11	100	39	38	48	91	47	83
Chromium	0.004	"	<	1.1	100	<	<	1.2	110	1.1	100
Cobalt	0.010	"	<0.011	1.1	100	<0.011	<0.011	1.2	110	1.1	100
Copper	0.005	"	<0.006	1.1	100	0.11	0.10	1.3	110	1.3	100
Iron	0.010	"	<0.011	14	100	0.38	0.43	15	110	14	110
Lead	0.020	"	0.023	1.1	100	<0.022	<0.022	1.2	110	1.2	110
Magnesium	0.050	"	<0.055	12	100	7.5	7.3	20	100	20	100
Manganese	0.006	"	<0.007	1.1	100	0.031	0.035	1.2	110	1.2	100
Molybdenum	0.010	"	<0.011	0.55	100	0.017	<0.011	0.59	110	0.58	100
Nickel	0.010	"	<0.011	0.57	100	<0.011	<0.011	0.59	110	0.59	110
Phosphorus	0.060	"	<0.066	5.8	110	8.6	8.4	14	100	14	95
Potassium	1.000	"	1.1	12	99	23	22	34	99	34	100
Silver	0.010	"	<0.011	0.57	100	<0.011	<0.011	0.29	**53***	0.38	**70***
Sodium	0.100	"	<0.11	11	100	44	43	54	96	53	87
Thallium	0.060	"	<0.066	1.1	100	<0.066	<0.066	1.2	110	1.2	100
Vanadium	0.005	"	<0.006	0.55	100	<0.006	<0.006	0.56	100	0.55	100
Zinc	0.005	"	<0.006	2.3	100	0.21	0.15	2.4	100	2.4	99

Client ID:			Method Blank	Blank Spike	Blank Spike	TCLP -WFS STS-12497	TCLP -WFS STS-12497	TCLP -WFS STS-12497	TCLP -WFS STS-12497	TCLP -WFS STS-12497	TCLP -WFS STS-12497
Zenon ID:			002309 97	002309 97	002309 97	002313 97	002313 97	002313 97	002313 97	002313 97	002313 97
Date Sampled:			97/01/24	97/01/24	97/01/24						
Component	**MDL**	Units			%Recovery		Duplicate	M. Spike	MS % Rec.	MS Dup	MSD % Rec.
Mercury via Method 7470											
Mercury(cvaa)	0.05	ug/L	<	1.0	100	<	<	1.0	100	1.0	100
TCLP Metals via SW846 Method 6010											
Arsenic	0.500	mg/L	<0.55	<0.55	95	<0.55	<0.55	0.61	110	0.61	110
Barium	0.001	"	<	1.1	100	1.2	1.2	2.2	110	2.2	110
Cadmium	0.002	"	<	0.56	100	0.002	<	0.58	110	0.58	110
Chromium	0.004	"	<	1.1	100	<	<	1.1	100	1.1	100
Lead	0.020	"	<0.022	1.1	100	<0.022	<0.022	1.2	110	1.2	110
Selenium	0.060	"	<0.066	0.58	100	<0.066	<0.066	0.61	110	0.62	120
Silver	0.010	"	<0.011	0.56	100	<0.011	<0.011	0.54	99	0.53	97

			Method	Blank	Blank	WFS	WFS	WFS
Client ID:			Blank	Spike	Spike	ST-12497	ST-12497	ST-12497
Zenon ID:			002309 97	002309 97	002309 97	002311 97	002311 97	002311 97
Date Sampled:			97/01/24	97/01/24	97/01/24	97/01/24	97/01/24	97/01/24
Component	**MDL**	Units			%Recovery		M. Spike	MS % Rec.
Volatiles via SW846 Method 8260								
Acetone	4.0	ug/L	8.1	22	45	14	22	44
Acrolein	2.0	"	<	90	90	<	85	85
Acrylonitrile	2.0	"	<	90	90	<	84	84
Benzene	1.0	"	<	49	98	<	44	87
Bromoform	2.0	"	<	50	101	<	45	91
Bromomethane	2.0	"	<	45	90	<	44	87
2-Butanone	3.0	"	<	66	112	<	52	100
Carbon Disulfide	2.0	"	<	60	120	<	60	120
Carbon Tetrachloride	2.0	"	<	50	100	<	45	90
Chlorobenzene	1.0	"	<	52	103	<	47	93
Chlorodibromomethane	1.0	"	<	50	99	<	43	86
Chloroethane	2.0	"	<	45	91	<	46	92
2-Chloroethylvinylether	2.0	"	<	51	102	<	*	*
Chloroform	1.0	"	<	44	88	4.8	48	96
Chloromethane	2.0	"	<	49	98	<	48	96
1,2-Dichlorobenzene	1.0	"	<	50	100	<	47	93
1,3-Dichlorobenzene	1.0	"	<	52	104	<	45	90
1,4-Dichlorobenzene	1.0	"	<	53	105	37	80	92
Dichlorobromomethane	1.0	"	<	48	95	<	43	87
1,1-Dichloroethane	1.0	"	<	46	91	<	45	89
1,2-Dichloroethane	1.0	"	<	47	93	<	45	89
1,1-Dichloroethene	2.0	"	<	47	95	<	45	90
cis-1,2-Dichloroethene	2.0	"	<	46	92	<	45	90
trans-1,2-Dichloroethene	2.0	"	<	46	93	<	45	91
1,2-Dichloropropane	1.0	"	<	49	97	<	44	87
cis-1,3-Dichloropropene	1.0	"	<	49	98	<	43	85
trans-1,3-Dichloropropene	1.0	"	<	48	95	<	43	85
Ethylbenzene	1.0	"	<	51	102	<	47	94
2-Hexanone	2.0	"	<	52	103	<	42	83
Methylene Chloride	2.0	"	3.5	39	79	39	75	84
4-Methyl-2-Pentanone	2.0	"	<	51	101	<	46	91
Styrene	1.0	"	<	52	105	<	46	93
1,1,1,2-Tetrachloroethane	2.0	"	<	51	103	<	46	93
1,1,2,2-Tetrachloroethane	2.0	"	<	53	107	<	45	90
Tetrachloroethene	4.0	"	<	52	104	<	47	93
Toluene	1.0	"	<	52	104	<	45	91
1,1,1-Trichloroethane	1.0	"	<	51	103	<	46	92
1,1,2-Trichloroethane	2.0	"	<	48	97	<	45	91
Trichloroethene	1.0	"	<	52	103	<	44	88
Vinyl Acetate	2.0	"	<	52	103	<	56	110
Vinyl Chloride	2.0	"	<	46	92	<	46	91
Xylenes(Total)	1.0	"	<	154	103	<	140	95
Surrogate Recoveries		%						
d4-1,2-Dichloroethane			92	96	96	96	96	96
d8-Toluene			99	104	104	100	100	100
Bromofluorobenzene			92	105	105	94	103	103
pH			6.00	-	-	2.00	-	-

		WFS	WFS
	Client ID:	ST-12497	ST-12497
	Zenon ID:	002311 97	002311 97
	Date Sampled:	97/01/24	97/01/24
Component	**MDL**	MS Dup	MSD % Rec.
Volatiles via SW846 Method 8260			
Acetone	4.0	25	50
Acrolein	2.0	85	85
Acrylonitrile	2.0	84	85
Benzene	1.0	43	86
Bromoform	2.0	43	86
Bromomethane	2.0	43	86
2-Butanone	3.0	48	96
Carbon Disulfide	2.0	55	110
Carbon Tetrachloride	2.0	43	85
Chlorobenzene	1.0	46	91
Chlorodibromomethane	1.0	43	86
Chloroethane	2.0	43	87
2-Chloroethylvinylether	2.0	*	*
Chloroform	1.0	46	91
Chloromethane	2.0	45	90
1,2-Dichlorobenzene	1.0	47	94
1,3-Dichlorobenzene	1.0	46	83
1,4-Dichlorobenzene	1.0	78	90
Dichlorobromomethane	1.0	42	84
1,1-Dichloroethane	1.0	42	85
1,2-Dichloroethane	1.0	43	86
1,1-Dichloroethene	2.0	43	85
cis-1,2-Dichloroethene	2.0	44	87
trans-1,2-Dichloroethene	2.0	43	86
1,2-Dichloropropane	1.0	43	86
cis-1,3-Dichloropropene	1.0	42	83
trans-1,3-Dichloropropene	1.0	41	83
Ethylbenzene	1.0	46	91
2-Hexanone	2.0	41	83
Methylene Chloride	2.0	72	80
4-Methyl-2-Pentanone	2.0	44	87
Styrene	1.0	45	90
1,1,1,2-Tetrachloroethane	2.0	46	92
1,1,2,2-Tetrachloroethane	2.0	45	90
Tetrachloroethene	4.0	45	89
Toluene	1.0	45	89
1,1,1-Trichloroethane	1.0	43	86
1,1,2-Trichloroethane	2.0	43	85
Trichloroethene	1.0	43	85
Vinyl Acetate	2.0	55	110
Vinyl Chloride	2.0	41	82
Xylenes(Total)	1.0	140	91
Surrogate Recoveries			
d4-1,2-Dichloroethane		97	97
d8-Toluene		99	99
Bromofluorobenzene		102	102
pH		-	-

			Method	TCLP -WFS	TCLP -WFS
Client ID:			Blank	STS-12497	STS-12497
Zenon ID:			002309 97	002313 97	002313 97
Date Sampled:			97/01/24		
Component	**MDL**	Units			Duplicate
TCLP Volatiles via SW846 Method 8260					
Benzene	0.2	ug/L	<2.0	<2.0	<2.0
2-Butanone	5.0	"	<50	<50	<50
Carbon Tetrachloride	0.3	"	<3.0	<3.0	<3.0
Chlorobenzene	0.6	"	<6.0	<6.0	<6.0
Chloroform	0.4	"	<4.0	<4.0	<4.0
1,2-Dichloroethane	0.4	"	<4.0	<4.0	<4.0
1,1-Dichloroethene	0.4	"	<4.0	<4.0	<4.0
Pyridine	250	"	<2500	<2500	<2500
Tetrachloroethene	0.2	"	<2.0	<2.0	<2.0
Trichloroethene	0.3	"	<3.0	<3.0	<3.0
Vinyl Chloride	2.9	"	<29	<29	<29
1,4-Dichlorobenzene	0.2	"	<2.0	11	13
Surrogate Recoveries		%			
d4-1,2-Dichloroethane			96	98	93
d8-Toluene			101	95	95
1,4-Bromofluorobenzene			101	100	96

			Method	Blank	Blank	Blank	Blank	WFS
Client ID:			Blank	Spike 1	Spike 1	Spike 2	Spike 2	ST-12497
Zenon ID:			002309 97	002309 97	002309 97	002309 97	002309 97	002311 97
Date Sampled:			97/01/24	97/01/24	97/01/24	97/01/24	97/01/24	97/01/24
Component	**MDL**	Units			%Recovery		%Recovery	
Semi-Volatiles via SW846 Method 8270								
Phenol	1.1	ug/L	<	14	28	16	32	11
Bis(2-chloroethyl)ether	1.8	"	<	NS	-	NS	-	<
2-Chlorophenol	2.7	"	<	30	61	36	72	<
1,3-Dichlorobenzene	2.0	"	<	NS	-	NS	-	<
1-4-Dichlorobenzene	2.0	"	<	12	47	16	64	20
1,2-Dichlorobenzene	2.0	"	<	NS	-	NS	-	<
Bis(2-chloroisopropyl)ether	1.5	"	<	NS	-	NS	-	<
Hexachloroethane	2.0	"	<	NS	-	NS	-	<
N-Nitroso-di-N-Propylamine	2.1	"	<	16	65	21	83	<
Nitrobenzene	2.0	"	<	NS	-	NS	-	<
Isophorone	4.0	"	<	NS	-	NS	-	<
2-Nitrophenol	1.4	"	<	NS	-	NS	-	<
2,4-Dimethylphenol	1.7	"	<	NS	-	NS	-	<
Bis(2-chloroethoxy)methane	1.3	"	<	NS	-	NS	-	<
2,4-Dichlorophenol	1.2	"	<	NS	-	NS	-	<
1,2,4-Trichlorobenzene	2.0	"	<	12	49	17	67	<
Naphthalene	0.3	"	<	NS	-	NS	-	<
Hexachlorobutadiene	2.0	"	<	NS	-	NS	-	<
4-Chloro-3-Methylphenol	1.4	"	<	41	82	40	81	<
Hexachlorocyclopentadiene	2.0	"	<	NS	-	NS	-	<
2,4,6-Trichlorophenol	1.2	"	<	NS	-	NS	-	<
2-Chloronaphthalene	0.9	"	<	NS	-	NS	-	<
Acenaphthylene	0.4	"	<	NS	-	NS	-	<
Dimethyl phthalate	1.1	"	<	NS	-	NS	-	<
2,6-Dinitrotoluene	0.6	"	<	NS	-	NS	-	<
Acenaphthene	0.7	"	<	19	76	21	83	<
2,4-Dinitrophenol	4.8	"	<	NS	-	NS	-	<
2,4-Dinitrotoluene	0.5	"	<	21	84	23	90	<
4-Nitrophenol	1.4	"	<	18	36	18	36	<
Fluorene	0.3	"	<	NS	-	NS	-	<
4-Chlorophenylphenylether	0.9	"	<	NS	-	NS	-	<
Diethyl phthalate	1.1	"	<	NS	-	NS	-	<
4,6-Dinitro-2-methylphenol	1.5	"	<	NS	-	NS	-	<
N-Nitrosodiphenylamine	1.9	"	<	NS	-	NS	-	<
4-Bromophenylphenylether	0.3	"	<	NS	-	NS	-	<
Hexachlorobenzene	2.0	"	<	NS	-	NS	-	<
Pentachlorophenol	1.1	"	<	52	100	52	100	<
Phenanthrene	0.3	"	<	NS	-	NS	-	<
Anthracene	0.2	"	<	NS	-	NS	-	<
Di-n-butyl phthalate	1.1	"	1.4	NS	-	NS	-	<
Fluoranthene	0.2	"	<	NS	-	NS	-	<
Pyrene	0.3	"	<	24	96	24	95	<
Benzyl butyl phthalate	0.6	"	<	NS	-	NS	-	1.0
3,3-Dichlorobenzidine	1.0	"	<	NS	-	NS	-	<
Benzo(a)anthracene	0.2	"	<	NS	-	NS	-	<
Chrysene	0.3	"	<	NS	-	NS	-	<
Bis(2-ethylhexyl)phthalate	1.4	"	<	NS	-	NS	-	2.1
Di-n-octyl phthalate	1.1	"	<	NS	-	NS	-	<
Benzo(b)fluoranthene	0.4	"	<	NS	-	NS	-	<

Zenon Environmental Laboratories - Certificate of Analysis

			Method	Blank	Blank	Blank	Blank	WFS
	Client ID:		Blank	Spike 1	Spike 1	Spike 2	Spike 2	ST-12497
	Zenon ID:		002309 97	002309 97	002309 97	002309 97	002309 97	002311 97
	Date Sampled:		97/01/24	97/01/24	97/01/24	97/01/24	97/01/24	97/01/24
Component	**MDL**	Units			%Recovery		%Recovery	
Benzo(k)fluoranthene	0.4	"	<	NS	-	NS	-	<
Benzo(a)pyrene	0.5	"	<	NS	-	NS	-	<
Indeno(1,2,3-cd)pyrene	0.6	"	<	NS	-	NS	-	<
Dibenzo(a,h)anthracene	0.4	"	<	NS	-	NS	-	<
Benzo(ghi)perylene	0.4	"	<	NS	-	NS	-	<
N-Nitrosodimethylamine	10	"	<	NS	-	NS	-	<
Aniline	5.0	"	<	NS	-	NS	-	<
Carbazole	5.0	"	<	NS	-	NS	-	<
Benzyl alcohol	2.0	"	<	NS	-	NS	-	<
2-Methylphenol	1.7	"	<	NS	-	NS	-	<
Benzoic acid	1.0	"	<	NS	-	NS	-	620
4-Chloroaniline	5.0	"	<	NS	-	NS	-	<
2-Methylnaphthalene	1.0	"	<	NS	-	NS	-	<
2,4,5-Trichlorophenol	0.6	"	<	NS	-	NS	-	<
2-Nitroaniline	5.0	"	<	NS	-	NS	-	<
3-Nitroaniline	5.0	"	<	NS	-	NS	-	<
Dibenzofuran	5.0	"	<	NS	-	NS	-	<
Benzidine	10	"	<	NS	-	NS	-	<
4-Nitroaniline	5.0	"	<	NS	-	NS	-	<
Surrogate Recoveries		%						
2-Fluorophenol			91	39	39	40	40	47
d5-Phenol			64	29	29	31	31	35
d5-Nitrobenzene			82	69	69	84	84	82
2-Fluorobiphenyl			77	70	70	79	79	73
2,4,6-Tribromophenol			95	98	98	92	92	83
d-14-p-Terphenyl			93	98	98	95	95	76

			Method Blank	Blank Spike 1	Blank Spike 1	Blank Spike 2	Blank Spike 2	TCLP -WFS
Client ID:								STS-12497
Zenon ID:			002309 97	002309 97	002309 97	002309 97	002309 97	002313 97
Date Sampled:			97/01/24	97/01/24	97/01/24	97/01/24	97/01/24	
Component	**MDL**	Units			%Recovery		%Recovery	
TCLP Semi-Volatiles via SW846 Method 8270								
o-Cresol	1.7	ug/L	<	NS	-	NS	-	<
m&p-Cresol	3.5	"	<	28	57	28	56	<
1,4-Dichlorobenzene	2.0	"	<	36	71	34	67	7.4
2,4-Dinitrotoluene	0.5	"	<	48	96	51	100	<
Nitrobenzene	2.0	"	<	43	85	41	83	<
Pentachlorophenol	1.1	"	<	61	120	66	130	<
2,4,5-Trichlorophenol	0.6	"	<	NS	-	NS	-	<
2,4,6-Trichlorophenol	1.2	"	<	44	88	45	90	<
Hexachloroethane	2.0	"	<	31	62	28	57	<
Hexachlorobutadiene	2.0	"	<	38	76	36	72	<
Hexachlorobenzene	2.0	"	<	48	97	49	99	<
Surrogate Recoveries		%						
d5-Phenol			38	35	35	34	34	52
d5-Nitrobenzene			90	81	81	76	76	91
2-Fluorobiphenyl			87	85	85	84	84	92
2,4,6-Tribromophenol			94	92	92	97	97	96
d-14-p-Terphenyl			96	89	89	96	96	79

ZEL Summary of Analysis Pre. Dates

Batch Code:	**0130ASB1**	
Arsenic (gfaa)	002309 97	
	002311 97	
Date analysed	97/01/30	
Date prepared	97/01/30	
Batch Code:	**0128ASA2**	**0130ASC1**
Mercury	002309 97	002313 97
	002311 97	
Date analysed	97/01/28	97/01/30
Date prepared	97/01/28	97/01/30
Batch Code:	**0130ASB1**	
Selenium (gfaa)	002309 97	
	002311 97	
Date analysed	97/01/30	
Date prepared	97/01/30	
Batch Code:	**0130ASB1**	
ICP Metals	002309 97	
	002311 97	
Date analysed	97/01/30	
Date prepared	97/01/30	
Batch Code:	**0130ASD1**	
TCLP Metals	002309 97	
	002313 97	
Date analysed	97/01/30	
Date prepared	97/01/30	
Batch Code:	**0128SM01**	
Volatiles	002309 97	
	002311 97	
Date analysed	97/01/28	
Date prepared	97/01/28	
Batch Code:	**0128SM01**	
pH	002309 97	
	002311 97	
Date analysed	97/01/28	
Date prepared	97/01/28	
Batch Code:	**0130SM01**	
TCLP Volatiles	002309 97	
	002313 97	
Date analysed	97/01/30	
Date prepared	97/01/30	

Batch Code:	**0129JM01**
Semi-Volatiles	002309 97
	002311 97
Date analysed	97/01/31
Date prepared	97/01/29

Batch Code:	**0129JM02**
TCLP Semi-Volatiles	002309 97
	002313 97
Date analysed	97/01/31
Date prepared	97/01/29

ZENON

5555 North Service Road
Burlington, Ontario, Canada L7L 5H7
Tel: (905) 332-8788
Fax: (905) 332-9169

Certificate of Analysis

CLIENT INFORMATION		LABORATORY INFORMATION	
Attention:	Cory Chance	**Contact:**	Ada Blythe, B.Sc., C.Chem.
Client Name:	Philip Environmental Inc.	**Project:**	AN961368
Project:	17039	**Date Received:**	97/01/27
Project Desc:	WFS Septic Leach Field	**Date Reported:**	97/02/04
Address:	4000 Monroe Road Farmington, NM 87401	**Submission No.:**	7A0483
		Sample No.:	002310-002312
Fax Number:	505 326-2388		
Phone Number:	505 326-2262		

NOTES: *"-' = not analysed '<' = less than Method Detection Limit (MDL) 'NA' = no data available*
LOQ can by determined for all analytes by multiplying the appropriate MDL X 3.33
Solids data is based on dry weight except for biota analyses.
Organic analyses are not corrected for extraction recovery standards except for isotope dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by Zenon are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Seventeenth Edition. Other methods are based on the principles of MISA or EPA methodologies.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at Zenon for a period of three weeks from receipt of data or as per contract.

COMMENTS:
Revised report

Certified by: _____

Zenon Environmental Laboratories - Certificate of Analysis

	Client ID:		Method Blank	Blank Spike	Blank Spike	WFS STS-12497	WFS STS-12497	WFS STS-12497	WFS STS-12497
	Zenon ID:		002310 97	002310 97	002310 97	002312 97	002312 97	002312 97	002312 97
	Date Sampled:		97/01/24	97/01/24	97/01/24	97/01/24	97/01/24	97/01/24	97/01/24
Component	**MDL**	**Units**		M. Spike	MS % Rec.		Duplicate	M. Spike	MS % Rec.
TCLP Leachate Procedure									
pH after 3.5 ml of 1N HCl addition			-	-	-	1.80	-	-	-
pH initial (5g + 96.5ml water)			-	-	-	8.25	-	-	-
pH of extraction fluid (semi-vols/metals)			-	-	-	4.95	-	-	-
pH of extraction fluid (volatiles)			-	-	-	4.95	-	-	-
Soil pH *via SW846 9045*			-	-	-	7.85	7.79	-	-
Reactivity via ASTMD5058C									
Reaction/flume/dust/gas			-	-	-	0	-	-	-
Temperature change (10 minutes)		deg C	-	-	-	0	-	-	-
Temperature change (initial)		"	-	-	-	0	-	-	-
Moisture	0.01	(%)	-	-	-	31	-	-	-
Cyanide, total *via Method 9010*	0.100	mg/kg	<	0.49	98	0.14	-	-	-
Ignitability	1	mm/min	-	-	-	<	-	-	-
Reactive Sulphide	0.2	mg/kg	<	8.4	87	260	290	-	-

ZEL Summary of Analysis Pre. Dates

Batch Code:	**0128SPA1**
TCLP pH Readings	002312 97
Date analysed	97/01/29
Date prepared	97/01/28
Batch Code:	**0130MSA6**
Soil pH	002312 97
Date analysed	97/01/30
Date prepared	97/01/30
Batch Code:	**0129MSA1**
Reactivity	002312 97
Date analysed	97/01/29
Date prepared	97/01/29
Batch Code:	**0128SPA1**
Moisture	002312 97
Date analysed	97/01/28
Date prepared	97/01/28
Batch Code:	**0130MNA1**
Reactive Sulphide	002310 97
	002312 97
Date analysed	97/02/07
Date prepared	97/02/07
Batch Code:	**0130RJA1**
Cyanide total	002310 97
	002312 97
Date analysed	97/01/30
Date prepared	97/01/30
Batch Code:	**0128SPA1**
Ignitability	002312 97
Date analysed	97/01/28
Date prepared	97/01/28

NBW - 7309

NBS - 7310

PHILIP

Chain of Custody Record

4000 Monroe Road
Farmington, NM 87401

(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 3020

Project Name WFS Chem Waste

Project Number 1/24/97 ~~6975~~ 17309 Phase . Task 6001 . 77

Samplers CM Chance / K. Padilla

Laboratory Name Zenon

Location Ontario, Canada

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Metals 6010*	VOA 8260	Semi VOA 8270	TCLP ***	Ignitability Corrosivity Reactivity **						Comments
WFS-ST-12497	1/24/97	1000	Water	1	X										*Selenium-GFAA, Hg-CVAA
WFS-ST-12497		1000	Water	3		X									
WFS-ST-12497		1000	Water	2			X								**Add sulfide + cyanide analysis to reactivity
WFS-STS-12497		1015	Sludge	1				X							
WFS-STS-12497	↓	1015	Sludge	1					X						*** Do not do Pesticids + herbicides on TCLP

Corrosivity & pH

Cont 1/24/97

Relinquished by:

Signature	Date	Time
Cory Chance	1/24/97	1500

Received By:

Signature	Date	Time

Samples Iced: ✓ Yes ☐ No

Preservatives (ONLY for Water Samples)

- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☑ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☑ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Carrier: Fed EX

Airbill No. 748387726l

Shipping and Lab Notes: RUSH TURNAROUND. Fax results to Cory Chance @ Fax # above.

APPENDIX C - CHEMICAL WASTE PROFILE

LAIDLAW ENVIRONMENTAL SERVICES INC.

NAME OF WASTE STREAM: LAB WASTE

MATERIAL PROFILE NO: PXWFM-0001

☒ New ☐ Amendment

A. GENERATOR INFORMATION

Generator Name: Williams Field Services Milagro Plant
Facility Address: 192 C.R. 4990
City/County: Bloomfield / San Juan
State: New Mexico Zip Code: 87413
USEPA ID#: NMD986682292
State ID#: N/A

Technical Contact: Bruce Martin
Telephone (505) 632-4668 EXT.
Fax ( ) 632-4664
Billing Name: PHILIP ENVIR. (508761)
Billing Address: 4000 MONROE ROAD
City: FARMINGTON State: NM Zip Code: 87401
Attention: CORY CHANCE
Telephone (505) 326-2262 EXT.

B. DOT

Shipping Name: NON RCRA WASTE LIQUID
Hazard Class:
UN/NA No.: Packing Group: RQ:

C. RCRA

RCRA Non Hazardous/Exempt? ☒ Yes ☐ No Process Generating: Lab Testing Waste
State Waste Codes: N/A EPA Waste Codes: NONE

D. ANNUAL REPORT CODES

SIC Code: 1389
Source Code: A
Form Code: B
Origin Code:
System Type: M 141

E. OTHER COMPONENTS

	No	Yes	Total ppm
PCB's	☒	☐	
Cyanides	☒	☐	
Sulfides	☒	☐	
Pesticides	☒	☐	
Phenolics	☒	☐	
Dioxins	☒	☐	
Halogens	☒	☐	%

F. PHYSICAL CHARACTERISTICS AT 70° F

1. Infectious or Biological Waste? ☐ Yes ☒ No
2. NRC Regulated Radioactive? ☐ Yes ☒ No
3. Reactivity ☒ None ☐ Pyrophoric ☐ Cyanides ☐ Sulfides ☐ Water Reactive ☐ Shock Sensitive ☐ DOT Explosive ☐ Other

☐ Gas (Cylinder) ☐ Solid %
☐ Aerosol ☐ Sludges %
☐ Lab-Pack ☐ Free Liquids 100 %
100%

Layers: ☒ Single Layered ☐ Bi-layered ☐ Multi-layered

Viscosity: ☒ Low ☐ Medium ☐ High

Odor: ☐ None ☒ Mild ☐ Strong Describe:

Color/Appearance: CLEAR/COLORLESS

Weight
Density 8.4 lbs./gal. (US. liq) lbs./cu. foot
Dry Weight ☒ <1.0% ☐ 1-5% ☐ 5-20% ☐ 20-100%

pH ☐ N/A ☐ 0-2 ☒ 4.1-10 ☐ ≥ 12.5 ☐ 2.1-4 ☐ 10.1-12.4 Exact 8.5

Flash Point (liquid only)
☐ <73°F (23°C)
☐ 73-140°F (23-60°C)
☐ 141-200°F (61-93°C)
☒ >200°F (93°C)
☐ N/A

Boiling Point
☐ <95°F (35°C)
☒ >95°F (35°C)
☐ N/A

BTU/Lb. <5000

Dermal Toxicity LD_{50} (Mg/Kg)
☐ ≤40 ☐ >200, ≤1000
☐ >40, ≤200 ☒ >1000
4 Material poisonous by inhalation? ☐ Yes ☒ No

Oral Toxicity LD_{50} (Mg/Kg)

	☐ ≤5	☐ >5, ≤50	
Solids:	☐ >50, ≤200	☐ >200	
Liquids:	☐ >50, ≤500	☒ >500	

5 Is this waste stored in vented drums? ☒ Yes ☐ No
6 Is this waste pumpable? ☒ Yes ☐ No
7. Is this waste polymerizable? ☐ Yes ☒ No
8. Is waste stream subject to the National Emission Standards for Benzene Waste Operations (40 CFR 61 Subpart FF)? ☐ Yes ☒ No
9. Is this waste regulated as an ozone depleting substance (40 CFR part 82)? ☐ Yes ☒ No
10. Does this waste contain scrap metal pieces greater than 2 inches in size? ☐ Yes ☒ No

G. METALS

☒ NONE ☐ TCLP (MG/L) ☐ TOTAL (PPM)

	Reg. Limit	Below	Above	Range
Arsenic	5 mg/L	☐	☐	
Barium	100 mg/L	☐	☐	
Cadmium	1 mg/L	☐	☐	
Chromium	5 mg/L	☐	☐	
Copper		☐	☐	
Lead	5 mg/L	☐	☐	
Mercury	0.2 mg/L	☐	☐	
Nickel	134 mg/L	☐	☐	
Selenium	1 mg/L	☐	☐	
Silver	5 mg/L	☐	☐	
Zinc		☐	☐	
Others:				

H. PHYSICAL/CHEMICAL CONSTITUENTS

See Attachment ____ %
____ %
____ %
____ %
____ %
____ %
____ %
____ %
____ %
____ %
100 %

(Attach All MSDS, Sample Analysis and Additional Info.)

I. ANTICIPATED VOLUME

Qty.	Container	Qty.	Container
☐ ____	5 gl. pail	☐ ____	Cubic Yard Box*
☐ ____	15 gl. carboy	☐ ____	Super Sack*
☐ ____	30 gl. drum	☐ ____	Rolloff/Dump Trailer*
☒ 1-2	55 gl. drum	☐ ____	Tanker*
☐ ____	85 gl. drum	☐ ____	Other ____

Per ☐ 1 Time ☐ Week ☐ Month ☒ Year ☒ Other As needed

(*) Is this waste regulated as a Marine Pollutant (49 CFR 171.8)? ☐ Yes ☒ No

Generator's Certification:
I hereby certify that the above and attached description is complete and accurate to the best of my knowledge and ability to determine that no deliberate or willful omissions of composition properties exist and that all known or suspected hazards have been disclosed. I certify that the materials tested are representative of all material described by this profile.

Generator's Authorized Signature: Gerald G Brauer Date 2/18/97

MILAGRO PLANT CHEMICAL LIST

CHEMICAL CONSTITUENT	% OF TOTAL	CHEMICAL NAME
ACID REAGENT	0.06	Sulfamic Acid, Sodium Chloride
AMINO ACID	0.06	
AMINO ACID F	0.03	
CITRIC ACID	0.12	
FERROVER IRON	0.09	Sodium Hydrosulfite, Sodium Bisulfite, Sodium Sulfite
HARDNESS INDICATOR	0.01	
HARDNESS BUFFER	0.01	Borate, Tetra Sodium, penta hydrate, Potassium Hydroxide, Sodium Sulfide
.1 N HCL	0.49	
METHANOL	11.82	
MOLYBDATE POWDER	0.06	Sodium Molybdate
MOYLBDATE LIQUID	0.78	Sulfuric Acid, Ammonium Molybdate
MOLYBDATE 3 POWDER	0.03	Sodium Molybdate, Sulfuric Acid
pH 7 BUFFER	1.26	
pH 10 BUFFER	0.1	
.2 N POTASSIUM HYDROXIDE	0.04	
10 N SULFURIC ACID	0.81	
DEIONIZED WATER	84.24	
TOTAL	100	

APPENDIX D - DATA EVALUATION

PHILIP ENVIRONMENTAL

Philip Environmental Services Corporation
210 West Sand Bank Road
Columbia, Illinois 62236
Phone: 618-281-7173 FAX: 618-281-5120

– MEMORANDUM –

TO: Cory Chance

FROM: Paul Anderson

DATE: January 15, 1997

PROJECT NUMBER: 17309

SUBJECT: ANALYTICAL DATA QA REVIEW - WFS MILAGRO

SUMMARY AND DATA USABILITY

Data Quality Review Project Summary

This report addresses the quality of the data results for the samples collected on September 23 and December 12, 1996, at the WFS-Milagro site.

Samples collected at the facility were analyzed for a selected list of analytical parameters which included the following: Volatiles (8260); Semi-volatiles (8270); and Metals (Ba, Cd, Cr, Pb, Ag, As, Se by 6010) and (As by 7060, Se by 7740, Hg by 7471). The analyte list and detection limits were to follow SW-846.

The analyses were performed and reported by Philip Analytical Services, Inc. (PAS), for the samples received by the laboratory on September 24 and December 13, 1996. Table 1 presents a summary of the validated samples, including their identification information, matrix, collection dates, methods of analysis performed, and deviated quality control criteria noted for each sample. The data package included a summary of sample results with QC batch summary results. Overall, the data packages were sufficiently complete to properly assess the quality of the analytical results.

Data Usability

The analytical data were reviewed and qualified in accordance with U.S. Environmental Protection Agency (USEPA) Data Validation Functional Guidelines (USEPA, 1994a,b). Rejected data, which are considered unusable for either qualitative or quantitative purposes, are a result of a major deficiency noted in the data generation process. Minor deficiencies in the data generation process result in approximation of sample data. Approximation of a data point indicates uncertainty in the reported concentration of the chemical, but not its assigned identity. Conservative assumptions made when basing conclusions on analytical data allow the use of approximated analytical data. This approach to the use of analytical data is consistent

with USEPA (USEPA, 1992) risk assessment and data usability guidance. A summary of specific quality assurance/quality control (QA/QC) excursions that resulted in qualification of sample data are presented in the following sections.

This section summarizes the analytical data in terms of its completeness and usability for characterization of the current water quality for engineering decisions and risk management. Data completeness is defined as the percentage of sample results that have been determined to meet quality control criteria during the data review process. The completeness of the data set was determined to be 99%. However, some sample results have been qualified due to method blank, matrix spike/matrix spike duplicate (MS/MSD), and laboratory control sample (LCS) excursions described below.

Data usability is a qualitative evaluation that utilizes the findings of the data validation review, historical information, regulatory guidance and other applicable information to provide an assessment of how the data set may be used. The assessment is made with reference to the specific data uses specified in the previous paragraph. Data which do not meet completeness requirements are not considered usable, however, data which are complete are not necessarily usable.

The data usability analysis found that no issues which affect data usability were noted.

DATA VALIDATION METHODS AND RESULTS

Data Validation Protocols

The criteria employed for data validation review (USEPA, 1994) provide differing quality control criteria from those specified in the methods. In cases where method requirements and validation requirements overlap, method quality control criteria are used and the validation guidelines are followed for applying data qualifiers, if required. The data validation guidelines quality control criteria are used when the method does not provide criteria. Data may be in full compliance with the method requirements, but may not meet data validation guidance.

Quality Control Parameters

The following QA/QC parameters were evaluated for organic analyses:

1. Holding Times and Preservation
2. Blank Analyses
3. Surrogate Spikes
4. MS/MSD Analysis
5. LCS Analysis
6. Reporting Limits

The following QA/QC parameters were evaluated for inorganic analyses:

1. Holding Times and Preservation
2. Blank Analyses
3. MS Sample Recovery Criteria
4. LCS Analysis
5. Laboratory Replicate Analysis
6. Reporting Limits

Data Qualifiers Used in Validation

The following data qualifiers are defined by the USEPA in the Data Validation Functional Guidelines for use in validating analytical data. The appropriate data qualifiers were added to the data packages in red ink during data validation. Any necessary corrections to the data due to transcription errors or calculation errors were also added with red ink. Each page with changes was also initialed and dated by the validator.

The following data validation qualifiers may be used during the validation of data:

R	Indicates that the reporting limit or sample result has been determined to be unusable due to a major deficiency in the data generation process. The data should not be used for any qualitative or quantitative purposes.
U	Indicates that the analyte was analyzed for, but was not detected. The sample-specific reporting limit is presented and adjusted for dilution and percent solids, as appropriate. The qualifier is also used to signify that the reporting limit of an analyte was raised due to blank contamination.

J	The analyte was positively identified but the concentration should be considered approximate. This qualifier indicates that the data validation process identified a deficiency in the data generation process.
UJ	Indicates that the sample-specific reporting limit for the analyte in this sample should be considered approximate. This qualifier is used when the data validation process identified a deficiency in the data generation process.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Data Evaluation Results

This section describes the qualifiers that were added to sample data where QA/QC criteria were not met. QA/QC parameters that were met are not discussed. Samples that required qualification are identified in the following sections by the sample location documented on the field chain-of-custody record.

General Comments

The packages included sample results along with QC results for blank analyses, matrix spikes, blank spikes, laboratory replicates, and surrogates. The packages were sufficiently complete to perform the Level I validation on the samples. The laboratory QC information was inadvertently missing from the initial package. The laboratory was notified and submitted the missing information.

The September COC 'C3115', had indicated that the metals analyses should be performed as TCLP and not as Totals. However, the laboratory supplied a faxed statement from Philip Environmental which corrected the COC request to correctly analyze the samples as Total RCRA Metals.

SUBJECT: ANALYTICAL DATA QA REVIEW - WFS MILAGRO
MEMO FROM: Paul Anderson
DATE: January 23, 1997

Volatiles

Blank Analysis

Contamination was detected in the method blanks. The sample results have been qualified based on the observed contamination. Sample results reported at concentrations less than five times the blank contamination (ten times for the common laboratory contaminants) have been 'U' qualified as not detected and the reporting limit raised to the reported value for the analyte. The observed compounds, their reported concentrations and the affected samples are summarized in the following table. Blank contaminants that did not affect sample results have not been listed in the table.

Blank I.D.	Analysis Date	Analyte	Conc. (mg/kg)	Reporting Limit(mg/kg)	Action Level[1](mg/kg)	Affected Samples	Qualified Results[2]
1002SM02	10/02/96	acetone	0.052	0.030	0.520	BH1 5-7 BH1 25-27 BH2 17-18 BH3 20-22	0.12 U 0.27 U 0.17 U 0.07 U
		DCM	0.21	0.010	2.100	BH1 5-7 BH1 25-27 BH2 17-18 BH3 20-22	0.19 U 0.21 U 0.17 U 0.18 U
		toluene	0.006	0.005	0.030	BH1 5-7 BH1 25-27 BH2 17-18	0.005 U 0.007 U 0.005 U
1005SM02	10/05/96	acetone	0.066	0.030	0.660	BG1 5-7	0.072 U
		DCM	0.118	0.010	1.180	BG1 5-7	0.091 U
		toluene	0.006	0.005	0.030	BG1 5-7	0.005 U
1220SM01	12/20/96	acetone	0.170	0.030	1.700	BH1 3-5 BH1 10-12 BH2 15-17 BH3 13-15	0.18 U 0.15 U 0.14 U 0.12 U
		DCM	0.020	0.010	0.200	BH1 3-5 BH1 10-12 BH2 15-17 BH3 13-15	0.039 U 0.034 U 0.029 U 0.033 U

Action References: 1 - Action Level = highest blank contaminant value above the reporting limit x 5 or x 10.
2 - Qualified Results = reported value, which becomes the qualified reporting limit.

Notes: **DCM - methylene chloride, dichloromethane**

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DATE: January 23, 1997

Laboratory Control Samples

Percent recoveries were outside the control limits for several of the analytes in several of the blank spike samples. For recoveries that were less than control limits, the non-detected sample results were 'UJ' qualified as estimated reporting limits. The excursions that were above the control limits did not affect the data, since there were no positive results for the excursions. LCS excursions are presented in the following table. Excursions that did not affect sample results have not been listed in the table.

QC Batch File	Analysis Date	Matrix	Analyte	Percent Recovery	Control Limits (%)	Action	Affected Samples
1002SM02	10/02/96	soil	vinyl acetate	76	80-120	1	BH1 5-7 BH1 25-27 BH2 17-18 BH3 20-22 BG1 5-7

Action References: 1 - The non-detected results for the analyte have been 'UJ' qualified as estimated reporting limits.

Notes: **Sample BG1 5-7 has been qualified with the 1002SM02 batch data, since there was no spike data available for the 1005SM02 batch.**

The lab had commented on the first narrative that the vinyl acetate low recoveries may be due to the samples sitting at room temperature for several hours, and that the compound may have degraded in that period of time. Upon calling the laboratory for more information, it was determined that this was not the case, as it sounded in the comment. The samples were simply setting in the auto-sampler tray waiting to start. Therefore, this is not a concern.

Matrix Spike/Matrix Spike Duplicates

MS/MSD percent recoveries were outside the control limits for several analytes for the matrix spike samples. No qualification was required for percent recoveries that exceeded control limits if there were either no positive detects for those analytes or if the positive results had a concentration that was greater than 4x the spike added. Samples were not qualified if only one of the two spikes were outside the limits. Matrix spike excursions are presented in the following table. Excursions that did not affect sample results have not been listed in the table.

Sample ID	Analysis Date	Matrix	Analyte	%Recovery (MS/MSD)	Control Limits (%)	Action
BH3 13-15	12/20/96	soil	vinyl acetate	41/28	80-120	1

Action References: 1 - The non-detected result for the analyte has been 'UJ' qualified as an estimated reporting limits.

Semi-Volatiles

Several of the samples have had their detection limits raised by a factor of two because of sample loss in the Gel Permeation Cleanup (GPC). Ten mLs of sample extract is put through the GPC. Half of the extract is lost in cleaning out the lines to avoid cross contamination. Once the sample goes through the system, it is brought back to original volume of extract, thus resulting in a two-fold dilution.

Laboratory Control Samples

Percent recoveries were outside the control limits for several of the analytes in the blank spike samples. For recoveries that were less than control limits, the non-detected sample results were 'UJ' qualified as estimated reporting limits. The excursions that were above the control limits did not affect the data, since there were no positive results associated with the excursions. LCS excursions are presented in the following table. Excursions that did not affect sample results have not been listed in the table.

QC Batch File	Preparation Date	Matrix	Analyte	%Recovery (BS /BSD)	Control Limits (%)	Action	Affected Samples
1217PB02	12/17/96	soil	2-chlorophenol	19 / 31	25-102	1	BH1 3-5
			1,4-dichlorobenzene	NR / 1.0	28-104	2	BH1 10-12
			1,2,4-trichlorobenzene	4.0 / 17	38-107	2	BH2 15-17
							BH3 13-15

Action References: 1 - The non-detected results for the analyte have been 'UJ' qualified as estimated reporting limits.
2 - The non-detected results for the analytes have been 'R' qualified as unusable.

Matrix Spike/Matrix Spike Duplicates

MS/MSD percent recoveries were outside the control limits for several analytes for the matrix spike samples. No qualification was required for percent recoveries that exceeded control limits if there were either no positive detects for those analytes or if the positive results had a concentration that was greater than 4x the spike added. Samples were not qualified if only one of the two spikes were outside the limits. Matrix spike excursions are presented in the following table. Excursions that did not affect sample results have not been listed in the table.

Sample ID	Preparation Date	Matrix	Analyte	%Recovery (MS/MSD)	Control Limits (%)	Action
BH1 3-5	12/17/96	soil	1,4-dichlorobenzene 1,2,4-trichlorobenzene	2.0 / 3.0 21 / 19	28-104 38-107	1 1

Action Rcferences: 1 - The non-detected results for the analytes have been 'R' qualified as unusable.

Metals

The detection limits are elevated in the samples due to a difference in the digestion for the samples and the standards. In order to match the matrices a dilution multiplier had to be applied.

Matrix Spike/Matrix Spike Duplicates

MS/MSD percent recoveries were outside the control limits for several analytes for the matrix spike samples. No qualification was required for percent recoveries that exceeded control limits if there were either no positive detects for those analytes or if the positive results had a concentration that was greater than 4x the spike added. The following table presents the matrix spike excursions. Excursions that did not affect sample results have not been listed in the table.

Sample I.D.	QC Batch Date	Matrix	Analyte	%Recovery (MS/MSD)	Control Limits (%)	Action	Affected Samples
BH1 5-7	1002MJA1	soil	arsenic selenium	54/71 70/73	75-125 75-125	1 1	BH1 5-7 BH1 25-27 BH2 17-18 BH3 20-22 BG1 5-7

Action References: 1 - Detected results for the analyte have been 'J' qualified as estimated and the non-detected results for the analyte have been 'UJ' qualified as estimated reporting limits.

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MEMO FROM: Paul Anderson
DATE: January 23, 1997

Table 1

SAMPLE CROSS REFERENCE

C.O.C.	Client I.D.	Lab I.D.	Package I.D.	Matrix	Collection Date	Methods	Deviated Criteria
C3115	BH1 5-7	38766	AN961045	soil	9/23/96	Volatiles Semi-volatiles Metals	MB, BS none MS
C3115	BH1 25-27	38768	AN961045	soil	9/23/96	Volatiles Semi-volatiles Metals	MB, BS none MS
C3115	BH2 17-18	38770	AN961045	soil	9/23/96	Volatiles Semi-volatiles Metals	MB, BS none MS
C3115	BH3 20-22	38772	AN961045	soil	9/23/96	Volatiles Semi-volatiles Metals	MB, BS none MS
C3115	BG1 5-7	38774	AN961045	soil	9/23/96	Volatiles Semi-volatiles Metals	MB, BS none MS
C3017	BH1 3-5	55066	AN961368	soil	12/12/96	Volatiles Semi-volatiles Metals	MB, MS BS, MS none
C3017	BH1 10-12	55067	AN961368	soil	12/12/96	Volatiles Semi-volatiles Metals	MB, MS BS none
C3017	BH2 15-17	55068	AN961368	soil	12/12/96	Volatiles Semi-volatiles Metals	MB, MS BS none
C3017	BH3 13-15	55069	AN961368	soil	12/12/96	Volatiles Semi-volatiles Metals	MB, MS BS none

Method References: "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986, and it's updates, **(SW-846 / 8260,8270, 6010, 7060, 7740, 7471).**

Excursion References: MB - Method Blank
MS - Matrix Spike Recovery
BS - Blank Spike Recovery (Laboratory Control Sample)

			BH1	BH2
Client ID:		BH1-5-7	25-27	17-18
Zenon ID:		038766 96	038768 96	038770 96
Date Sampled:		96/09/23	96/09/23	96/09/23
Component	**MDL**	**Units**		
Volatiles via SW846 Method 8260				
Acetone	0.030	mg/kg	<0.12 U	< 0.27 U	< 0.17 U
Acrolein	0.010	"	<	<	<
Acrylonitrile	0.010	"	<	<	<
Benzene	0.005	"	<	<	<
Bromoform	0.010	"	<	<	<
Bromomethane	0.010	"	<	<	<
2-Butanone	0.015	"	<	<	<
Carbon Disulfide	0.010	"	<	<	<
Carbon Tetrachloride	0.010	"	<	<	<
Chlorobenzene	0.005	"	<	<	<
Chlorodibromomethane	0.005	"	<	<	<
Chloroethane	0.010	"	<	<	<
2-Chloroethylvinylether	0.010	"	<	<	<
Chloroform	0.005	"	<	<	<
Chloromethane	0.010	"	<	<	<
1,2-Dichlorobenzene	0.005	"	<	<	<
1,3-Dichlorobenzene	0.005	"	<	<	<
1,4-Dichlorobenzene	0.005	"	<	<	<
Dichlorobromomethane	0.005	"	<	<	<
1,1-Dichloroethane	0.005	"	<	<	<
1,2-Dichloroethane	0.005	"	<	<	<
1,1-Dichloroethene	0.010	"	<	<	<
cis-1,2-Dichloroethene	0.010	"	<	<	<
trans-1,2-Dichloroethene	0.010	"	<	<	<
1,2-Dichloropropane	0.005	"	<	<	<
cis-1,3-Dichloropropene	0.005	"	<	<	<
trans-1,3-Dichloropropene	0.005	"	<	<	<
Ethylbenzene	0.005	"	<	<	<
2-Hexanone	0.010	"	<	<	<
Methylene Chloride	0.010	"	<0.19 U	<0.21 U	<0.17 U
4-Methyl-2-Pentanone	0.010	"	<	<	<
Styrene	0.005	"	<	<	<
1,1,1,2-Tetrachloroethane	0.010	"	<	<	<
1,1,2,2-Tetrachloroethane	0.010	"	<	<	<
Tetrachloroethene	0.020	"	<	<	<
Toluene	0.005	"	<0.005 U	<0.007 U	<0.005 U
1,1,1-Trichloroethane	0.005	"	<	<	<
1,1,2-Trichloroethane	0.010	"	<	<	<
Trichloroethene	0.005	"	<	<	<
Vinyl Acetate	**0.010**	"	< UJ	< UJ	< UJ
Vinyl Chloride	0.010	"	<	<	<
Xylenes(Total)	0.005	"	<	<	<
Surrogate Recoveries		%			
d4-1,2-Dichloroethane			93	95	99
d8-Toluene			94	91	97
Bromofluorobenzene			95	95	97

PIA 1-29-97

				BH1	BH2
	Client ID:		BH1-5-7	25-27	17-18
	Zenon ID:		038766 96	038768 96	038770 96
	Date Sampled:		96/09/23	96/09/23	96/09/23
Component	**MDL**	**Units**			
Semi - volatiles via SW846 Method 8270					
Phenol	0.11	mg/kg	<0.22	<0.22	<0.22
Bis(2-chloroethyl)ether	0.18	"	<0.36	<0.36	<0.36
2-Chlorophenol	0.27	"	<0.54	<0.54	<0.54
1,3-Dichlorobenzene	0.20	"	<0.40	<0.40	<0.40
1-4-Dichlorobenzene	0.20	"	<0.40	<0.40	<0.40
1,2-Dichlorobenzene	0.20	"	<0.40	<0.40	<0.40
Bis(2-chloroisopropyl)ether	0.15	"	<0.30	<0.30	<0.30
Hexachloroethane	0.20	"	<0.40	<0.40	<0.40
N-Nitroso-di-N-Propylamine	0.21	"	<0.42	<0.42	<0.42
Nitrobenzene	0.20	"	<0.40	<0.40	<0.40
Isophorone	0.40	"	<0.80	<0.80	<0.80
2-Nitrophenol	0.14	"	<0.28	<0.28	<0.28
2,4-Dimethylphenol	0.17	"	<0.34	<0.34	<0.34
Bis(2-chloroethoxy)methane	0.13	"	<0.26	<0.26	<0.26
2,4-Dichlorophenol	0.12	"	<0.24	<0.24	<0.24
1,2,4-Trichlorobenzene	0.20	"	<0.40	<0.40	<0.40
Naphthalene	0.03	"	<0.06	<0.06	<0.06
Hexachlorobutadiene	0.20	"	<0.40	<0.40	<0.40
4-Chloro-3-Methylphenol	0.14	"	<0.28	<0.28	<0.28
Hexachlorocyclopentadiene	0.20	"	<0.40	<0.40	<0.40
2,4,6-Trichlorophenol	0.12	"	<0.24	<0.24	<0.24
2-Chloronaphthalene	0.09	"	<0.18	<0.18	<0.18
Acenaphthylene	0.04	"	<0.08	<0.08	<0.08
Dimethyl phthalate	0.11	"	<0.22	<0.22	<0.22
2,6-Dinitrotoluene	0.06	"	<0.12	<0.12	<0.12
Acenaphthene	0.07	"	<0.14	<0.14	<0.14
2,4-Dinitrophenol	0.48	"	<0.96	<0.96	<0.96
2,4-Dinitrotoluene	0.05	"	<0.10	<0.10	<0.10
4-Nitrophenol	0.14	"	<0.28	<0.28	<0.28
Fluorene	0.03	"	<0.06	<0.06	<0.06
4-Chlorophenylphenylether	0.09	"	<0.18	<0.18	<0.18
Diethyl phthalate	0.11	"	<0.22	<0.22	<0.22
4,6-Dinitro-2-methylphenol	0.15	"	<0.30	<0.30	<0.30
N-Nitrosodiphenylamine	0.19	"	<0.38	<0.38	<0.38
4-Bromophenylphenylether	0.03	"	<0.06	<0.06	<0.06
Hexachlorobenzene	0.20	"	<0.40	<0.40	<0.40
Pentachlorophenol	0.11	"	<0.22	<0.22	<0.22
Phenanthrene	0.03	"	<0.06	<0.06	<0.06
Anthracene	0.02	"	<0.04	<0.04	<0.04
Di-n-butyl phthalate	0.11	"	<0.22	<0.22	<0.22
Fluoranthene	0.02	"	<0.04	<0.04	<0.04
Pyrene	0.03	"	<0.06	<0.06	<0.06
Benzyl butyl phthalate	0.06	"	<0.12	<0.12	<0.12
3,3-Dichlorobenzidine	0.10	"	<0.20	<0.20	<0.20
Benzo(a)anthracene	0.02	"	<0.04	<0.04	<0.04
Chrysene	0.03	"	<0.06	<0.06	<0.06

				BH1	BH2
	Client ID:		BH1-5-7	25-27	17-18
	Zenon ID:		038766 96	038768 96	038770 96
	Date Sampled:		96/09/23	96/09/23	96/09/23
Component	MDL	Units			
Bis(2-ethylhexyl)phthalate	0.14	"	<0.28	<0.28	<0.28
Di-n-octyl phthalate	0.11	"	<0.22	<0.22	<0.22
Benzo(b)fluoranthene	0.04	"	<0.08	<0.08	<0.08
Benzo(k)fluoranthene	0.04	"	<0.08	<0.08	<0.08
Benzo(a)pyrene	0.05	"	<0.10	<0.10	<0.10
Indeno(1,2,3-cd)pyrene	0.06	"	<0.12	<0.12	<0.12
Dibenzo(a,h)anthracene	0.04	"	<0.08	<0.08	<0.08
Benzo(ghi)perylene	0.04	"	<0.08	<0.08	<0.08
N-Nitrosodimethylamine	1.0	"	<2.0	<2.0	<2.0
Aniline	0.50	"	<1.0	<1.0	<1.0
Benzyl alcohol	0.50	"	<1.0	<1.0	<1.0
Carbazole	0.50	"	<1.0	<1.0	<1.0
2-Methylphenol	0.50	"	<1.0	<1.0	<1.0
Benzoic acid	0.50	"	<1.0	<1.0	<1.0
4-Chloroaniline	0.50	"	<1.0	<1.0	<1.0
2-Methylnaphthalene	0.10	"	<0.20	<0.20	<0.20
2,4,5-Trichlorophenol	0.10	"	<0.20	<0.20	<0.20
2-Nitroaniline	0.50	"	<1.0	<1.0	<1.0
3-Nitroaniline	0.50	"	<1.0	<1.0	<1.0
Dibenzofuran	0.50	"	<1.0	<1.0	<1.0
Benzidine	0.50	"	<1.0	<1.0	<1.0
4-Nitroaniline	0.50	"	<1.0	<1.0	<1.0
Surrogate Recoveries		%			
2-Fluorophenol			47	73	52
d5-Phenol			66	107	73
d5-Nitrobenzene			60	100	60
2-Fluorobiphenyl			65	101	79
2,4,6-Tribromophenol			69	103	72
d14-p-Terphenyl			83	128	82

			BH3	↓
	Client ID:		20-22	BG1-5-7
	Zenon ID:		038772 96	038774 96
	Date Sampled:		96/09/23	96/09/23
Component	**MDL**	**Units**		
Volatiles via SW846 Method 8260				
Acetone	0.030	mg/kg	< 0.070 U	< 0.072 U
Acrolein	0.010	"	<	<
Acrylonitrile	0.010	"	<	<
Benzene	0.005	"	<	<
Bromoform	0.010	"	<	<
Bromomethane	0.010	"	<	<
2-Butanone	0.015	"	<	<
Carbon Disulfide	0.010	"	<	<
Carbon Tetrachloride	0.010	"	<	<
Chlorobenzene	0.005	"	<	<
Chlorodibromomethane	0.005	"	<	<
Chloroethane	0.010	"	<	<
2-Chloroethylvinylether	0.010	"	<	<
Chloroform	0.005	"	<	<
Chloromethane	0.010	"	<	<
1,2-Dichlorobenzene	0.005	"	<	<
1,3-Dichlorobenzene	0.005	"	<	<
1,4-Dichlorobenzene	0.005	"	<	0.008
Dichlorobromomethane	0.005	"	<	<
1,1-Dichloroethane	0.005	"	<	<
1,2-Dichloroethane	0.005	"	<	<
1,1-Dichloroethene	0.010	"	<	<
cis-1,2-Dichloroethene	0.010	"	<	<
trans-1,2-Dichloroethene	0.010	"	<	<
1,2-Dichloropropane	0.005	"	<	<
cis-1,3-Dichloropropene	0.005	"	<	<
trans-1,3-Dichloropropene	0.005	"	<	<
Ethylbenzene	0.005	"	<	<
2-Hexanone	0.010	"	<	<
Methylene Chloride	0.010	"	< 0.18 U	< 0.091 U
4-Methyl-2-Pentanone	0.010	"	<	<
Styrene	0.005	"	<	<
1,1,1,2-Tetrachloroethane	0.010	"	<	<
1,1,2,2-Tetrachloroethane	0.010	"	<	<
Tetrachloroethene	0.020	"	<	<
Toluene	0.005	"	<	< 0.005 U
1,1,1-Trichloroethane	0.005	"	<	<
1,1,2-Trichloroethane	0.010	"	<	<
Trichloroethene	0.005	"	<	<
Vinyl Acetate	**0.010**	"	< UJ	< UJ
Vinyl Chloride	0.010	"	<	<
Xylenes(Total)	0.005	"	<	0.005
Surrogate Recoveries		%		
d4-1,2-Dichloroethane			103	99
d8-Toluene			103	100
Bromofluorobenzene			100	96

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			BH3	
	Client ID:		20-22	BG1-5-7
	Zenon ID:		038772 96	038774 96
	Date Sampled:		96/09/23	96/09/23
Component	**MDL**	**Units**		
Semi - volatiles via SW846 Method 8270				
Phenol	0.11	mg/kg	<0.22	<0.22
Bis(2-chloroethyl)ether	0.18	"	<0.36	<0.36
2-Chlorophenol	0.27	"	<0.54	<0.54
1,3-Dichlorobenzene	0.20	"	<0.40	<0.40
1-4-Dichlorobenzene	0.20	"	<0.40	<0.40
1,2-Dichlorobenzene	0.20	"	<0.40	<0.40
Bis(2-chloroisopropyl)ether	0.15	"	<0.30	<0.30
Hexachloroethane	0.20	"	<0.40	<0.40
N-Nitroso-di-N-Propylamine	0.21	"	<0.42	<0.42
Nitrobenzene	0.20	"	<0.40	<0.40
Isophorone	0.40	"	<0.80	<0.80
2-Nitrophenol	0.14	"	<0.28	<0.28
2,4-Dimethylphenol	0.17	"	<0.34	<0.34
Bis(2-chloroethoxy)methane	0.13	"	<0.26	<0.26
2,4-Dichlorophenol	0.12	"	<0.24	<0.24
1,2,4-Trichlorobenzene	0.20	"	<0.40	<0.40
Naphthalene	0.03	"	<0.06	<0.06
Hexachlorobutadiene	0.20	"	<0.40	<0.40
4-Chloro-3-Methylphenol	0.14	"	<0.28	<0.28
Hexachlorocyclopentadiene	0.20	"	<0.40	<0.40
2,4,6-Trichlorophenol	0.12	"	<0.24	<0.24
2-Chloronaphthalene	0.09	"	<0.18	<0.18
Acenaphthylene	0.04	"	<0.08	<0.08
Dimethyl phthalate	0.11	"	<0.22	<0.22
2,6-Dinitrotoluene	0.06	"	<0.12	<0.12
Acenaphthene	0.07	"	<0.14	<0.14
2,4-Dinitrophenol	0.48	"	<0.96	<0.96
2,4-Dinitrotoluene	0.05	"	<0.10	<0.10
4-Nitrophenol	0.14	"	<0.28	<0.28
Fluorene	0.03	"	<0.06	<0.06
4-Chlorophenylphenylether	0.09	"	<0.18	<0.18
Diethyl phthalate	0.11	"	<0.22	<0.22
4,6-Dinitro-2-methylphenol	0.15	"	<0.30	<0.30
N-Nitrosodiphenylamine	0.19	"	<0.38	<0.38
4-Bromophenylphenylether	0.03	"	<0.06	<0.06
Hexachlorobenzene	0.20	"	<0.40	<0.40
Pentachlorophenol	0.11	"	<0.22	<0.22
Phenanthrene	0.03	"	<0.06	<0.06
Anthracene	0.02	"	<0.04	<0.04
Di-n-butyl phthalate	0.11	"	<0.22	<0.22
Fluoranthene	0.02	"	<0.04	<0.04
Pyrene	0.03	"	<0.06	<0.06
Benzyl butyl phthalate	0.06	"	<0.12	<0.12
3,3-Dichlorobenzidine	0.10	"	<0.20	<0.20
Benzo(a)anthracene	0.02	"	<0.04	<0.04
Chrysene	0.03	"	<0.06	<0.06

			BH3	
	Client ID:		20-22	BG1-5-7
	Zenon ID:		038772 96	038774 96
	Date Sampled:		96/09/23	96/09/23
Component	MDL	Units		
Bis(2-ethylhexyl)phthalate	0.14	"	<0.28	<0.28
Di-n-octyl phthalate	0.11	"	<0.22	<0.22
Benzo(b)fluoranthene	0.04	"	<0.08	<0.08
Benzo(k)fluoranthene	0.04	"	<0.08	<0.08
Benzo(a)pyrene	0.05	"	<0.10	<0.10
Indeno(1,2,3-cd)pyrene	0.06	"	<0.12	<0.12
Dibenzo(a,h)anthracene	0.04	"	<0.08	<0.08
Benzo(ghi)perylene	0.04	"	<0.08	<0.08
N-Nitrosodimethylamine	1.0	"	<2.0	<2.0
Aniline	0.50	"	<1.0	<1.0
Benzyl alcohol	0.50	"	<1.0	<1.0
Carbazole	0.50	"	<1.0	<1.0
2-Methylphenol	0.50	"	<1.0	<1.0
Benzoic acid	0.50	"	<1.0	<1.0
4-Chloroaniline	0.50	"	<1.0	<1.0
2-Methylnaphthalene	0.10	"	<0.20	<0.20
2,4,5-Trichlorophenol	0.10	"	<0.20	<0.20
2-Nitroaniline	0.50	"	<1.0	<1.0
3-Nitroaniline	0.50	"	<1.0	<1.0
Dibenzofuran	0.50	"	<1.0	<1.0
Benzidine	0.50	"	<1.0	<1.0
4-Nitroaniline	0.50	"	<1.0	<1.0
Surrogate Recoveries		%		
2-Fluorophenol			47	53
d5-Phenol			67	72
d5-Nitrobenzene			59	67
2-Fluorobiphenyl			65	71
2,4,6-Tribromophenol			68	62
d14-p-Terphenyl			82	82

Batch Code:	**0925SPA1**	**0925SPA1**	**0925SPA1**	**0925SPA1**	**0925SPA1**
pH	038766 96	038768 96	038770 96	038772 96	038774 96
Date analyzed	96/09/26	96/09/26	96/09/26	96/09/26	96/09/26
Date prepared	96/09/25	96/09/25	96/09/25	96/09/25	96/09/25

Batch Code:	**1002MJA1**
Arsenic (gfaa)	038764 96
	038766 96
	038768 96
	038770 96
	038772 96
	038774 96
Date analyzed	96/10/03
Date prepared	96/10/02

Batch Code:	**1001MGA1**
Mercury	038764 96
	038766 96
	038768 96
	038770 96
	038772 96
	038774 96
Date analyzed	96/10/02
Date prepared	96/10/01

Batch Code:	**1002MJA1**
Selenium (gfaa)	038764 96
	038766 96
	038768 96
	038770 96
	038772 96
	038774 96
Date analyzed	96/10/04
Date prepared	96/10/02

Batch Code:	**1002MJA1**
Metals	038764 96
	038766 96
	038768 96
	038770 96
	038772 96
	038774 96
Date analyzed	96/10/02
Date prepared	96/10/02

Batch Code:	**1002SM02**	**1005SM02**
Volatiles	038764 96	038774 96
	038766 96	
	038768 96	

Need blank data
Listed w/ 1002SM02 batch
Removed in per L.C.
pgh 1-17-97
Received 1-17-97

	038770 96	
	038772 96	
Date analyzed	96/10/02	96/10/05
Date prepared	96/10/02	96/10/05
Batch Code:	**0925PB01**	
Semi-volatiles	038764 96	
	038766 96	
	038768 96	
	038770 96	
	038772 96	
	038774 96	
Date analyzed	96/09/27	
Date prepared	96/09/25	

ZENON LABORATORIES

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Certificate of Analysis

CLIENT INFORMATION		LABORATORY INFORMATION	
Attention:	Cory Chance	**Contact:**	Ada Blythe, B.Sc., C.Chem.
Client Name:	Philip Environmental Inc.	**Project:**	AN961045
Project:	16766	**Date Received:**	96/09/24
Project Desc:	WFS Milagro	**Date Reported:**	96/10/09
Address:	4000 Monroe Road Farmington, NM 87401	**Submission No.:**	6I0684
		Sample No.:	038764-038774
Fax Number:	505 326-2388		
Phone Number:	505 326-2262		

NOTES: *"-" = not analysed '<' = less than Method Detection Limit (MDL) 'NA' = no data available*
LOQ can by determined for all analytes by multiplying the appropriate MDL X 3.33
Solids data is based on dry weights except for biota analyses.
Organic analyses are not corrected for extraction recovery standards except for isotope dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by Zenon are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Seventeenth Edition. Other methods are based on the principles of MISA or EPA methodologies.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at Zenon for a period of three weeks from receipt of data or as per contract.

COMMENTS:
"NR" Not recovered. Vinyl acetate recoveries are low, likely due to the fact that the samples sat at room temperature for several hours and the compound had degraded.
"*"Matrix interference suspected

Some blank spike recoveries are high for volatiles. We are checking the reference solution. This will have no impact on the volatiles sample data.

For Lead and Chromium, the detection limits were raised by a factor of two in the samples. This occurs because the samples need to be "matrix matched" to the standards. The digested sample is in a 20% Nitric acid matrix, whereas the standards are in 10% Nitric acid. Therefore, the sample is brought to a final concentration of 10% Nitric acid (via a two fold dilution) resulting in a two-fold increase in the detection limit.

Certified by: Ada Blythe

Additional comments regarding samples 038764-038774

All of the samples analysed for semi-volatiles were cleaned up using Gel Permeation Chromatography (GPC). The nature of GPC clean-up involves taking an extract at 10 mL final volume and injecting this extract into the GPC to clean out any interferences in the sample by employing the use of gel permeation chromatography. Half of that extract is lost in the GPC (ie. 5mLs) to flush the system and avoid cross contamination from the previous sample. The final volume after the GPC is performed is the same as the initial volume (ie. 10 mLs) due to dilution from solvents in the GPC procedure. Therefore, half of the extract is taken to the same initial volume (ie. 10 mLs) which results in a two-fold increase in the detection limit

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			Method	Blank	Blank				
	Client ID:		Blank	Spike 1	Spike 1	BH1-5-7	BH1-5-7	BH1-5-7	BH1-5-7
	Zenon ID:		038764 96	038764 96	038764 96	038766 96	038766 96	038766 96	038766 96
	Date Sampled:		96/09/23	96/09/23	96/09/23	96/09/23	96/09/23	96/09/23	96/09/23
Component	**MDL**	**Units**			% Recovery		Duplicate	M. Spike	MS % Rec.
Arsenic (gfaa)via Method 7060	0.5	mg/kg	<	4.1	83	1.4 J	1.4 J	4.1	54*
Mercury via Method 7471	0.04	"	<	0.98	98	<	<	0.98	98
Selenium (gfaa) via Method 7740	0.5	"	<	4.4	88	< 0.5 J	< 0.5 J	3.6	70
Metals via SW846 Method 6010									
Barium	0.1	mg/kg	<	100	100	74	66	270	100
Cadmium	0.2	"	<	50	100	0.4	<0.4	100	100
Chromium	5	"	<	110	110	<10	<10	210	110
Lead	10	"	<	100	100	<20	<20	210	110
Silver	0.5	"	<	52	100	<1.0	<1.0	100	100

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Component	MDL	Units	BH1-5-7 MS Dup	BH1-5-7 MSD % Rec.	BH1 25-27	BH2 17-18	BH3 20-22	BG1-5-7
Client ID:			BH1-5-7	BH1-5-7	25-27	17-18	20-22	BG1-5-7
Zenon ID:			038766 96	038766 96	038768 96	038770 96	038772 96	038774 96
Date Sampled:			96/09/23	96/09/23	96/09/23	96/09/23	96/09/23	96/09/23
					(1)	(1)	(1)	(1)
Arsenic (gfaa)via Method 7060	0.5	mg/kg	5.0	71*	1.3 J	1.2 J	1.2 J	2.2 J
Mercury via Method 7471	0.04	"	0.99	99	<	<	<	<
Selenium (gfaa) via Method 7740	0.5	"	3.8	73	< UJ	< UJ	< UJ	< UJ
Metals via SW846 Method 6010								
Barium	0.1	mg/kg	270	98	96	110	160	140
Cadmium	0.2	"	98	98	0.5	<0.4	0.4	<0.4
Chromium	5	"	210	100	9.0	<10	<10	<10
Lead	10	"	210	100	<20	<20	<20	<20
Silver	0.5	"	98	98	<1.0	<1.0	<1.0	<1.0

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Zenon Environmental Laboratories - Certificate of Analysis

			Method Blank	Blank Spike 1	Blank Spike 1	Blank Spike 2	Blank Spike 2
Client ID:							
Zenon ID:			038764 96	038764 96	038764 96	038764 96	038764 96
Date Sampled:			96/09/23	96/09/23	96/09/23	96/09/23	96/09/23
Component	MDL	Units			% Recovery		% Recovery
Volatiles via SW846 Method 8260							
Acetone	0.030	mg/kg	0.052	0.50	170	-	-
Acrolein	0.010	"	<	0.93	190	-	-
Acrylonitrile	0.010	"	<	0.56	110	-	-
Benzene	0.005	"	<	0.24	98	-	-
Bromoform	0.010	"	<	0.24	94	-	-
Bromomethane	0.010	"	<	0.25	100	-	-
2-Butanone	0.015	"	<	0.47	190	-	-
Carbon Disulfide	0.010	"	<	0.35	140	-	-
Carbon Tetrachloride	0.010	"	<	0.23	93	-	-
Chlorobenzene	0.005	"	<	0.23	92	-	-
Chlorodibromomethane	0.005	"	<	0.24	96	-	-
Chloroethane	0.010	"	<	0.25	98	-	-
2-Chloroethylvinylether	0.010	"	<	0.24	97	-	-
Chloroform	0.005	"	<	0.24	98	-	-
Chloromethane	0.010	"	<	0.27	110	-	-
1,2-Dichlorobenzene	0.005	"	<	0.21	84	-	-
1,3-Dichlorobenzene	0.005	"	<	0.21	85	-	-
1,4-Dichlorobenzene	0.005	"	<	0.21	84	-	-
Dichlorobromomethane	0.005	"	<	0.24	94	-	-
1,1-Dichloroethane	0.005	"	<	0.25	99	-	-
1,2-Dichloroethane	0.005	"	<	0.23	92	-	-
1,1-Dichloroethene	0.010	"	<	0.37	150	-	-
cis-1,2-Dichloroethene	0.010	"	<	0.24	96	-	-
trans-1,2-Dichloroethene	0.010	"	<	0.35	140	-	-
1,2-Dichloropropane	0.005	"	<	0.23	94	-	-
cis-1,3-Dichloropropene	0.005	"	<	0.28	110	-	-
trans-1,3-Dichloropropene	0.005	"	<	0.25	98	-	-
Ethylbenzene	0.005	"	<	0.24	95	-	-
2-Hexanone	0.010	"	<	0.32	130	-	-
Methylene Chloride	0.010	"	0.21	0.53	120	-	-
4-Methyl-2-Pentanone	0.010	"	<	0.22	89	-	-
Styrene	0.005	"	<	0.24	97	-	-
1,1,1,2-Tetrachloroethane	0.010	"	<	0.23	90	-	-
1,1,2,2-Tetrachloroethane	0.010	"	<	0.21	82	-	-
Tetrachloroethene	0.020	"	<	0.21	86	-	-
Toluene	0.005	"	0.006	0.24	97	-	-
1,1,1-Trichloroethane	0.005	"	<	0.23	93	-	-
1,1,2-Trichloroethane	0.010	"	<	0.23	94	-	-
Trichloroethene	0.005	"	<	0.24	95	-	-
Vinyl Acetate	**0.010**	"	<	**0.19**	76	-	-
Vinyl Chloride	0.010	"	<	0.29	110	-	-
Xylenes(Total)	0.005	"	<	0.50	100	-	-
Surrogate Recoveries		%					
d4-1,2-Dichloroethane			93	102	102	-	-
d8-Toluene			98	100	100	-	-
Bromofluorobenzene			96	98	98	-	-

			Method	Blank	Blank	Blank	Blank
	Client ID:		Blank	Spike 1	Spike 1	Spike 2	Spike 2
	Zenon ID:		038764 96	038764 96	038764 96	038764 96	038764 96
	Date Sampled:		96/09/23	96/09/23	96/09/23	96/09/23	96/09/23
Component	MDL	Units			% Recovery		% Recovery
Semi - volatiles via SW846 Method 8270							
Phenol	0.11	mg/kg	<0.22	4.4	44	7.0	70
Bis(2-chloroethyl)ether	0.18	"	<0.36	-	-	-	-
2-Chlorophenol	0.27	"	<0.54	4.5	45	7.1	71
1,3-Dichlorobenzene	0.20	"	<0.40	-	-	-	-
1-4-Dichlorobenzene	0.20	"	<0.40	2.0	41	2.8	57
1,2-Dichlorobenzene	0.20	"	<0.40	-	-	-	-
Bis(2-chloroisopropyl)ether	0.15	"	<0.30	-	-	-	-
Hexachloroethane	0.20	"	<0.40	-	-	-	-
N-Nitroso-di-N-Propylamine	0.21	"	<0.42	2.1	43	3.4	68
Nitrobenzene	0.20	"	<0.40	-	-	-	-
Isophorone	0.40	"	<0.80	-	-	-	-
2-Nitrophenol	0.14	"	<0.28	-	-	-	-
2,4-Dimethylphenol	0.17	"	<0.34	-	-	-	-
Bis(2-chloroethoxy)methane	0.13	"	<0.26	-	-	-	-
2,4-Dichlorophenol	0.12	"	<0.24	-	-	-	-
1,2,4-Trichlorobenzene	0.20	"	<0.40	2.2	45	3.2	64
Naphthalene	0.03	"	<0.06	-	-	-	-
Hexachlorobutadiene	0.20	"	<0.40	-	-	-	-
4-Chloro-3-Methylphenol	0.14	"	<0.28	4.2	42	7.0	70
Hexachlorocyclopentadiene	0.20	"	<0.40	-	-	-	-
2,4,6-Trichlorophenol	0.12	"	<0.24	-	-	-	-
2-Chloronaphthalene	0.09	"	<0.18	-	-	-	-
Acenaphthylene	0.04	"	<0.08	-	-	-	-
Dimethyl phthalate	0.11	"	<0.22	-	-	-	-
2,6-Dinitrotoluene	0.06	"	<0.12	-	-	-	-
Acenaphthene	0.07	"	<0.14	2.4	47	3.7	74
2,4-Dinitrophenol	0.48	"	<0.96	-	-	-	-
2,4-Dinitrotoluene	0.05	"	<0.10	1.8	37	3.3	66
4-Nitrophenol	0.14	"	<0.28	3.5	35	5.7	57
Fluorene	0.03	"	<0.06	-	-	-	-
4-Chlorophenylphenylether	0.09	"	<0.18	-	-	-	-
Diethyl phthalate	0.11	"	<0.22	-	-	-	-
4,6-Dinitro-2-methylphenol	0.15	"	<0.30	-	-	-	-
N-Nitrosodiphenylamine	0.19	"	<0.38	-	-	-	-
4-Bromophenylphenylether	0.03	"	<0.06	-	-	-	-
Hexachlorobenzene	0.20	"	<0.40	-	-	-	-
Pentachlorophenol	0.11	"	<0.22	4.1	41	7.3	73
Phenanthrene	0.03	"	<0.06	-	-	-	-
Anthracene	0.02	"	<0.04	-	-	-	-
Di-n-butyl phthalate	0.11	"	<0.22	-	-	-	-
Fluoranthene	0.02	"	<0.04	-	-	-	-
Pyrene	0.03	"	<0.06	2.8	56	4.0	80
Benzyl butyl phthalate	0.06	"	<0.12	-	-	-	-
3,3-Dichlorobenzidine	0.10	"	<0.20	-	-	-	-
Benzo(a)anthracene	0.02	"	<0.04	-	-	-	-
Chrysene	0.03	"	<0.06	-	-	-	-

			Method	Blank	Blank	Blank	Blank
	Client ID:		Blank	Spike 1	Spike 1	Spike 2	Spike 2
	Zenon ID:		038764 96	038764 96	038764 96	038764 96	038764 96
	Date Sampled:		96/09/23	96/09/23	96/09/23	96/09/23	96/09/23
Component	MDL	Units			% Recovery		% Recovery
Bis(2-ethylhexyl)phthalate	0.14	"	<0.28	-	-	-	-
Di-n-octyl phthalate	0.11	"	<0.22	-	-	-	-
Benzo(b)fluoranthene	0.04	"	<0.08	-	-	-	-
Benzo(k)fluoranthene	0.04	"	<0.08	-	-	-	-
Benzo(a)pyrene	0.05	"	<0.10	-	-	-	-
Indeno(1,2,3-cd)pyrene	0.06	"	<0.12	-	-	-	-
Dibenzo(a,h)anthracene	0.04	"	<0.08	-	-	-	-
Benzo(ghi)perylene	0.04	"	<0.08	-	-	-	-
N-Nitrosodimethylamine	1.0	"	<2.0	-	-	-	-
Aniline	0.50	"	<1.0	-	-	-	-
Benzyl alcohol	0.50	"	<1.0	-	-	-	-
Carbazole	0.50	"	<1.0	-	-	-	-
2-Methylphenol	0.50	"	<1.0	-	-	-	-
Benzoic acid	0.50	"	<1.0	-	-	-	-
4-Chloroaniline	0.50	"	<1.0	-	-	-	-
2-Methylnaphthalene	0.10	"	<0.20	-	-	-	-
2,4,5-Trichlorophenol	0.10	"	<0.20	-	-	-	-
2-Nitroaniline	0.50	"	<1.0	-	-	-	-
3-Nitroaniline	0.50	"	<1.0	-	-	-	-
Dibenzofuran	0.50	"	<1.0	-	-	-	-
Benzidine	0.50	"	<1.0	-	-	-	-
4-Nitroaniline	0.50	"	<1.0	-	-	-	-
Surrogate Recoveries		%					
2-Fluorophenol			29	42	42	52	52
d5-Phenol			55	45	45	72	72
d5-Nitrobenzene			43	40	40	61	61
2-Fluorobiphenyl			65	46	46	71	71
2,4,6-Tribromophenol			66	46	46	73	73
d14-p-Terphenyl			74	70	70	83	83

ZENON LABORATORIES

5555 North Service Road
Burlington, Ontario, Canada L7L 5H7
Tel: (905) 332-8788
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Certificate of Analysis

CLIENT INFORMATION

Attention:	Cory Chance
Client Name:	Philip Environmental Inc.
Project:	17039
Project Desc:	WFS Septic Leach Field
Address:	4000 Monroe Road Farmington, NM 87401
Fax Number:	505 326-2388
Phone Number:	505 326-2262

LABORATORY INFORMATION

Contact:	Ada Blythe, B.Sc., C.Chem.
Project:	AN961368
Date Received:	96/12/13
Date Reported:	97/01/17
Submission No.:	6L0416
Sample No.:	055065-055069

NOTES: *"-' = not analysed '<' = less than Method Detection Limit (MDL) 'NA' = no data available*
LOQ can by determined for all analytes by multiplying the appropriate MDL X 3.33
Solids data is based on dry weight except for biota analyses.
Organic analyses are not corrected for extraction recovery standards except for isotope dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by Zenon are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Seventeenth Edition. Other methods are based on the principles of MISA or EPA methodologies.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at Zenon for a period of three weeks from receipt of data or as per contract.

COMMENTS:
NR =1,4-dichlorobenzene was not recovered. There were low recoveries of this compound throughout the submission. This is likely due to the volatility of this compound.
1,2,4-trichlorobenzene also had low recoveries. Again, this loss is likely due to volatility and slightly more rigorous treatment of the sample.

Certified by:

			Method	Blank	Blank		BH1	BH2	BH3
Client ID:			Blank	Spike 1	Spike 1	BH1-3-5	10-12	15-17	13-15
Zenon ID:			055065 96	055065 96	055065 96	055066 96	055067 96	055068 96	055069 96
Date Sampled:			96/12/12	96/12/12	96/12/12	96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**			%Recovery				
Mercury via SW846 Method 7471									
Mercury	0.04	mg/kg	<	0.99	99	<	<	<	<
Metals via SW846 Method 6010									
Arsenic	5.0	mg/kg	<10	96	94	<10	<10	<10	<10
Selenium	10	"	<20	100	92	<20	<20	<20	<20
Barium	0.1	"	<0.2	200	98	280	130	190	150
Cadmium	0.2	"	<0.4	94	93	<0.4	<0.4	<0.4	<0.4
Chromium	5	"	<10	200	99	<10	<10	<10	<10
Lead	10	"	<20	200	99	<20	<20	<20	<20
Silver	0.5	"	<1.0	96	96	<1.0	<1.0	<1.0	<1.0

			Method	Blank	Blank		BH1	BH2
Client ID:			Blank	Spike 1	Spike 1	BH1-3-5	10-12	15-17
Zenon ID:			055065 96	055065 96	055065 96	055066 96	055067 96	055068 96
Date Sampled:			96/12/12	96/12/12	96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**			%Recovery			
Volatiles via SW846 Method 8260								
Acetone	0.030	mg/kg	0.17	0.39	160	< 0.18 U	< 0.15 U	< 0.14 U
Acrolein	0.010	"	<	0.68	140	<	<	<
Acrylonitrile	0.010	"	<	0.46	92	<	<	<
Benzene	0.005	"	<	0.23	94	<	<	<
Bromoform	0.010	"	<	0.26	100	<	<	<
Bromomethane	0.010	"	<	0.35	140	<	<	<
2-Butanone	0.015	"	<	0.23	92	<	<	<
Carbon Disulfide	0.010	"	<	0.25	98	<	<	<
Carbon Tetrachloride	0.010	"	<	0.25	100	<	<	<
Chlorobenzene	0.005	"	<	0.24	97	<	<	<
Chlorodibromomethane	0.005	"	<	0.25	100	<	<	<
Chloroethane	0.010	"	<	0.25	100	<	<	<
2-Chloroethylvinylether	0.010	"	<	0.22	89	<	<	<
Chloroform	0.005	"	<	0.24	94	<	<	<
Chloromethane	0.010	"	<	0.28	110	<	<	<
1,2-Dichlorobenzene	0.005	"	<	0.25	99	<	<	<
1,3-Dichlorobenzene	0.005	"	<	0.25	100	<	<	<
1,4-Dichlorobenzene	0.005	"	<	0.26	100	0.005	<	<
Dichlorobromomethane	0.005	"	<	0.25	100	<	<	<
1,1-Dichloroethane	0.005	"	<	0.25	100	<	<	<
1,2-Dichloroethane	0.005	"	<	0.23	92	<	<	<
1,1-Dichloroethene	0.010	"	<	0.25	100	<	<	<
cis-1,2-Dichloroethene	0.010	"	<	0.23	92	<	<	<
trans-1,2-Dichloroethene	0.010	"	<	0.25	99	<	<	<
1,2-Dichloropropane	0.005	"	<	0.23	91	<	<	<
cis-1,3-Dichloropropene	0.005	"	<	0.24	95	<	<	<
trans-1,3-Dichloropropene	0.005	"	<	0.24	97	<	<	<
Ethylbenzene	0.005	"	<	0.24	97	<	<	<
2-Hexanone	0.010	"	<	0.22	88	<	<	<
Methylene Chloride	0.010	"	0.020	0.23	93	< 0.039 U	< 0.034 U	< 0.029 U
4-Methyl-2-Pentanone	0.010	"	<	0.22	88	<	<	<
Styrene	0.005	"	<	0.24	98	<	<	<
1,1,1,2-Tetrachloroethane	0.010	"	<	0.25	100	<	<	<
1,1,2,2-Tetrachloroethane	0.010	"	<	0.23	94	<	<	<
Tetrachloroethene	0.020	"	<	0.26	100	<	<	<
Toluene	0.005	"	<	0.24	96	0.005	<	<
1,1,1-Trichloroethane	0.005	"	<	0.25	99	<	<	<
1,1,2-Trichloroethane	0.010	"	<	0.24	97	<	<	<
Trichloroethene	0.005	"	<	0.24	97	<	<	<
Vinyl Acetate	0.010	"	<	0.28	110	<	<	<
Vinyl Chloride	0.010	"	<	0.24	96	<	<	<
Xylenes(Total)	0.005	"	<	0.71	94	<	<	<
Surrogate Recoveries		%						
d4-1,2-Dichloroethane			95	98	98	97	103	98
d8-Toluene			98	98	98	99	94	98
Bromofluorobenzene			95	112	112	95	95	91

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			BH3	BH3	BH3	BH3	BH3
	Client ID:		13-15	13-15	13-15	13-15	13-15
	Zenon ID:		055069 96	055069 96	055069 96	055069 96	055069 96
	Date Sampled:		96/12/12	96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**		M. Spike	MS % Rec.	MS Dup	MSD % Rec.
Volatiles via SW846 Method 8260							
Acetone	0.030	mg/kg	< 0.12 U	0.41	160	0.33	130
Acrolein	0.010	"	<	0.42	83	0.36	73
Acrylonitrile	0.010	"	<	0.40	80	0.39	78
Benzene	0.005	"	<	0.23	94	0.23	92
Bromoform	0.010	"	<	0.26	110	0.26	100
Bromomethane	0.010	"	<	0.29	120	0.29	120
2-Butanone	0.015	"	<	0.21	83	0.19	75
Carbon Disulfide	0.010	"	<	0.22	88	0.20	82
Carbon Tetrachloride	0.010	"	<	0.26	110	0.26	100
Chlorobenzene	0.005	"	<	0.23	91	0.23	92
Chlorodibromomethane	0.005	"	<	0.25	100	0.25	100
Chloroethane	0.010	"	<	0.27	110	0.25	98
2-Chloroethylvinylether	0.010	"	<	0.16	64	0.15	60
Chloroform	0.005	"	<	0.24	95	0.23	91
Chloromethane	0.010	"	<	0.27	110	0.24	94
1,2-Dichlorobenzene	0.005	"	<	0.24	94	0.23	91
1,3-Dichlorobenzene	0.005	"	<	0.22	88	0.21	86
1,4-Dichlorobenzene	0.005	"	<	0.22	87	0.22	88
Dichlorobromomethane	0.005	"	<	0.25	100	0.25	100
1,1-Dichloroethane	0.005	"	<	0.23	93	0.22	90
1,2-Dichloroethane	0.005	"	<	0.24	97	0.23	91
1,1-Dichloroethene	0.010	"	<	0.24	97	0.22	89
cis-1,2-Dichloroethene	0.010	"	<	0.22	89	0.21	85
trans-1,2-Dichloroethene	0.010	"	<	0.22	88	0.21	84
1,2-Dichloropropane	0.005	"	<	0.23	92	0.24	97
cis-1,3-Dichloropropene	0.005	"	<	0.23	90	0.23	92
trans-1,3-Dichloropropene	0.005	"	<	0.22	89	0.23	94
Ethylbenzene	0.005	"	<	0.23	91	0.23	90
2-Hexanone	0.010	"	<	0.18	73	0.18	70
Methylene Chloride	0.010	"	< 0.033 U	0.25	99	0.24	95
4-Methyl-2-Pentanone	0.010	"	<	0.20	80	0.19	77
Styrene	0.005	"	<	0.22	88	0.22	89
1,1,1,2-Tetrachloroethane	0.010	"	<	0.26	100	0.26	100
1,1,2,2-Tetrachloroethane	0.010	"	<	0.15	61	0.14	57
Tetrachloroethene	0.020	"	<	0.24	97	0.25	99
Toluene	0.005	"	<	0.23	94	0.24	95
1,1,1-Trichloroethane	0.005	"	<	0.25	100	0.25	100
1,1,2-Trichloroethane	0.010	"	<	0.23	94	0.23	93
Trichloroethene	0.005	"	<	0.31	130	0.31	120
Vinyl Acetate	0.010	"	< UJ	0.10	41	0.072	28
Vinyl Chloride	0.010	"	<	0.24	95	0.21	84
Xylenes(Total)	0.005	"	<	0.68	91	0.68	90
Surrogate Recoveries		%					
d4-1,2-Dichloroethane			99	99	99	95	95
d8-Toluene			95	99	99	101	101
Bromofluorobenzene			92	108	108	100	100

MA 1-23-97

			Method	Blank	Blank	Blank	Blank
Client ID:			Blank	Spike 1	Spike 1	Spike 2	Spike 2
Zenon ID:			055065 96	055065 96	055065 96	055065 96	055065 96
Date Sampled:			96/12/12	96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**			%Recovery		%Recovery
Semi-Volatiles via SW846 Method 8270							
Phenol	0.11	mg/kg	<0.22	39	39	52	52
Bis(2-chloroethyl)ether	0.18	"	<0.36	-	-	-	-
2-Chlorophenol	0.27	"	<0.54	19	19	31	31
1,3-Dichlorobenzene	0.20	"	<0.40	-	-	-	-
1-4-Dichlorobenzene	0.20	"	<0.40	NR	NR	0.54	1.0
1,2-Dichlorobenzene	0.20	"	<0.40	-	-	-	-
Bis(2-chloroisopropyl)ether	0.15	"	<0.30	-	-	-	-
Hexachloroethane	0.20	"	<0.40	-	-	-	-
N-Nitroso-di-N-Propylamine	0.21	"	<0.42	27	54	32	64
Nitrobenzene	0.20	"	<0.40	-	-	-	-
Isophorone	0.40	"	<0.80	-	-	-	-
2-Nitrophenol	0.14	"	<0.28	-	-	-	-
2,4-Dimethylphenol	0.17	"	<0.34	-	-	-	-
Bis(2-chloroethoxy)methane	0.13	"	<0.26	-	-	-	-
2,4-Dichlorophenol	0.12	"	<0.24	-	-	-	-
1,2,4-Trichlorobenzene	0.20	"	<0.40	1.8	4.0	8.3	17
Naphthalene	0.03	"	<0.06	-	-	-	-
Hexachlorobutadiene	0.20	"	<0.40	-	-	-	-
4-Chloro-3-Methylphenol	0.14	"	<0.28	58	58	64	64
Hexachlorocyclopentadiene	0.20	"	<0.40	-	-	-	-
2,4,6-Trichlorophenol	0.12	"	<0.24	-	-	-	-
2-Chloronaphthalene	0.09	"	<0.18	-	-	-	-
Acenaphthylene	0.04	"	<0.08	-	-	-	-
Dimethyl phthalate	0.11	"	<0.22	-	-	-	-
2,6-Dinitrotoluene	0.06	"	<0.12	-	-	-	-
Acenaphthene	0.07	"	<0.14	29	58	31	62
2,4-Dinitrophenol	0.48	"	<0.96	-	-	-	-
2,4-Dinitrotoluene	0.05	"	<0.10	32	63	31	62
4-Nitrophenol	0.14	"	<0.28	75	75	68	68
Fluorene	0.03	"	<0.06	-	-	-	-
4-Chlorophenylphenylether	0.09	"	<0.18	-	-	-	-
Diethyl phthalate	0.11	"	<0.22	-	-	-	-
4,6-Dinitro-2-methylphenol	0.15	"	<0.30	-	-	-	-
N-Nitrosodiphenylamine	0.19	"	<0.38	-	-	-	-
4-Bromophenylphenylether	0.03	"	<0.06	-	-	-	-
Hexachlorobenzene	0.20	"	<0.40	-	-	-	-
Pentachlorophenol	0.11	"	<0.22	69	69	64	64
Phenanthrene	0.03	"	<0.06	-	-	-	-
Anthracene	0.02	"	<0.04	-	-	-	-
Di-n-butyl phthalate	0.11	"	<0.22	-	-	-	-
Fluoranthene	0.02	"	<0.04	-	-	-	-
Pyrene	0.03	"	<0.06	36	73	34	68
Benzyl butyl phthalate	0.06	"	<0.12	-	-	-	-

PJA 1-23-97

			Method	Blank	Blank	Blank	Blank
	Client ID:		Blank	Spike 1	Spike 1	Spike 2	Spike 2
	Zenon ID:		055065 96	055065 96	055065 96	055065 96	055065 96
	Date Sampled:		96/12/12	96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**			%Recovery		%Recovery
3,3-Dichlorobenzidine	0.10	"	<0.20	-	-	-	-
Benzo(a)anthracene	0.02	"	<0.04	-	-	-	-
Chrysene	0.03	"	<0.06	-	-	-	-
Bis(2-ethylhexyl)phthalate	0.14	"	<0.28	-	-	-	-
Di-n-octyl phthalate	0.11	"	<0.22	-	-	-	-
Benzo(b)fluoranthene	0.04	"	<0.08	-	-	-	-
Benzo(k)fluoranthene	0.04	"	<0.08	-	-	-	-
Benzo(a)pyrene	0.05	"	<0.10	-	-	-	-
Indeno(1,2,3-cd)pyrene	0.06	"	<0.12	-	-	-	-
Dibenzo(a,h)anthracene	0.04	"	<0.08	-	-	-	-
Benzo(ghi)perylene	0.04	"	<0.08	-	-	-	-
N-Nitrosodimethylamine	1.0	"	<2.0	-	-	-	-
Aniline	0.50	"	<1.0	-	-	-	-
Benzyl alcohol	0.50	"	<1.0	-	-	-	-
Carbazole	0.50	"	<1.0	-	-	-	-
2-Methylphenol	0.50	"	<1.0	-	-	-	-
Benzoic acid	0.50	"	<1.0	-	-	-	-
4-Chloroaniline	0.50	"	<1.0	-	-	-	-
2-Methylnaphthalene	0.10	"	<0.20	-	-	-	-
2,4,5-Trichlorophenol	0.10	"	<0.20	-	-	-	-
2-Nitroaniline	0.50	"	<1.0	-	-	-	-
3-Nitroaniline	0.50	"	<1.0	-	-	-	-
Dibenzofuran	0.50	"	<1.0	-	-	-	-
Benzidine	0.50	"	<1.0	-	-	-	-
4-Nitroaniline	0.50	"	<1.0	-	-	-	-
Surrogate Recoveries		%					
2-Fluorophenol			25	11	11	22	22
d5-Phenol			58	31	31	51	51
d5-Nitrobenzene			19	12	12	30	30
2-Fluorobiphenyl			73	41	41	59	59
2,4,6-Tribromophenol			101	64	64	65	65
d14-p-Terphenyl			105	77	77	73	73

1-23-97

	Client ID:		BH1-3-5	BH1-3-5	BH1-3-5	BH1-3-5	BH1-3-5
	Zenon ID:		055066 96	055066 96	055066 96	055066 96	055066 96
	Date Sampled:		96/12/12	96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**		M. Spike	MS % Rec.	MS Dup	MSD % Rec.
Semi -Volatiles via SW846 Method 8270							
Phenol	0.11	mg/kg	<0.22	6.0	67	6.1	59
Bis(2-chloroethyl)ether	0.18	"	<0.36	-	-	-	-
2-Chlorophenol	0.27	"	<0.54 UJ	4.4	49	4.9	47
1,3-Dichlorobenzene	0.20	"	<0.40	-	-	-	-
1-4-Dichlorobenzene	0.20	"	<0.40 R	0.10	2.0	0.14	3.0
1,2-Dichlorobenzene	0.20	"	<0.40	-	-	-	-
Bis(2-chloroisopropyl)ether	0.15	"	<0.30	-	-	-	-
Hexachloroethane	0.20	"	<0.40	-	-	-	-
N-Nitroso-di-N-Propylamine	0.21	"	<0.42	2.8	62	2.8	55
Nitrobenzene	0.20	"	<0.40	-	-	-	-
Isophorone	0.40	"	<0.80	-	-	-	-
2-Nitrophenol	0.14	"	<0.28	-	-	-	-
2,4-Dimethylphenol	0.17	"	<0.34	-	-	-	-
Bis(2-chloroethoxy)methane	0.13	"	<0.26	-	-	-	-
2,4-Dichlorophenol	0.12	"	<0.24	-	-	-	-
1,2,4-Trichlorobenzene	0.20	"	<0.40 R	0.94	21	1.0	19
Naphthalene	0.03	"	<0.06	-	-	-	-
Hexachlorobutadiene	0.20	"	<0.40	-	-	-	-
4-Chloro-3-Methylphenol	0.14	"	<0.28	5.2	58	4.9	47
Hexachlorocyclopentadiene	0.20	"	<0.40	-	-	-	-
2,4,6-Trichlorophenol	0.12	"	<0.24	-	-	-	-
2-Chloronaphthalene	0.09	"	<0.18	-	-	-	-
Acenaphthylene	0.04	"	<0.08	-	-	-	-
Dimethyl phthalate	0.11	"	<0.22	-	-	-	-
2,6-Dinitrotoluene	0.06	"	<0.12	-	-	-	-
Acenaphthene	0.07	"	<0.14	3.1	68	3.1	60
2,4-Dinitrophenol	0.48	"	<0.96	-	-	-	-
2,4-Dinitrotoluene	0.05	"	<0.10	2.8	62	3.1	59
4-Nitrophenol	0.14	"	<0.28	6.0	66	7.1	68
Fluorene	0.03	"	<0.06	-	-	-	-
4-Chlorophenylphenylether	0.09	"	<0.18	-	-	-	-
Diethyl phthalate	0.11	"	<0.22	-	-	-	-
4,6-Dinitro-2-methylphenol	0.15	"	<0.30	-	-	-	-
N-Nitrosodiphenylamine	0.19	"	<0.38	-	-	-	-
4-Bromophenylphenylether	0.03	"	<0.06	-	-	-	-
Hexachlorobenzene	0.20	"	<0.40	-	-	-	-
Pentachlorophenol	0.11	"	<0.22	6.2	69	6.0	78
Phenanthrene	0.03	"	<0.06	-	-	-	-
Anthracene	0.02	"	<0.04	-	-	-	-
Di-n-butyl phthalate	0.11	"	<0.22	-	-	-	-
Fluoranthene	0.02	"	<0.04	-	-	-	-
Pyrene	0.03	"	<0.06	3.3	72	3.5	68
Benzyl butyl phthalate	0.06	"	<0.12	-	-	-	-

1-23-97

	Client ID:		BH1-3-5	BH1-3-5	BH1-3-5	BH1-3-5	BH1-3-5
	Zenon ID:		055066 96	055066 96	055066 96	055066 96	055066 96
	Date Sampled:		96/12/12	96/12/12	96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**		M. Spike	MS % Rec.	MS Dup	MSD % Rec.
3,3-Dichlorobenzidine	0.10	"	<0.20	-	-	-	-
Benzo(a)anthracene	0.02	"	<0.04	-	-	-	-
Chrysene	0.03	"	<0.06	-	-	-	-
Bis(2-ethylhexyl)phthalate	0.14	"	<0.28	-	-	-	-
Di-n-octyl phthalate	0.11	"	<0.22	-	-	-	-
Benzo(b)fluoranthene	0.04	"	<0.08	-	-	-	-
Benzo(k)fluoranthene	0.04	"	<0.08	-	-	-	-
Benzo(a)pyrene	0.05	"	<0.10	-	-	-	-
Indeno(1,2,3-cd)pyrene	0.06	"	<0.12	-	-	-	-
Dibenzo(a,h)anthracene	0.04	"	<0.08	-	-	-	-
Benzo(ghi)perylene	0.04	"	<0.08	-	-	-	-
N-Nitrosodimethylamine	1.0	"	<2.0	-	-	-	-
Aniline	0.50	"	<1.0	-	-	-	-
Benzyl alcohol	0.50	"	<1.0	-	-	-	-
Carbazole	0.50	"	<1.0	-	-	-	-
2-Methylphenol	0.50	"	<1.0	-	-	-	-
Benzoic acid	0.50	"	<1.0	-	-	-	-
4-Chloroaniline	0.50	"	<1.0	-	-	-	-
2-Methylnaphthalene	0.10	"	<0.20	-	-	-	-
2,4,5-Trichlorophenol	0.10	"	<0.20	-	-	-	-
2-Nitroaniline	0.50	"	<1.0	-	-	-	-
3-Nitroaniline	0.50	"	<1.0	-	-	-	-
Dibenzofuran	0.50	"	<1.0	-	-	-	-
Benzidine	0.50	"	<1.0	-	-	-	-
4-Nitroaniline	0.50	"	<1.0	-	-	-	-
Surrogate Recoveries		%					
2-Fluorophenol			40	44	44	45	45
d5-Phenol			68	69	69	59	59
d5-Nitrobenzene			42	46	46	43	53
2-Fluorobiphenyl			59	64	64	54	54
2,4,6-Tribromophenol			69	70	70	68	68
d14-p-Terphenyl			75	77	77	74	74

			BH1	BH2	BH3
	Client ID:		10-12	15-17	13-15
	Zenon ID:		055067 96	055068 96	055069 96
	Date Sampled:		96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**			
Semi-Volatiles via SW846 Method 8270					
Phenol	0.11	mg/kg	<0.22	<0.22	<0.22
Bis(2-chloroethyl)ether	0.18	"	<0.36	<0.36	<0.36
2-Chlorophenol	0.27	"	<0.54 UJ	<0.54 UJ	<0.54 UJ
1,3-Dichlorobenzene	0.20	"	<0.40	<0.40	<0.40
1-4-Dichlorobenzene	0.20	"	<0.40 R	<0.40 R	<0.40 R
1,2-Dichlorobenzene	0.20	"	<0.40	<0.40	<0.40
Bis(2-chloroisopropyl)ether	0.15	"	<0.30	<0.30	<0.30
Hexachloroethane	0.20	"	<0.40	<0.40	<0.40
N-Nitroso-di-N-Propylamine	0.21	"	<0.42	<0.42	<0.42
Nitrobenzene	0.20	"	<0.40	<0.40	<0.40
Isophorone	0.40	"	<0.80	<0.80	<0.80
2-Nitrophenol	0.14	"	<0.28	<0.28	<0.28
2,4-Dimethylphenol	0.17	"	<0.34	<0.34	<0.34
Bis(2-chloroethoxy)methane	0.13	"	<0.26	<0.26	<0.26
2,4-Dichlorophenol	0.12	"	<0.24	<0.24	<0.24
1,2,4-Trichlorobenzene	0.20	"	<0.40 R	<0.40 R	<0.40 R
Naphthalene	0.03	"	<0.06	<0.06	<0.06
Hexachlorobutadiene	0.20	"	<0.40	<0.40	<0.40
4-Chloro-3-Methylphenol	0.14	"	<0.28	<0.28	<0.28
Hexachlorocyclopentadiene	0.20	"	<0.40	<0.40	<0.40
2,4,6-Trichlorophenol	0.12	"	<0.24	<0.24	<0.24
2-Chloronaphthalene	0.09	"	<0.18	<0.18	<0.18
Acenaphthylene	0.04	"	<0.08	<0.08	<0.08
Dimethyl phthalate	0.11	"	<0.22	<0.22	<0.22
2,6-Dinitrotoluene	0.06	"	<0.12	<0.12	<0.12
Acenaphthene	0.07	"	<0.14	<0.14	<0.14
2,4-Dinitrophenol	0.48	"	<0.96	<0.96	<0.96
2,4-Dinitrotoluene	0.05	"	<0.10	<0.10	<0.10
4-Nitrophenol	0.14	"	<0.28	<0.28	<0.28
Fluorene	0.03	"	<0.06	<0.06	<0.06
4-Chlorophenylphenylether	0.09	"	<0.18	<0.18	<0.18
Diethyl phthalate	0.11	"	<0.22	<0.22	<0.22
4,6-Dinitro-2-methylphenol	0.15	"	<0.30	<0.30	<0.30
N-Nitrosodiphenylamine	0.19	"	<0.38	<0.38	<0.38
4-Bromophenylphenylether	0.03	"	<0.06	<0.06	<0.06
Hexachlorobenzene	0.20	"	<0.40	<0.40	<0.40
Pentachlorophenol	0.11	"	<0.22	<0.22	<0.22
Phenanthrene	0.03	"	<0.06	<0.06	<0.06
Anthracene	0.02	"	<0.04	<0.04	<0.04
Di-n-butyl phthalate	0.11	"	<0.22	<0.22	<0.22
Fluoranthene	0.02	"	<0.04	<0.04	<0.04
Pyrene	0.03	"	<0.06	<0.06	<0.06
Benzyl butyl phthalate	0.06	"	<0.12	<0.12	<0.12

PJA 1-23-97

			BH1	BH2	BH3
	Client ID:		10-12	15-17	13-15
	Zenon ID:		055067 96	055068 96	055069 96
	Date Sampled:		96/12/12	96/12/12	96/12/12
Component	**MDL**	**Units**			
3,3-Dichlorobenzidine	0.10	"	<0.20	<0.20	<0.20
Benzo(a)anthracene	0.02	"	<0.04	<0.04	<0.04
Chrysene	0.03	"	<0.06	<0.06	<0.06
Bis(2-ethylhexyl)phthalate	0.14	"	<0.28	<0.28	<0.28
Di-n-octyl phthalate	0.11	"	<0.22	<0.22	<0.22
Benzo(b)fluoranthene	0.04	"	<0.08	<0.08	<0.08
Benzo(k)fluoranthene	0.04	"	<0.08	<0.08	<0.08
Benzo(a)pyrene	0.05	"	<0.10	<0.10	<0.10
Indeno(1,2,3-cd)pyrene	0.06	"	<0.12	<0.12	<0.12
Dibenzo(a,h)anthracene	0.04	"	<0.08	<0.08	<0.08
Benzo(ghi)perylene	0.04	"	<0.08	<0.08	<0.08
N-Nitrosodimethylamine	1.0	"	<2.0	<2.0	<2.0
Aniline	0.50	"	<1.0	<1.0	<1.0
Benzyl alcohol	0.50	"	<1.0	<1.0	<1.0
Carbazole	0.50	"	<1.0	<1.0	<1.0
2-Methylphenol	0.50	"	<1.0	<1.0	<1.0
Benzoic acid	0.50	"	<1.0	<1.0	<1.0
4-Chloroaniline	0.50	"	<1.0	<1.0	<1.0
2-Methylnaphthalene	0.10	"	<0.20	<0.20	<0.20
2,4,5-Trichlorophenol	0.10	"	<0.20	<0.20	<0.20
2-Nitroaniline	0.50	"	<1.0	<1.0	<1.0
3-Nitroaniline	0.50	"	<1.0	<1.0	<1.0
Dibenzofuran	0.50	"	<1.0	<1.0	<1.0
Benzidine	0.50	"	<1.0	<1.0	<1.0
4-Nitroaniline	0.50	"	<1.0	<1.0	<1.0
Surrogate Recoveries		%			
2-Fluorophenol			39	43	43
d5-Phenol			66	65	68
d5-Nitrobenzene			41	43	46
2-Fluorobiphenyl			60	62	65
2,4,6-Tribromophenol			61	64	57
d14-p-Terphenyl			72	70	72

ZEL Summary of Analysis Pre. Dates

Batch Code:	**1220ASA1**
Mercury	055065 96
	055066 96
	055067 96
	055068 96
	055069 96
Date analysed	96/12/20
Date prepared	96/12/20
Batch Code:	**1223ASC1**
Arsenic	055065 96
	055066 96
	055067 96
	055068 96
	055069 96
Date analysed	96/12/30
Date prepared	96/12/23
Batch Code:	**1223ASC1**
Selenium	055065 96
	055066 96
	055067 96
	055068 96
	055069 96
Date analysed	96/12/30
Date prepared	96/12/23
Batch Code:	**1223ASC1**
Metals	055065 96
	055066 96
	055067 96
	055068 96
	055069 96
Date analysed	96/12/30
Date prepared	96/12/23
Batch Code:	**1220SM01**
Volatiles	055065 96
	055066 96
	055067 96
	055068 96
	055069 96
Date analysed	96/12/20
Date prepared	96/12/20
Batch Code:	**1217PB02**
Semi-Volatiles	055065 96
	055066 96

ZEL Summary of Analysis Pre. Dates

	055067 96
	055068 96
	055069 96
Date analysed	96/12/20
Date prepared	96/12/17

Bill Olson etc

WILLIAMS FIELD SERVICES
ONE OF THE WILLIAMS COMPANIES

P.O. Box 58900
Salt Lake City, UT 84158-0900
(801) 584-7033
FAX: (801) 584-6483

OIL CONSERVATION DIVISION
RECEIVED
'95 JAN 18 AM 8 52

January 13, 1995

RECEIVED
JAN 17 1995
OIL CON. DIV.
DIST. 3

Mr. Denny Foust
Oil Conservation Division
District III
1000 Rio Brazos Road
Aztec, New Mexico 87410

Dear Mr. Foust:

At your request, Williams Field Services performed an assessment of the coolant storage tank area at our Milagro Plant. The assessment was performed in order to determine the nature and extent of contamination associated with a release of glycol which occurred on December 3, 1994. The results of the assessment are provided in the attached report. If you have any questions or require additional information, please do not hesitate to contact me at (801) 584-6543.

Sincerely,

Leigh E. Gooding, P.G.
Environmental Specialist

ASSESSMENT OF AREA SURROUNDING THE COOLANT STORAGE AT WILLIAMS FIELD SERVICES' MILAGRO PLANT

January 3, 1995

Prepared by:

Williams Field Services
Environmental Services Department

INTRODUCTION

On Saturday December 3rd, 1994, the Milagro Plant Superintendent notified WFS Environmental Services of the discovery of free glycol in a ditch just outside the south wall of the coolant storage secondary containment located within the facility boundaries of the Milagro Plant. The Milagro Plant is located in San Juan County approximately 3 miles northeast of Bloomfield, New Mexico in Section 12, Township 29N, Range 11W.

BACKGROUND

The above mentioned ditch had been cut by an electrical contractor installing conduit between the south wall and a small metal building located only about two feet from the secondary containment. Liquid was later observed to be accumulating in the 18" deep ditch. Further investigation indicated that the liquid appeared to be glycol and water.

Plant personnel subsequently proceeded to take steps to remove the standing glycol from the ditch and to attempt to ascertain the source. Since the ditch was only one foot south of the secondary containment for glycol storage tanks, it was believed that concrete seams (expansion joints) in the concrete wall and floor allowed glycol which had overflowed from the tanks to leak outside the containment designed to prevent same. The overflow of glycol was attributable to two slow leaks discovered in the coolant system which caused the coolant storage tank to overflow. All glycol which overflowed was thought to be contained within the secondary structure. The "free product" was pumped out of the ditch and from the secondary containment structure by plant personnel within hours of its discovery. It is estimated that approximately 100 gallons total was removed from the ditch and the concrete containment.

After removing all standing glycol from the ditch (apprx. 50 gallons), plant personnel observed no further accumulation of "free product". In order to attempt to delineate the extent of the area impacted by the release of glycol outside the containment area, WFS Environmental Services initiated an assessment action on December 10, 1994.

DESCRIPTION OF ASSESSMENT ACTIVITIES

As depicted in the attached site diagram, soil samples were collected from the center point approximately 12" outside of each of the four sides of the containment walls. Samples were collected using a hand driven soil probe from depths between two and three feet. Results obtained following sample analysis are presented in the attached data summary table.

In addition to these samples, two other samples were collected to attempt to determine the areal extent of glycol affected soils. One sample was collected approximately 12' from the southwest corner of the secondary containment in the direction thought to be down gradient at a depth of 3'.

The second sample was collected from a stormwater ditch across a service road running east of the coolant storage area. This sample was collected at a depth of 12". There was no surface staining indicating that any glycol had migrated across the road nor was there evidence of any staining of gravels or road base adjacent to the secondary containment.

DISCUSSION OF FINDINGS

After evaluating the analytical results obtained, WFS notes that the only areas impacted by the leaking secondary containment are directly adjacent to the south and east walls. The area outside the south wall was the area where the free product was recovered and that area where glycol impacted soil was obvious. The soils outside the east wall were found to contain glycol at a concentration of 28,000 parts per million.

All other samples showed only trace or non-detectable levels of glycol.

CONCLUSION

Based on the results obtained, it appears that the glycol impacted soil is limited to that area immediately south and east of the coolant storage area at the Milagro Plant. WFS plant personnel have already corrected what appears to have been a design flaw in the secondary containment which led to the leakage of free product. This entailed the re-sealing of all concrete seams with material specifically made for this purpose. This action should eliminate future problems of this type and further enhance the integrity of the existing secondary containment.

Because all recoverable "free product" outside the containment has been removed, and because of the limited area which was impacted, WFS believes no further action is necessary. The glycol present in the soils surrounding the coolant storage area will naturally degrade over time. Since the annual precipitation in the area is just over 8 inches, the potential to impact stormwater runoff to any measurable extent is minimal. Likewise, since the depth to ground water is over 100', migration resulting from surface water infiltration to that depth is unlikely.

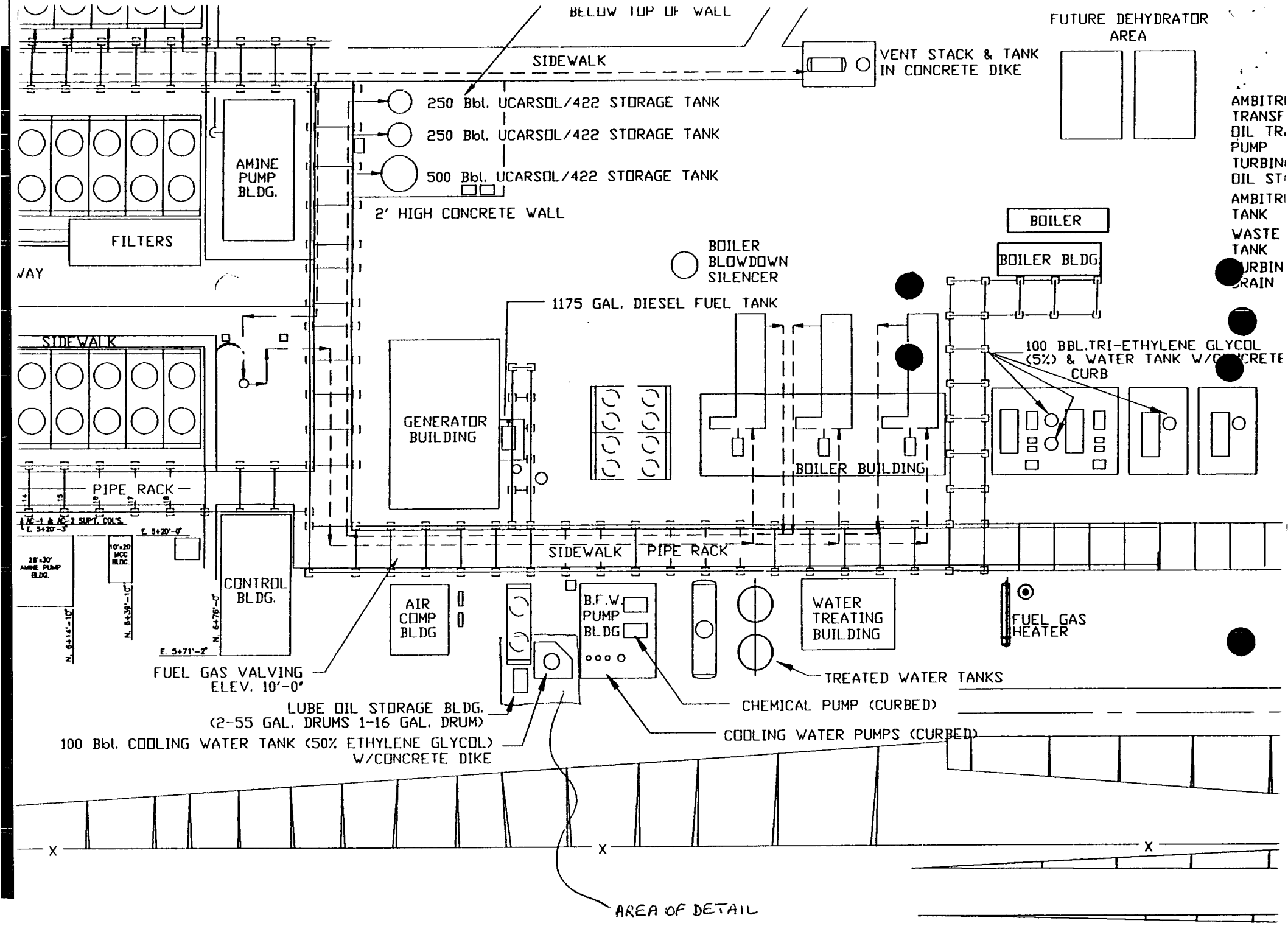
Plant personnel will continue to check the effectiveness of the secondary containment at the subject site as well as other containments at the facility in accordance with provisions of the Stormwater Pollution Prevention Plan prepared specifically for the Milagro Plant. If at any time, conditions at or around the coolant storage area are perceived to be contributing to a release of any product off-site, then Milagro Plant personnel will initiate immediate corrective action.

MILAGRO ASSESSMENT

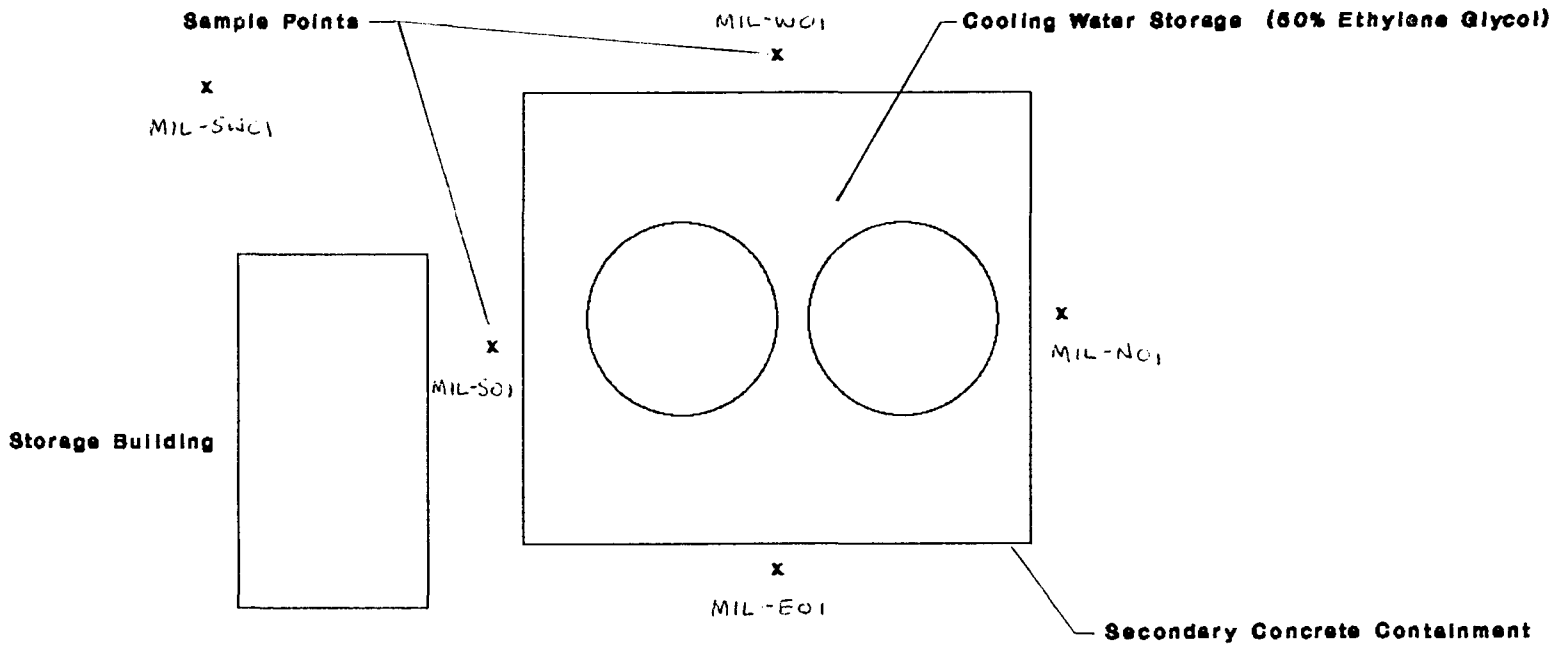
SUMMARY OF LABORATORY RESULTS

SAMPLE NUMBER	DETECTION LIMIT (PPM)	CONCENTRATION (PPM)	SAMPLE LOCATION AND DEPTH
MIL-E01	10	29,200	East Wall 24" Below Surface
MIL-N01	10	27	North Wall 30" Below Surface
MIL-S01	10	10,500	South Wall 46" Below Surface **
MIL-W01	10	91	West Wall 36" Below Surface
MIL-SW01	10	24	Point 12'from SW Corner 36" BS
MIL-DD01	10	22	Soil from Storm Ditch 12" BS

** Note: This sample was collected from within the ditch south of the containment structure. The depth below the bottom of the ditch is approximately 28".


BELOW TOP OF WALL
SIDEWALK
VENT STACK & TANK IN CONCRETE DIKE
FUTURE DEHYDRATOR AREA
250 Bbl. UCARSOL/422 STORAGE TANK
250 Bbl. UCARSOL/422 STORAGE TANK
500 Bbl. UCARSOL/422 STORAGE TANK
2' HIGH CONCRETE WALL
AMINE PUMP BLDG.
FILTERS
BOILER
BOILER BLDG.
BOILER BLOWDOWN SILENCER
1175 GAL. DIESEL FUEL TANK
100 BBL.TRI-ETHYLENE GLYCOL (5%) & WATER TANK W/CONCRETE CURB
GENERATOR BUILDING
BOILER BUILDING
PIPE RACK
SIDEWALK
CONTROL BLDG.
AIR COMP BLDG
B.F.W PUMP BLDG
WATER TREATING BUILDING
FUEL GAS HEATER
FUEL GAS VALVING ELEV. 10'-0"
LUBE OIL STORAGE BLDG. (2-55 GAL. DRUMS 1-16 GAL. DRUM)
100 Bbl. COOLING WATER TANK (50% ETHYLENE GLYCOL) W/CONCRETE DIKE
TREATED WATER TANKS
CHEMICAL PUMP (CURBED)
COOLING WATER PUMPS (CURBED)
AREA OF DETAIL

MILAGRO PLANT COOLANT STORAGE AREA



ORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Fax (801) 263-8687

Client: Williams Field Services
Date Sampled: December 10, 1994
Date Received: December 12, 1994
Set Description: Six Waste Samples

Set Identification #: 20874
Contact: Mark Harvey
Received By: Sherlyn Lewis

Analysis Requested:	Method Ref. Number:	Date Extracted:
Ethylene & Propylene Glycol	Extraction-Direct Injection GC/MS	December 15, 1994
Lab Sample ID. Number:	**Field Sample ID. Number:**	**Date Analyzed:**
20874-Method Blank	Method Blank	December 16, 1994

Analytical Results

Units = mg/kg (ppm)

Compound:	Detection Limit:	Amount Detected:
Ethylene Glycol	10.	<10.
Propylene Glycol	10.	<10.

< Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.

Released by: _____
Laboratory Supervisor

Report Date 12/20/94

ORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
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Client: Williams Field Services
Date Sampled: December 10, 1994
Date Received: December 12, 1994
Set Description: Six Waste Samples

Set Identification #: 20874
Contact: Mark Harvey
Received By: Sherlyn Lewis

Analysis Requested:	Method Ref. Number:	Date Extracted:
Ethylene & Propylene Glycol	Extraction-Direct Injection GC/MS	December 15, 1994

Lab Sample ID. Number:	Field Sample ID. Number:	Date Analyzed:
20874-01	Milagro Plant-SJA MIL-EO1/Soil From E. Side of Coolant Storage 24" B.S.	December 16, 1994

Analytical Results

Units = mg/kg (ppm)

Compound:	Detection Limit:	Amount Detected:
Ethylene Glycol	10.	**28,000.**
Propylene Glycol	10.	**1,200.**

< Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.

Released by: _____
Laboratory Supervisor

Report Date 12/20/94

ORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Fax (801) 263-8687

Client: Williams Field Services
Date Sampled: December 10, 1994
Date Received: December 12, 1994
Set Description: Six Waste Samples

Set Identification #: 20874
Contact: Mark Harvey
Received By: Sherlyn Lewis

Analysis Requested:
Ethylene & Propylene Glycol

Method Ref. Number:
Extraction-Direct Injection GC/MS

Date Extracted:
December 15, 1994

Lab Sample ID. Number:
20874-02

Field Sample ID. Number:
Milagro Plant-SJA
MIL-NO1/Soil From N. Side of Coolant Storage 30" B.S.

Date Analyzed:
December 16, 1994

Analytical Results

Units = mg/kg (ppm)

Compound:	Detection Limit:	Amount Detected:
Ethylene Glycol	10.	**15.**
Propylene Glycol	10.	**12.**

< Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.

Released by: _____
Laboratory Supervisor

Report Date 12/20/94

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Fax (801) 263-8687

ORGANIC ANALYSIS REPORT

Client: Williams Field Services
Date Sampled: December 10, 1994
Date Received: December 12, 1994
Set Description: Six Waste Samples

Set Identification #: 20874
Contact: Mark Harvey
Received By: Sherlyn Lewis

Analysis Requested:	Method Ref. Number:	Date Extracted:
Ethylene & Propylene Glycol	Extraction-Direct Injection GC/MS	December 15, 1994
Lab Sample ID. Number:	**Field Sample ID. Number:**	**Date Analyzed:**
20874-Method Blank	Method Blank	December 15, 1994

Analytical Results

Units = mg/kg (ppm)

Compound:	Detection Limit:	Amount Detected:
Ethylene Glycol	10.	<10.
Propylene Glycol	10.	<10.

< Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.

Released by: _____
Laboratory Supervisor

Report Date 12/20/94

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Fax (801) 263-8687

ORGANIC ANALYSIS REPORT

Client: Williams Field Services
Date Sampled: December 10, 1994
Date Received: December 12, 1994
Set Description: Six Waste Samples

Set Identification #: 20874
Contact: Mark Harvey
Received By: Sherlyn Lewis

Analysis Requested:
Ethylene & Propylene Glycol

Method Ref. Number:
Extraction-Direct Injection GC/MS

Date Extracted:
December 15, 1994

Lab Sample ID. Number:
20874-03

Field Sample ID. Number:
Milagro Plant-SJA
MIL-SO1/Soil From S. Side of Coolant Storage 46" B.S.

Date Analyzed:
December 15, 1994

Analytical Results

Units = mg/kg (ppm)

Compound:	Detection Limit:	Amount Detected:
Ethylene Glycol	10.	**9,400.**
Propylene Glycol	10.	**1,100.**

< Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.

Released by: _____
Laboratory Supervisor

Report Date 12/20/94

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Fax (801) 263-8687

ORGANIC ANALYSIS REPORT

Client: Williams Field Services
Date Sampled: December 10, 1994
Date Received: December 12, 1994
Set Description: Six Waste Samples

Set Identification #: 20874
Contact: Mark Harvey
Received By: Sherlyn Lewis

Analysis Requested:	Method Ref. Number:	Date Extracted:
Ethylene & Propylene Glycol	Extraction-Direct Injection GC/MS	December 15, 1994

Lab Sample ID. Number:	Field Sample ID. Number:	Date Analyzed:
20874-04	Milagro Plant-SJA MIL-WO1/Soil From W. Side of Coolant Storage 36" B.S.	December 15, 1994

Analytical Results

Units = mg/kg (ppm)

Compound:	Detection Limit:	Amount Detected:
Ethylene Glycol	10.	79.
Propylene Glycol	10.	12.

< Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.

Released by: _____
Laboratory Supervisor

Report Date 12/20/94

ORGANIC ANALYSIS REPORT

AMERICAN
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463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Fax (801) 263-8687

Client: Williams Field Services
Date Sampled: December 10, 1994
Date Received: December 12, 1994
Set Description: Six Waste Samples

Set Identification #: 20874
Contact: Mark Harvey
Received By: Sherlyn Lewis

Analysis Requested:
Ethylene & Propylene Glycol

Method Ref. Number:
Extraction-Direct Injection GC/MS

Date Extracted:
December 15, 1994

Lab Sample ID. Number:
20874-05

Field Sample ID. Number:
Milagro Plant-SJA
MIL-SWO1/Soil From Point 12' from
SW Corner of Containment @ 36" B.S.

Date Analyzed:
December 15, 1994

Analytical Results

Units = mg/kg (ppm)

Compound:	Detection Limit:	Amount Detected:
Ethylene Glycol	10.	**12.**
Propylene Glycol	10.	**12.**

< Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.

Released by: _____
Laboratory Supervisor

Report Date 12/20/94

ORGANIC ANALYSIS REPORT

AMERICAN
WEST
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LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Fax (801) 263-8687

Client: Williams Field Services
Date Sampled: December 10, 1994
Date Received: December 12, 1994
Set Description: Six Waste Samples

Set Identification #: 20874
Contact: Mark Harvey
Received By: Sherlyn Lewis

Analysis Requested:
Ethylene & Propylene Glycol

Method Ref. Number:
Extraction-Direct Injection GC/MS

Date Extracted:
December 15, 1994

Lab Sample ID. Number:
20874-06

Field Sample ID. Number:
Milagro Plant-SJA
MIL-DDO1/Soil From Drainage
E. of Coolant Containment @ 16"

Date Analyzed:
December 15, 1994

Analytical Results

Units = mg/kg (ppm)

Compound:	Detection Limit:	Amount Detected:
Ethylene Glycol	10.	**11.**
Propylene Glycol	10.	**11.**

< Value = None detected above the specified method detection limit, or a value that reflects a reasonable limit due to interferences.

Released by: _____
Laboratory Supervisor

Report Date 12/20/94