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NS MAYPORT  
5090.3a

LETTER REPORT REGARDING FULL SCALE BIOSLURPER SYSTEM EVALUATION AT  
SOLID WASTE MANAGEMENT UNIT 7 NS MAYPORT FL  
3/30/1998  
BATTELLE

NAVSTA Mayport Administrative Record  
Document Index Number

32228-000  
19.05.00.0021

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March 30, 1998

Naval Facilities Engineering Command  
Southern Division  
2 155 Eagle Drive  
P.O. Box 190010  
North Charleston, SC 29418

Attention: Ms. Adrienne Wilson

Dear Ms. Wilson:

**CONTRACT N47408-95-D-0730**  
**DELIVERY ORDER (D.O.) 0011**  
**BXOSLURPING AT NAVAL STATION MAYPORT, FLORIDA**  
**FULL-SCALE BIOSLURPER SYSTEM EVALUATION**

This letter describes the field activities and events that have been performed during operation of the full-scale bioslurper system installed at Solid Waste Management 7 (SWMU7), Naval Station (NAVSTA), Mayport, Florida. Data collected during the first two months of operation (January 8 through March 8) of the full-scale bioslurper system at NAVSTA Mayport have been evaluated. Recommendations for future system operations, including extraction well scheduling and effluent treatment, also are detailed. This report includes the results of the baseline soil-gas survey and soil-gas readings collected from all of the monitoring points. The results of the vapor and aqueous effluent samples taken for effluent treatment evaluation and monitoring purposes also are given.

### Background

Two bioslurper systems were installed at NAVSTA Mayport during the last half of 1997 through a joint effort between Public Works Center (PWC) Jacksonville, Bechtel Environmental, and Battelle. The bioslurper systems were designed by Battelle. Bechtel Environmental developed detailed plans and drawings for the design and installation of the systems. Extraction wells and monitoring points were installed during July and August 1997 by PWC Jacksonville using the Site Characterization and Analysis Penetrometer System (SCAPS) developed by the Navy. Both Bechtel and Battelle were present on site to coordinate the well installation activities. Battelle used data collected during the well installation activities and subsequent oil/water level measurements to recommend which wells should be utilized as the initial extraction wells. Bechtel Environmental constructed the portable bioslurper trailers and completed the on-site installation. This included the installation of piping to and from the bioslurper pumps, liquid

transfer tanks, and vapor and liquid effluent treatment equipment. Startup of the full-scale bioslurper system began on January 8, 1998.

### **Full-Scale Startup Activities**

A series of baseline data were collected prior to startup of the full-scale bioslurper systems. Oil thickness and groundwater table elevations were measured in each of the extraction wells to identify the wells that should be extracted from first. Additionally, each soil-gas monitoring point (a total of 65) was sampled for oxygen, carbon dioxide, and total petroleum hydrocarbon (TPH) concentrations to determine baseline values. Contour plots depicting baseline oil thickness and soil-gas concentrations are included in Attachment 1 and Attachment 2, respectively.

After collecting the initial baseline data, the bioslurper drop tubes were placed in every well that contained a measurable layer of free-product. The bioslurper systems were started and a system shakedown was performed. The shakedown revealed the need for the following minor design modifications to optimize the operation of the bioslurper systems:

- Removed the globe valve and check valve from the line between the equalization drum and the liquid ring pump to reduce pressure drop through the line.
- Installed a 3/4-inch-diameter polyvinyl chloride (PVC) tee and ball valve on the top of each seal water tank to bleed excess pressure from the seal water tank. The pressure build-up in the tank forced the seal water to drain below the low-level shut off switch.
- The 1-inch-diameter discharge line between the seal water tank and the oil/water transfer tank on the south bioslurper was replaced with a 2-inch-diameter line. The high pressure drop in the 1-inch-diameter line reduced the water flowrate into the transfer tank. As a result, water would accumulate in the seal water tank and trip the high-level shutoff switch.
- Installed combination pressure/vacuum gauges on both of the seal water tanks to allow accurate measurement of the seal water tank pressure.
- Reconfigured the piping on the north trailer transfer tank. The pressure drop associated with the original plumbing reduced the flowrate of oil/water to the aboveground storage tanks (ASTs) below design specifications.
- Sealed leaks in the dehumidifier to eliminate vapor emissions to the atmosphere.
- Installed hour meters to monitor the operational time of each bioslurper system.
- Installed a sample port in off-gas effluent line at the north trailer to allow collection of discrete off-gas samples from the north trailer.

The bioventing system was installed during the week of January 12, 1998. The bioventing system is being used to inject air into the wells inside the sludge drying beds that do not contain free-product. The system uses a 2-hp blower to inject air into the subsurface through an aboveground 2-inch-diameter PVC manifold (separate from the bioslurper extraction manifold). Only wells that do not contain measurable free-product are opened to the bioventing system. Wells that do contain free-product are extracted from using the bioslurper system.

### **System Monitoring and Optimization**

During the first two months of operation (January 8 through March 8), the bioslurper systems were operated for about 29 out of 61 days. The downtime resulted from the need to make system

improvements and/or repairs and from not being able to obtain approval from the OWTP to discharge the bioslurper process water. About 550 gallons of free-product were recovered and 105,000 gallons of groundwater were extracted during this operational period.

Free-product recovery was optimized during the first month of operation. Extraction wells and drop tube placements were selected based on the free-product levels and groundwater table elevations measured in the extraction wells. Only those wells that contained free-product were extracted from. A schedule for rotating the bioslurper extraction wells (Table 1) was developed. It is intended that each group of wells be extracted from for a two-week period. The wells should then be shut off and the next group of wells should be brought on line. Oil thickness and groundwater levels should be measured prior to rotating to the next group of wells. Table 1 should be used for reference; it should be continuously modified according to changes in oil thickness measurements in the extraction wells.

Monthly oil thickness and groundwater table elevations were measured during January, February, and March. The January measurements were taken prior to startup of the bioslurper system. Contour plots of the free-product plume generated using the oil thickness data are included as Attachment 1. These plots were developed using Surfer™, a software package used for contouring. The oil thickness data measured prior to startup of the bioslurper system (plot labeled 1/5/98) shows significant free-product was present in the east sludge bed and in the area surrounding EW-77. The contour plot generated using the oil thickness data collected during February indicates that the free-product plume is decreasing. However, these measurements were taken within one day of shutting off the bioslurper system. It is possible that if the bioslurper systems were shut down for a longer period of time, the free-product thickness levels would gradually increase. The contour plot labeled 3/16/98 was generated using data collected two weeks after the bioslurper system was shut down. These data clearly indicate a decrease in free-product thickness across the site compared to the baseline data.

Table 1. Extraction Well Rotation Schedule

(a) North Trailer

Group	Manifold Open	Extraction Wells Selected
1	F, G	MW-11S; EW-27, 28, 30, 47
2	A, B, C	EW-7, 19, 24, 34, 35, 36
3	D, E, F, G	TW-1A; MW-11S, EW-14, 27, 28, 30, 31, 47, 50

(b) South Trailer

Group	Manifold Open	Extraction Wells Selected
1	C, H	TW-2A; EW-75, 76, 77, 97, 98, 104, 105, 108, 109, 110, 111, 112, 114, 116, 117, 118, 119
2	A, G	MW-7S; TW-8; EW-127, 128, 129, 130, 139, 140, 141
3	A, C, H, I	MW-7S; TW-2A, 8, 10; EW-63, 75, 76, 77, 81, 100, 101, 104, 105, 106, 107, 108, 109, 110, 113, 118
4	C, F	TW-2A, 11; EW-63, 75, 76, 77, 120, 121, 126
5	A, B, D, F	MW-7S; TW-8, 11; EW-60, 61, 74, 78, 80, 120, 121, 126
6	C, E, H, I	TW-2A, 10; EW-63, 71, 72, 75, 76, 77, 81, 100, 101, 104, 105, 106, 107, 108, 109, 110, 113, 118

Free-product thickness and groundwater table elevations should continue to be measured on a monthly basis. The data are useful for evaluating which portions of the site should continue to be treated.

Other important system parameters were monitored, including percent operating time; the free-product to water recovery ratio; and concentrations of oxygen, carbon dioxide, and TPH in the soil gas. An hour meter was recently installed (March 3rd) on each of the bioslurper trailers so that percent operating time could be accurately determined.

The free-product to water ratios are presented in Table 2. The ratio is calculated by dividing the volume of free-product by the volume of water recovered during a specified period of operation. The volumes of free-product and groundwater recovered were determined using the following field procedures:

1. Prior to discharging the ASTs, measure and record the initial free-product thickness in the ASTs.
2. Record the initial value on the totalizer in the AST effluent line.
3. Discharge the ASTs.
4. Measure and record the final free-product thickness in the AST and the final value on the totalizer in the AST effluent line.
5. Using the cross-sectional area ( $113 \text{ ft}^2/\text{AST}$ ) of the ASTs and the difference in free-product thickness, calculate the volume of free-product discharged. Calculate the volume of groundwater discharged. Divide the two values to obtain the free-product to water ratio.
6. Plot the free-product to water ratio as a function of time.

The free-product to water recovery ratio should be evaluated and plotted each time the ASTs are emptied. As more free-product is recovered from the subsurface, the free-product to water ratio will decrease. The ratio should be used to evaluate the technical and/or economical feasibility of continuing bioslurper operation and may help to justify to regulatory agencies the discontinuation of source removal activities.

Table 2. Free Product to Water Ratios

Time Period	Free Product:Water (gal/gal)
Jan 8 to Jan 27	0.0053
Jan 27 to Feb 15	0.0069
Feb 15 to March 8	0.0034

It is important to occasionally monitor the oxygen, carbon dioxide, and TPH concentrations in the subsurface to determine if the bioventing and bioslurping systems are aerating the soils. Monitoring should be performed on a monthly basis. Battelle collected baseline soil-gas data in January prior to startup of the bioslurper system. The resulting contour plots are presented as Attachment 2. Bechtel staff measured the soil-gas concentrations in the sludge beds while the bioventing and bioslurping systems were operating. The readings of oxygen and carbon dioxide for all of the monitoring points in the sludge beds are approximately 20.5 percent and 0.1 percent, respectively. This indicates that the sludge beds are being sufficiently aerated by the bioventing and bioslurping processes.

### Off-Gas Treatment System Evaluation

The off-gas treatment system currently being used to treat the vapor generated by the bioslurper process includes a dehumidifier and two 1,000-lb canisters of granular activated carbon (GAC) placed in series. The vapor is first pumped through the dehumidifier to lower the relative humidity of the vapor to between 40 and 50 percent to optimize the adsorption capacity of the GAC with respect to humidity and temperature. A 5-hp blower is used to force the air through the two 1,000-lb canisters of activated carbon. Off-gas sampling ports are placed both before and after the drums so that both treated and untreated samples can be collected and analyzed for hydrocarbons to determine the operating efficiency of the treatment system. 10 HP

Off-gas sampling was performed during the first two months of operation to evaluate the need for continued on-site vapor treatment. Three sets of off-gas samples have been collected. The initial off-gas sampling results were obtained using a TO-18 analysis. The subsequent off-gas samples were analyzed using TO-3 analysis. The analytical results are presented in Table 3. The analytical data reports are included as Attachment 3. Samples labeled "ID Blower Outlet" were collected from the off-gas stream prior to treatment with activated carbon. The samples labeled "GAC #2 Outlet" were collected after the off-gas was treated by both canisters of activated carbon. The results indicate that the concentration of hydrocarbons in the treated off-gas is negligible. The TPH concentrations in all samples that were collected from the effluent of the activated carbon are below detection.

An additional sample was collected during sampling event 2 (February 5). This sample, labeled "Pre-Dehumidifier", was collected from the vapor stream at the inlet of the dehumidifier. The sample was analyzed and compared to the results of the sample labeled "ID Blower Outlet" (collected at the same time) to determine if hydrocarbons were being condensed or partitioned into the water condensed inside the dehumidifier. The TPH concentration in the sample collected prior to dehumidification was found to be greater than the concentration in the sample collected after dehumidification. However, additional sampling will be required to determine if the dehumidifier does significantly reduce the TPH concentration in the off-gas.

Table 3. Off-Gas Effluent Sampling Results and Emissions Rates

Sampling Event	Date	Sample ID	TPH (ppmv)	Off-Gas Flowrate (scfm)	TPH Loading (lbs/day)
#1	January 15	ID Blower Outlet	2.7	90	0.1
		GAC #2 Outlet	ND		ND
#2	February 5	Pre-Dehumidifier	48.3	NA	1.9 <sup>(a)</sup>
		ID Blower Outlet	19.6		0.7 <sup>(a)</sup>
		GAC #2 Outlet	ND		ND
#3	February 11	ID Blower Outlet	36.9	NA	1.4 <sup>(a)</sup>
		GAC #2 Outlet	ND		ND

ND - Not Detected

NA - Not available

(a) - Assumes an off-gas flowrate of 120 scfm

During the first two months of operation the highest off-gas flowrate recorded was 120 scfm and the highest TPH concentration was 48.3 ppmv (concentration measured at inlet of dehumidifier). Using these worst-case conditions, if vapor treatment were discontinued, the bioslurper system would discharge 1.9 lbs/day TPH. The Florida Department of Environmental Protection (FDEP) allows direct discharge of hydrocarbons to the atmosphere provided that the hydrocarbon loading is less than 15 lb/day. Since the mass per day of hydrocarbons emitted by the bioslurper process is well under the regulatory requirement, it is recommended that regulatory approval should be obtained to discontinue off-gas treatment and discharge the off-gas directly to the atmosphere. This will result in cost savings since the costs to purchase, replace, and dispose of the carbon will be eliminated.

### Water Treatment System Evaluation

The water generated by the bioslurper trailers is pumped into two 20,000-gal ASTs. When the tanks are near full, the water is discharged to the NAVSTA Oily Water Treatment Plant (OWTP). There are two drawbacks to treating the water in this fashion. The first is that it is a fairly expensive process to operate. The OWTP charges about \$35/1,000 gallons of water treated. The full-scale bioslurper process extracts an average of 9,000 gallons of liquid each day of operation, resulting in an annual disposal cost of approximately \$115,000.

The second problem with this method of treatment is that authorization must first be obtained from the OWTP prior to discharging the tanks. The tanks do not automatically discharge when a preset level is reached. There have been several instances when the OWTP could not accept the water because the OWTP was already operating at maximum capacity. When the tanks fill with water, a high-level switch shuts down the bioslurper systems. The systems cannot be restarted until the tanks are partially emptied. As a result, the bioslurper systems have been shut down 36 days during the first two months of operation.

To evaluate the performance of the water treatment system, five sets of aqueous samples were collected during the first two months of full-scale bioslurper operation. The water samples were collected from the bottom of the ASTs prior to discharging the water to the OWTP. Discrete samples of liquid from the north and south bioslurper effluent streams were collected during the third sampling event. The aqueous samples were analyzed for organics, total polyaromatic hydrocarbons, and total volatile halocarbons content. The results were all below detectable levels, except in the first and third sampling events where 1.0 µg/L toluene (first sampling event) and 0.99 mg/L of methylnaphthalene (third sampling event) were found.

The aqueous samples also were analyzed for chemical oxygen demand (COD), total suspended solids (TSS), pH, and metal constituents. The results from these analyses are presented in Table 4.

The results of the aqueous analyses indicate that the water stored in the ASTs does not have significant concentrations of contaminants. The total amount of water discharged to the OWTP thus far is approximately 70,000 gallons, with another 35,000 gallons being stored in the ASTs at present. It is difficult to say with certainty that contaminant concentrations in the water effluent will not increase if the fuel recovery rate increases. However, based on the data collected thus far, it is Battelle's recommendation that the bioslurper process water be discharged directly to a Waste Water Treatment Plant (WWTP), instead of the OWTP located adjacent to the site. This will reduce water treatment costs and also will reduce the amount of downtime that is directly

attributable to the limitation and time constraints imposed by discharging to the on-site treatment plant.

One possible treatment configuration is to use the ASTs as oil/water separators. From the data collected during the initial operating period, it is apparent that the free-product and the water separate inside the ASTs. Relatively clean water would be discharged from the bottom of the ASTs into a sanitary sewer that discharges to the WWTP. An oil skimmer pump, installed in

Table 4. Effluent Treatment Sampling Results

(a) Chemical Parameters

Sampling Event	Date	Sample Location	COD (mg/L)	TSS (mg/L)	pH (S.U.)
#1	January 20	AST #1	470	18	7.2
		AST #2	750	310	7.5
#2	February 4	AST #1 - AST #2	1,300	38	7.9
#3	February 12	South Effluent	1,500	110	7.7
	February 12	North Effluent	260	35	7.6
#4	February 19	AST #1 - AST #2	410	28	7.2
#5	February 26	AST #1 - AST #2	40	63	8.1

(b) Metals Analysis

Parameter		Sampling Event #1		Sampling Event #2	Sampling Event #3		Sampling Event #4	Sampling Event #5
		AST #1	AST #2	AST #1/#2	South Effluent	North Effluent	AST #1/#2	AST #1/#2
Arsenic	mg/L	ND	ND	ND	0.010	ND	0.020	ND
Barium	mg/L	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/L	0.0020	0.0030	0.0030	0.0010	ND	ND	ND
Chromium	mg/L	ND	ND	ND	ND	ND	ND	ND
Lead	mg/L	ND	0.035	ND	ND	ND	0.078	ND
Mercury	mg/L	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/L	ND	ND	ND	0.012	0.010	0.024	0.015
Silver	mg/L	ND	ND	ND	ND	ND	ND	ND

ND = Not Detected

each AST, would collect and pump the free-product. The 500-gal double-walled fuel storage tank located on the south bioslurper trailer can be used to temporarily store the free-product pumped from the ASTs. Arrangements should be made with a local fuel-recycling agency to periodically remove the free-product from the tank.

An alternative configuration for the water treatment system is to install an oil/water separator (OWS) to separate the recovered free-product from the aqueous stream. A 50-gpm slant rib coalescing (SRC) separator (Great Lakes Environmental, Addison, Illinois) will provide adequate retention time to allow the free-product and water phases to separate. The effluent water from the

Ms. Adrienne Wilson

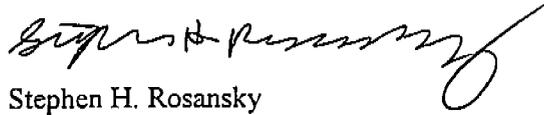
March 30, 1998

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separator would be discharged to a sanitary sewer and the free-product would be discharged to the free-product storage tank.

If you have any questions or comments, please feel free to call Stephen Rosansky at (614) 424-7289 or Eric Drescher at (614) 424-3088.

Sincerely,



Stephen H. Rosansky  
Environmental Engineer  
Environmental Restoration Department



Eric Drescher  
Environmental Engineer  
Environmental Restoration Department

SHR:ED:bkm

attachments

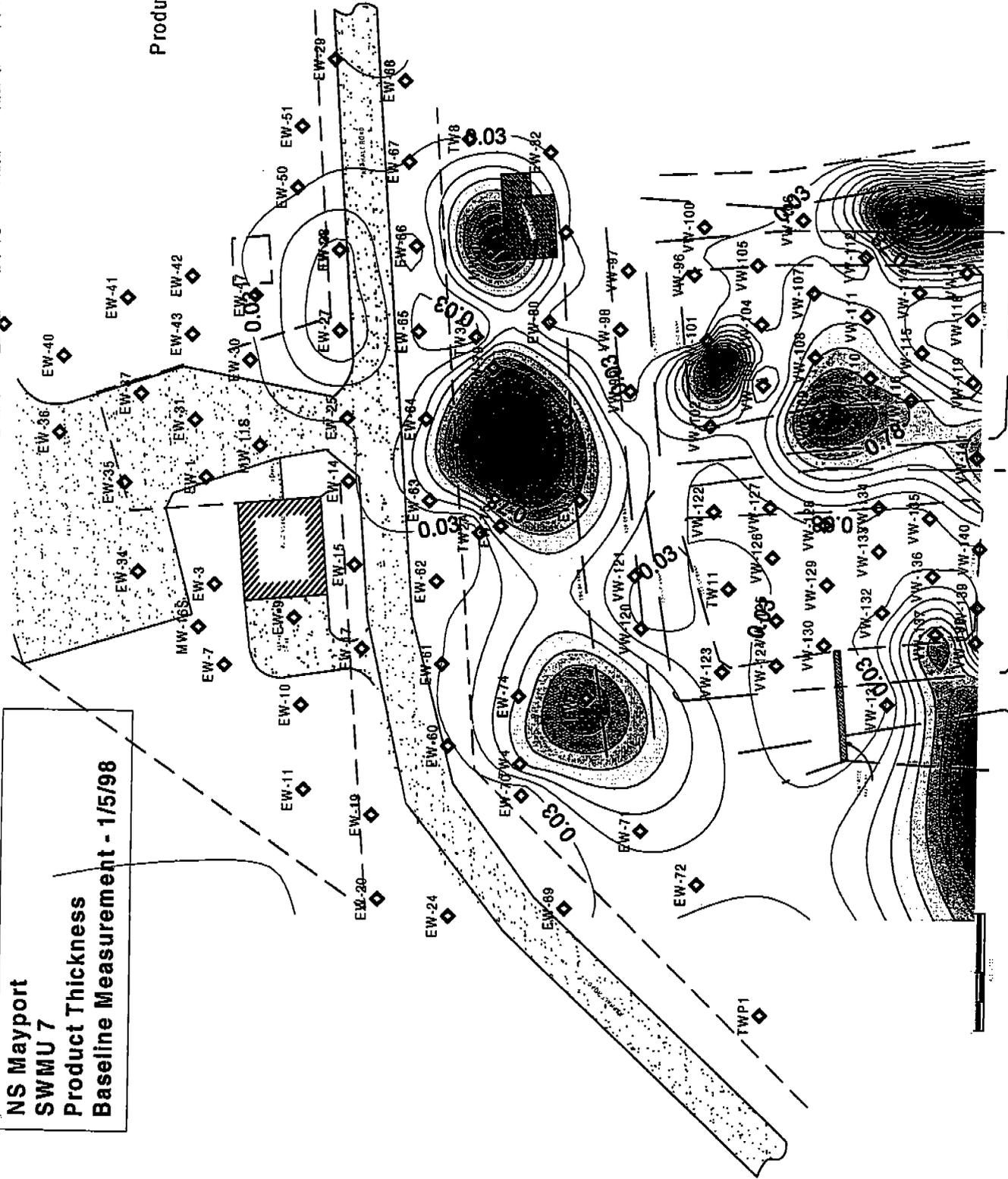
cc: Ms. Sylvia Alvarez (NAVFACCO)  
Mr. Frank Rubesa (NFESC)  
Mr. Mike Maughon (SOUTHDIV)  
Mr. Dave Driggers (SOUTHDIV)

**ATTACHMENT 1**

**Free Product Plume Delineation**

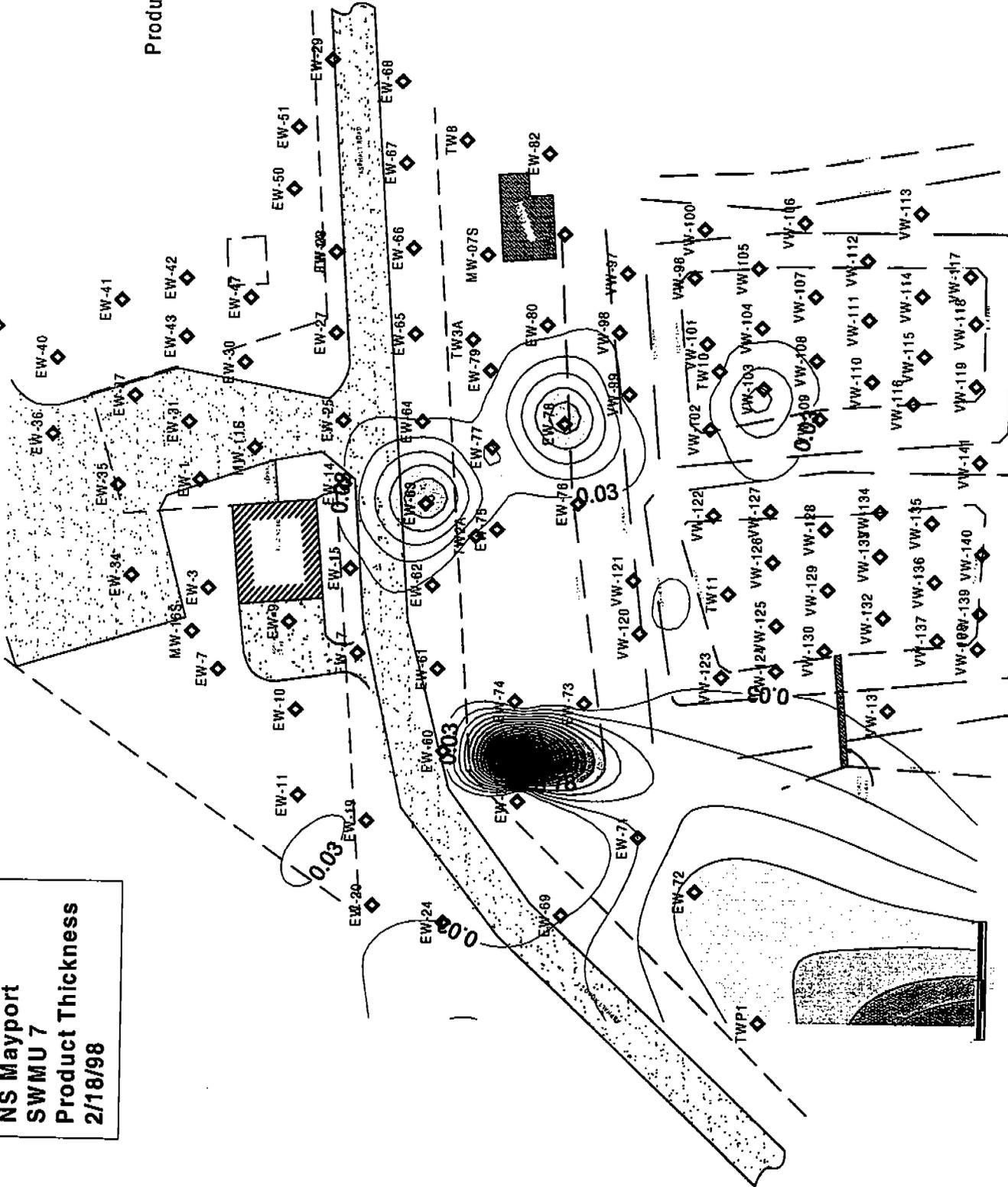
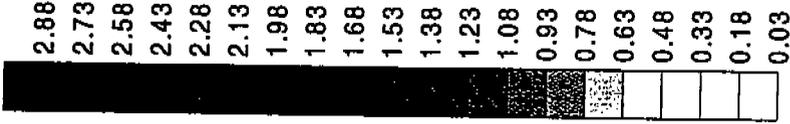
**NS Mayport  
SWMU 7  
Product Thickness  
Baseline Measurement - 1/15/98**

Product Thickness  
(ft)



NS Mayport  
 SWMU 7  
 Product Thickness  
 2/18/98

Product Thickness  
 (ft)





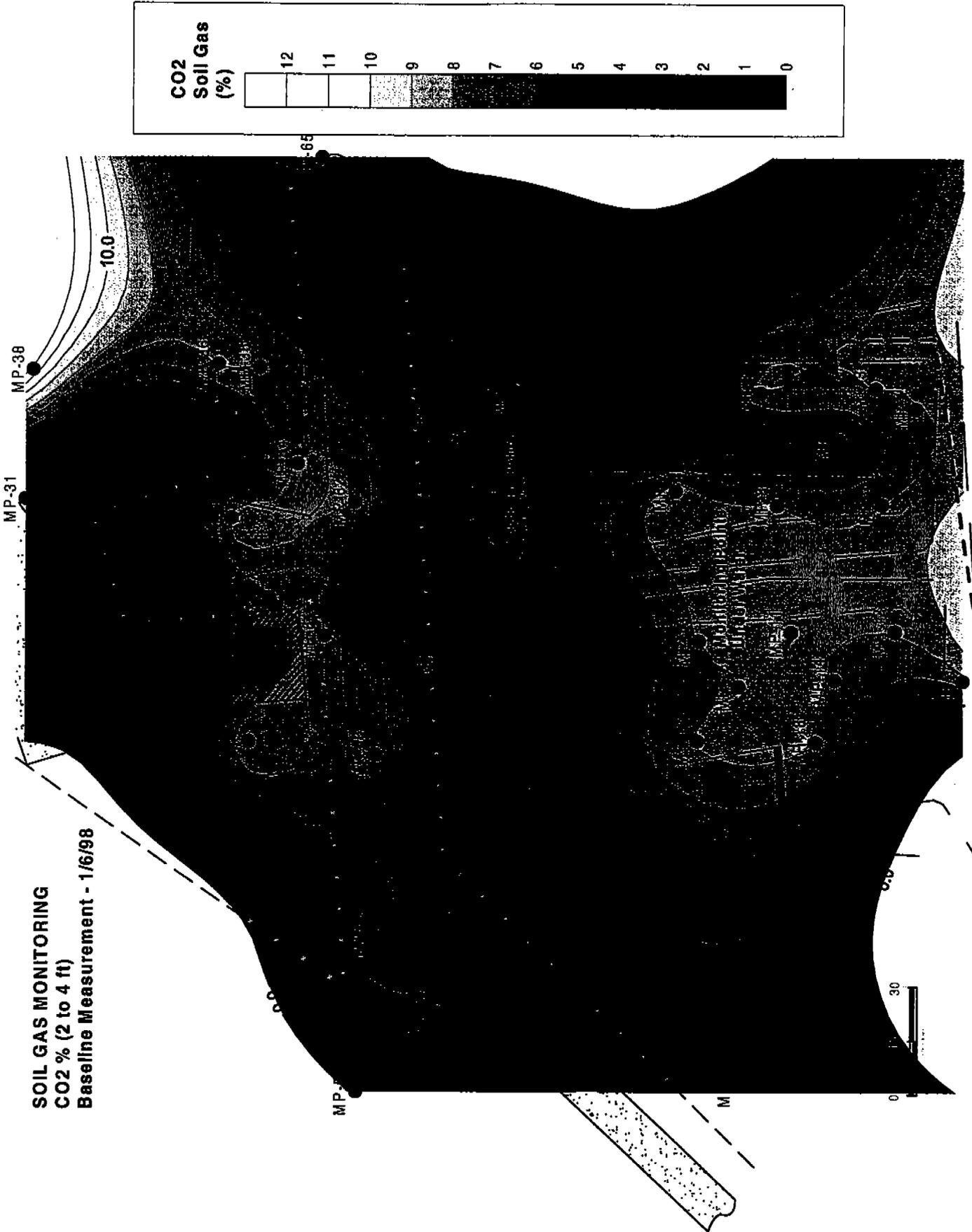
**ATTACHMENT 2**

**Soil-Gas Baseline Contour Plots**





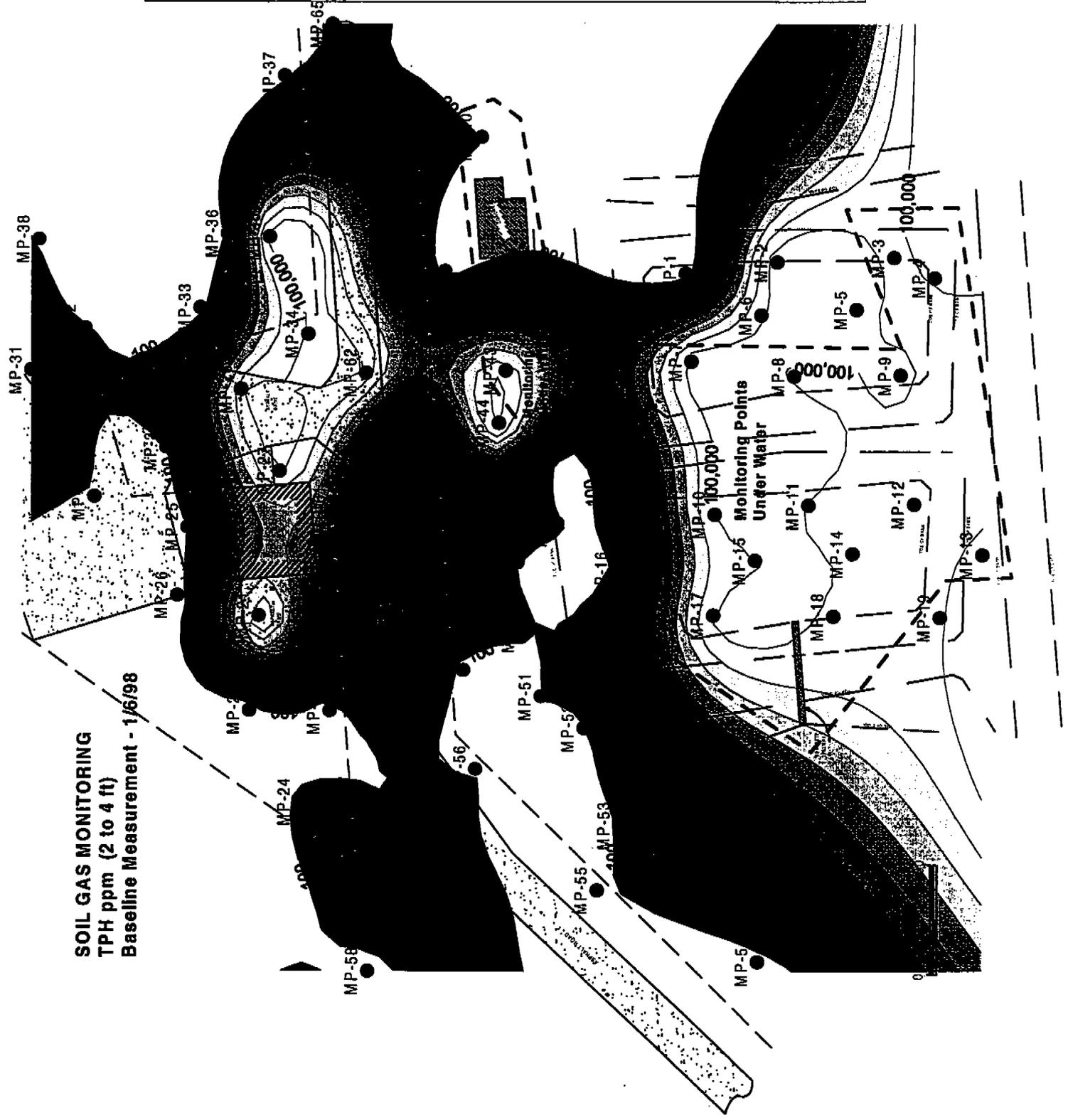
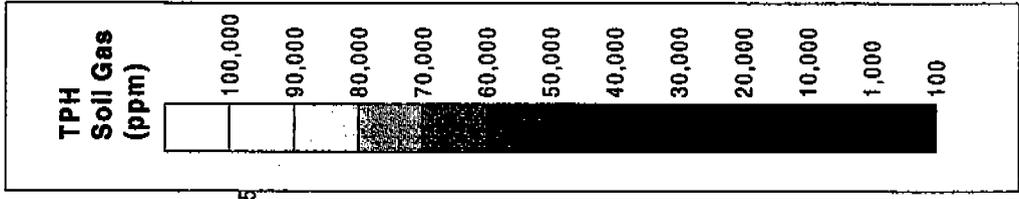
**SOIL GAS MONITORING**  
**CO2 % (2 to 4 ft)**  
**Baseline Measurement - 1/6/98**



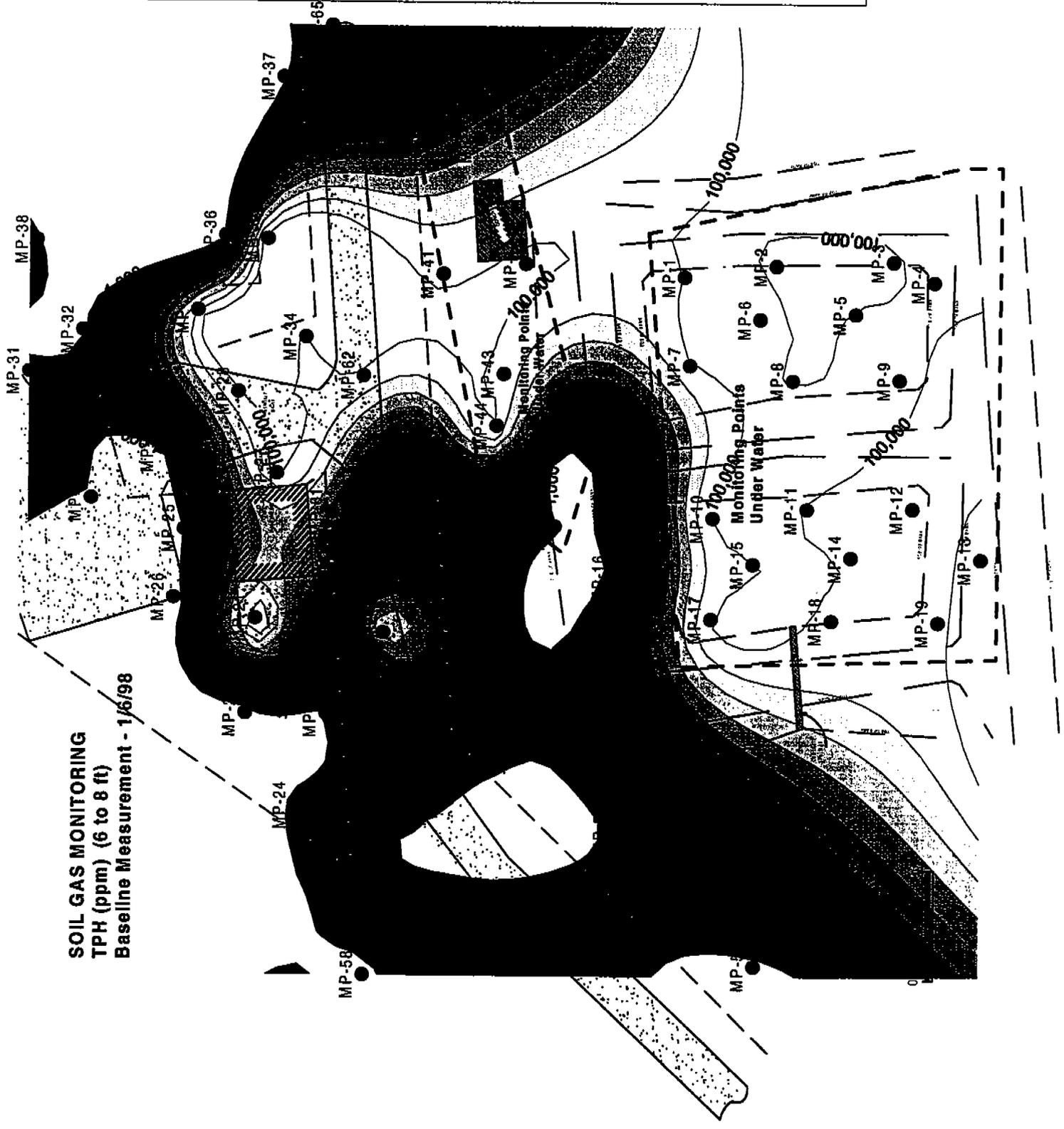
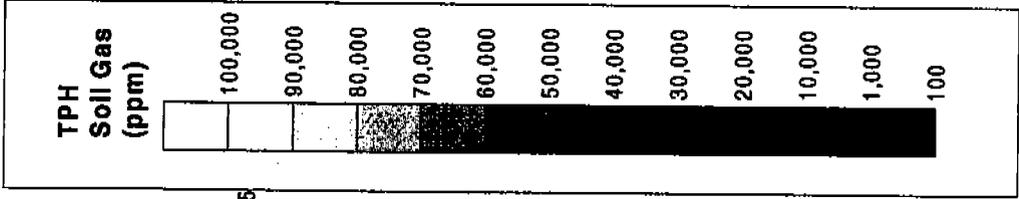
**SOIL GAS MONITORING**  
**CO<sub>2</sub> % (6 to 8 ft)**  
**Baseline Measurement - 1/6/98**



**SOIL GAS MONITORING**  
**TPH ppm (2 to 4 ft)**  
**Baseline Measurement - 1/6/98**



**SOIL GAS MONITORING  
TPH (ppm) (6 to 8 ft)  
Baseline Measurement - 1/6/98**



**ATTACHMENT 3**

**Analytical Data**

Environmental Conservation Laboratories  
4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
904 / 296-3007  
Fax 904 / 296-6210



Laboratories

DHRS Certification No. E82277

CLIENT : Bechtel Environmental, Inc.  
ADDRESS: NAS Cecil Field  
P.O. Box 171  
Jacksonville, FL 32215

REPORT # : JR8746  
DATE SUBMITTED: January 21, 1998  
DATE REPORTED : January 28, 1998

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ATTENTION: Mr. Sam Ross

SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

PROJECT #: SWMU7

Effluent Start-Up #1

01/20/98

- #1 - MP06348 @ 12:00
- #2 - MP06349 @ 11:30

PROJECT MANAGER

*Scott D. Martin*  
\_\_\_\_\_  
Scott D. Martin



## ENCO LABORATORIES

REPORT # : JR8746

DATE REPORTED: January 28, 1998

REFERENCE : SWMU7

PROJECT NAME : Effluent Start-Up #1

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## RESULTS OF ANALYSIS

EPA METHOD 602 -  
VOLATILE AROMATICS

	<u>MP06348</u>	<u>MP06349</u>	<u>Units</u>
Methyl tert-butyl ether	2.0 U	2.0 U	µg/L
Benzene	1.0 U	1.0 U	µg/L
Toluene	1.0 I	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Ethylbenzene	1.0 U	1.0 U	µg/L
m-Xylene & p-Xylene	1.0 U	1.0 U	µg/L
o-Xylene	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	82	85	59-132
Date Analyzed	01/22/98	01/22/98	

U = Compound was analyzed for but not detected to the level shown.  
 I = Analyte detected; value is between the Method Detection Level (MDL)  
 and the Practical Quantitation Level (PQL).

## ENCO LABORATORIES

REPORT # : JR8746  
 DATE REPORTED: January 28, 1998  
 REFERENCE : SWMU7  
 PROJECT NAME : Effluent Start-Up #1

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## RESULTS OF ANALYSIS

## EPA METHOD 610 -

POLY AROMATIC HYDROCARBONS

	<u>MP06348</u>			<u>MP06349</u>			<u>Units</u>
Naphthalene	50	U	D1	50	U	D1	µg/L
2-Methylnaphthalene	50	U	D1	50	U	D1	µg/L
1-Methylnaphthalene	50	U	D1	50	U	D1	µg/L
Acenaphthylene	50	U	D1	50	U	D1	µg/L
Acenaphthene	50	U	D1	50	U	D1	µg/L
Fluorene	50	U	D1	50	U	D1	µg/L
Phenanthrene	50	U	D1	50	U	D1	µg/L
Anthracene	50	U	D1	50	U	D1	µg/L
Fluoranthene	50	U	D1	50	U	D1	µg/L
Pyrene	50	U	D1	50	U	D1	µg/L
Chrysene	50	U	D1	50	U	D1	µg/L
Benzo(a)anthracene	50	U	D1	50	U	D1	µg/L
Benzo(b)fluoranthene	50	U	D1	50	U	D1	µg/L
Benzo(k)fluoranthene	50	U	D1	50	U	D1	µg/L
Benzo(a)pyrene	50	U	D1	50	U	D1	µg/L
Indeno(1,2,3-cd)pyrene	50	U	D1	50	U	D1	µg/L
Dibenzo(a,h)anthracene	50	U	D1	50	U	D1	µg/L
Benzo(g,h,i)perylene	50	U	D1	50	U	D1	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>			<u>% RECOV</u>			<u>LIMITS</u>
2-Fluorobiphenyl	*			*			14-146
Date Extracted	01/22/98			01/22/98			
Date Analyzed	01/27/98			01/27/98			

## EPA METHOD 418.1 -

TOTAL PETR. HYDROCARBONS

	<u>MP06348</u>			<u>MP06349</u>			<u>Units</u>
Total Petr. Hydrocarbons	64			200			mg/L
Date Analyzed	01/26/98			01/26/98			

\* = Surrogate recoveries unavailable due to matrix interference.  
 U = Compound was analyzed for but not detected to the level shown.  
 D1 = Analyte value determined from a 1:5 dilution.

## ENCO LABORATORIES

REPORT # : JR8746

DATE REPORTED: January 28, 1998

REFERENCE : SWMU7

PROJECT NAME : Effluent Start-Up #1

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## RESULTS OF ANALYSIS

<u>TOTAL METALS</u>	<u>METHOD</u>	<u>MP06348</u>	<u>MP06349</u>	<u>Units</u>
Arsenic Date Analyzed	200.7	0.010 U 01/22/98	0.010 U 01/22/98	mg/L
Barium Date Analyzed	200.7	0.10 U 01/22/98	0.10 U 01/22/98	mg/L
Cadmium Date Analyzed	200.7	0.0020 I 01/22/98	0.0030 I 01/22/98	mg/L
Chromium Date Analyzed	200.7	0.010 U 01/22/98	0.010 U 01/22/98	mg/L
Lead Date Analyzed	200.7	0.0050 U 01/22/98	0.035 01/22/98	mg/L
Mercury Date Analyzed	245.1	0.00020 U 01/23/98	0.00020 U 01/23/98	mg/L
Selenium Date Analyzed	200.7	0.010 U 01/22/98	0.010 U 01/22/98	mg/L
Silver Date Analyzed	200.7	0.010 U 01/22/98	0.010 U 01/22/98	mg/L

U = Compound was analyzed for but not detected to the level shown.

I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

## ENCO LABORATORIES

REPORT # : JR8746

DATE REPORTED: January 28, 1998

REFERENCE : SWMU7

PROJECT NAME : Effluent Start-Up #1

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## RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MP06348</u>	<u>MP06349</u>	<u>Units</u>
COD	410.4	470	750	mg/L
Date Analyzed		01/22/98	01/22/98	
Total Susp. Solids	160.2	18	310	mg/L
Date Analyzed		01/21/98	01/21/98	
pH	150.1	7.2	7.5	S.U.
Date Analyzed		01/21/98	01/21/98	

## ENCO LABORATORIES

REPORT # : JR8746

DATE REPORTED: January 28, 1998

REFERENCE : SWMU7

PROJECT NAME : Effluent Start-Up #1

PAGE 7 OF 13

## RESULTS OF ANALYSIS

EPA METHOD 601 -  
VOLATILE HALOCARBONS

	<u>LAB BLANK</u>	<u>Units</u>
Dichlorodifluoromethane	1.0 U	µg/L
Chloromethane	2.0 U	µg/L
Vinyl Chloride	1.0 U	µg/L
Bromomethane	1.0 U	µg/L
Chloroethane	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	µg/L
Methylene Chloride	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	µg/L
Chloroform	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	µg/L
Trichloroethene	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	µg/L
Bromodichloromethane	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
Tetrachloroethene	1.0 U	µg/L
Dibromochloromethane	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Bromoform	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	109	37-161
Date Analyzed	01/22/98	

U = Compound was analyzed for but not detected to the level shown.

## ENCO LABORATORIES

REPORT # : JR8746

DATE REPORTED: January 28, 1998

REFERENCE : SWMU7

PROJECT NAME : Effluent Start-Up #1

PAGE 8 OF 13

## RESULTS OF ANALYSIS

EPA METHOD 602 -  
VOLATILE AROMATICS

	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	2.0 U	µg/L
Benzene	1.0 U	µg/L
Toluene	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Ethylbenzene	1.0 U	µg/L
m-Xylene & p-Xylene	1.0 U	µg/L
o-Xylene	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	84	59-132
Date Analyzed	01/22/98	

U = Compound was analyzed for but not detected to the level shown.

## ENCO LABORATORIES

REPORT # : JR8746

DATE REPORTED: January 28, 1998

REFERENCE : SWMU7

PROJECT NAME : Effluent Start-Up #1

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## RESULTS OF ANALYSIS

## EPA METHOD 610 -

POLY AROMATIC HYDROCARBONS

	<u>LAB BLANK</u>	<u>Units</u>
Naphthalene	10 U	µg/L
2-Methylnaphthalene	10 U	µg/L
1-Methylnaphthalene	10 U	µg/L
Acenaphthylene	10 U	µg/L
Acenaphthene	10 U	µg/L
Fluorene	10 U	µg/L
Phenanthrene	10 U	µg/L
Anthracene	10 U	µg/L
Fluoranthene	10 U	µg/L
Pyrene	10 U	µg/L
Chrysene	10 U	µg/L
Benzo (a) anthracene	10 U	µg/L
Benzo (b) fluoranthene	10 U	µg/L
Benzo (k) fluoranthene	10 U	µg/L
Benzo (a) pyrene	10 U	µg/L
Indeno (1,2,3-cd) pyrene	10 U	µg/L
Dibenzo (a,h) anthracene	10 U	µg/L
Benzo (g,h,i) perylene	10 U	µg/L

Surrogate:

	<u>% RECOV</u>	<u>LIMITS</u>
2-Fluorobiphenyl	106	14-146
Date Extracted	01/22/98	
Date Analyzed	01/26/98	

## EPA METHOD 418.1 -

TOTAL PETR. HYDROCARBONS

	<u>LAB BLANK</u>	<u>Units</u>
Total Petr. Hydrocarbons	1.0 U	mg/L
Date Analyzed	01/26/98	

U = Compound was analyzed for but not detected to the level shown.

## ENCO LABORATORIES

REPORT # : JR8746

DATE REPORTED: January 28, 1998

REFERENCE : SWMU7

PROJECT NAME : Effluent Start-Up #1

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## RESULTS OF ANALYSIS

<u>TOTAL METALS</u>	<u>METHOD</u>	<u>LAB BLANK</u>	<u>Units</u>
Arsenic	200.7	NF	
Date Analyzed		01/21/98	
Barium	200.7	0.10 U	mg/L
Date Analyzed		01/21/98	
Cadmium	200.7	0.0010 U	mg/L
Date Analyzed		01/21/98	
Chromium	200.7	0.010 U	mg/L
Date Analyzed		01/21/98	
Lead	200.7	0.0050 U	mg/L
Date Analyzed		01/21/98	
Mercury	245.1	0.00020 U	mg/L
Date Analyzed		01/23/98	
Selenium	200.7	0.010 U	mg/L
Date Analyzed		01/21/98	
Silver	200.7	0.010 U	mg/L
Date Analyzed		01/21/98	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : JR8746

DATE REPORTED: January 28, 1998

REFERENCE : SWMU7

PROJECT NAME : Effluent Start-Up #1

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RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>LAB BLANK</u>	<u>Units</u>
COD Date Analyzed	410.4	10 U 01/22/98	mg/L
Total Susp. Solids Date Analyzed	160.2	4.0 U 01/21/98	mg/L

U = Compound was analyzed for but not detected to the level shown.

## ENCO LABORATORIES

REPORT # : JR8746

DATE REPORTED: January 28, 1998

REFERENCE : SWMU7

PROJECT NAME : Effluent Start-Up #1

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## QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>MS/MSD/LCS</u>	<u>ACCEPT</u> <u>LIMITS</u>	<u>% RPD</u> <u>MS/MSD</u>	<u>ACCEPT</u> <u>LIMITS</u>
<u>EPA Method 601</u>				
Methylene Chloride	92/ 93/ 87	46-155	1	25
Chloroform	88/ 86/ 83	60-147	2	17
Carbon Tetrachloride	103/ 96/ 92	60-146	7	21
Trichloroethene	94/ 84/ 86	51-142	11	23
Tetrachloroethene	101/ 99/ 95	58-147	2	21
Chlorobenzene	97/ 99/ 98	59-142	2	18
<u>EPA Method 602</u>				
Benzene	93/ 94/ 94	60-138	1	17
Toluene	89/ 91/ 90	57-138	2	16
Ethylbenzene	94/ 99/ 95	49-144	5	17
o-Xylene	101/104/102	50-151	3	17
<u>EPA Method 610</u>				
2-Methylnaphthalene	92/ 92/102	22-141	<1	28
1-Methylnaphthalene	87/ 86/ 85	20-152	1	29
Acenaphthylene	108/104/ 91	29-145	4	20
Fluorene	107/103/ 94	38-151	4	18
Pyrene	96/ 90/ 93	45-166	6	19
<u>EPA Method 418.1</u>				
Total Petr. Hydrocarbons	104/103/103	63-126	<1	16

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than  
 MS = Matrix Spike  
 MSD = Matrix Spike Duplicate  
 LCS = Laboratory Control Standard  
 RPD = Relative Percent Difference

This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

## ENCO LABORATORIES

REPORT # : JR8746

DATE REPORTED: January 28, 1998

REFERENCE : SWMU7

PROJECT NAME : Effluent Start-Up #1

PAGE 13 OF 13

## QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY MS/MSD/LCS</u>	<u>ACCEPT LIMITS</u>	<u>% RPD MS/MSD</u>	<u>ACCEPT LIMITS</u>
<u>Total Metals</u>				
Arsenic, 200.7	86/ 89/ 87	66-124	3	11
Barium, 200.7	96/ 98/ 89	74-119	2	11
Cadmium, 200.7	88/ 91/ 89	68-121	3	12
Chromium, 200.7	88/ 90/ 88	73-120	2	10
Lead, 200.7	90/ 93/ 91	68-126	3	19
Mercury, 245.1	108/109/108	70-136	<1	12
Selenium, 200.7	91/ 93/ 92	65-129	2	10
Silver, 200.7	90/ 92/ 91	69-121	2	12
<u>Miscellaneous</u>				
COD, 410.4	110/122/107	82-124	10	8
Total Susp. Solids, 160.2	NA/ NA/102	-	NA	
pH, 150.1	NA/ NA/100	-	NA	

Environmental Conservation Laboratories Comprehensive QA Plan #960038

&lt; = Less Than

MS = Matrix Spike

MSD = Matrix Spike Duplicate

LCS = Laboratory Control Standard

RPD = Relative Percent Difference

This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s., UN2910.



CHAIN OF CUSTODY RECORD

Facility Name: N5 Mayport  
 Site Name: SWMU 7  
 Delivery Order No.: \_\_\_\_\_  
 Cooler/Crate No.: \_\_\_\_\_  
 Sampling Event: Effluent Start-up #1

SEIR No.: \_\_\_\_\_  
 COC Number: MP059  
 Lab: ENCU  
 Field Logbook No.: \_\_\_\_\_  
 Logbook Pg. No.: \_\_\_\_\_

Sampled by: ERIC REISCHER

Fred D...

CHRIS COOPER

Fred D...

Legend SAMPLE TYPE

- PSB Preservative Blank
- FDP Field Duplicate
- ENV Environmental
- FDB Field Blank
- GEO Geotechnical Sample
- MXD Matrix Spike Duplicate
- MXS Matrix Spike
- BLS Blind Spike
- BLB Blank Blank
- PTS Point Source
- FRP Field Replicate
- RSB Rinsate Blank
- SPL Split
- TPB Trip Blank

MATRIX

- AIR Air
- FLO Flora
- FAU Fauna
- GWT Groundwater
- LOH Leachate
- OIL Oil
- DW Deionized Water
- DFW Deionized Organic Free Water
- SBS Subsurface Soil (>6")
- SED Sediment
- SFS Surface Soil (0-6")
- SPW Surface Water
- SLG Sludge
- SLW Solid Waste
- OPW Organic Free Water
- PBS Post Burn Soil
- PTW Potable Water
- SEP Seeps
- SOL Solids
- WWT Waste Water
- SST Surface Water
- Storm Event

QC LEVELS

- C Sample results and QC reported
- D Sample results, QC and raw data reported
- E Sample results, blanks, and calibration reported
- S Screening level analysis; sample results and as reported

Station ID	BEI Sample ID	Sample Type	Matrix Code	Collection Date/Time	Container ID	Preservative	Pay Item	Parameter	Priority	QC Code	
A5T 1	MPC6378	ENV	GWT	1/21/98 / 1200	1	HCl	-	EPH 601/02	S day	-	
					2	HCl	-	EPH 601/02		-	
					3	H2SO4	-	CON		-	
					4	H2SO4	-	CO2		-	
					5	-	-	EPH 610		-	
					6	H2SO4	-	EPH 418.1		-	
RELINQUISHED BY				RECEIVED BY	DATE	TIME	REASON FOR TRANSFER	COMMENTS/INSTRUCTIONS			
Samuel M. Lane				C. Leohu	1/21/98	0715	Trans To Lab	Samples collected by Battelle personnel JRT 7946			
C. Leohu				Samuel M. Lane	1/21/98	0815	Log in 496	POB 254-CC-2550			
CONTAMINATION											
Radiological											
Chemical											
YES NO											

Shipper: \_\_\_\_\_  
 Ship to: \_\_\_\_\_

Airbill No. \_\_\_\_\_

Traffic Report No. \_\_\_\_\_

This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s., UN2910

D:\AFCEB\NORTON\COCA.WS1

CHAIN OF CUSTODY RECORD (continued)

COC Number MP 059

Page 2 of 2

Station ID	BEI Sample ID	Sample Type	Matrix Code	Collection Date/Time	Container ID	Preservative	Pay Item	Parameter	Priority	QC Level
RST1 bottom	MP06348	ENV	GWT	1/20/98/1200	7	-	-	TSS, PH	Sday	-
↓	↓	↓	↓	↓	8	HNO <sub>3</sub>	-	PCRB	↓	-
A ST 2 bottom	MP06349	ENV	GWT	1/20/98/1130	1	HCl	-	EPA 601/602	↓	-
↓	↓	↓	↓	↓	2	HCl	-	EPA 601/602	↓	-
↓	↓	↓	↓	↓	3	H <sub>2</sub> SO <sub>4</sub>	-	COD	↓	-
↓	↓	↓	↓	↓	4	H <sub>2</sub> SO <sub>4</sub>	-	COD	↓	-
↓	↓	↓	↓	↓	5	-	-	EPA 610	↓	-
↓	↓	↓	↓	↓	6	H <sub>2</sub> SO <sub>4</sub>	-	EPA 418.1	↓	-
↓	↓	↓	↓	↓	7	-	-	TSS Ph	↓	-
↓	↓	↓	↓	↓	8	HNO <sub>3</sub>	-	PCRB	↓	-

*Handwritten signature and date:*  
 [Signature] 1/20/98

Environmental Conservation Laboratories  
4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
904 / 296-3007  
Fax 904 / 296-6210



Laboratories

DHRS Certification No. EB2277

CLIENT : Bechtel Environmental, Inc.  
ADDRESS: NAS Cecil Field  
P.O. Box 171  
Jacksonville, FL 32215

REPORT # : JR9019  
DATE SUBMITTED: February 6, 1998  
DATE REPORTED : February 16, 1998

PAGE 1 OF 8

ATTENTION: Mr. Sam Ross

## SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

PROJECT #: SWMV7

Effluent Start-Up #2

02/04/98

#1 - MP06363 @ 16:15

PROJECT MANAGER

  
\_\_\_\_\_  
Scott D. Martin

## ENCO LABORATORIES

REPORT # : JR9019

DATE REPORTED: February 16, 1998

REFERENCE : SWMV7

PROJECT NAME : Effluent Start-Up #2

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## RESULTS OF ANALYSIS

EPA METHOD 601 - VOLATILE HALOCARBONS	MP06363	LAB BLANK	Units
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	4.0 I	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
c-1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethane	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	110	114	37-161
Date Analyzed	02/10/98	02/10/98	

U = Compound was analyzed for but not detected to the level shown.  
 I = Analyte detected; value is between the Method Detection Level (MDL)  
 and the Practical Quantitation Level (PQL).

## ENCO LABORATORIES

REPORT # : JR9019  
 DATE REPORTED: February 16, 1998  
 REFERENCE : SWMV7  
 PROJECT NAME : Effluent Start-Up #2

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## RESULTS OF ANALYSIS

EPA METHOD 602 -  
VOLATILE AROMATICS

	<u>MP06363</u>	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	2.0 U	2.0 U	µg/L
Benzene	1.0 U	1.0 U	µg/L
Toluene	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Ethylbenzene	1.0 U	1.0 U	µg/L
m-Xylene & p-Xylene	1.0 U	1.0 U	µg/L
o-Xylene	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	104	119	59-132
Date Analyzed	02/10/98	02/10/98	

U = Compound was analyzed for but not detected to the level shown.

## ENCO LABORATORIES

REPORT # : JR9019  
 DATE REPORTED: February 16, 1998  
 REFERENCE : SWMV7  
 PROJECT NAME : Effluent Start-Up #2

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## RESULTS OF ANALYSIS

EPA METHOD 610 - <u>POLY AROMATIC HYDROCARBONS</u>	<u>MP06363</u>	<u>LAB BLANK</u>	<u>Units</u>
Naphthalene	200 U D1	10 U	µg/L
2-Methylnaphthalene	200 U D1	10 U	µg/L
1-Methylnaphthalene	200 U D1	10 U	µg/L
Acenaphthylene	200 U D1	10 U	µg/L
Acenaphthene	200 U D1	10 U	µg/L
Fluorene	200 U D1	10 U	µg/L
Phenanthrene	200 U D1	10 U	µg/L
Anthracene	200 U D1	10 U	µg/L
Fluoranthene	200 U D1	10 U	µg/L
Pyrene	200 U D1	10 U	µg/L
Chrysene	200 U D1	10 U	µg/L
Benzo (a) anthracene	200 U D1	10 U	µg/L
Benzo (b) fluoranthene	200 U D1	10 U	µg/L
Benzo (k) fluoranthene	200 U D1	10 U	µg/L
Benzo (a) pyrene	200 U D1	10 U	µg/L
Indeno (1, 2, 3-cd) pyrene	200 U D1	10 U	µg/L
Dibenzo (a, h) anthracene	200 U D1	10 U	µg/L
Benzo (g, h, i) perylene	200 U D1	10 U	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
2-Fluorobiphenyl	*	84	14-146
Date Extracted	02/10/98	02/10/98	
Date Analyzed	02/12/98	02/11/98	

EPA METHOD 418.1 - <u>TOTAL PETR. HYDROCARBONS</u>	<u>MP06363</u>	<u>LAB BLANK</u>	<u>Units</u>
Total Petr. Hydrocarbons	5800	1.0 U	mg/L
Date Analyzed	02/11/98	02/11/98	

\* = Surrogate recovery unavailable due to matrix interference.  
 U = Compound was analyzed for but not detected to the level shown.  
 D1 = Analyte value determined from a 1:20 dilution.

## ENCO LABORATORIES

REPORT # : JR9019

DATE REPORTED: February 16, 1998

REFERENCE : SWM7

PROJECT NAME : Effluent Start-Up #2

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## RESULTS OF ANALYSIS

<u>TOTAL METALS</u>	<u>METHOD</u>	<u>MP06363</u>	<u>LAB BLANK</u>	<u>Units</u>
Arsenic Date Analyzed	200.7	0.010 U 02/10/98	0.010 U 02/10/98	mg/L
Barium Date Analyzed	200.7	0.10 U 02/10/98	0.10 U 02/10/98	mg/L
Cadmium Date Analyzed	200.7	0.0030 I 02/10/98	0.0010 U 02/10/98	mg/L
Chromium Date Analyzed	200.7	0.010 U 02/10/98	0.010 U 02/10/98	mg/L
Lead Date Analyzed	200.7	0.0050 U 02/10/98	0.0050 U 02/10/98	mg/L
Mercury Date Analyzed	245.1	0.00020 U 02/09/98	0.00020 U 02/09/98	mg/L
Selenium Date Analyzed	200.7	0.010 U 02/10/98	0.010 U 02/10/98	mg/L
Silver Date Analyzed	200.7	0.010 U 02/10/98	0.010 U 02/10/98	mg/L

U = Compound was analyzed for but not detected to the level shown.

I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

## ENCO LABORATORIES

REPORT # : JR9019  
DATE REPORTED: February 16, 1998  
REFERENCE : SWMV7  
PROJECT NAME : Effluent Start-Up #2

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## RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MP06363</u>	<u>LAB BLANK</u>	<u>Units</u>
COD	410.4	1300	10 U	mg/L
Date Analyzed		02/12/98	02/12/98	
Total Susp. Solids	160.2	38	4.0 U	mg/L
Date Analyzed		02/09/98	02/09/98	
pH	150.1	7.9	NR	S.U.
Date Analyzed		02/09/98		

NR = Analysis not requested for this sample.

## ENCO LABORATORIES

REPORT # : JR9019  
 DATE REPORTED: February 16, 1998  
 REFERENCE : SWMV7  
 PROJECT NAME : Effluent Start-Up #2

PAGE 7 OF 8

## QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY MS/MSD/LCS</u>	<u>ACCEPT LIMITS</u>	<u>% RPD MS/MSD</u>	<u>ACCEPT LIMITS</u>
<u>EPA Method 601</u>				
Methylene Chloride	97/ 95/ 97	46-155	2	25
Chloroform	89/ 90/ 96	60-147	1	17
Carbon Tetrachloride	92/ 91/100	60-146	1	21
Trichloroethene	90/ 90/ 96	51-142	<1	23
Tetrachloroethene	108/102/111	58-147	6	21
Chlorobenzene	102/103/ 99	59-142	<1	18
<u>EPA Method 602</u>				
Benzene	93/ 94/ 94	60-138	1	17
Toluene	90/ 92/ 91	57-138	2	16
Ethylbenzene	101/104/102	49-144	3	17
o-Xylene	104/108/105	50-151	4	17
<u>EPA Method 610</u>				
2-Methylnaphthalene	81/ 71/ 96	22-141	13	28
1-Methylnaphthalene	80/ 71/ 99	20-152	12	29
Acanaphthylene	92/ 86/115	29-145	7	20
Fluorene	96/ 88/124	38-151	9	18
Pyrene	100/ 88/136	45-166	13	19
<u>EPA Method 418.1</u>				
Total Petr. Hydrocarbons	104/103/ 99	63-126	<1	16

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than  
 MS = Matrix Spike  
 MSD = Matrix Spike Duplicate  
 LCS = Laboratory Control Standard  
 RPD = Relative Percent Difference

This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

CHAIN OF CUSTODY RECORD

Facility Name: N5 MAY PAYT  
 Site Name: SWMV7  
 Delivery Order No.:  
 Cooler/Crate No.:  
 Sampling Event: Effluent Start-up #2  
 SEIR No.:  
 COC Number: MP065  
 Lab: EWCO  
 Field Logbook No.:  
 Logbook Pg. No.:

Sampled by: Sam Ross Print Sign Sam Ross Sign Red Perdue Sign Red Perdue

Station ID	SAMPLE TYPE			Matrix Code	Collection Date/Time	Container ID	Preservative	Pay Item	Parameter	Priority	QC Code
	BEI Sample ID	Sample Type	Matrix Code								
AST11A12	MP06363	ENV	GWT	2/18/98	1	HCl	NA	EPA 601/602	S/day	NA	
Composite					2	HCl		EPA 601/602			
					3	H <sub>2</sub> SO <sub>4</sub>		COB			
					4	H <sub>2</sub> SO <sub>4</sub>		COP			
					5			EPA 610			
					6	H <sub>2</sub> SO <sub>4</sub>		EPA 418.1			
RELINQUISHED BY		RECEIVED BY	DATE	TIME	REASON FOR TRANSFER						
<u>C. Kohn</u>		<u>C. Kohn</u>	<u>2/18/98</u>	<u>1305</u>	<u>Transfer to Lab</u>						
		<u>David W. Kim</u>	<u>2/16/98</u>	<u>940</u>	<u>long in lab</u>						
Shipper:											
Ship. to:											

COMMENTS/INSTRUCTIONS

PO # 254-66-2550

369019

CONTAMINATION	YES	NO
Radiological		
Chemical		

Airbill No. \_\_\_\_\_ Traffic Report No. \_\_\_\_\_

This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s. UN2910



14244-1

Environmental Conservation Laboratories  
4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
304 / 296-3007  
Fax 904 / 296-6210



Laboratories

DHRS Certification No. E92277

CLIENT : Bechtel Environmental, Inc.  
ADDRESS: NAS Cecil Field  
P.O. Box 171  
Jacksonville, FL 32215

REPORT # : JR9125  
DATE SUBMITTED: February 13, 1998  
DATE REPORTED : February 24, 1998

PAGE 1 OF 12

ATTENTION: Mr. Sam Ross

SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

Effluent Start-up #3

02/12/98

- #1 - MP6369 @ 09:15
- #2 - MP6370 @ 11:00

RECEIVED

FEB 25 1998

V. HERMANN BAUER

PROJECT MANAGER

*Scott D. Martin*  
\_\_\_\_\_  
Scott D. Martin

14244-1

## ENCO LABORATORIES

REPORT # : JR9125

DATE REPORTED: February 24, 1998

PROJECT NAME : Effluent Start-up #3

PAGE 2 OF 12

## RESULTS OF ANALYSIS

## EPA METHOD 601 -

VOLATILE HALOCARBONS

	<u>MP6369</u>	<u>MP6370</u>	<u>Units</u>
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L

Surrogate:

	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	92	102	37-161
Date Analyzed	02/21/98	02/21/98	

U = Compound was analyzed for but not detected to the level shown.

## ENCO LABORATORIES

REPORT # : JR9125

DATE REPORTED: February 24, 1998

PROJECT NAME : Effluent Start-up #3

PAGE 3 OF 12

## RESULTS OF ANALYSIS

## EPA METHOD 602 -

VOLATILE AROMATICS

	<u>MP6369</u>	<u>MP6370</u>	<u>Units</u>
Methyl tert-butyl ether	2.0 U	2.0 U	µg/L
Benzene	1.0 U	1.0 U	µg/L
Toluene	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Ethylbenzene	1.0 U	1.0 U	µg/L
m-Xylene & p-Xylene	1.0 U	1.0 U	µg/L
o-Xylene	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L

Surrogate:

	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	79	87	59-132
Date Analyzed	02/21/98	02/21/98	

U = Compound was analyzed for but not detected to the level shown.

## ENCO LABORATORIES

REPORT # : JR9125

DATE REPORTED: February 24, 1998

PROJECT NAME : Effluent Start-up #3

PAGE 4 OF 12

## RESULTS OF ANALYSIS

## EPA METHOD 610 -

POLY AROMATIC HYDROCARBONSMP6369MP6370Units

Naphthalene	1000 U	D1	100 U	µg/L
2-Methylnaphthalene	1000 U	D1	460	µg/L
1-Methylnaphthalene	1000 U	D1	530	µg/L
Acenaphthylene	1000 U	D1	100 U	µg/L
Acenaphthene	1000 U	D1	100 U	µg/L
Fluorene	1000 U	D1	100 U	µg/L
Phenanthrene	1000 U	D1	100 U	µg/L
Anthracene	1000 U	D1	100 U	µg/L
Fluoranthene	100 U		100 U	µg/L
Pyrene	100 U		100 U	µg/L
rysene	100 U		100 U	µg/L
Benzo (a) anthracene	100 U		100 U	µg/L
Benzo (b) fluoranthene	100 U		100 U	µg/L
Benzo (k) fluoranthene	100 U		100 U	µg/L
Benzo (a) pyrene	100 U		100 U	µg/L
Indeno (1, 2, 3-cd) pyrene	100 U		100 U	µg/L
Dibenzo (a, h) anthracene	100 U		100 U	µg/L
Benzo (g, h, i) perylene	100 U		100 U	µg/L

Surrogate:

	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
2-Fluorobiphenyl	*	*	14-146
Date Extracted	02/18/98	02/18/98	
Date Analyzed	02/18/98	02/18/98	

## EPA METHOD 418.1 -

TOTAL PETR. HYDROCARBONSMP6369MP6370Units

Total Petr. Hydrocarbons	410	320	mg/L
Date Analyzed	02/20/98	02/20/98	

\* = Surrogate recovery unavailable due to matrix interference.

\* = Compound was analyzed for but not detected to the level shown.

D1 = Analyte value determined from a 1:10 dilution.

## ENCO LABORATORIES

REPORT # : JR9125

DATE REPORTED: February 24, 1998

PROJECT NAME : Effluent Start-up #3

PAGE 5 OF 12

## RESULTS OF ANALYSIS

<u>TOTAL METALS</u>	<u>METHOD</u>	<u>MP6369</u>	<u>MP6370</u>	<u>Units</u>
Arsenic	200.7	0.010 I	0.010 U	mg/L
Date Analyzed		02/16/98	02/16/98	
Barium	200.7	0.10 U	0.10 U	mg/L
Date Analyzed		02/16/98	02/16/98	
Cadmium	200.7	0.0010 I	0.0010 U	mg/L
Date Analyzed		02/16/98	02/16/98	
Chromium	200.7	0.010 U	0.010 U	mg/L
Date Analyzed		02/17/98	02/17/98	
Lead	200.7	0.0090 U	0.0050 U	mg/L
Date Analyzed		02/19/98	02/16/98	
Mercury	245.1	0.00020 U	0.00020 U	mg/L
Date Analyzed		02/16/98	02/16/98	
Selenium	200.7	0.012 I	0.010 I	mg/L
Date Analyzed		02/16/98	02/16/98	
Silver	200.7	0.010 U	0.010 U	mg/L
Date Analyzed		02/16/98	02/16/98	

U = Compound was analyzed for but not detected to the level shown.

R = Analysis not requested for this sample.

I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

## ENCO LABORATORIES

REPORT # : JR9125

DATE REPORTED: February 24, 1998

PROJECT NAME : Effluent Start-up #3

PAGE 6 OF 12

## RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MP6369</u>	<u>MP6370</u>	<u>Units</u>
COD	410.4	1500	260	mg/L
Date Analyzed		02/24/98	02/18/98	
Total Susp. Solids	160.2	110	35	mg/L
Date Analyzed		02/18/98	02/18/98	
pH	150.1	7.7	7.6	S.U.
Date Analyzed		02/17/98	02/17/98	



CHAIN OF CUSTODY RECORD

Facility Name: NS Mayport  
 Site Name: SWMU 7  
 Delivery Order No.: \_\_\_\_\_  
 Cooler/Crate No.: \_\_\_\_\_  
 Sampling Event: Effluent Start-up #3

SEIR No.: \_\_\_\_\_  
 COC Number: MP068  
 Lab: \_\_\_\_\_  
 Field Logbook No.: \_\_\_\_\_  
 Logbook Pg. No.: \_\_\_\_\_

Sampled by: Sam Ross Sam Ross

Legend SAMPLE TYPE MATRIX QC LEVELS

PSB Preservative Blank	BLS Blind Spike	AIR Air	SBS Subsurface Soil (>6")	PBS Post Burn Soil	C Sample results and QC reported
FDP Field Duplicate	BLB Blank Blank	FLO Flora	SED Sediment	PTW Potable Water	D Sample results, QC and raw data reported
ENV Environmental	PTS Point Source	FAU Fauna	SFS Surface Soil (0-6")	SEP Seeps	E Sample results, blanks, and calibration reported
FDB Field Blank	FRP Field Replicate	GWT Groundwater	SPW Surface Water	SOL Solid	S Screening level analysis; sample results and as reported
GEO Geotechnical Sample	RFB Rinsate Blank	LCH Leachate	SLG Sludge	WWT Waste Water	
MXD Matrix Spike Duplicate	RSP Rinsate Spike	OIL Oil	SLW Solid Waste	SWW Waste Water	
MXS Matrix Spike	SPL Trip Blank	DW Deionized Water	OFW Organic Free Water	SST Surface Water	
		DFW Deionized Organic Free Water		Storm Event	

Station ID	BEI Sample ID	Sample Type	Matrix Code	Collection Date/Time	Container ID	Preservative	Pay Item	Parameter	Priority	QC Code
South	MP6369	ENV	AIR	2/22/98/915	1	HCl	-	EPA 601/602	5 day	-
Biogherper					2	HCl	-	EPA 601/602		-
Effluent					3	H <sub>2</sub> SO <sub>4</sub>	-	COD		-
					4	H <sub>2</sub> SO <sub>4</sub>	-	COD		-
					5	-	-	EPA 610		-
					6	H <sub>2</sub> SO <sub>4</sub>	-	EPA 411.1		-

RELINQUISHED BY James M. Lee

RECEIVED BY C. Kshy

DATE 2/22/98

TIME 1430

REASON FOR TRANSFER Trans. to Lab

COMMENTS/INSTRUCTIONS PO # 254-CC-2550

CONTAMINATION	YES	NO
Radiological		
Chemical		

Shipper: \_\_\_\_\_  
 Ship to: \_\_\_\_\_

Airbill No. \_\_\_\_\_ Traffic Report No. \_\_\_\_\_

This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s. UN2910

CHAIN OF CUSTODY RECORD (continued)

COC Number MP 068

Page 2 of 2

Station ID	BEI Sample ID	Sample Type	Matrix Code	Collection Date/Time	Container ID	Preservative	Pay Item	Parameter	Priority	QC Level
South Bioscience Effluent	MP6364	ENV	AIR	2/12/98/915	7	HNO <sub>3</sub>	-	TSS, pH	5day	-
North Bioscience Effluent	MP6370	ENV	AIR	2/12/98/1100	8	HCl	-	RCRA 8	↓	-
					1	HCl	-	EPA 601/602	5day	-
					2	HCl	-	EPA 601/602		-
					3	H <sub>2</sub> SO <sub>4</sub>	-	COD		-
					4	H <sub>2</sub> SO <sub>4</sub>	-	COD		-
					5	-	-	EPA 610		-
					6	H <sub>2</sub> SO <sub>4</sub>	-	EPA 418.1		-
					7	-	-	TSS, pH		-
					8	HNO <sub>3</sub>	-	RCRA 8		-

*Handwritten:* 2/12/98

ARCEV0810X10

Environmental Conservation Laboratories  
4310 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
904 / 296-3007  
Fax 904 / 296-6210



Laboratories

DHRS Certification No. E32277

CLIENT : Bechtel Environmental, Inc.  
ADDRESS: NAS Cecil Field  
P.O. Box 171  
Jacksonville, FL 32215

REPORT # : JR9215  
DATE SUBMITTED: February 20, 1998  
DATE REPORTED : March 4, 1998

PAGE 1 OF 7

ATTENTION: Mr. Sam Ross

SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

PROJECT #: SWMU-7

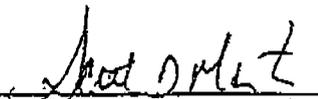
Effluent Startup #4

02/19/98

#1 - MP06373 @ 15:40

RECEIVED  
MAR 16 1998  
V. HERMANN BAUER

PROJECT MANAGER

  
Scott D. Martin

ENCO LABORATORIES  
REPORT # : JR9215  
DATE REPORTED: March 4, 1998  
REFERENCE : SWMU-7  
PROJECT NAME : Effluent Startup #4

RESULTS OF ANALYSIS

EPA METHOD 601 - VOLATILE HALOCARBONS	MP06373	LAB BLANK	Units
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	5.0 U	5.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	75	85	37-161
Date Analyzed	03/03/98	03/03/98	

U = Compound was analyzed for but not detected to the level shown.  
µ = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

14333

## ENCO LABORATORIES

REPORT # : JR9215

DATE REPORTED: March 4, 1998

REFERENCE : SWMU-7

PROJECT NAME : Effluent Startup #4

PAGE 3 OF 7

## RESULTS OF ANALYSIS

## EPA METHOD 602 -

VOLATILE AROMATICS

	<u>MP06373</u>	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	2.0 U	2.0 U	µg/L
Benzene	1.0 U	1.0 U	µg/L
Toluene	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Ethylbenzene	1.0 U	1.0 U	µg/L
m-Xylene & p-Xylene	1.0 U	1.0 U	µg/L
o-Xylene	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
<u>rogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
bromofluorobenzene	95	90	59-132
Date Analyzed	03/03/98	03/03/98	

U = Compound was analyzed for but not detected to the level shown.

## ENCO LABORATORIES

REPORT # : JR9215

DATE REPORTED: March 4, 1998

REFERENCE : SWMU-7

PROJECT NAME : Effluent Startup #4

PAGE 4 OF 7

## RESULTS OF ANALYSIS

## EPA METHOD 610 -

POLY AROMATIC HYDROCARBONS

	<u>MP06373</u>		<u>LAB BLANK</u>	<u>Units</u>
Naphthalene	1000 U	D1	10 U	µg/L
2-Methylnaphthalene	1000 U	D1	10 U	µg/L
1-Methylnaphthalene	1000 U	D1	10 U	µg/L
Acenaphthylene	1000 U	D1	10 U	µg/L
Acenaphthene	1000 U	D1	10 U	µg/L
Fluorene	1000 U	D1	10 U	µg/L
Phenanthrene	1000 U	D1	10 U	µg/L
Anthracene	1000 U	D1	10 U	µg/L
Fluoranthene	1000 U	D1	10 U	µg/L
Pyrene	1000 U	D1	10 U	µg/L
Chrysene	1000 U	D1	10 U	µg/L
Benzo(a)anthracene	1000 U	D1	10 U	µg/L
Benzo(b)fluoranthene	1000 U	D1	10 U	µg/L
Benzo(k)fluoranthene	1000 U	D1	10 U	µg/L
Benzo(a)pyrene	1000 U	D1	10 U	µg/L
Indeno(1,2,3-cd)pyrene	1000 U	D1	10 U	µg/L
Dibenzo(a,h)anthracene	1000 U	D1	10 U	µg/L
Benzo(g,h,i)perylene	1000 U	D1	10 U	µg/L

Surrogate:

	<u>% RECOV</u>		<u>% RECOV</u>	<u>LIMITS</u>
2-Fluorobiphenyl	*		68	14-146
Date Extracted	02/23/98		02/23/98	
Date Analyzed	02/24/98		02/24/98	

## EPA METHOD 418.1 -

TOTAL PETR. HYDROCARBONS

	<u>MP06373</u>		<u>LAB BLANK</u>	<u>Units</u>
Total Petr. Hydrocarbons	440		1.0 U	mg/L
Date Analyzed	02/27/98		02/27/98	

\* = Surrogate recovery unavailable due to matrix interference.  
 - = Compound was analyzed for but not detected to the level shown.  
 D1 = Analyte value determined from a 1:10 dilution.

ENCO LABORATORIES  
 REPORT # : JR9215  
 DATE REPORTED: March 4, 1998  
 REFERENCE : SWMU-7  
 PROJECT NAME : Effluent Startup #4

PAGE 5 OF 7

## RESULTS OF ANALYSIS

<u>TOTAL METALS</u>	<u>METHOD</u>	<u>MP06373</u>	<u>LAB BLANK</u>	<u>Units</u>
Arsenic	200.7	0.020 I	0.010 U	mg/L
Date Analyzed		02/24/98	02/24/98	
Barium	200.7	0.10 U	0.10 U	mg/L
Date Analyzed		02/24/98	02/24/98	
Cadmium	200.7	0.0010 U	0.0010 U	mg/L
Date Analyzed		02/24/98	02/24/98	
Chromium	200.7	0.010 U	0.010 U	mg/L
Date Analyzed		02/24/98	02/24/98	
Lead	200.7	0.078	0.0060 I	mg/L
Date Analyzed		02/24/98	02/24/98	
Mercury	245.1	0.00020 U	0.00020 U	mg/Kg
Date Analyzed		02/23/98	02/23/98	
Selenium	200.7	0.024	0.010 U	mg/L
Date Analyzed		02/24/98	02/24/98	
Silver	200.7	0.010 U	0.010 U	mg/L
Date Analyzed		02/24/98	02/24/98	
<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MP06373</u>	<u>LAB BLANK</u>	<u>Units</u>
COD	410.4	410	10 U	mg/L
Date Analyzed		02/24/98	02/24/98	
Total Susp. Solids	150.2	28	4.0 U	mg/L
Date Analyzed		02/24/98	02/24/98	
pH	150.1	7.2	NR	S.U.
Date Analyzed		02/20/98		

U = Compound was analyzed for but not detected to the level shown.

I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

NR = Analysis not requested for this sample.

CHAIN OF CUSTODY RECORD



Facility Name: NS MAINT  
 Site Name: SUMMIT 7  
 Delivery Order No.:  
 Cooler/Crate No.:  
 Sampling Event: GW EFFLUENT STARTUP #4

SEIR No.:  
 COC Number: MP020  
 Lab: ENCO  
 Field Logbook No.:  
 Logbook Pg. No.:

Sampled by: PAULA WYNN Sign Paula Wynn Sign  
 Print Sign

SAMPLE TYPE		MATRIX		QC LEVELS	
PSB Preservative Blank	BLS Blind Spike	SBS Subsurface Soil (>6")	Post Burn Soil	C Sample results and QC reported	
FDP Field Duplicate	BLB Blank Blank	SED Sediment	Potable Water	D Sample results, QC and raw data reported	
ENV Environmental	PTS Point Source	SFS Surface Soil (0-6")	Seeps	E Sample results, blanks, and calibration reported	
FDB Field Blank	FRP Field Replicate	SPW Surface Water	Solid	S Screening level analysis; sample results and as reported	
GEO Geotechnical Sample	RSB Rinsate Blank	SLG Sludge	WWT Waste Water		
MXD Matrix Duplicate	SPL Split	SLW Solid Waste	Surface Water		
MXS Matrix Spike	TPB Trip Blank	OFW Organic Free Water	Storm Event		

Station ID	BEI Sample ID	Sample Type	Matrix Code	Collection Date/Time	Container ID	Preservative	Pay Item	Parameter	Priority	QC Code
<u>AST/ASR</u>	<u>MP0633</u>	<u>ENV</u>	<u>GW</u>	<u>2/19/98 3:40</u>	<u>1</u>	<u>HCL</u>	<u>NA</u>	<u>EPA 601/602</u>	<u>5 Day</u>	<u>NA</u>
<u>Composita</u>					<u>2</u>	<u>HCL</u>		<u>601/602</u>		
					<u>3</u>	<u>H2SO4</u>		<u>COD</u>		
					<u>5</u>			<u>610</u>		
					<u>6</u>	<u>H2SO4</u>		<u>418.1</u>		

RELINQUISHED BY	RECEIVED BY	DATE	TIME	REASON FOR TRANSFER	COMMENTS/INSTRUCTIONS
<u>Paula Wynn</u>	<u>Ston</u>	<u>2/19/98</u>	<u>1800</u>	<u>Ship to LAB</u>	<u>JR9215</u>
<u>Summit 7 Lab</u>	<u>Summit 7 Lab</u>	<u>2-12-98</u>	<u>1405</u>		<u>PO # 254-CC-2566</u>

Shipper: \_\_\_\_\_

Ship to: \_\_\_\_\_

Airbill No. \_\_\_\_\_ Traffic Report No. \_\_\_\_\_

CONTAMINATION	YES	NO
Radiological		
Chemical		

This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s. UN2910

Environmental Conservation Laboratories  
4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
904/296-3007  
Fax 904/296-6210



Laboratories

DHRS Certification No. E82277

CLIENT : Bechtel Environmental, Inc.  
ADDRESS: NAS Cecil Field  
P.O. Box 171  
Jacksonville, FL 32215

REPORT # : JR9319  
DATE SUBMITTED: February 27, 1998  
DATE REPORTED : March 13, 1998

PAGE 1 OF 7

ATTENTION: Mr. Sam Ross

SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

SWMU-7

02/26/98

#1 - MP06400 @ 17:30

PROJECT MANAGER

*Scott D. Martin*  
\_\_\_\_\_  
Scott D. Martin

ENCO LABORATORIES

REPORT # : JR9319

DATE REPORTED: March 13, 1998

PROJECT NAME : SWMU-7

PAGE 2 OF 7

RESULTS OF ANALYSIS

EPA METHOD 601 - VOLATILE HALOCARBONS	MP06400	LAB BLANK	Units
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	107	102	37-161
Date Analyzed	03/12/98	03/12/98	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES  
 REPORT # : JR9319  
 DATE REPORTED: March 13, 1998  
 PROJECT NAME : SWMU-7

PAGE 3 OF 7

RESULTS OF ANALYSIS

<u>EPA METHOD 602 -</u> <u>VOLATILE AROMATICS</u>	<u>MP06400</u>	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	2.0 U	2.0 U	µg/L
Benzene	1.0 U	1.0 U	µg/L
Toluene	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Ethylbenzene	1.0 U	1.0 U	µg/L
m-Xylene & p-Xylene	1.0 U	1.0 U	µg/L
o-Xylene	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	88	85	59-132
Date Analyzed	03/12/98	03/12/98	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES  
 REPORT # : JR9319  
 DATE REPORTED: March 13, 1998  
 PROJECT NAME : SWMU-7

PAGE 4 OF 7

RESULTS OF ANALYSIS

EPA METHOD 610 -

POLY AROMATIC HYDROCARBONS

MP06400

LAB BLANK

Units

Naphthalene	6800 U D1	10 U	µg/L
2-Methylnaphthalene	6800 U D1	10 U	µg/L
1-Methylnaphthalene	6800 U D1	10 U	µg/L
Acenaphthylene	6800 U D1	10 U	µg/L
Acenaphthene	6800 U D1	10 U	µg/L
Fluorene	6800 U D1	10 U	µg/L
Phenanthrene	6800 U D1	10 U	µg/L
Anthracene	6800 U D1	10 U	µg/L
Fluoranthene	6800 U D1	10 U	µg/L
Pyrene	6800 U D1	10 U	µg/L
Chrysene	6800 U D1	10 U	µg/L
Benzo (a) anthracene	6800 U D1	10 U	µg/L
Benzo (b) fluoranthene	6800 U D1	10 U	µg/L
Benzo (k) fluoranthene	6800 U D1	10 U	µg/L
Benzo (a) pyrene	6800 U D1	10 U	µg/L
Indeno (1, 2, 3-cd) pyrene	6800 U D1	10 U	µg/L
Dibenzo (a, h) anthracene	6800 U D1	10 U	µg/L
Benzo (g, h, i) perylene	6800 U D1	10 U	µg/L

Surrogate:

% RECOV

% RECOV

LIMITS

2-Fluorobiphenyl	*	26	14-146
Date Extracted	03/03/98	03/03/98	
Date Analyzed	03/05/98	03/05/98	

EPA METHOD 418.1 -

TOTAL PETR. HYDROCARBONS

MP06400

LAB BLANK

Units

Total Petr. Hydrocarbons	2000	1.0 U	mg/L
Date Analyzed	03/09/98	03/09/98	

\* = Surrogate recovery unavailable due to matrix interference.  
 U = Compound was analyzed for but not detected to the level shown.  
 D1 = Analyte value determined from a 1:20 dilution.

ENCO LABORATORIES  
 REPORT # : JR9319  
 DATE REPORTED: March 13, 1998  
 PROJECT NAME : SWMU-7

PAGE 5 OF 7

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MP06400</u>	<u>LAB BLANK</u>	<u>Units</u>
COD Date Analyzed	410.4	40 03/07/98	10 U 03/07/98	mg/L
Total Susp. Solids Date Analyzed	160.2	63 03/05/98	4.0 U 03/05/98	mg/L
pH Date Analyzed	150.1	8.1 03/02/98	NR	S.U.
<u>TOTAL METALS</u>	<u>METHOD</u>	<u>MP06400</u>	<u>LAB BLANK</u>	<u>Units</u>
Arsenic Date Analyzed	200.7	0.010 U 03/03/98	0.010 U 03/03/98	mg/L
Barium Date Analyzed	200.7	0.10 U 03/03/98	0.10 U 03/03/98	mg/L
Cadmium Date Analyzed	200.7	0.0010 U 03/03/98	0.0010 U 03/03/98	mg/L
Chromium Date Analyzed	200.7	0.010 U 03/03/98	0.010 U 03/03/98	mg/L
Lead Date Analyzed	200.7	0.0060 U 03/05/98	0.0050 U 03/03/98	mg/L
Mercury Date Analyzed	245.1	0.0020 U 03/02/98	0.00020 U 03/02/98	mg/L
Selenium Date Analyzed	200.7	0.015 I 03/03/98	0.010 U 03/03/98	mg/L
Silver Date Analyzed	200.7	0.010 U 03/03/98	0.010 U 03/03/98	mg/L

U = Compound was analyzed for but not detected to the level shown.  
 I = Analyte detected; value is between the Method Detection Level (MDL)  
 and the Practical Quantitation Level (PQL).



### CHAIN OF CUSTODY RECORD

Facility Name: N5 Mayport  
 Site Name: SWM47  
 Delivery Order No.: \_\_\_\_\_  
 Cooler/Crate No.: \_\_\_\_\_  
 Sampling Event: 5th weekly Effluent

SEIR No.: \_\_\_\_\_  
 COC Number: MP07Y  
 Lab: \_\_\_\_\_  
 Field Logbook No.: \_\_\_\_\_  
 Logbook Pg. No.: \_\_\_\_\_

Sampled by: Sam Bass Sam Bass  
 Print Sign

Legend SAMPLE TYPE Print Sign

Legend	SAMPLE TYPE	MATRIX	QC LEVELS
PSB Preservative Blank	BLB Blind Spike	SBS Subsurface Soil (>6')	C Sample result and QC reported
ENP Field Duplicate	BLB Blind Blank	SED Sediment	D Sample result, QC and raw data reported
ENV Environmental	PT9 Point Source	SFS Surface Soil (0-6')	E Sample result, blanks, and calibration reported
FDB Field Blank	FRP Field Replicate	SPW Surface Water	S Screening level analysis; sample result and as reported
GEO Geotechnical Sample	RSB Rinseate Blank	SLG Sludge	
MXD Matrix Spike Duplicate	SPL Spike	SLW Solid Waste	
MXS Matrix Spike	TPB Trip Blank	OFW Organic Free Water	
		Delonized Water	
		Delonized Organic Free Water	
		Storm Event	
		PBS Post Burn Soil	
		PTW Potable Water	
		SEP Seeps	
		SOL Solid	
		WMT Waste Water	
		Surface Water	

Station ID	BEI Sample ID	Sample Type	Matrix Code	Collection Date/Time	Container ID	Preservative	Pay Item	Parameter	Priority	QC Code
AST1	MP06VU0	ENV	GW	2/26/98 1730	1	HCl	WT	BPP60/602	5 day	-
AST2					2	HCl		EPA 60/602		
Composite					3	H <sub>2</sub> SO <sub>4</sub>		COD		
					4	H <sub>2</sub> SO <sub>4</sub>		COD		
					5	H <sub>2</sub> SO <sub>4</sub>		EPA 610		
					6	H <sub>2</sub> SO <sub>4</sub>		EPA 418.1		

REINQUISHED BY: Sam Bass RECEIVED BY: Samy Novicio DATE: 2/27/98 TIME: 1525 REASON FOR TRANSFER: Lab

COMMENTS/INSTRUCTIONS

CONTAMINATION		YES	NO
Radiochemical			
Chemical			

Shipper: \_\_\_\_\_  
 Ship to: \_\_\_\_\_  
 Airbill No. \_\_\_\_\_ Traffic Report No. \_\_\_\_\_

This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s., UN2910

PROJECT NUMBER 1296053G 0204 PROJECT NAME BICHTZL ENV.-HAYPORT  
 FIELD GROUP BEMLA PROJECT MANAGER EDWARD MANSFIELD  
 BEMLA LAB COORDINATOR EDWARD MANSFIELD

SAMPLE ID'S	STORET	MP06350	MP06351
PARAMETERS	BEMLA	BEMLA	BEMLA
UNITS	METHOD	23	24
DATE		01/15/98	01/15/98
TIME			
SURFA Pressure Receipt	95798	NRQ	NRQ
PSI	0		
PROPYLENE	95022A	52.3	16.5
UG/M3	T014-G		
CHLORODIFLUOROMETHANE	95021A	87.2	1.80
UG/M3	T014-G		
DICHLORODIFLUOROMETHANE	34669A	40.6	3.35
UG/M3	T014-G		
CHLOROMETHANE	34418A	75.2	6.55
UG/M3	T014-G		
FREON 114	96776A	<35.6	<3.56
UG/M3	T014-G		
VINYL CHLORIDE	39175A	<13.0	<1.30
UG/M3	T014-G		
1,3-BUTADIENE	95023A	<11.3	<1.13
UG/M3	T014-G		
BROMOMETHANE	34413A	<19.8	<1.98
UG/M3	T014-G		
CHLOROETHANE	34311A	<13.4	<1.34
UG/M3	T014-G		
TRICHLOROFUOROMETHANE	34488A	<28.6	<2.86
UG/M3	T014-G		
PENTANE	95024A	<15.0	<1.50
UG/M3	T014-G		
1,1-DICHLOROETHYLENE	34501A	<20.2	<2.02
UG/M3	T014-G		
METHYLENE CHLORIDE	34423A	110	<1.77
UG/M3	T014-G		
3-CHLORO-1-PROPENE	95025A	<15.9	<1.59
UG/M3	T014-G		
FREON 113	77667A	57.6	<3.90
UG/M3	T014-G		
CIS-1,2-DICHLOROETHENE	77093A	<20.2	<2.02
UG/M3	T014-G		
1,1-DICHLOROETHANE	34496A	<20.6	<2.06
UG/M3	T014-G		
2-CHLORO-1,3-BUTADIENE	95033A	<18.4	<1.84
UG/M3	T014-G		
TRANS-1,2-DICHLOROETHENE	95034A	<20.2	<2.02
UG/M3	T014-G		
HEXANE	95032A	21.1	<1.79
UG/M3	T014-G		
CHLOROFORM	32106A	<24.9	<2.48
UG/M3	T014-G		
1,2-DICHLOROETHANE	34531A	<20.6	<2.06
UG/M3	T014-G		
1,1,1-TRICHLOROETHANE	34506A	<27.8	<2.78
UG/M3	T014-G		
BENZENE	34030A	26.7	<1.63
UG/M3	T014-G		
CARBON TETRACHLORIDE	32102A	<32.0	<3.20
UG/M3	T014-G		
1,2-DICHLOROPROPANE	34541A	<23.5	<2.35
UG/M3	T014-G		
BROMODICHLOROMETHANE	95026A	<34.1	<3.41
UG/M3	T014-G		
TRICHLOROETHENE	39180A	<27.3	<2.73
UG/M3	T014-G		
HEPTANE	95027A	27.9	<2.09
UG/M3	T014-G		
CIS-1,3-DICHLOROPROPENE	34704A	<23.1	<2.31
UG/M3	T014-G		
TRANS-1,3-DICHLOROPROPENE	34699A	<23.1	<2.31
UG/M3	T014-G		

PROJECT NUMBER 1296059G 0204 PROJECT NAME BECHTEL ENV.-MAYPORT  
 FIELD GROUP BEMLA PROJECT MANAGER EDWARD MANFIELD  
 BEMLA LAB COORDINATOR EDWARD MANFIELD

SAMPLE ID'S PARAMETERS	STORET METHOD	MP06350	MP06351
		BEMLA 23	BEMLA 24
UNITS			
DATE		01/18/98	01/18/98
TIME			
1,1,2-TRICHLOROETHANE	34511A	<27.8	<2.78
UG/M3	T014-G		
TOLUENE	34010A	45.6	<1.92
UG/M3	T014-G		
DIBROMOCHLOROMETHANE	95028A	<43.3	<4.33
UG/M3	T014-G		
1,2-DIBROMOETHANE (EDB)	77651A	<39.1	<3.91
UG/M3	T014-G		
OCTANE	95029A	66.0	<2.38
UG/M3	T014-G		
TETRACHLOROETHENE	34475A	37.9	<3.45
UG/M3	T014-G		
CHLOROBENZENE	34361A	<23.4	<2.34
UG/M3	T014-G		
ETHYLBENZENE	34371A	73.2	<2.21
UG/M3	T014-G		
M, P-XYLENE	97234A	151	<2.21
UG/M3	T014-G		
BROMOFORM	95031A	<52.6	<5.3
UG/M3	T014-G		
STYRENE	77128A	<21.7	<2.17
UG/M3	T014-G		
1,1,1,2-TETRACHLOROETHANE	34516A	<34.9	<3.49
UG/M3	T014-G		
O-XYLENE	97235A	34.0	<2.21
UG/M3	T014-G		
1,3,5-TRIMETHYLBENZENE	77226A	<25.0	<2.50
UG/M3	T014-G		
ALPHA-METHYL-STYRENE	95030A	<24.6	<2.46
UG/M3	T014-G		
BENZYL CHLORIDE	97754A	<26.5	<2.63
UG/M3	T014-G		
1,2,4-TRIMETHYLBENZENE	77222A	1260	<2.50
UG/M3	T014-G		
1,3-DICHLOROBENZENE	34566A	<30.6	<3.06
UG/M3	T014-G		
1,4-DICHLOROBENZENE	34571A	428	<3.06
UG/M3	T014-G		
1,2-DICHLOROBENZENE	34556A	<30.6	<3.06
UG/M3	T014-G		
1,2,4-TRICHLOROBENZENE	34551A	<27.7	<3.77
UG/M3	T014-G		
HEXACHLOROBUTADIENE	34391A	<52.7	<5.3
UG/M3	T014-G		
METHANOL	77885A	427	74.3
UG/M3	T014-G		
ETHANOL (ETHYL ALCOHOL)	95753A	245	12.8
UG/M3	T014-G		
ISOPROPYL ALCOHOL	95754A	155	15.9
UG/M3	T014-G		
1-BUTANOL	95755A	<154	<15.4
UG/M3	T014-G		
ACETONE	81553A	288	27.5
UG/M3	T014-G		
METHYL ETHYL KETONE	81595A	<150	<15.0
UG/M3	T014-G		
METHYL ISOBUTYL KETONE	81596A	<208	<20.8
UG/M3	T014-G		
2-HEXANONE	95756A	<208	<20.8
UG/M3	T014-G		
CYCLOHEXANONE	77097A	<204	<20.4
UG/M3	T014-G		
ACETOPHENONE	81553A	<250	<25.0
UG/M3	T014-G		

QST Environmental DATE 01/28/98 STATUS : PAGE 3  
 PROJECT NUMBER 1296053G 0204 PROJECT NAME BECHTEL ENV.-MAYPORT  
 FIELD GROUP SEMLA PROJECT MANAGER EDWARD MANSFIELD  
 REY.ALT LAB COORDINATOR EDWARD MANSFIELD

SAMPLE ID'S PARAMETERS UNITS	STORET METHOD	MP06350	MP06351
		SEMLA 23	SEMLA 24
DATE		01/15/98	01/15/98
TIME			
ACROLEIN	95757A	<11.7	<11.7
UG/M3	T014-G		
ACRYLONITRILE	95758A	<85.5	<8.55
UG/M3	T014-G		
ACRYLONITRILE	95759A	<11.1	<11.1
UG/M3	T014-G		
PROPIONITRILE	95760A	<11.5	<11.5
UG/M3	T014-G		
METHACRYLONITRILE	95761A	<14.0	<14.0
UG/M3	T014-G		
BENZONITRILE	95762A	<21.5	<21.5
UG/M3	T014-G		
ETHER	95763A	<15.4	<15.4
UG/M3	T014-G		
METHYL TERT-BUTYL ETHER	95764A	<18.3	<18.3
UG/M3	T014-G		
ETHYL TERT-BUTYL ETHER	95765A	<21.3	<21.3
UG/M3	T014-G		
TETRAHYDROFURAN	95766A	1400	<15.0
UG/M3	T014-G		
VINYL ACRYLATE	95767A	<17.9	<17.9
UG/M3	T014-G		
1,4-DIOXANE	97195A	<18.3	<18.3
UG/M3	T014-G		
ETHYL ACRYLATE	95768A	<20.8	<20.8
UG/M3	T014-G		
METHYL METHACRYLATE	95769A	<20.8	<20.8
UG/M3	T014-G		
2-NITROPROPANE	95770A	<18.5	<18.5
UG/M3	T014-G		
NITROBENZENE	95771A	<25.6	<25.6
UG/M3	T014-G		
CARBON DISULFIDE	95772A	<15.9	<15.9
UG/M3	T014-G		
N-BUTANE	95864A	<12.1	4.57
UG/M3	T014-G		
ISOBUTANE	95865A	<12.1	<12.1
UG/M3	T014-G		
1-BUTENE	95866A	<11.7	<11.7
UG/M3	T014-G		
TRANS-2-BUTENE	95867A	<11.7	<11.7
UG/M3	T014-G		
CIS-2-BUTENE	95868A	<11.7	<11.7
UG/M3	T014-G		
3-METHYL-1-BUTENE	95869A	<14.6	<14.6
UG/M3	T014-G		
ISOPENTANE	95870A	69.6	6.09
UG/M3	T014-G		
1-PENTENE	95871A	<14.6	2.42
UG/M3	T014-G		
ISOPRENE	95872A	<14.2	<14.2
UG/M3	T014-G		
TRANS-2-PENTENE	95873A	<14.6	<14.6
UG/M3	T014-G		
CIS-2-PENTENE	95874A	<14.6	<14.6
UG/M3	T014-G		
2-METHYL-2-BUTENE	95875A	16.4	<14.6
UG/M3	T014-G		
CYCLOPENTENE	95876A	<14.2	<14.2
UG/M3	T014-G		
4-METHYL-1-PENTENE	95877A	<17.5	<17.5
UG/M3	T014-G		
CYCLOPENTANE	95878A	<14.6	<14.6
UG/M3	T014-G		

QST Environmental DATE 01/28/98 STATUS : PAGE 4  
 PROJECT NUMBER 12960500 0204 PROJECT NAME BECHTEL ENV. -MAYPORT  
 FIELD GROUP BEMLA PROJECT MANAGER EDWARD MANSFIELD  
 BEL.ALT LAB COORDINATOR EDWARD MANSFIELD

SAMPLE ID'S PARAMETERS UNITS	STORET METHOD	MP06350	MP06351
		BEMLA 23	BEMLA 24
DATE TIME		01/15/98	01/15/98
2,2-DIMETHYLBUTANE UG/M3	95879A T014-G	<17.3	<1.79
2-METHYL PENTANE UG/M3	95880A T014-G	47.3	<1.79
3-METHYL PENTANE UG/M3	95881A T014-G	42.6	<1.79
2-METHYL-1-PENTENE UG/M3	95882A T014-G	<17.5	<1.75
CIS-2-HEXENE UG/M3	95883A T014-G	<17.5	<1.75
TRANS-2-HEXENE UG/M3	95884A T014-G	<17.5	<1.75
METHYLCYCLOPENTANE UG/M3	95885A T014-G	86.8	<1.75
2,3-DIMETHYLBUTANE UG/M3	95886A T014-G	101	<1.79
CYCLOHEXANE UG/M3	95887A T014-G	140	<1.75
2-METHYL HEPTANE UG/M3	95888A T014-G	33.4	<2.09
2,3-DIMETHYLPENTANE UG/M3	95889A T014-G	88.8	<2.09
3-METHYL HEPTANE UG/M3	95890A T014-G	255	<2.09
ISOOCTANE UG/M3	95891A T014-G	179	3.94
METHYLCYCLOHEXANE UG/M3	95892A T014-G	2160	<2.04
2,3,4-TRIMETHYLPENTANE UG/M3	95893A T014-G	143	<2.38
2-METHYL HEPTANE UG/M3	95894A T014-G	189	<2.38
3-METHYL HEPTANE UG/M3	95895A T014-G	556	<2.38
NONANE UG/M3	95896A T014-G	60.2	<2.67
CUMENE UG/M3	95897A T014-G	384	<2.50
N-PROPYLBENZENE UG/M3	95898A T014-G	858	<2.50
ALPHA-PINENE UG/M3	95899A T014-G	<28.3	<2.83
BETA-PINENE UG/M3	95900A T014-G	<28.3	<2.83

Environmental Conservation Laboratories  
4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
904 / 296-3007  
Fax 904 / 296-6210



Laboratories

DHRS Certification No. E82277

CLIENT : Bechtel Environmental, Inc.  
ADDRESS: NAS Cecil Field  
P.O. Box 171  
Jacksonville, FL 32215

REPORT # : JR9002  
DATE SUBMITTED: February 6, 1998  
DATE REPORTED : February 10, 1998

PAGE 1 OF 4

ATTENTION: Mr. Sam Ross

SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

PROJECT #: SWMV7

Start-Up Air Event #2

02/05/98

- #1 - MP06364 @ 10:25
- #2 - MP06365 @ 10:20
- #3 - MP06366 @ 10:10

PROJECT MANAGER

*Scott D. Martin*  
\_\_\_\_\_  
Scott D. Martin

ENCO LABORATORIES

REPORT # : JR9002  
 DATE REPORTED: February 10, 1998  
 REFERENCE : SWMV7  
 PROJECT NAME : Start-Up Air Event #2

PAGE 2 OF 4

RESULTS OF ANALYSIS

EPA METHOD 18 -

VOLATILE AROMATICS IN AIR

	<u>MP06364</u>	<u>MP06365</u>	<u>Units</u>
Benzene	0.50 U	1.3	mg/m3
Toluene	0.50 U	1.4	mg/m3
Ethylbenzene	0.62	0.50 U	mg/m3
m-Xylene & p-Xylene	2.4	0.50 U	mg/m3
o-Xylene	0.91	0.50 U	mg/m3
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	*	*	50-150
Date Analyzed	02/09/98	02/09/98	

EPA METHOD 18 -

LIGHT PETR. HYDROCARBONS

	<u>MP06364</u>	<u>MP06365</u>	<u>Units</u>
TLPH	170	69	mg/m3
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	*	*	65-135
Date Analyzed	02/09/98	02/09/98	

\* = Surrogate recovery unavailable due to matrix interference.  
 U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES  
 REPORT # : JR9002  
 DATE REPORTED: February 10, 1998  
 REFERENCE : SWMV7  
 PROJECT NAME : Start-Up Air Event #2

PAGE 3 OF 4

RESULTS OF ANALYSIS

EPA METHOD 18 -  
VOLATILE AROMATICS IN AIR

	<u>MP06366</u>	<u>LAB BLANK</u>	<u>Units</u>
Benzene	0.50 U	0.50 U	mg/m3
Toluene	0.50 U	0.50 U	mg/m3
Ethylbenzene	0.50 U	0.50 U	mg/m3
m-Xylene & p-Xylene	0.50 U	0.50 U	mg/m3
o-Xylene	0.50 U	0.50 U	mg/m3
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	111	118	50-150
Date Analyzed	02/09/98	02/09/98	

EPA METHOD 18 -  
LIGHT PETR. HYDROCARBONS

	<u>MP06366</u>	<u>LAB BLANK</u>	<u>Units</u>
TLPH	17	10 U	mg/m3
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	111	118	65-135
Date Analyzed	02/09/98	02/09/98	

U = Compound was analyzed for but not detected to the level shown.

Delivery Order No.:                       
 Cooler/Crate No.:                       
 Sampling Event: Start-up Air Sampling Event A Z  
 COC Number: MP 666  
 Lab:                       
 Field Logbook No.:                       
 Logbook Pg. No.:                     

Sampled by: Sam Ross Sam Ross  
 Legend:                                            
 Sign:                                          

Station ID	SAMPLE TYPE			Matrix Code	Collection Date/Time	Container ID	Preservative	Pay Item	Parameter	Priority	QC Code
	BEI Sample ID	Sample Type	Matrix Code								
Pre-Drym.	MP06364	ENV	AIR	2/5/98 1025	1	-	-	-	TO-3(TPH)	Sday	-
ID Blower outlet	MP06365	ENV	AIR	2/5/98 1020	1	-	-	-	TO-3(TPH)	Sday	-
Blower #2 outlet	MP06366	ENV	AIR	2/5/98 1010	1	-	-	-	TO-3(TPH)	Sday	-
RELINQUISHED BY	C. Kolan			DATE	REASON FOR TRANSFER						
	C. Kolan			2/5/98	1305	TRANS TO LAB					
				2/6/98	940	Log into Lab					
Shipper:											
Ship to:											

COMMENTS/INSTRUCTIONS  
 PO # 254 - CC - 2550  
 JK9002

CONTAMINATION	YES	NO
Radiological		
Chemical		

Traffic Report No.                       
 Airbill No.                     

This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s. UN2910

Environmental Conservation Laboratories  
4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-8069  
904 / 296-3007  
Fax 904 / 296-6210



Laboratories

DHRS Certification No. EB2277

CLIENT : Bechtel Environmental, Inc.  
ADDRESS: NAS Cecil Field  
P.O. Box 171  
Jacksonville, FL 32215

REPORT # : JR9124  
DATE SUBMITTED: February 13, 1998  
DATE REPORTED : February 17, 1998

PAGE 1 OF 4

ATTENTION: Mr. Sam Ross

SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

Effluent Start-up #3

02/11/98

- #1 - MP6367 @ 16:45
- #2 - MP6368 @ 16:40

PROJECT MANAGER

*Scott D. Martin*  
\_\_\_\_\_  
Scott D. Martin

ENCO LABORATORIES  
 REPORT # : JR9124  
 DATE REPORTED: February 17, 1998  
 PROJECT NAME : Effluent Start-up #3

PAGE 2 OF 4

RESULTS OF ANALYSIS

<u>EPA METHOD 18 - VOLATILE AROMATICS IN AIR</u>	<u>MP6367</u>	<u>MP6368</u>	<u>Units</u>
Benzene	0.50 U	0.50 U	mg/m3
Toluene	0.50 U	0.50 U	mg/m3
Ethylbenzene	0.50 U	0.50 U	mg/m3
m-Xylene & p-Xylene	1.4	0.50 U	mg/m3
o-Xylene	0.74	0.50 U	mg/m3
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	*	101	50-150
Date Analyzed	02/13/98	02/14/98	

<u>EPA METHOD 18 - LIGHT PETR. HYDROCARBONS</u>	<u>MP6367</u>	<u>MP6368</u>	<u>Units</u>
TI.PH	130	10 U	mg/m3
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	*	101	65-135
Date Analyzed	02/13/98	02/14/98	

\* = Surrogate recovery unavailable due to matrix interference.  
 U = Compound was analyzed for but not detected to the level shown.

# CHAIN OF CUSTODY RECORD

Facility Name: NS Maypart  
 Site Name: SWM V 7  
 Delivery Order No.: \_\_\_\_\_  
 Cooler/Crate No.: \_\_\_\_\_  
 Sampling Event: Effluent start-up #3

SEIR No.: \_\_\_\_\_  
 COC Number: mp067  
 Lab: \_\_\_\_\_  
 Field Logbook No.: \_\_\_\_\_  
 Logbook Pg. No.: \_\_\_\_\_

Sampled by: <u>Sam Ross</u>		Print		Sign						
Legend		SAMPLE TYPE		QC LEVELS						
Station ID	BEI Sample ID	Sample Type	Matrix Code	Collection Date/Time	Container ID	Preservative	Pay Item	Parameter	Priority	QC Code
SO Blower	MP6367	ENV	AIR	7/11/98/1645	1	-	-	10-3(PH)	5 day	-
Outlet	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
SO Blower	MP6368	ENV	AIR	7/11/98/1610	1	-	-	10-3(PH)	5 day	-
Outlet	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
RELINQUISHED BY: <u>Samuel M. Ross</u>										
RECEIVED BY: <u>C. Kishner</u>										
DATE: <u>7/12/98</u> TIME: <u>1430</u>										
REASON FOR TRANSFER: <u>Trans. to Lab</u>										
DATE: <u>7/15/98</u> TIME: <u>900</u>										
REASON FOR TRANSFER: <u>Log in Lab</u>										
COMMENTS/INSTRUCTIONS: <u>PO # 254-CC-2550</u>										
<u>JL 9/24</u>										
CONTAMINATION: YES <input type="checkbox"/> NO <input type="checkbox"/>										
Radiological: YES <input type="checkbox"/> NO <input type="checkbox"/>										
Chemical: YES <input type="checkbox"/> NO <input type="checkbox"/>										

Shipped by: \_\_\_\_\_  
 Traffic Report No.: \_\_\_\_\_

This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s. UN2910



This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s. UN2910.