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CORRECTIVE ACTION PLAN
Tidewater Terminals
407 Jefferson Avenue
Newport News, Virginia

Pollution Complaint Number
VDEQ PC# 91-1427

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CORRECTIVE ACTION PLAN
Tidewater Terminals
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Newport News, Virginia
Pollution Complaint Number: VDEQ PC# 91-1427

1.0 Introduction

IMS Environmental Services (IMS) was retained by the City of Newport News to develop and implement a new corrective action plan (CAP) to removed adsorbed phase concentrations of total petroleum hydrocarbons-diesel range organics (TPH-DRO) from the above referenced site. Pursuant to this plan, IMS undertook a pilot study utilizing AgroRemed® as a method of biodegrading the adsorbed phase TPH-DRO present in the soil onsite. Tidewater Terminals is located at 407 Jefferson Avenue, Newport News, Virginia (Figure 1). PAPCO currently uses the location as a petroleum terminal.

Concurrent with this pilot study, the site is also under a previously initiated CAP. Under the original CAP plan, non-aqueous phase liquids (NAPL) at the site are removed from the recovery wells using adsorbent socks. The socks are placed in recovery wells presenting a measurable free product thickness. Once the socks are saturated with free product, they are containerized in a drum on site. The sock manufacturer indicates each sock is capable of adsorbing up to seven ounces of product. New socks are placed in the recovery well if the well continues to present a measurable free product thickness. Figure 2 illustrates the recovery and monitoring well locations.

Additionally, this site has another open pollution complaint, PC#06-5128, which was issued after NAPL was discovered during a ground site characterization study that was conducted on the property in December 2005. Subsequently, two additional monitoring wells were installed onsite near the oil water separator discharge. PAPCO Oil Company is considered to be the responsible party for pollution complaint PC#06-5128.

This report focuses on the results of the pilot study, its implications for future remediation, and the potential for closure of PC#91-1427 at this site. This report details the methods employed during the pilot study and the results of the study, including a determination of the effectiveness of AgroRemed® at this site, a detailed plan for application of AgroRemed® to the affected areas onsite and the projected endpoints for remediation of PC#91-1427.

2.0 Methods

2.1 Determination of Pilot Study Area

A 900 square foot area at Tidewater Terminals was chosen as the site for the pilot study based on the study area's proximity to currently installed monitoring wells, which would allow us the greatest ability to track the four phases of contamination on site: vapor phase, dissolved phase, adsorbed phase and free phase. This 30 ft by 30 ft area lies between the dike wall and monitoring wells MW-4 and MW-9. This area was measured and flagged to indicate the boundaries of the

study area. A site map illustrating the locations of the dike wall, monitoring wells and the pilot study area is included as Figure 2.

2.2 Establishing Baseline Conditions Onsite

Initial study parameters were evaluated by first gauging all of the wells onsite to determine free phase concentrations before the pilot study commenced. Gauging was immediately followed by sampling six monitoring wells, MW-4, MW-9, MW-9R, MW-11, RW-G and RW-H, within and surrounding the pilot study area. Monitoring wells MW-10 and MW-10R were not utilized for this study because they were dry. Monitoring well MW-11 was used as a substitute for these two wells, as it was the closest well to monitoring wells MW-10 and MW-10R. Gauging data collected during the pilot study is included in Table 1 and the field monitoring gauge sheets are included as Appendix A. Groundwater sampling of each of these wells allowed a baseline of dissolved phase TPH-DRO values to be determined. Gauging data and groundwater samples were collected on October 10, 2006. The groundwater samples from each monitoring well included in this study were analyzed for TPH-DRO, benzene, toluene, ethyl benzene and total xylenes (BTEX), and naphthalene. The initial sampling results are included as Table 2. The analytical results and chains of custody are included in Appendix B of the report.

The study area was divided into four equal quadrants and the central point in each quadrant was sampled to determine adsorbed phase and vapor phase concentrations, utilizing a stainless steel hand auger and a photoionization detector (PID). Each hand auger bucket retrieves approximately six inches of soil based on borehole measurements. Each bucket of soil was containerized in a plastic bag and then a PID was utilized to measure the vapor phase concentrations for each depth interval. Table 3 summarizes the PID readings which measure volatile organic carbon concentrations in parts per million (ppm), observed in each soil sample collected. Soil samples were collected at the peak PID reading and their depth recorded. These samples were shipped to the Environmental Science Corporation where they were analyzed to determine the TPH-DRO concentration. Soil sample location points were designated as SS-1 through SS-4 and are shown in Figure 2. Analytical results and chain of custody are included in Appendix B and summarized in Table 4. All soil removed and tested was backfilled into the hand-augered borings and the soil sample locations were flagged and labeled to facilitate repeat sampling.

2.3 Application of AgroRemed®

After sampling to establish baseline conditions was completed, AgroRemed®, a bioremediation application, was applied evenly over the soil within the pilot study area using a sprayer, according to the manufacturer's instructions. The proper application of AgroRemed® requires the soil to be wet prior to application of the product. The soil had been previously saturated by a rain event two days prior, so no further wetting of the soil was required. The Sarva Corporation, manufacturer of AgroRemed®, indicated that a thirty percent reduction of adsorbed phase concentrations should occur within one week after application and a ninety percent reduction should occur within three weeks of application. IMS personnel, therefore, determined that repeat samples should be taken at each of Sarva's benchmarks to test these claims and determine the effectiveness of AgroRemed® in removing adsorbed phase TPH-DRO concentrations from the soil.

2.4 Sampling to Determine the Effects of AgroRemed® Onsite

Additional sampling was conducted on Friday, October 20, 2006, 10-days after AgroRemed® was applied to the pilot study area. Again the same methodological conventions were observed for sample collection, as discussed above. The wells involved in the study were gauged and then sampled. Then the four soil sampling points were bored and the vapor phase concentration of each depth interval was measured utilizing a PID. Finally soil samples were taken at the same depth as initial soil samples to determine the change in adsorbed phase TPH-DRO concentration. The final suite of samples was collected on Monday, October 30, 2006, approximately three weeks after the application of AgroRemed® to the soil at Tidewater Terminals. The same methodological conventions were observed as were outlined for the previous sampling events.

3.0 Results

3.1 Free Phase Concentration

The presence of non-aqueous phase liquids (NAPL) is gauged with an oil/water interface probe, which is able to detect as little as 0.01 feet of NAPL on the water table. Before sampling on October 10, October 20, and October 30, 2006, IMS used an interface probe to determine whether free product was detected any of the monitoring wells included in this study. ~~NAPL was not detected in any of the monitoring wells included in this study during the pilot study time frame.~~ No adsorbent socks were placed in any of the wells during the duration of the pilot study. The well monitoring gauge sheets are included in this report as Appendix A and a summary of gauging data collected during the pilot study is included in Table 1.

3.2 Dissolved Phase Concentrations

A water table surface map for the site was created utilizing data collected on October 10, 2006 (Figure 3). The gauging data from which this map was derived is included in Appendix A and indicates that there were no free phase hydrocarbons present in any of the monitoring wells utilized in this study. These data indicate that the groundwater flow direction onsite is generally to the east. As a result, any data collected from monitoring well MW-11 can be essentially viewed as a control, because the AgroRemed® upon migrating to the water table should follow the groundwater flow direction away from MW-11 and therefore Agroremed® should not affect the dissolved phase analyte concentrations in this well.

Baseline sampling results for dissolved phase TPH-DRO, BTEX and naphthalene in the monitoring wells MW-4, MW-9, MW-9R, MW-11, RW-G and RW-H are reported in Table 2. Baseline samples indicated that all of the monitoring wells, with the exception of RW-G had TPH-DRO concentrations greater than the 1.0 mg/L limit set by the VDEQ. Moreover, monitoring well MW-11 had detectable concentrations of BTEX and naphthalene. Monitoring well MW-9 had detectable concentrations of ethyl benzene, toluene, total xylenes, and naphthalene. Recovery well RW-H had detectable concentrations of ethyl benzene, total xylenes and naphthalene.

On October 20, 2006, the second suite of groundwater samples was collected. Analytical results from each of the monitoring wells are reported in Table 2. In each case, the dissolved phase concentrations of TPH-DRO increased from baseline values. Monitoring well MW-9 showed an increase in ethyl benzene and naphthalene from baseline values. Monitoring wells MW-4, MW-

9R, and RW-G displayed no change in BTEX or naphthalene concentrations, with constituent concentrations remaining below detection limits. Monitoring well MW-11 showed a reduction in BTEX and naphthalene to concentrations below detection limits. Monitoring well RW-H indicated no reduction in ethyl benzene from baseline sampling, however, a reduction in total xylenes and naphthalene was observed.

The final suite of samples was collected on October 30, 2006. Analytical results from each of the monitoring wells are reported in Table 2. Each of the monitoring wells included in the study (MW-4, MW-9, MW-9R, MW-11, RW-G, and RW-H) showed a decrease in TPH-DRO concentrations when compared with the October 20, 2006 sampling results. Monitoring wells MW-9R and RW-G displayed no change in BTEX or naphthalene concentrations, with constituent concentrations remaining below detection limits. Samples taken from monitoring well MW-4 indicated an increase in benzene concentration, while the concentrations of ethyl benzene, total xylenes, toluene, and naphthalene remained below detection limits. Ethyl benzene and total xylenes concentrations increased in monitoring well MW-9 while benzene and toluene and remained below detection limits. Naphthalene concentrations also dropped below detection limits in monitoring well MW-9. Samples collected from monitoring well MW-11 indicated an increase in benzene, ethyl benzene and total xylenes concentrations relative to the October 20, 2006 sampling event, while toluene and naphthalene concentrations remained below detection limits. Monitoring well RW-H indicated an increase in ethyl benzene, total xylenes and naphthalene compared to the October 20, 2006 sampling results. The analytical report and chains of custody for these samples are included in Appendix B.

3.3 Vapor Phase Concentrations:

Baseline sampling results for vapor phase concentrations are reported in Table 3. On October 10, 2006, vapor phase concentrations were observed and recorded during the soil investigation, which was conducted by utilizing a hand auger to bore down to the water table and utilizing a PID to record the vapor phase concentrations in parts per million during soil recovery from the boring. Soil sampling locations annotated as SS-1 and SS-2 showed an increase in PID readings with increased depth until the water table was encountered at 28 inches. Soil sampling locations SS-3 and SS-4 displayed more complicated PID profiles, with a drop in PID readings in the interval near 39 inches below ground surface.

Repeat soil screenings were conducted as part of the October 20, 2006 sampling event and are reported in Table 3. In each soil sampling location (SS-1 through SS-4), an increase in PID readings was observed at very shallow depth intervals, however, soil sample locations SS-1 and SS-2 displayed complicated PID profiles with depth. Soil samples SS-3 and SS-4 indicated increases in PID readings at nearly every depth interval when compared to baseline concentrations.

Final soil screenings were conducted on October 30, 2006 and are reported in Table 3. Each of the soil sampling locations (SS-1 through SS-4), indicated a decrease in vapor phase concentrations when compared to baseline sampling results, with one exception. Soil sample SS-3 shows an increase in vapor phase concentrations over the 12-18 inch interval. The cause of this increase remains unknown.

Generally, vapor phase concentrations increased between the baseline sampling event and mid-point sampling event, which reflects a partitioning of adsorbed concentrations of TPH-DRO into the vapor phase, likely as the result of microbial degradation of adsorbed phase TPH-DRO. Additionally, the drop in vapor phase concentrations reflected in the final samples indicates that AgroRemed® has effectively decreased the vapor phase contamination at the site.

3.4 Adsorbed phase concentrations

Baseline sampling indicated concentrations of adsorbed phase TPH-DRO in each of the four soil samples taken within the study area exceeded VDEQ limits of 100 mg/kg. The sample results are reported in Table 4 and the chains of custody and analytical reports are included in Appendix B.

The second set of soil samples was collected on October 20, 2006 in order to determine the effect of the AgroRemed® application on the adsorbed phase of contamination at the site. Three of the four samples indicated a reduction in the concentration of TPH-DRO in the soil. Analytical results from soil sample SS-1 showed a decrease in TPH-DRO concentrations from 4,300 mg/kg to 190 mg/kg, which represents a 95.6% reduction over the period of approximately one week after the application. Soil sample SS-2 displayed a reduction in TPH-DRO concentrations from 18,000 mg/kg to 11,000 mg/kg over the same time period, a 38.9% reduction in TPH-DRO concentrations. Results from soil sample SS-3 indicated an 81.1% reduction in TPH-DRO concentrations from 1,800 mg/kg to 340 mg/kg. Soil sample location SS-4 did not show a reduction in TPH-DRO concentrations. The initial sample taken at this location indicated a TPH-DRO concentration of 4,700 mg/kg and the October 20, 2006 sample taken at this location indicated a TPH-DRO concentration of 4,800 mg/kg. These sample concentrations are within error bars of each other, therefore, no increase likely occurred, neither was there a decrease in TPH-DRO in these samples.

The final suite of samples was collected on October 30, 2006. Two of the four samples indicated an additional reduction in TPH-DRO values from the October 20, 2006 sampling event. Soil sample SS-1 showed no indication that additional reduction occurred between the October 20 and October 30, 2006 sampling events. Soil sample location SS-1 shows a 95.4% reduction in TPH-DRO concentrations over the course of the study timeframe. Analytical results from soil sample location SS-2 indicated that the concentration of adsorbed phase TPH-DRO had been reduced from 11,000 mg/kg on October 20, 2006 to 990 mg/kg on October 30, 2006, which constitutes a 94.5% reduction in TPH-DRO concentrations since the study's inception. Soil sample SS-3 also indicates that an incremental reduction in TPH-DRO values occurred between the second and final sampling events. In this case, TPH-DRO concentrations dropped from 340 mg/kg to 110 mg/kg between these sampling events. TPH-DRO values dropped by 93.9% in soil sampling location SS-3 since the beginning of the study. Analytical results from soil sample SS-4 display the only anomalous results. TPH-DRO concentrations at this sample point increased over the course of the study from 4,700 mg/kg on October 10, 2006 to 9,300 mg/kg on October 30, 2006.

4.0 Conclusions and Recommendations

4.1 Discussion

AgroRemed® is an effective method of removing adsorbed phase TPH-DRO concentrations from the soil on short time scales. Based on the analytical data, the time scale over which the product achieves remediation is dependent on three factors, the initial concentration of TPH-DRO in the soil, contaminant transport and AgroRemed® concentration and depth. The greatest reductions over short time scales (10 days) occurred at relatively shallow depths and lower concentrations. Therefore remediation timelines for achieving endpoints should be adjusted to take into consideration the depth to water and the initial concentration of TPH-DRO in the soil.

Additionally, the increases in TPH-DRO concentrations at soil sampling location SS-4 (Table 4) may reflect one of two scenarios. During every site visit during the pilot study, IMS observed that rainwater has accumulated and ponded in this area. The area was pumped out on all three sampling dates, to allow IMS personnel to access the sampling area. Therefore, it is possible that the AgroRemed® product may have never penetrated the soil to the sampling depth as a result of the dilution caused by the accumulated rainwater present onsite and/or additional contaminants were partitioned into the adsorbed phase during contaminant transport across the site. If the latter is the case, then application to the rest of the area enclosed by the dike wall will cause the decrease in TPH-DRO concentration in the soil at sampling location SS-4. If these results are the result of the supersaturated soil conditions at this sampling location, then remediation of this area may have to wait until late spring/early summer, when conditions at the site are dryer, in order to be effective.

Because dissolved phase TPH-DRO concentrations move more freely across the site than adsorbed or vapor phase analytes, the lack of conclusive results indicating a reduction in dissolved phase TPH-DRO concentrations within the pilot study area may not be a reflection of the effectiveness of AgroRemed® per se. Rather, these mixed results may reflect the migration of TPH-DRO as groundwater passes through the pilot study area. This is supported by the similar trends in TPH-DRO concentrations during the pilot study observed in the control monitoring well MW-11 and the monitoring wells which lay within the boundaries of the pilot study area.

It should be noted that BTEX and naphthalene analytical data collected over the course of the pilot study does not indicate that AgroRemed® effectively remediates these dissolved phase constituents. BTEX and naphthalene concentrations varied widely over the course of the study and no consistent trends could be determined from the analytical data. Therefore, IMS does not recommend the use of AgroRemed® to remove BTEX and naphthalene from contaminated groundwater.

AgroRemed® appears to mobilize adsorbed phase concentrations into the vapor phase, as evidenced by the increase in vapor phase concentrations within the study area during the October 20, 2006 sampling event. No further information is currently available about the long term effects of AgroRemed® on vapor phase concentrations. However, these concentrations should be reduced with time, at shallow depths below ground surface. This is supported by the initial spike in PID readings observed during the October 20, 2006 sampling event and the subsequent drop in PID readings observed during the October 30, 2006 sampling event.

While this study does not address the long term effects of AgroRemed® on the free phase of contamination, it should be noted that McCallum Testing Laboratories report of remediation at the Associated Naval Architects site in Portsmouth, VA indicated an increase in free phase concentrations after the application of AgroRemed® that persisted for approximately nine months and resulted in the utilization of aggressive vapor fluid recovery (AVFR) events to remove nonaqueous phase liquids (NAPL) from the site. However, at the end of nine months, there was no additional NAPL detected in the affected monitoring wells. Therefore, it may be prudent to monitor the site for a period of at least six months after the application of AgroRemed® before the pollution complaint is closed.

4.2 Conclusion

AgroRemed® offers a long-term remediation solution for a site that has had an active pollution complaint since 1991. As such, IMS recommends the utilization of AgroRemed® as the primary means of remediation under a new corrective action plan at the site. This application should reduce the adsorbed phase of contamination at the site, which is thought to be the current source for the NAPL that routinely appears in the onsite monitoring wells. Moreover, it is projected that this application will reduce the vapor phase concentrations also present in the soils onsite.

While this study did not conclusively prove the effectiveness of this bioremediation product on dissolved phase or free phase contaminants onsite over the course of the three week pilot study, the study performed by McCallum Testing Laboratories indicated that these phases of contamination were effectively removed over longer time intervals (6-9 months), indicating the application of AgroRemed® may in fact remediate these phases of contamination onsite.

4.2.1 Scope of Corrective Action Plan

Under IMS' proposed CAP revision, AgroRemed® would be applied to the affected areas of the Tidewater Terminals site (Figure 4). The area comprises approximately 18,656 square feet and the locations of the treatment boundaries were based on soil sampling data forwarded to IMS by the VDEQ (Figure 5). This area was determined to include: (1) one-half of the area enclosed by the dike wall constructed to contain tanks 1, 2, 3, 16 and 17; (2) approximately one-half of the area enclosed by the dike wall containing tanks 4, 6, 7 and 8; (3) the area enclosed by the gate, seawall and the southern boundary of the dike walls; (4) the area enclosed by the western boundary of the dike walls, the southern boundary of the dike walls, the midpoint line of the dike wall containing tanks 1, 2, 3, 16, and 17 and the western boundary of the dike walls containing tanks 9, 10, 11, 12, 14, 19 and 20. The area does not include the portions of the pilot study area that are shaded, in accordance with the findings and recommendations listed in the discussion section of this report.

Soil would be wetted on a weekly basis, to provide transport for the microbes through the soil, as portions of the site remain consistently dry. Areas of the site where water ponds perpetually throughout the fall and winter will not be treated until late-spring, so that dilution of the product does not occur. Soil sampling would occur at the beginning, mid-point and conclusion of one quarter to confirm that adsorbed phase TPH-DRO concentrations have dropped to the endpoint concentrations determined by the CAP. Groundwater sampling to determine the fate of dissolved phase TPH-DRO should occur once before the AgroRemed® is applied to the site and additional confirmatory sampling should be conducted at the end of one quarter. In addition to the

application of AgroRemed®, IMS recommends continuation of monthly site monitoring to determine NAPL thicknesses in the affected monitoring wells for a period not less than 6 months after NAPL is no longer present in the monitoring wells.

4.2.2 Endpoints of Remediation

The highest initial adsorbed phase concentrations were observed in soil sample SS-3 at 18,000 mg/kg. By the end of the pilot study, the adsorbed phase concentration in SS-3 had dropped to 990 mg/kg. This suggests that in the most heavily contaminated soils at the site, a 94% reduction can be expected. The highest adsorbed phase TPH-DRO concentration was reported during Malcom-Pirnie's soil investigation at sampling point SS-02, with a concentration of 30,542.8 ppm. These data are summarized in Table 5. Utilizing this ratio and the data provided by the VDEQ, the AgroRemed® application should reduce this concentration by 94.5% to 1,680 ppm. IMS recommends closure of PC#91-1427 when soil samples indicate that adsorbed phase TPH-DRO concentrations are $\leq 5,000$ mg/kg and when NAPL has reached a thickness of 0.125 feet at the site for a period of 6 months.

TABLES

TABLE 1
 Gauging Data from October 2006
 Tidewater Terminals
 Jefferson Avenue
 Newport News, VA

DATE	WELL NUMBER	DEPTH TO PRODUCT (ft)	DEPTH TO WATER (ft)	PRODUCT THICKNESS (ft)
10/10/2006	RW-G	ND	1.72	0.00
10/10/2006	RW-H	ND	3.21	0.00
10/10/2006	MW-4	ND	1.62	0.00
10/10/2006	MW-5	ND	2.95	0.00
10/10/2006	MW-6	ND	2.71	0.00
10/10/2006	MW-7	ND	3.15	0.00
10/10/2006	MW-9	ND	5.27	0.00
10/10/2006	MW-9R	ND	4.74	0.00
10/10/2006	MW-10	ND	ND	DRY
10/10/2006	MW-10R	ND	7.71	0.00
10/10/2006	MW-11	ND	3.75	0.00
10/20/2006	RW-G	ND	2.52	0.00
10/20/2006	RW-H	ND	3.47	0.00
10/20/2006	MW-4	ND	1.92	0.00
10/20/2006	MW-5	ND	2.59	0.00
10/20/2006	MW-6	ND	2.61	0.00
10/20/2006	MW-7	ND	3.37	0.00
10/20/2006	MW-9	ND	5.53	0.00
10/20/2006	MW-9R	ND	5.95	0.00
10/20/2006	MW-10	ND	ND	DRY
10/20/2006	MW-10R	ND	7.19	0.00
10/20/2006	MW-11	ND	3.75	0.00
10/30/2006	RW-G	ND	3.46	0.00
10/30/2006	RW-H	ND	3.72	0.00
10/30/2006	MW-4	ND	1.96	0.00
10/30/2006	MW-5	ND	3.88	0.00
10/30/2006	MW-6	ND	3.88	0.00
10/30/2006	MW-7	ND	4.06	0.00
10/30/2006	MW-9	ND	5.80	0.00
10/30/2006	MW-9R	ND	5.53	0.00
10/30/2006	MW-10	ND	ND	DRY
10/30/2006	MW-10R	ND	7.53	0.00
10/30/2006	MW-11	ND	4.12	0.00
10/30/2006	RW-G	ND	3.46	0.00
10/30/2006	RW-H	ND	3.72	0.00

ND - Not Detected

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DATA
PC# 91-1427
TIDEWATER TERMINALS
407 JEFFERSON AVE.
NEWPORT NEWS, VIRGINIA

ID	DATE	1,1-DICHLOROETHANE (mg/L)	Benzene (mg/L)	1,1-DIBROMOETHANE (mg/L)	Total Xylenes (mg/L)	Toluene (mg/L)	Naphthalene (mg/L)
MW-4	10/10/2006	5.8	<0.001	<0.001	<0.003	<0.005	<0.005
	10/20/2006	13.0	<0.001	<0.001	<0.003	<0.005	<0.005
	10/30/2006	7.3	0.0032	<0.001	<0.003	<0.005	<0.005
MW-9	10/10/2006	65.0	<0.001	0.0010	0.011	<0.005	0.016
	10/20/2006	88.0	<0.001	0.0015	0.010	<0.005	0.017
	10/30/2006	22.0	<0.001	0.0026	0.016	<0.005	<0.005
MW-9R	10/10/2006	8.0	<0.001	<0.001	<0.003	<0.005	<0.005
	10/20/2006	12.0	<0.001	<0.001	<0.003	<0.005	<0.005
	10/30/2006	7.2	<0.001	<0.001	<0.003	<0.005	<0.005
MW-11	10/10/2006	56.0	0.0045	0.0052	0.052	0.0075	0.026
	10/20/2006	140.0	<0.001	<0.001	<0.003	<0.005	<0.005
	10/30/2006	26.0	0.013	0.0080	0.032	<0.005	<0.005
RW-G	10/10/2006	0.6	<0.001	<0.001	<0.003	<0.005	<0.005
	10/20/2006	1.7	<0.001	<0.001	<0.003	<0.005	<0.005
	10/30/2006	1.0	<0.001	<0.001	<0.003	<0.005	<0.005
RW-H	10/10/2006	5.9	<0.001	0.0016	0.010	<0.005	0.036
	10/20/2006	13.0	<0.001	0.0016	0.0084	<0.005	0.031
	10/30/2006	7.8	<0.001	0.0025	0.012	<0.005	0.059
MDEQ LIMITS			ADC	ADC	ADC	ADC	ADC

*ADC: Any Detectable Concentration

TABLE 3
SUMMARY OF VOC CONCENTRATION PID FIELD SCREENS. DATA COLLECTED OCTOBER 10, 2006.
PC# 91-1427
TIDEWATER TERMINALS CAP PILOT
407 JEFFERSON AVENUE
NEWPORT NEWS, VA

SAMPLE ID	DEPTH (ft)	VOC CONCENTRATION (PPM)	COLLECTION TIME	FIELD SCAN TIME
SS-1-1	0-7	16.1	11:40	11:42
SS-1-2	7-14	45.6	11:43	11:45
SS-1-3	14-21	114.0	11:47	11:50
SS-1-4	21-28	219.0	11:50	11:52
SS-1-5	28-35	80.0	11:55	11:57
SS-2-1	0-2	9.9	12:00	12:03
SS-2-2	2-9	44.5	12:03	12:05
SS-2-3	9-16	54.6	12:04	12:06
SS-2-4	16-23	108.0	12:06	12:08
SS-2-5	23-30	156.0	12:08	12:11
SS-2-6	30-37	212.0	12:10	12:13
SS-2-7	37-44	120.0	12:12	12:15
SS-3-1	0-4	8.0	12:15	12:17
SS-3-2	4-11	35.5	12:17	12:19
SS-3-3	11-18	93.3	12:20	12:23
SS-3-4	18-25	88.7	12:22	12:24
SS-3-5	25-32	148.0	12:25	12:27
SS-3-6	32-39	144.0	12:27	12:30
SS-3-7	39-46	147.0	12:30	12:33
SS-3-8	46-53	124.0	12:33	12:35
SS-4-1	0-2	3.2	12:40	12:43
SS-4-2	2-9	4.0	12:42	12:45
SS-4-3	9-16	34.0	12:44	12:46
SS-4-4	16-23	58.6	12:46	12:48
SS-4-5	23-30	108.0	12:48	12:50
SS-4-6	30-37	137.0	12:50	12:52
SS-4-7	37-44	99.2	12:51	12:53
SS-4-8	44-51	161.0	12:53	12:54
SS-4-9	51-58	134.0	12:55	12:56

Note: SS-1 through SS-4 field scans collected during pilot study using agro remed. Samples were taken at peak PID scans.

TABLE 3 (CONTINUED)
SUMMARY OF VOC CONCENTRATION PID FIELD SCREENS. DATA COLLECTED OCTOBER 20, 2006
PC# 91-1427
TIDEWATER TERMINALS CAP PILOT
407 JEFFERSON AVENUE
NEWPORT NEWS, VA

SAMPLE ID	DEPTH (ft)	VOC CONCENTRATION (PPM)	COLLECTORION TIME	FIELD SCAN TIME
-----------	------------	-------------------------	-------------------	-----------------

SS-1-1	0-6	222.0	12:08	12:10
SS-1-2	6-12	0.0	12:12	12:16
SS-1-3	12-18	7.5	12:18	12:21
SS-1-4	18-24	0.0	12:22	12:25
SS-1-5	24-30	18.0	12:25	12:27
SS-1-6	30-36	99.5	12:27	12:29
SS-1-7	36-42	135.0	12:30	12:32
SS-1-8	42-48	154.0	12:32	12:35
SS-2-1	0-6	102.0	12:40	12:42
SS-2-2	6-12	202.0	12:42	12:44
SS-2-3	12-18	54.6	12:44	12:46
SS-2-4	18-24	85.4	12:46	12:47
SS-2-5	24-30	94.9	12:47	12:49
SS-2-6	30-36	138.0	12:49	12:51
SS-2-7	36-42	148.0	12:51	12:54
SS-2-8	42-48	117.0	12:55	12:57
SS-3-1	0-6	155.0	11:06	11:08
SS-3-2	6-12	1769.0	11:10	11:13
SS-3-3	12-18	111.0	11:15	11:18
SS-3-4	18-24	268.0	11:18	11:20
SS-3-5	24-30	119.0	11:21	11:24
SS-3-6	30-36	92.0	11:25	11:27
SS-3-7	36-42	160.0	11:27	11:30
SS-3-8	42-48	72.0	11:31	11:34
SS-4-1	0-6	23.6	11:42	11:44
SS-4-2	6-12	125.0	11:45	11:46
SS-4-3	12-18	476.0	11:48	11:50
SS-4-4	18-24	135.0	11:50	11:52
SS-4-5	24-30	135.0	11:54	11:56
SS-4-6	30-36	144.0	11:57	12:00
SS-4-7	36-42	165.0	12:00	12:02
SS-4-8	42-48	110.0	12:02	12:04

Note: SS-1 through SS-4 field scans collected during pilot study using agro remed. Samples were taken at peak PID scans.

TABLE 3 (CONTINUED)
SUMMARY OF VOC CONCENTRATION PID FIELD SCREENS. DATA COLLECTED OCTOBER 30, 2006
PC# 91-1427
TIDEWATER TERMINALS CAP PILOT
407 JEFFERSON AVENUE
NEWPORT NEWS, VA

SAMPLE PID	DEPTH (ft)	VOC	COLLECTI ION TIME	FIELD SCAN TIME
		CONCENT RATION (PPM)		

SS-1-1	0-6	0.0	11:55	12:07
SS-1-2	6-12	0.0	11:58	12:09
SS-1-3	12-18	1.8	12:03	12:11
SS-1-4	18-24	8.0	12:05	12:13
SS-1-5	24-30	3.6	12:06	12:14
SS-1-6	30-36	1.9	12:07	12:16
SS-1-7	36-42	2.9	12:08	12:17
SS-2-1	0-6	0.0	12:19	12:23
SS-2-2	6-12	0.5	12:20	12:24
SS-2-3	12-18	2.7	12:21	12:25
SS-2-4	18-24	0.6	12:22	12:26
SS-2-5	24-30	3.7	12:23	12:27
SS-2-6	30-36	6.0	12:24	12:28
SS-2-7	36-42	3.0	12:25	12:29
SS-2-8	42-48	2.8	12:26	12:30
SS-3-1	0-6	6.2	12:44	12:47
SS-3-2	6-12	16.2	12:45	12:48
SS-3-3	12-18	100.0	12:46	12:49
SS-3-4	18-24	62.8	12:47	12:50
SS-3-5	24-30	64.5	12:48	12:50
SS-3-6	30-36	42.6	12:49	12:51
SS-3-7	36-42	84.7	12:50	12:51
SS-3-8	42-48	124.0	12:51	12:52
SS-3-9	48-52	63.7	12:52	12:52
SS-4-1	0-6	0.9	12:32	12:37
SS-4-2	6-12	0.4	12:33	12:38
SS-4-3	12-18	31.4	12:34	12:39
SS-4-4	18-24	21.7	12:35	12:40
SS-4-5	24-30	24.6	12:36	12:41
SS-4-6	30-36	37.2	12:37	12:42
SS-4-7	36-42	39.4	12:38	12:43
SS-4-8	42-48	38.3	12:39	12:44

Note: SS-1 through SS-4 field scans collected during pilot study using agro remed. Samples were taken at peak PID scans.

TABLE 4
SUMMARY OF SOIL ANALYTICAL DATA
PC# 91-1427
TIDEWATER TERMINALS
407 JEFFERSON AVENUE
NEWPORT NEWS, VA

	DATE	TPH/DRO (mg/kg)	DETECTION LIMIT (mg/kg)	EPA METHOD	PERCENT REDUCTION FROM BASELINE
SS-1					
Depth: 28 in	10/10/2006	4,300	93	8015	
	10/20/2006	190	4.8	8015	95.6%
	10/31/2006	200	4.9	8015	95.3%
SS-2					
Depth: 35 in	10/10/2006	18,000	480	8015	
	10/20/2006	11,000	250	8015	38.9%
	10/31/2006	990	24	8015	94.5%
SS-3					
Depth: 34 in	10/10/2006	1,800	95	8015	
	10/20/2006	340	4.7	8015	81.1%
	10/31/2006	110	4.7	8015	93.9%
SS-4					
Depth: 49 in	10/10/2006	4,700	98	8015	
	10/20/2006	4,800	100	8015	-2.1%
	10/31/2006	9,300	240	8015	-93.8%

TABLE 5
SUMMARY OF SOIL ANALYTICAL DATA PROVIDED BY VDEQ
PC# 91-1427
TIDEWATER TERMINALS
407 JEFFERSON AVENUE
NEWPORT NEWS, VA

SAMPLE ID	DATE	TPH DRO (mg/kg)
SS-01	6/2001	8,666.3
SS-02	6/2001	30,542.8
SS-03	6/2001	28.7
SS-04	6/2001	1,153.9
SS-05	6/2001	8,985.6
SS-06	6/2001	8,845.6
SS-07	6/2001	7,453.9
SS-08	6/2001	155.3

Note: Sample designations do not correspond with pilot study locations.

FIGURES

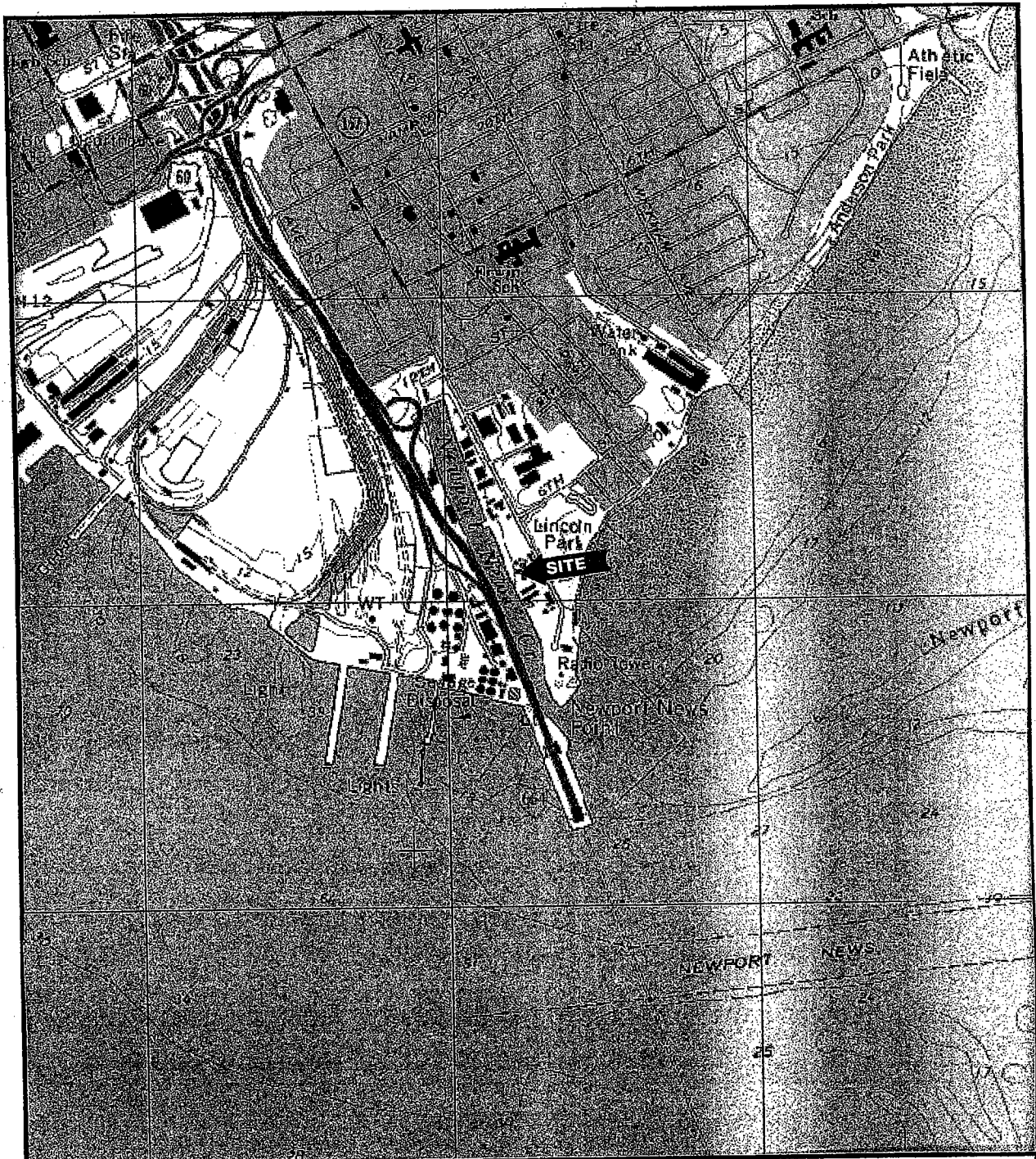
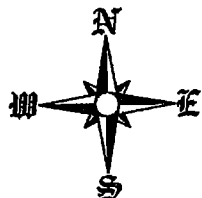


Figure 1: Portion of U.S.G.S. Newport News South, Virginia topographic map illustrating the location and topography of the site. (7.5 minute series, photorevised 1994)

Site Location:

PAPCO Oil
407 Jefferson Ave.
Newport News, VA



Approximate Scale:

1 : 48,000

Project No: 6831003

Prepared By: NGR

Date: November 14, 2006



IMS ENVIRONMENTAL SERVICES
P.O. BOX 1779
Norfolk, Virginia 23501-1779

Legend: 686 1096

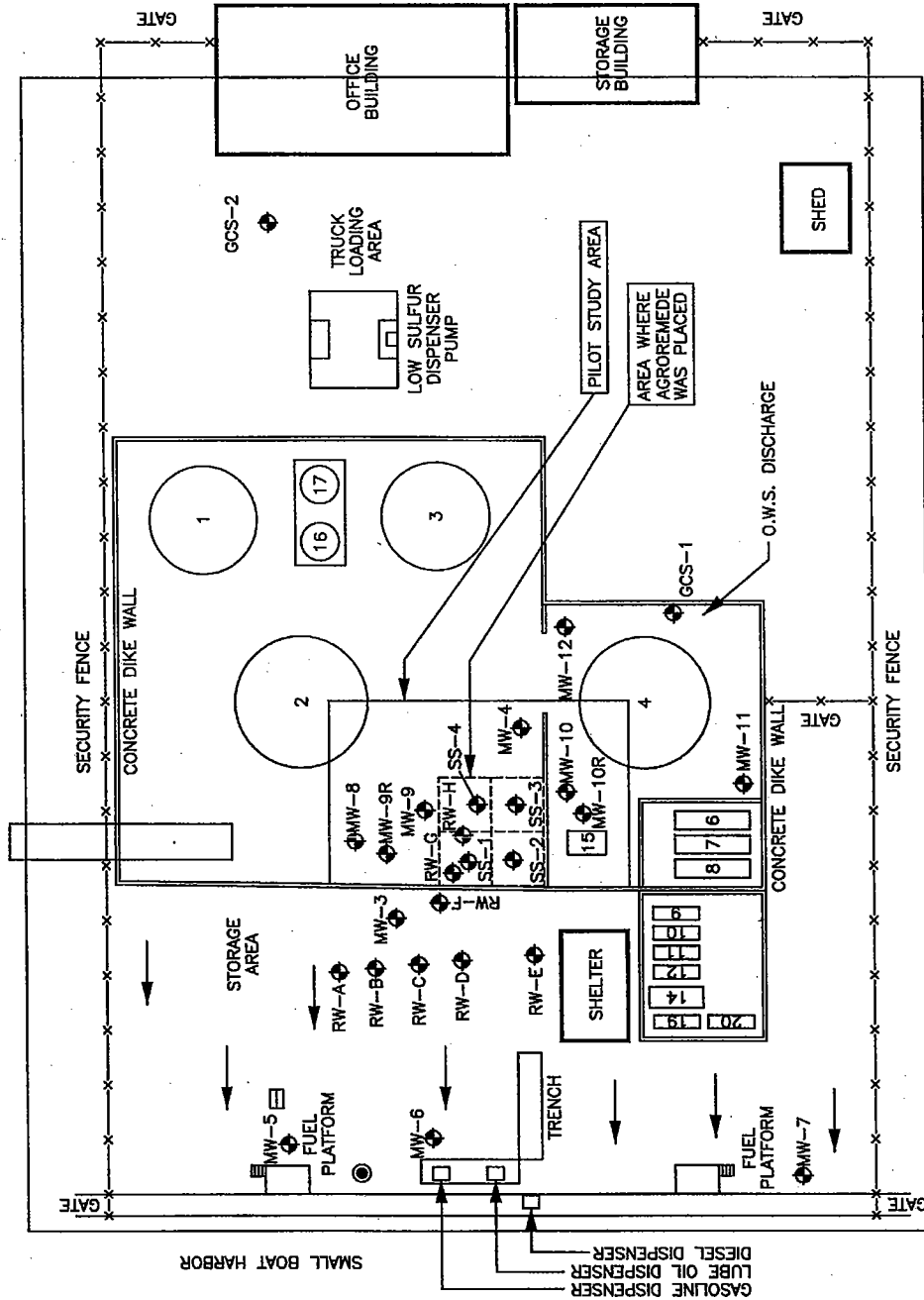
- o.w.s.
- Monitoring Well
- Clean-Out
- Manhole

Site Location:

PAPCO Oil
407 Jefferson Ave.
Newport News, VA



NOTE: CONCRETE DIKE WALLS AND TANKS
1-4, 16 AND 17 DRAWN TO SCALE. ALL
OTHER SITE FEATURES ARE APPROXIMATE.



IMS ENVIRONMENTAL SERVICES
P.O. BOX 1779
Norfolk, Virginia 23501-1779

Project No: 686 1096

Prepared By: NGR


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
Approximate Scale:





Figure 2: Site map illustrating the locations of pertinent structures, monitoring wells, soil sample locations, and the boundaries of the pilot study.


Legend: 686 1096


o.w.s.  Oil/Water Separator

c.d.  Clean-Out


 Manhole

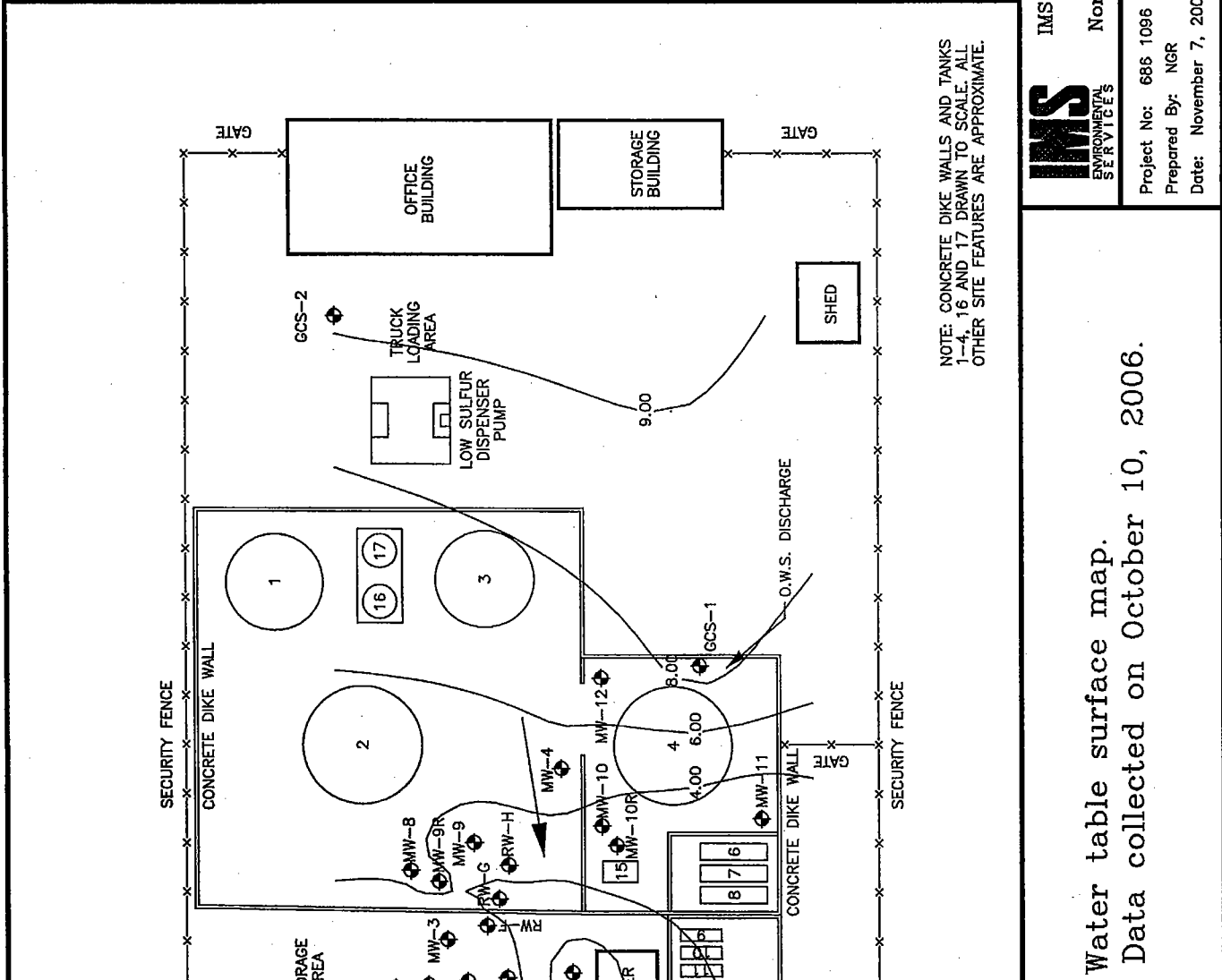
3.10 ft  Groundwater Elevation

2.00 ft  Contour Interval

 Generalized Groundwater Flow Direction

Site Location:
 PAPCO Oil
 407 Jefferson Ave.
 Newport News, VA





Project No: 686 1096
 Prepared By: NGR
 Date: November 7, 2006

IMS ENVIRONMENTAL SERVICES
 P.O. BOX 1779
 Norfolk, Virginia 23501-1779


Approximate Scale:

 1" = 50'

Figure 3: Water table surface map.
 Data collected on October 10, 2006.

Legend: 6861096

- o.w.s. Oil/Water Separator
- Monitoring Well
- Clean-Out
- Manhole

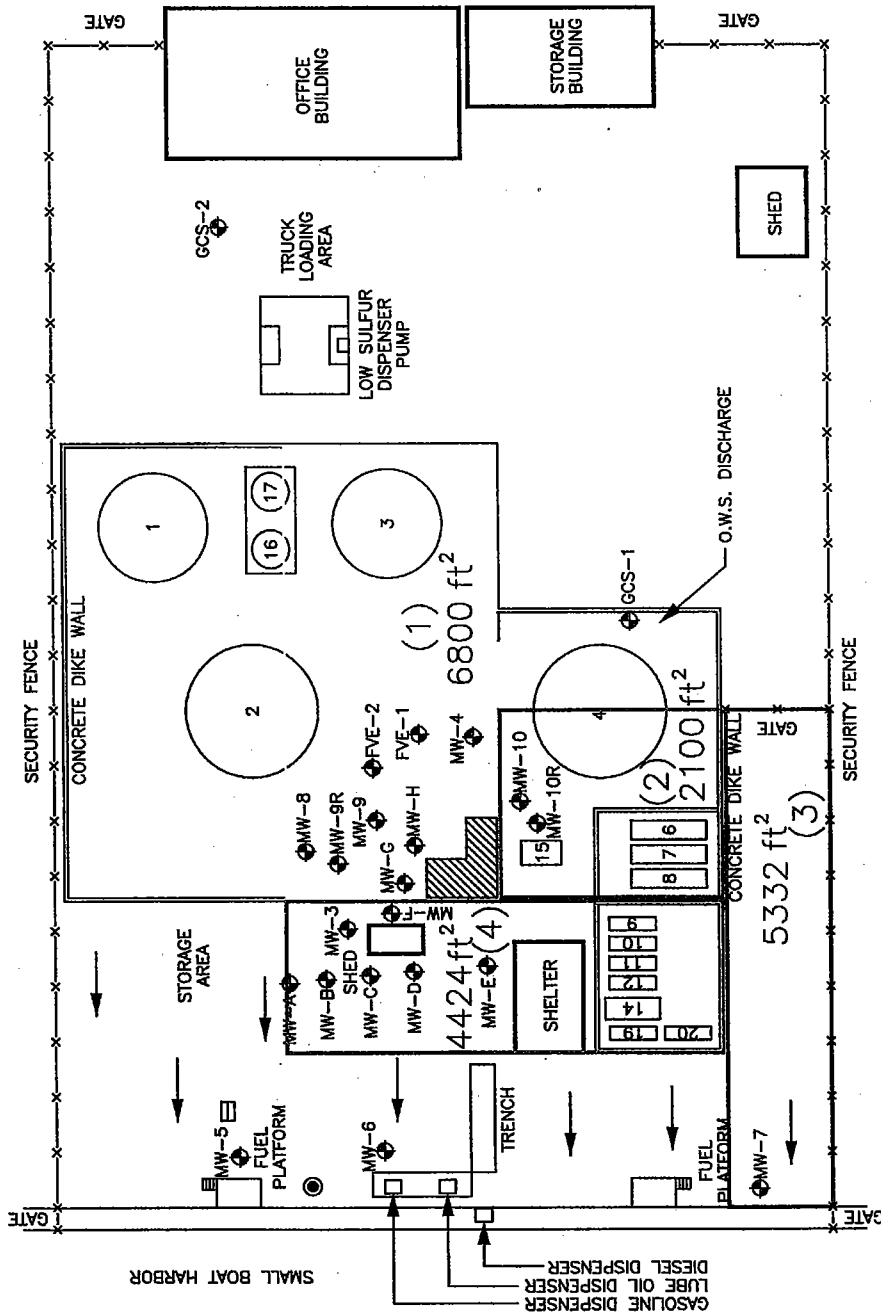
Site Location:
 PAPCO Oil
 407 Jefferson Ave.
 Newport News, VA



IMS ENVIRONMENTAL SERVICES
 P.O. BOX 1779
 Norfolk, Virginia 23501-1779

Approximate Scale:
 0 10 20 30 40 50
 1" = 50'

Project No: 6861096
 Prepared By: NGR
 Date: December 11, 2006



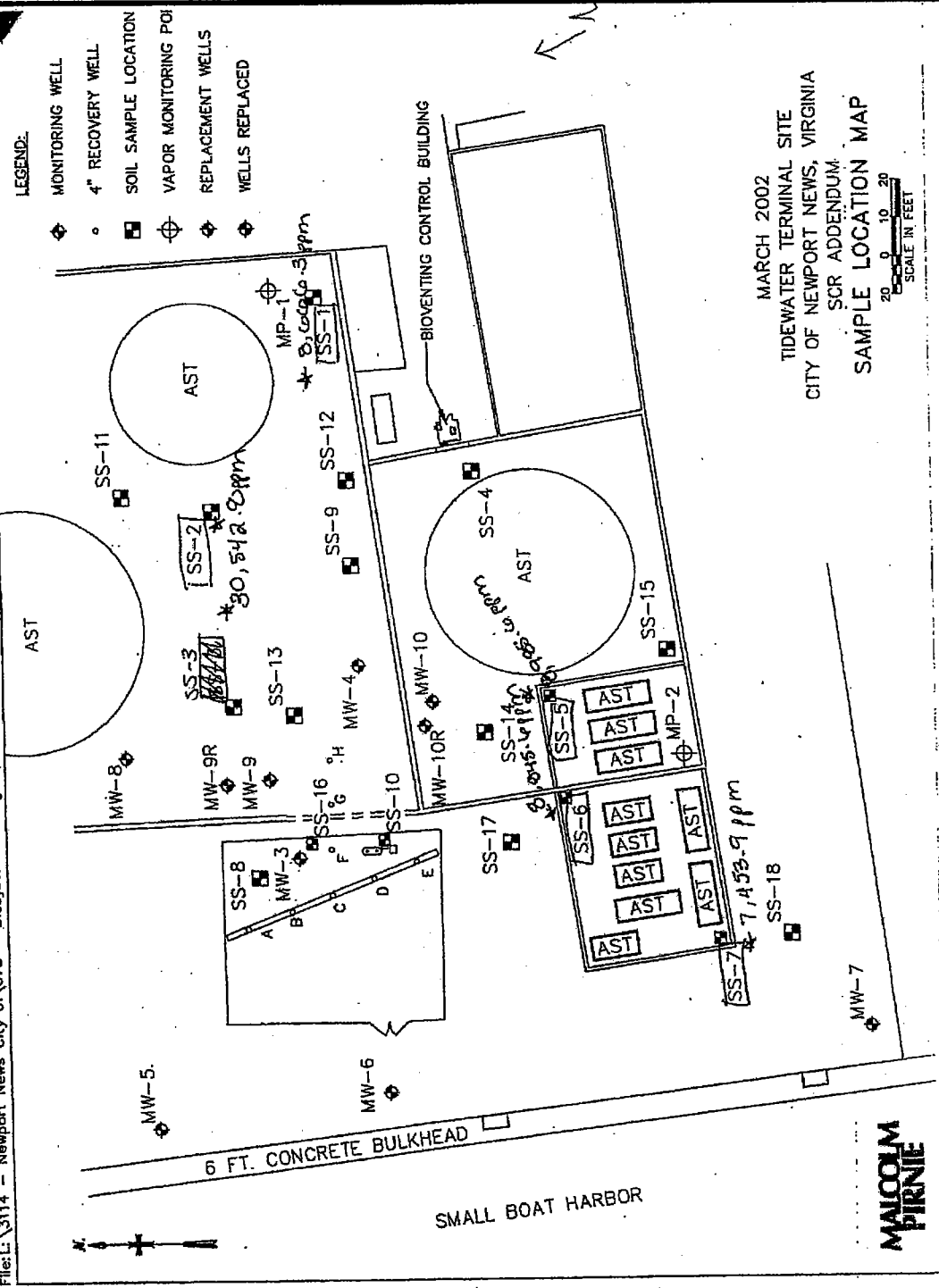
NOTE: CONCRETE DIKE WALLS AND TANKS
 1-4, 16 AND 17 DRAWN TO SCALE. ALL
 OTHER SITE FEATURES ARE APPROXIMATE.



Figure 4: Site map illustrating the location of treatment areas under the proposed CAP.

Legend: 6861003

File: L:\3114 - Newport News City of\075 - Biosystem Oversight\Cadd\FIGURE 3.DWG Scale: 1:1 Date: 02/22/2002 Time: 07:07



Site Location:
PAPCO Oil
407 Jefferson Ave.
Newport News, VA



IMS ENVIRONMENTAL SERVICES
P.O. BOX 1779
Norfolk, Virginia 23501-1779



Project No: 6861003
Prepared By: NGR
Date: November 28, 2006
Approximate Scale:

Figure 5: Soil sampling data provided by the VDEQ.

APPENDICES

APPENDIX A
Field Monitoring Well Gauge Sheets

FIELD MONITORING WELL GAUGE SHEET

Job #: 582.1557
 Site Name: Tidewater Terminals/ PAPCO

Date: October 10, 2006

Well #	Well Dia (inch)	Depth of Well (ft)	Casing Elev (ft)	Depth To Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Product Elev. (ft)	Water Elev. (ft)	CWE (ft)		
Tidewater Terminals											
RW-A	4	10.50	6.54	ND	3.19			3.15	3.15		
RW-B	4	8.91	6.12	ND	3.02			3.10	3.10		
RW-C	4	11.32	6.23	ND	3.14			3.09	3.09		
RW-D	4	9.00	6.04	ND	2.94			3.10	3.10		
RW-E	4	10.60	7.94	4.93	4.94	0.01	3.00	3.00	3.17		
RW-F	4	9.95	6.41	ND	3.30			3.11	3.11		
RW-G	4	8.10	6.75	ND	1.72			3.03	3.03		
RW-H	4	7.15	6.31	ND	3.21			3.10	3.10		
MW-3	2		6.31	well destroyed							
MW-4	2	8.00	7.22	ND	1.62			5.60	5.60		
MW-X	2			well does not exist							
MW-5	2	10.60	5.13	ND	2.95			2.18	2.18		
MW-6	2	11.10	5.31	ND	2.71			2.60	2.60		
MW-7	2	10.20	5.65	ND	3.15			2.50	2.50		
MW-8	2	8.15	6.05	ND	ND			DRY	DRY		
MW-9	2	7.31	6.43	ND	5.27			3.16	3.16		
MW-9R	2	15.42	8.95	ND	4.74			4.21	4.21		
MW-10	2	2.15	3.75	ND	ND			DRY	DRY		
MW-10R	2	15.00	10.13	ND	7.71			2.42	2.42		
PAPCO											
GCS-1	2	10.40	8.85					8.85	8.85		
GCS-2	2	9.47	9.12					9.12	9.12		
MW-11	2	6.25	6.19	ND	3.75			2.44	2.44		
MW-12	2	6.45	6.67					6.67	6.67		

Absorbant Sock Information					
Recovery Well #	Product Thickness	# of Socks		# of Socks	
		in Well	Reused	Removed	Added
RW-A		0	0	0	0
RW-B		0	0	0	0
RW-C		0	0	0	0
RW-D		0	0	0	0
RW-E		0	0	0	1
RW-F		0	0	0	0
RW-G		0	0	0	0
RW-H		0	0	0	0
MW-3		0	0	0	0
MW-4		0	0	0	0
MW-7		1	1	0	0
GCS-1		2	2	0	0
MW-12		2	2	0	0

AVER Information		
Well #	DTN	DTW
GCS-1		
MW-12		

Field Notes: gauged all wells, sampled MW-4, MW-9, MW-9R, MW-11, RW-G, RW-H, MW-10 and MW-10R were dry and unable to be sampled. MW-11 was used as substitute. Laid out the boundaries of pilot study, flagged sample locations. Hand augered 4 sample points. Spread agromed, left site at 16:15.

Monthly Check List

1. Check in with Papco Office.
2. REMOVE saturated sorbant socks and DISPOSE in drum.
3. Gauge all recovery wells and monitoring wells
4. Place sorbant socks in those recovery wells WITH MEASURABLE PRODUCT THICKNESS greater than 0.01 feet.
5. Replace drum when full.

Weather: sunny, 75 degrees

Technicians: A. Huddle/C.Lander

Site Manager: Walter Bell

FIELD MONITORING WELL GAUGE SHEET

Job #: 686.1084/686.1096

Date: October 20, 2006

Site Name: Tidewater Terminals/ PAPCO

Well#	Well Dia (inch)	Depth of Well (ft)	Casing Elev (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Product Elev (ft)	Water Elev (ft)	CWB (ft)
Tidewater Terminals									
RW-A	4	10.30	6.34					6.34	6.34
RW-B	4	8.31	6.12					6.12	6.12
RW-C	4	11.32	6.23					6.23	6.23
RW-D	4	9.09	6.04					6.04	6.04
RW-E	4	10.60	7.94					7.94	7.94
RW-F	4	9.95	6.41					6.41	6.41
RW-G	4	8.10	6.75	ND	2.52	0.00		4.23	4.23
RW-H	4	7.18	6.51	ND	3.47	0.00		2.84	2.84
MW-3	2		6.31	well destroyed					
MW-4	2	8.00	7.72	ND	1.92	0.00		5.30	5.30
MW-X	2			well does not exist					
MW-5	2	10.60	8.13	ND	2.59	0.00		2.54	2.54
MW-6	2	11.10	8.31	ND	2.61	0.00		2.70	2.70
MW-7	2	10.20	8.65	ND	3.37	0.00		2.28	2.28
MW-8	2	3.15	6.05			0.00		6.05	6.05
MW-9	2	7.31	6.44	ND	5.53	0.00		2.90	2.90
MW-9R	2	15.42	6.95	ND	5.95	0.00		3.00	3.00
MW-10	2	2.13	8.75	ND	ND	0.00		DRY	DRY
MW-10R	2	15.00	10.13	ND	7.19	0.00		2.94	2.94
PAPCO									
GCS-1	2	10.40	8.85	5.87	6.01	0.14	2.84	2.84	7.86
GCS-2	2	14.47	9.12	ND	3.18	0.00		5.94	5.94
MW-11	2	6.25	6.19	ND	3.75	0.00		2.44	2.44
MW-12	2	6.45	6.67	4.45	4.73	0.28	1.94	1.94	5.63

Absorbent Sock Information					
Recovery Well #	Product Thickness	# of Socks in Well	# of Socks Reused	# of Socks Removed	# of Socks Added
RW-A					
RW-B					
RW-C					
RW-D					
RW-E					
RW-F					
RW-G					
RW-H					
MW-3					
MW-4					
MW-7		1	0	1	0
GCS-1		2	1	1	0
MW-12		2	1	1	0

AWR Information		
Well #	DTN	DTW
GCS-1	ND	6.83
MW-12	ND	5.2

PAPCO RECOVERY

Recovered today 15.165
 Recovered previously 58.590
Total Recovered 73.755

Field Note: arrived onsite gauged wells, began vac event.

While Huddle worked on VAC event, Charity sampled wells and took soil samples for Tidewater Terminals (separtate job number).

Charity left site with samples at 1300, Huddle left site at conclusion of vac event at 1600.

Huddle replaced well cap on MW-11.

Monitor Checklist:

1. Check in with Papco Office.
2. REMOVE saturated sorbant socks and DISPOSE in drum.
3. Gauge all recovery wells and monitoring wells
4. Place sorbent socks in those recovery wells WITH MEASURABLE PRODUCT THICKNESS greater than 0.01 feet.
5. Replace drum when full.

Weather: cloudy/ mid-60s

Technicians: A. Huddle/C. Lander

Site Manager: Walter Bell

FIELD MONITORING WELL GAUGE SHEET

Job #: 686.1096
 Site Name: Tidewater Terminals/ PAPCO

Date: October 30, 2006

Well #	Well Dia (in)	Depth of Well (ft)	Casing Elev (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Product Elev (ft)	Water Elev (ft)	GWT (ft)		
Tidewater Terminals											
RW-A	4	10.80	6.34					6.34	6.34		
RW-B	4	8.91	6.12					6.12	6.12		
RW-C	4	11.39	6.23					6.23	6.23		
RW-D	4	9.00	6.04					6.04	6.04		
RW-E	4	10.60	7.94					7.94	7.94		
RW-F	4	9.95	6.41					6.41	6.41		
RW-G	4	8.10	6.25	ND	3.46			3.29	3.29		
RW-H	4	7.45	6.31	ND	3.72			2.59	2.59		
MW-3	2		6.31	well destroyed							
MW-4	2	8.00	7.22	ND	1.96			5.26	5.26		
MW-X	2			well does not exist							
MW-5	2	10.60	5.13	ND	3.88			1.25	1.25		
MW-6	2	11.10	5.31	ND	3.88			1.43	1.43		
MW-7	2	10.20	5.65	ND	4.06			1.39	1.39		
MW-8	2	3.15	6.05					6.05	6.05		
MW-9	2	7.21	8.42	ND	5.80			2.63	2.63		
MW-9R	2	15.42	8.95	ND	5.53			3.42	3.42		
MW-10	2	2.13	8.75	ND	ND			DRY	DRY		
MW-10R	2	15.00	10.13	ND	7.53			2.60	2.60		
PAPCO											
GCS-1	2	10.40	8.85					8.85	8.85		
GCS-2	2	14.47	9.12					9.12	9.12		
MW-11	2	6.25	6.19	ND	4.12			2.07	2.07		
MW-12	2	6.43	6.67					6.67	6.67		

Absorbant Sock Information					
Recovery Well #	Product Thickness	# of Socks in Well	# of Socks Reused	# of Socks Removed	# of Socks Added
RW-A					
RW-B					
RW-C					
RW-D					
RW-E					
RW-F					
RW-G					
RW-H					
MW-3					
MW-4					
MW-7					
GCS-1					
MW-12					

AVER Information		
Well #	DIN	DTW
GCS-1		
MW-12		

Field Notes:

Monthly Check List

1. Check in with Papco Office.
2. REMOVE saturated sorbant socks and DISPOSE in drum.
3. Gauge all recovery wells and monitoring wells
4. Place sorbant socks in those recovery wells WITH MEASURABLE PRODUCT THICKNESS greater than 0.01 feet.
5. Replace drum when full.

Weather: _____

Technicians: _____

Site Manager: Walter Bell



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REPORT OF ANALYSIS

Charity Lander
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 19, 2006

Date Received : October 12, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L264962-02

Sample ID : MW-4

Site ID :

Collected By : Charity Lander
Collection Date : 10/10/06 10:22

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/17/06 1208		1
Toluene	BDL	0.0050	mg/l	8260B	10/17/06 1208		1
Ethylbenzene	BDL	0.0010	mg/l	8260B	10/17/06 1208		1
Xylenes, Total	BDL	0.0030	mg/l	8260B	10/17/06 1208		1
Naphthalene	BDL	0.0050	mg/l	8260B	10/17/06 1208		1
Surrogate Recovery							
Toluene-d8	101.		% Rec.	8260B	10/17/06 1208		1
Dibromofluoromethane	101.		% Rec.	8260B	10/17/06 1208		1
4-Bromofluorobenzene	94.6		% Rec.	8260B	10/17/06 1208		1
TPH (GC/FID) High Fraction	5.8	0.10	mg/l	8015	10/17/06 2214	LSB	1
Surrogate Recovery (50-150) o-Terphenyl	101.		% Rec.	8015	10/17/06 2214	LSB	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Notes:

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REPORT OF ANALYSIS

Charity Lander
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 19, 2006

Date Received : October 12, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L264962-03

Sample ID : RW-H

Site ID :

Collected By : Charity Lander
Collection Date : 10/10/06 10:41

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/18/06 1238		1
Toluene	BDL	0.0050	mg/l	8260B	10/18/06 1238		1
Ethylbenzene	0.0016	0.0010	mg/l	8260B	10/18/06 1238		1
Xylenes, Total	0.010	0.0030	mg/l	8260B	10/18/06 1238		1
Naphthalene	0.036	0.0050	mg/l	8260B	10/18/06 1238		1
Surrogate Recovery							
Toluene-d8	103.		% Rec.	8260B	10/18/06 1238		1
Dibromofluoromethane	103.		% Rec.	8260B	10/18/06 1238		1
4-Bromofluorobenzene	96.2		% Rec.	8260B	10/18/06 1238		1
TPH (GC/FID) High Fraction	5.9	0.10	mg/l	8015	10/17/06 1720	LSB	1
Surrogate Recovery (50-150)							
o-Terphenyl	70.5		% Rec.	8015	10/17/06 1720	LSB	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Charity Lander
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 19, 2006

Date Received : October 12, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L264962-04

Sample ID : MW-9

Site ID :

Collected By : Charity Lander
Collection Date : 10/10/06 10:58

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/18/06 1301		1
Toluene	BDL	0.0050	mg/l	8260B	10/18/06 1301		1
Ethylbenzene	0.0010	0.0010	mg/l	8260B	10/18/06 1301		1
Xylenes, Total	0.011	0.0030	mg/l	8260B	10/18/06 1301		1
Naphthalene	0.016	0.0050	mg/l	8260B	10/18/06 1301		1
Surrogate Recovery							
Toluene-d8	102.		% Rec.	8260B	10/18/06 1301		1
Dibromofluoromethane	101.		% Rec.	8260B	10/18/06 1301		1
4-Bromofluorobenzene	96.6		% Rec.	8260B	10/18/06 1301		1
TPH (GC/FID) High Fraction	65.	2.0	mg/l	8015	10/18/06 1026	LSB	20
Surrogate Recovery (50-150)							
o-Terphenyl	0.00		% Rec.	8015	10/18/06 1026	LSB	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Notes:

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REPORT OF ANALYSIS

Charity Lander
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 18, 2006

Date Received : October 12, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L264839-01

Sample ID : RW-G

Site ID :

Collected By : Charity Lander
Collection Date : 10/10/06 10:47

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/16/06 1246		1
Toluene	BDL	0.0050	mg/l	8260B	10/16/06 1246		1
Ethylbenzene	BDL	0.0010	mg/l	8260B	10/16/06 1246		1
Xylenes, Total	BDL	0.0030	mg/l	8260B	10/16/06 1246		1
Naphthalene	BDL	0.0050	mg/l	8260B	10/16/06 1246		1
Surrogate Recovery							
Toluene-d8	103.		% Rec.	8260B	10/16/06 1246		1
Dibromofluoromethane	99.4		% Rec.	8260B	10/16/06 1246		1
4-Bromofluorobenzene	92.9		% Rec.	8260B	10/16/06 1246		1
TPH (GC/FID) High Fraction	0.62	0.10	mg/l	8015	10/17/06 1951	LSB	1
Surrogate Recovery (50-150)							
o-Terphenyl	92.9		% Rec.	8015	10/17/06 1951	LSB	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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REPORT OF ANALYSIS

Charity Lander
IMS Environmental Services-Virginia
PO Box 1779
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October 18, 2006

Date Received : October 12, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L264839-02

Sample ID : MW-9R

Site ID :

Collected By : Charity Lander
Collection Date : 10/10/06 10:52

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/14/06 1644		1
Toluene	BDL	0.0050	mg/l	8260B	10/14/06 1644		1
Ethylbenzene	BDL	0.0010	mg/l	8260B	10/14/06 1644		1
Xylenes, Total	BDL	0.0030	mg/l	8260B	10/14/06 1644		1
Naphthalene	BDL	0.0050	mg/l	8260B	10/14/06 1644		1
Surrogate Recovery							
Toluene-d8	104.		% Rec.	8260B	10/14/06 1644		1
Dibromofluoromethane	103.		% Rec.	8260B	10/14/06 1644		1
4-Bromofluorobenzene	94.8		% Rec.	8260B	10/14/06 1644		1
TPH (GC/FID) High Fraction	8.0	0.10	mg/l	8015	10/17/06 1711	LSB	1
Surrogate Recovery (50-150) o-Terphenyl	87.5		% Rec.	8015	10/17/06 1711	LSB	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Notes:

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REPORT OF ANALYSIS

Charity Lander
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 18, 2006

Date Received : October 12, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-1 28 IN
Collected By : Charity Lander
Collection Date : 10/10/06 11:59

ESC Sample # : L264839-03

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	85.7		%	2540G	10/18/06 0943	MAS
TPH (GC/FID) High Fraction	4300	93.	mg/kg	8015	10/18/06 1035	LSB
Surrogate Recovery (50-150) o-Terphenyl	0.00		% Rec.	8015	10/18/06 1035	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Note:

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REPORT OF ANALYSIS

Charity Lander
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October 18, 2006

Date Received : October 12, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-2 35 IN
Collected By : Charity Lander
Collection Date : 10/10/06 12:19

ESC Sample # : L264839-04

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	82.8		%	2540G	10/18/06 0943	MAS
TPH (GC/FID) High Fraction	18000	480	mg/kg	8015	10/18/06 1000	LSB
Surrogate Recovery (50-150) o-Terphenyl	0.00		% Rec.	8015	10/18/06 1000	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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REPORT OF ANALYSIS

Charity Lander
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 18, 2006

Date Received : October 12, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-3 34 IN
Collected By : Charity Lander
Collection Date : 10/10/06 12:37

ESC Sample # : L264839-05

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	84.3		%	2540G	10/18/06 0944	MAS
TPH (GC/FID) High Fraction	1800	95.	mg/kg	8015	10/18/06 0951	LSB
Surrogate Recovery (50-150) o-Terphenyl	0.00		% Rec.	8015	10/18/06 0951	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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REPORT OF ANALYSIS

Charity Lander
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 18, 2006

Date Received : October 12, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-4 49 IN
Collected By : Charity Lander
Collection Date : 10/10/06 12:58

ESC Sample # : L264839-06

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	81.6		%	2540G	10/18/06 0940	MAS
TPH (GC/FID) High Fraction	4700	98.	mg/kg	8015	10/18/06 1009	LSB
Surrogate Recovery (50-150) o-Terphenyl	0.00		% Rec.	8015	10/18/06 1009	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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REPORT OF ANALYSIS

Charity Lander
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 30, 2006

Date Received : October 21, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L266093-01

Sample ID : RW-G

Site ID :

Collected By : C. Lander
Collection Date : 10/20/06 10:30

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/27/06 0303	RG	1
Toluene	BDL	0.0050	mg/l	8260B	10/27/06 0303	RG	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	10/27/06 0303	RG	1
Xylenes, Total	BDL	0.0030	mg/l	8260B	10/27/06 0303	RG	1
Naphthalene	BDL	0.0050	mg/l	8260B	10/27/06 0303	RG	1
Surrogate Recovery							
Toluene-d8	101.		% Rec.	8260B	10/27/06 0303	RG	1
Dibromofluoromethane	111.		% Rec.	8260B	10/27/06 0303	RG	1
4-Bromofluorobenzene	99.1		% Rec.	8260B	10/27/06 0303	RG	1
TPH (GC/FID) High Fraction	1.7	0.10	mg/l	8015	10/24/06 2147	LSB	1
Surrogate Recovery (50-150) o-Terphenyl	80.4		% Rec.	8015	10/24/06 2147	LSB	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)

Notes:

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Reported: 10/27/06 17:05 Revised: 10/30/06 10:22



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REPORT OF ANALYSIS

Charity Lander
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 30, 2006

Date Received : October 21, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L266093-02

Sample ID : RW-H

Site ID :

Collected By : C. Lander
Collection Date : 10/20/06 10:22

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/27/06 0330	RG	1
Toluene	BDL	0.0050	mg/l	8260B	10/27/06 0330	RG	1
Ethylbenzene	0.0016	0.0010	mg/l	8260B	10/27/06 0330	RG	1
Xylenes, Total	0.0084	0.0030	mg/l	8260B	10/27/06 0330	RG	1
Naphthalene	0.031	0.0050	mg/l	8260B	10/27/06 0330	RG	1
Surrogate Recovery							
Toluene-d8	102.		% Rec.	8260B	10/27/06 0330	RG	1
Dibromofluoromethane	110.		% Rec.	8260B	10/27/06 0330	RG	1
4-Bromofluorobenzene	105.		% Rec.	8260B	10/27/06 0330	RG	1
TPH (GC/FID) High Fraction	13.	0.20	mg/l	8015	10/25/06 1659	LSB	2
Surrogate Recovery (50-150) o-Terphenyl	120.		% Rec.	8015	10/25/06 1659	LSB	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Notes:

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Reported: 10/27/06 17:05 Revised: 10/30/06 10:22



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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 31, 2006

Date Received : October 21, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L266094-01

Sample ID : MW-4

Site ID :

Collected By : C. Lander
Collection Date : 10/20/06 09:58

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/27/06 0356	RG	1
Toluene	BDL	0.0050	mg/l	8260B	10/27/06 0356	RG	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	10/27/06 0356	RG	1
Xylenes, Total	BDL	0.0030	mg/l	8260B	10/27/06 0356	RG	1
Naphthalene	BDL	0.0050	mg/l	8260B	10/27/06 0356	RG	1
Surrogate Recovery							
Toluene-d8	96.9		% Rec.	8260B	10/27/06 0356	RG	1
Dibromofluoromethane	98.6		% Rec.	8260B	10/27/06 0356	RG	1
4-Bromofluorobenzene	106.		% Rec.	8260B	10/27/06 0356	RG	1
TPH (GC/FID) High Fraction	13.	0.20	mg/l	8015	10/25/06 1734	LSB	2
Surrogate Recovery (50-150) o-Terphenyl	115.		% Rec.	8015	10/25/06 1734	LSB	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Notes:

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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 31, 2006

Date Received : October 21, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L266094-02

Sample ID : MW-9

Site ID :

Collected By : C. Lander
Collection Date : 10/20/06 10:08

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/27/06 0422	RG	1
Toluene	BDL	0.0050	mg/l	8260B	10/27/06 0422	RG	1
Ethylbenzene	0.0015	0.0010	mg/l	8260B	10/27/06 0422	RG	1
Xylenes, Total	0.010	0.0030	mg/l	8260B	10/27/06 0422	RG	1
Naphthalene	0.017	0.0050	mg/l	8260B	10/27/06 0422	RG	1
Surrogate Recovery							
Toluene-d8	99.5		% Rec.	8260B	10/27/06 0422	RG	1
Dibromofluoromethane	97.3		% Rec.	8260B	10/27/06 0422	RG	1
4-Bromofluorobenzene	116.		% Rec.	8260B	10/27/06 0422	RG	1
TPH (GC/FID) High Fraction	88.	2.0	mg/l	8015	10/25/06 1717	LSB	20
Surrogate Recovery (50-150) o-Terphenyl	0.00		% Rec.	8015	10/25/06 1717	LSB	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Notes:

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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 31, 2006

Date Received : October 21, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L266094-03

Sample ID : MW-9R

Site ID :

Collected By : C. Lander
Collection Date : 10/20/06 10:13

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/27/06 0449	RG	1
Toluene	BDL	0.0050	mg/l	8260B	10/27/06 0449	RG	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	10/27/06 0449	RG	1
Xylenes, Total	BDL	0.0030	mg/l	8260B	10/27/06 0449	RG	1
Naphthalene	BDL	0.0050	mg/l	8260B	10/27/06 0449	RG	1
Surrogate Recovery							
Toluene-d8	97.3		% Rec.	8260B	10/27/06 0449	RG	1
Dibromofluoromethane	99.1		% Rec.	8260B	10/27/06 0449	RG	1
4-Bromofluorobenzene	110.		% Rec.	8260B	10/27/06 0449	RG	1
TPH (GC/FID) High Fraction	12.	0.20	mg/l	8015	10/25/06 1708	LSB	2
Surrogate Recovery (50-150) o-Terphenyl	83.5		% Rec.	8015	10/25/06 1708	LSB	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 31, 2006

Date Received : October 21, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L266094-04

Sample ID : MW-11

Site ID :

Collected By : C. Lander
Collection Date : 10/20/06 09:50

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	10/27/06 2144	RG	1
Toluene	BDL	0.0050	mg/l	8260B	10/27/06 2144	RG	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	10/27/06 2144	RG	1
Xylenes, Total	BDL	0.0030	mg/l	8260B	10/27/06 2144	RG	1
Naphthalene	BDL	0.0050	mg/l	8260B	10/27/06 2144	RG	1
Surrogate Recovery							
Toluene-d8	89.2		% Rec.	8260B	10/27/06 2144	RG	1
Dibromofluoromethane	78.2		% Rec.	8260B	10/27/06 2144	RG	1
4-Bromofluorobenzene	77.5		% Rec.	8260B	10/27/06 2144	RG	1
TPH (GC/FID) High Fraction	140	5.0	mg/l	8015	10/25/06 1845	LSB	50
Surrogate Recovery (50-150) o-Terphenyl	0.00		% Rec.	8015	10/25/06 1845	LSB	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 31, 2006

Date Received : October 21, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-1-2 28 IN
Collected By : C. Lander
Collection Date : 10/20/06 12:38

ESC Sample # : L266094-05

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	84.2		%	2540G	10/27/06 1737	DR
TPH (GC/FID) High Fraction Surrogate Recovery (50-150) o-Terphenyl	190	4.8	mg/kg	8015	10/26/06 0338	LSB
	59.7		% Rec.	8015	10/26/06 0338	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

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KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 31, 2006

Date Received : October 21, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-2-2 35 IN
Collected By : C. Lander
Collection Date : 10/20/06 12:59

ESC Sample # : L266094-06

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	79.2		%	2540G	10/27/06 1738	DR
TPH (GC/FID) High Fraction Surrogate Recovery (50-150) o-Terphenyl	11000 0.00	250	mg/kg % Rec.	8015 8015	10/26/06 1124 10/26/06 1124	LSB LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01
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Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 31, 2006

Date Received : October 21, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-3-2 34 IN
Collected By : C. Lander
Collection Date : 10/20/06 11:36

ESC Sample # : I266094-07

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	84.5		%	2540G	10/27/06 1738	DR
TPH (GC/FID) High Fraction	340	4.7	mg/kg	8015	10/26/06 0439	LSB
Surrogate Recovery (50-150) o-Terphenyl	110.		% Rec.	8015	10/26/06 0439	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

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KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

October 31, 2006

Date Received : October 21, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-4-2 49 IN
Collected By : C. Lander
Collection Date : 10/20/06 12:06

ESC Sample # : L266094-08
Site ID :
Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	79.8		%	2540G	10/27/06 1739	DR
TPH (GC/FID) High Fraction	4800	100	mg/kg	8015	10/26/06 1133	LSB
Surrogate Recovery (50-150) o-Terphenyl	0.00		% Rec.	8015	10/26/06 1133	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

November 09, 2006

Date Received : October 31, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L267386-01

Sample ID : MW-4

Site ID :

Collected By : Matt Woodson
Collection Date : 10/30/06 11:09

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	0.0032	0.0010	mg/l	8260B	11/08/06 0125	CJR	1
Toluene	BDL	0.0050	mg/l	8260B	11/08/06 0125	CJR	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	11/08/06 0125	CJR	1
Xylenes, Total	BDL	0.0030	mg/l	8260B	11/08/06 0125	CJR	1
Naphthalene	BDL	0.0050	mg/l	8260B	11/08/06 0125	CJR	1
Surrogate Recovery							
Toluene-d8	78.3		% Rec.	8260B	11/08/06 0125	CJR	1
Dibromofluoromethane	76.0		% Rec.	8260B	11/08/06 0125	CJR	1
4-Bromofluorobenzene	87.3		% Rec.	8260B	11/08/06 0125	CJR	1
TPH (GC/FID) High Fraction	7.3	0.10	mg/l	8015	11/05/06 1555	LSB	1
Surrogate Recovery (50-150) o-Terphenyl	53.3		% Rec.	8015	11/05/06 1555	LSB	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Notes:

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REPORT OF ANALYSIS

Walt Bell
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PO Box 1779
Norfolk, VA 23501-1779

November 09, 2006

Date Received : October 31, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L267386-02

Sample ID : RW-H

Site ID :

Collected By : Matt Woodson
Collection Date : 10/30/06 11:45

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	11/08/06 1816		1
Toluene	BDL	0.0050	mg/l	8260B	11/08/06 1816		1
Ethylbenzene	0.0025	0.0010	mg/l	8260B	11/08/06 1816		1
Xylenes, Total	0.012	0.0030	mg/l	8260B	11/08/06 1816		1
Naphthalene	0.059	0.0050	mg/l	8260B	11/08/06 1816		1
Surrogate Recovery							
Toluene-d8	98.4		% Rec.	8260B	11/08/06 1816		1
Dibromofluoromethane	102.		% Rec.	8260B	11/08/06 1816		1
4-Bromofluorobenzene	103.		% Rec.	8260B	11/08/06 1816		1
TPH (GC/FID) High Fraction	7.8	0.10	mg/l	8015	11/05/06 1537	LSB	1
Surrogate Recovery (50-150)							
o-Terphenyl	81.5		% Rec.	8015	11/05/06 1537	LSB	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

November 09, 2006

Date Received : October 31, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-1-3 28IN
Collected By : Matt Woodson
Collection Date : 10/30/06 12:17

ESC Sample # : L267386-03

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	82.0		%	2540G	11/06/06 1153	MAS
TPH (GC/FID) High Fraction	200	4.9	mg/kg	8015	11/07/06 1206	LSB
Surrogate Recovery (50-150) o-Terphenyl	84.9		% Rec.	8015	11/07/06 1206	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

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AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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PO Box 1779
Norfolk, VA 23501-1779

November 09, 2006

Date Received : October 31, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-4-3 49IN
Collected By : Matt Woodson
Collection Date : 10/30/06 12:44

ESC Sample # : L267386-04

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	83.2		%	2540G	11/06/06 1152	MAS
TPH (GC/FID) High Fraction	9300	240	mg/kg	8015	11/06/06 1131	LSB
Surrogate Recovery (50-150) o-Terphenyl	0.00		% Rec.	8015	11/06/06 1131	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
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REPORT OF ANALYSIS

Walt Bell
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PO Box 1779
Norfolk, VA 23501-1779

November 10, 2006

Date Received : October 31, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L267122-01

Sample ID : MW-9R

Site ID :

Collected By : C Lander
Collection Date : 10/30/06 11:49

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	11/08/06 0406	CJR	1
Toluene	BDL	0.0050	mg/l	8260B	11/08/06 0406	CJR	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	11/08/06 0406	CJR	1
Xylenes, Total	BDL	0.0030	mg/l	8260B	11/08/06 0406	CJR	1
Naphthalene	BDL	0.0050	mg/l	8260B	11/08/06 0406	CJR	1
Surrogate Recovery							
Toluene-d8	85.7		% Rec.	8260B	11/08/06 0406	CJR	1
Dibromofluoromethane	67.9		% Rec.	8260B	11/08/06 0406	CJR	1
4-Bromofluorobenzene	91.4		% Rec.	8260B	11/08/06 0406	CJR	1
TPH (GC/FID) High Fraction	7.2	0.10	mg/l	8015	11/05/06 1334	LSB	1
Surrogate Recovery (50-150) o-Terphenyl	58.3		% Rec.	8015	11/05/06 1334	LSB	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Reported: 11/10/06 13:29 Printed: 11/10/06 15:52



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REPORT OF ANALYSIS

Walt Bell
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PO Box 1779
Norfolk, VA 23501-1779

November 10, 2006

Date Received : October 31, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L267122-02

Sample ID : RW-G

Site ID :

Collected By : C Lander
Collection Date : 10/30/06 11:41

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	11/09/06 1621		1
Toluene	BDL	0.0050	mg/l	8260B	11/09/06 1621		1
Ethylbenzene	BDL	0.0010	mg/l	8260B	11/09/06 1621		1
Xylenes, Total	BDL	0.0030	mg/l	8260B	11/09/06 1621		1
Naphthalene	BDL	0.0050	mg/l	8260B	11/09/06 1621		1
Surrogate Recovery							
Toluene-d8	101.		% Rec.	8260B	11/09/06 1621		1
Dibromofluoromethane	105.		% Rec.	8260B	11/09/06 1621		1
4-Bromofluorobenzene	100.		% Rec.	8260B	11/09/06 1621		1
TPH (GC/FID) High Fraction	1.0	0.10	mg/l	8015	11/05/06 1325	LSB	1
Surrogate Recovery (50-150)							
o-Terphenyl	80.9		% Rec.	8015	11/05/06 1325	LSB	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

November 10, 2006

Date Received : October 31, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L267122-03

Sample ID : MW-11

Site ID :

Collected By : C Lander
Collection Date : 10/30/06 11:33

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	0.013	0.0050	mg/l	8260B	11/08/06 0343	CJR	5
Toluene	BDL	0.025	mg/l	8260B	11/08/06 0343	CJR	5
Ethylbenzene	0.0080	0.0050	mg/l	8260B	11/08/06 0343	CJR	5
Xylenes, Total	0.032	0.015	mg/l	8260B	11/08/06 0343	CJR	5
Naphthalene	BDL	0.025	mg/l	8260B	11/08/06 0343	CJR	5
Surrogate Recovery							
Toluene-d8	85.7		% Rec.	8260B	11/08/06 0343	CJR	5
Dibromofluoromethane	71.3		% Rec.	8260B	11/08/06 0343	CJR	5
4-Bromofluorobenzene	99.1		% Rec.	8260B	11/08/06 0343	CJR	5
TPH (GC/FID) High Fraction	26.	0.50	mg/l	8015	11/06/06 2116	LSB	5
Surrogate Recovery (50-150) o-Terphenyl	61.8		% Rec.	8015	11/06/06 2116	LSB	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Notes:

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All samples analyzed in accordance with 40 CFR, Part 136.3

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ENVIRONMENTAL
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

November 10, 2006

Date Received : October 31, 2006
Description : Tidewater Terminals CAP Pilot

ESC Sample # : L267122-04

Sample ID : MW-9

Site ID :

Collected By : C Lander
Collection Date : 10/30/06 11:23

Project # : 686.1096

Parameter	Result	Det. Limit	Units	Method	Date/Time	Analyst	Dil.
Benzene	BDL	0.0010	mg/l	8260B	11/08/06 0257	CJR	1
Toluene	BDL	0.0050	mg/l	8260B	11/08/06 0257	CJR	1
Ethylbenzene	0.0026	0.0010	mg/l	8260B	11/08/06 0257	CJR	1
Xylenes, Total	0.016	0.0030	mg/l	8260B	11/08/06 0257	CJR	1
Naphthalene	BDL	0.0050	mg/l	8260B	11/08/06 0257	CJR	1
Surrogate Recovery							
Toluene-d8	85.5		% Rec.	8260B	11/08/06 0257	CJR	1
Dibromofluoromethane	79.0		% Rec.	8260B	11/08/06 0257	CJR	1
4-Bromofluorobenzene	162.		% Rec.	8260B	11/08/06 0257	CJR	1
TPH (GC/FID) High Fraction	22.	0.50	mg/l	8015	11/06/06 2125	LSB	5
Surrogate Recovery (50-150) o-Terphenyl	118.		% Rec.	8015	11/06/06 2125	LSB	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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REPORT OF ANALYSIS

Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

November 10, 2006

Date Received : October 31, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-2-3 35IN
Collected By : C Lander
Collection Date : 10/30/06 12:30

ESC Sample # : L267122-05

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	84.7		%	2540G	11/03/06 0953	MAS
TPH (GC/FID) High Fraction	990	24.	mg/kg	8015	11/07/06 1404	LSB
Surrogate Recovery (50-150) o-Terphenyl	102.		% Rec.	8015	11/07/06 1404	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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Walt Bell
IMS Environmental Services-Virginia
PO Box 1779
Norfolk, VA 23501-1779

November 10, 2006

Date Received : October 31, 2006
Description : Tidewater Terminals CAP Pilot
Sample ID : SS-3-3 34IN
Collected By : C Lander
Collection Date : 10/30/06 12:52

ESC Sample # : L267122-06

Site ID :

Project # : 686.1096

Parameter	Dry Result	Det. Limit	Units	Method	Date	Analyst
Total Solids	85.3		%	2540G	11/03/06 0952	MAS
TPH (GC/FID) High Fraction	110	4.7	mg/kg	8015	11/04/06 1957	LSB
Surrogate Recovery (50-150) o-Terphenyl	103.		% Rec.	8015	11/04/06 1957	LSB

Results listed are dry weight basis.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Laboratory Certification Numbers:

AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
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