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AIR SPARGING CORRECTIVE ACTION PLAN CNC CHARLESTON SC
10/1/2002
AMERADA HESS CORPORATION

REPORT

AIR SPARGING CORRECTIVE ACTION PLAN

Prepared for:

AMERADA HESS CORPORATION
ONE HESS PLAZA
WOODBRIDGE, NEW JERSEY 07095

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
4650 VIRGINIA AVENUE
NORTH CHARLESTON, SOUTH CAROLINA
SITE ID #14003

OCTOBER 2002

H_2O ENVIRONMENTAL, INC.
ASSESSMENT & REMEDIATION SPECIALISTS

AIR SPARGING CORRECTIVE ACTION PLAN

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
4650 Virginia Avenue
North Charleston, South Carolina
Site ID #14003

Prepared for:

Amerada Hess Corporation
One Hess Plaza
Woodbridge, NJ 07095

Submitted by:
H_2O Environmental, Inc.
Ft. Lauderdale, FL

October 2002

Richard D. Gillespie, P.G.
License Number 2199
10-31-02

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SECTION 1.0
INTRODUCTION

The following report summarizes corrective action steps taken, the current site conditions, and the proposed course of action at the former Amerada Hess Corporation (AHC) Charleston South Terminal, located in North Charleston, South Carolina. A Site Plan is provided as Figure 1, Appendix A.

On August 7, 1998, AHC submitted a Corrective Action Plan (CAP) to the South Carolina Department of Health and Environmental Control (SCDHEC). This plan was resubmitted on January 5, 1999 at the request of the SCDHEC. AHC proposed corrective action via a total fluids extraction system (EFR system).

AHC received the SCDHEC's February 17, 1999 comments regarding the CAP. In that letter, the SCDHEC requested submittal of the Bureau of Air Quality Control modeling information form, a NPDES permit modification plan, and a CAP addendum to address technical deficiencies. The NPDES permit modification plan and the Bureau of Air Quality Control modeling information form were submitted on March 31, 1999. The CAP Addendum was submitted on April 5, 1999. SCDHEC comments on the CAP Addendum are pending.

A meeting was held at the Charleston Naval Base on April 14, 1999 to review the status of the groundwater investigations at the site. Discussions with the Navy led AHC to modify the CAP to a phase separated hydrocarbon (PSH) recovery system. A proposal for the product-only recovery system was included in a letter to the SCDHEC dated June 11, 1999. The PSH recovery system, initially consisting of product-only pumps powered by a wind turbine compressor (WTC) and solar-powered controllers, began operation at the site on April 19, 2000. The system was recently upgraded to include total fluids pumps in the hopes that additional fluid recovery would increase the percentage of recovered hydrocarbon. While this was achieved, the amounts of water required to recover the higher percentage of hydrocarbon has proven highly uneconomical and inefficient due to the lack of water treatment facilities at the site. In addition to operating the recovery system, AHC has continued with monthly vacuum truck pumping and gauging of the site wells to monitor and recover the PSH plume.

AHC is proposing to install an air sparging system to replace current total fluids recovery system. This is a proven, cost-effective method for remediation of petroleum hydrocarbons in this type of environmental setting which AHC believes will result in a faster, more efficient clean up of the site. The proposed remediation system will consist of 29 in-situ air injection wells (AIW), associated piping, and a compressor to supply the required volume of ambient air. The engineering design of the system consists particularly of sizing the air sparging equipment and is, therefore, abbreviated in comparison to Engineering Reports associated with conventional pump and treatment systems. PSH will continue to be recovered via a vacuum truck as the data warrants.

SECTION 2.0
SITE CHARACTERISTICS

The terminal facility is located at approximately 79° 58' 24" longitude and 32° 52' 43" latitude in North Charleston, Charleston County, South Carolina. The facility is located on the east side of Virginia Avenue and is bound on the north by the Koch Corporation Bulk Storage Petroleum Terminal, on the east by the Cooper River, and on the south by the Charleston Naval Base. The properties located along the Cooper River are primarily for industrial and government use. West of Virginia Avenue is a residential area.

The grade of the facility is sloped slightly to the east with earthen berms segregating the tank fields for containment purposes. Overland drainage of storm water is disrupted by the bermed tank fields and storm water collected within the containment areas is diverted to two storm water retention/treatment ponds (constructed in 1991) located east of the terminal bulk storage tanks.

2.1 Regional Physiography

The Southeastern United States Coastal Plain Physiographic Province encompasses more than 120,000 square miles and is drained by streams flowing to the Gulf of Mexico and the Atlantic Ocean. The Coastal Plain Province is bound to the north by the Piedmont, Valley and Ridge; Appalachian Plateau, and the Interior Low Plateau Physiographic Provinces. The Hess North Charleston South Terminal facility is within the Sea Island Section of the Coastal Plain Province. The Sea Island section is characterized by clastic sediments of late Pleistocene and recent origin. Relic ridges and erosional hill remnants are surrounded by extensive areas of recent silt and clay deposits forming saltwater marshes. The elevation of the South Terminal facility is approximately 10 to 15 feet above the National Geodetic Vertical Datum (NGVD). Dredge and fill operations along the Cooper River may have contributed to the land mass/elevation immediately adjacent to the river's banks.

2.2 Regional Hydrogeology

Coastal Plain rocks form a thick wedge of unconsolidated to poorly consolidated crystal and carbonate rocks that generally dip and thicken from the inner margin of the coastal plain to the Atlantic Ocean. The rocks are a product of the cyclic invasion and retreat of ancient seas and were deposited [illegible] conditions.

Five water-bearing units comprise the Coastal Plain Aquifer System in the Charleston area. From youngest to oldest these are the Surficial Aquifer, Floridan Aquifer System, Black Creek Aquifer, Middendorf Aquifer and Cape Fear Aquifer. The Surficial and Floridan Aquifer being closest to the surface, have a higher potential to be impacted by anthropogenic activities at the surface and are discussed in further detail below.

The Surficial Aquifer consists of marine terrace deposits composed of sand, shell, and clay of Holocene and Pleistocene age. The aquifer contains water under unconfined conditions and extends to a depth of approximately 40 to 50 feet mean sea level (MSL) in the South Charleston area. While significant clay layers are present in the surficial ground water below, the layers may have localized artesian properties. Underlying the Surficial Aquifer is a confining layer consisting of clay, silt and/or low-permeability limestone of Pliocene to Oligocene age inhibits, but does not necessarily prevent the vertical movement of water to the underlying aquifers. The thickness of this confining unit in the North Charleston area is approximately 150 to 160 feet thick. Layers of higher permeability may be present within the confining unit.

The Floridan Aquifer System, present at approximately 200 feet MSL in the North Charleston area, generally consists of limestone interbedded with sand, shell and phosphate of late to middle Eocene age. The base of this Artesian aquifer is at approximately 600 feet below MSL.

2.3 Site Specific Lithology

The subsurface lithology at the site was determined during previous investigations and is reported in the previous CAP dated August 1998. In general, silty/clayey fine sand, very clayey fine sand and sandy clay is present from land surface to 18 feet below land surface (BLS), the maximum depth drilled. A 1-foot to 5-foot zone of sandy clay and clayey sand with shell fragments was encountered between 8.5 feet and 18 feet BLS.

2.4 Groundwater Elevation Data

The Figure 1, Appendix A includes the names and locations of on-site monitoring wells and off-site Navy monitoring wells. This figure shows the existing site structures and surrounding area. Fluid levels of both AHC monitoring wells and select Navy monitoring wells were gauged using a sonic interface probe on April 24, 2002 and on July 31, 2002. Monitoring well MW-28 was not found during the April 2002 gauging event and monitoring well MW-23 was covered with a construction soil pile during the July 2002 gauging event. Monitoring well MW-8 was previously destroyed and monitoring well MW-18 is damaged, neither monitoring well could be gauged. Monitoring wells MW-25, MW-29, MW-30, MW-33, and MW-34 were previously abandoned to facilitate roadway construction. All abandoned or damaged monitoring wells are being scheduled for reinstallation. In addition monitoring wells MW-5, MW-11 and MW-26 were pumping during both events and were not gauged. Table 1, Appendix B lists the historical survey, monitoring well data and fluid levels including the groundwater gauging event data from both events.

Groundwater elevations ranged from 4.57 to 11.29 feet during the April 2002 event and from 4.64 to 11.20 feet during the July 2002 event, as shown on Table 1, Appendix B. Groundwater flows consistently across the facility to the south-southwest as shown in Figures 2A and 2B, Appendix A. This flow direction is consistent with previous groundwater gradients observed at the site.

PSH was detected in monitoring wells MW-6, MW-7, MW-9, MW-10, MW-14, MW-16, MW-24, PZ-1, PZ-2 and Navy well NBCA-039-011 during both gauging events. Monitoring well MW-17 contained PSH during July 2002 for the first time. Since monitoring wells MW-5, MW-11 and MW-26 were pumping, they were not gauged but were assumed to contain PSH. Due to the SCDOT expansion of Virginia Avenue in the area of the South Terminal, monitoring wells MW-25, MW-29, MW-30, MW-33 and MW-34 were abandoned, as discussed above; however, no PSH were detected from temporary well points installed adjacent to the former locations of these monitoring wells during sampling. The April 2002 and July 2002 PSH isopleth maps are illustrated on Figure 3A and Figure 3B, Appendix A respectively.

2.5 Groundwater Quality Data

Groundwater samples were collected from AHC monitoring wells MW-12, MW-13, MW-15, MW-19 through MW-22, MW-25, MW-27 through MW-34 and Navy monitoring wells NBCA-038-003, NBCA-039-001, -002, -003, -005, -010, -012, and –014 on July 31 through August 2, 2002 in conformance with the schedule proposed in the original CAP. Note that the groundwater samples collected from monitoring wells MW-25, -29, -30, -33 and –34 were actually collected from temporary well points installed adjacent to these abandoned wells, as noted with an asterisk (*) on Table 2, Appendix B. The laboratory analytical reports were previously submitted with the September 2002 progress report. Monitoring wells containing PSH were not sampled.

The groundwater samples were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl tert butyl ether (MTBE), naphthalene, trichloroethylene (TCE) and cis-1,2-dichlorothene (DCE) by EPA Method 8260. Polyaromatic hydrocarbons (PAH) were also analyzed per routine procedure (Method 8270).

The July 31 through August 2 groundwater analytical results and historical results for routinely sampled constituents BTEX, MTBE, naphthalene, and PAH are provided on Tables 2 and 3, Appendix B for site wells and Navy wells, respectively. Figure 4, 5, 6, 7, and 8, Appendix A are the benzene, ethylbenzene, toluene, total xylenes, and MTBE isopleth maps respectively for the July-August 2002 analytical data. Other volatile compounds were detected sporadically at generally low concentrations; these results are included in Table 4, Appendix B.

SECTION 3.0
CORRECTIVE ACTION METHOD

3.1 Conceptual Design

Air sparging is an in-situ remedial technology that reduces concentrations of volatile constituents in petroleum hydrocarbons that are adsorbed to soils and dissolved in groundwater. This technology involves the injection of contaminant-free air into the subsurface saturated zone, enabling a phase transfer of hydrocarbons from a PSH state or dissolved state to a vapor phase. The air can then be passively vented or recovered from the unsaturated zone. Air sparging has proven to be an effective technology for contamination of this type considering the site specific contaminant distribution and hydrogeologic conditions. The relatively vertical homogeneity of the silty/clayey sand limits channeling and provides for good dispersion of the sparged air.

The sparged air will migrate through the PSH and the contamination will partition to the air phase and vent to the surface. The large area of influence of the sparging system will accelerate the removal of free product from the water table. In addition, sparging also distributes oxygen uniformly to the groundwater thereby promoting biodegradation.

3.2 Air Sparging Pilot Testing

The need for air sparging/soil vapor extraction pilot testing was reviewed during the preparation of this CAP. It was decided that pilot testing is unnecessary since, the remedial design does include conservative placement of the air injection wells based on review of design literature and testing results at sites with similar lithology. An as-built plan will be submitted within 90 days of completion of the system installation.

SECTION 4.0

ENGINEERING REPORT

The proposed system consists of twenty-nine (29) air injection wells for use within the area of dissolved and adsorbed phase hydrocarbon contamination. The layout for the system is shown on Figure 9, Appendix A. The placing of the air injection wells is based on the radius of influence of the sparging systems.

Hydraulic control of the plume will be possible through the mounding effect caused by the injected air. This mounding will restrict the movement of the PSH. Air injection wells AIW-1 through AIW-5 will be installed down gradient of the plume to maintain hydraulic control and to eliminate the migration of dissolved phase hydrocarbons. Air injection wells AIW-15, AIW-18, AIW-22, and AIW-25 will be installed to the west to maintain control of the source area and treat the area adjacent to the railroad tracks. Air injection wells AIW-10, AIW-21, AIW-27, and AIW-28 are being installed to control the source area to the northeast and treat areas that formerly contained PSH. Remaining air injection wells are to treat the source areas. Initially, treatment will begin in the southeast area and the western portion to ensure complete hydraulic control of the area. Air sparging will then increase into the interior regions and will be directed on a rotating basis and at variable rates to remove the mass of the plume. However, hydraulic control of the side and down gradient perimeters will be maintained continually.

4.1 Air Sparging System Design

The air sparging radius of influence (Roi) is the area covered by the sparging air. This distance is a function of the geology, the injection pressure, and air flow rate.

4.1.1 Injection Pressure

The injection pressure must overcome the static water column, the overburden pressure and entrance losses through the sparging points and pipe and fitting friction losses. Based on ground water elevation data available for review, the static water column at this site could potentially be as much as 19 feet and as little as 16 feet, depending on seasonal fluctuations of the water table and rainfall. For design purposes, we conservatively use 19 feet or 19FT/2.31 FT/PSI = 8.23 PSI. We conservatively round this estimate upward to 9 PSI to assure adequate injection pressure for the duration of system operation.

4.1.2 Injection Flow Rate

Air flow rates in sparge systems generally vary between 2-8 SCFM per air injection well depending on the permeability of the soil. An air flow of 6 SCFM per point will be used for equipment sizing purposes. The total air flow, therefore, will be approximately 6 SCFM/point x 29 points = 174 SCFM.

4.1.3 Radius of Influence

An injection radius of influence of approximately 25 feet is estimated based on an injection depth an approximate depth of 10 to 15 feet below the surface of the water table. The estimated injection radius of influence is based on previous experience at similar geologic/hydrogeologic conditions and supporting literature by Felton (et al, 1992) and Leonard (et al, 1992).

4.1.4 Location and Design of Air Injection Wells

The location for the air injection wells (AIW-1 through AIW-29) with their corresponding Roi's superimposed is shown on Figure 9. The depth to groundwater at the site throughout the assessment phase ranged from approximately 6 to 9 feet BLS. Therefore, in order to obtain optimum air dispersion without excessive head pressure, the AIWs will be constructed of 1-inch diameter, Schedule 40 PVC with 20 to 25 feet of solid casing and 5 feet of 0.020 inch slotted screen. A 20/30 grade silica sand pack will extend approximately one foot above the screened interval and will be overlain with a 2 foot layer of bentonite. The remainder of the borehole annular space will be grouted with a mixture of Portland Cement and a 5% bentonite slurry. See Figure 10, Appendix A for the construction details of the air injection wells.

4.1.5 Equipment Selection

Two Ingersoll-Rand SSR-30 rotary screw air compressors will be utilized for the required 174 CFM at 9 PSI. Each can provide 112 CFM at pressure of 125 PSI with a 30 hp motor. Different operating characteristics can easily be adjusted with flow control and pressure relief valves, or changing the revolutions per minute (RPM) with an adjustable sheave drive.

The air will be distributed to the twenty-nine (29) air injection wells by a manifold system. A shutoff valve and an air regulator upstream of the manifold will be used to adjust the pressure and air flow rate. Gross adjustments can be achieved by the adjustable sheave drive, gate valve and the adjustable pressure relief valve. The air to each leg will be regulated by a 0-20 SCFM float-type flow meter and a block type gate valve. A 0-30 PSI pressure gauge on the well side of the flow meter will monitor the injection pressure to each leg. The air injection legs will be 1" Schedule 40 PVC, individually piped to each air injection well. The compressors specifications are provided in Appendix C. An air injection permit application will be submitted upon your approval of the system.

SECTION 5.0
MAINTENANCE, MONITORING AND REPORTING

5.1 System Maintenance

The remediation system will be routinely monitored to evaluate the effectiveness and progress of the site cleanup. This will include minor flow rate adjustments, equipment inspections and performance of any routine, necessary or preventative maintenance task.

5.2 System Monitoring

All monitoring wells associated with the release will continue to be sampled semi-annually. In addition all site wells will be gauged monthly to ensure hydraulic control is maintained. Adjustments for PSH and water levels will be made as appropriate.

5.3 Project Reporting

As-built drawings will be prepared and submitted within 90 days of system installation and included in the subsequent status report. The status reports will be included in the Semi-Annual Progress Reports. The reports will summarize system operation and maintenance activities and groundwater monitoring results. The reports will include suggestions and recommendations to enhance the effectiveness of the treatment system.

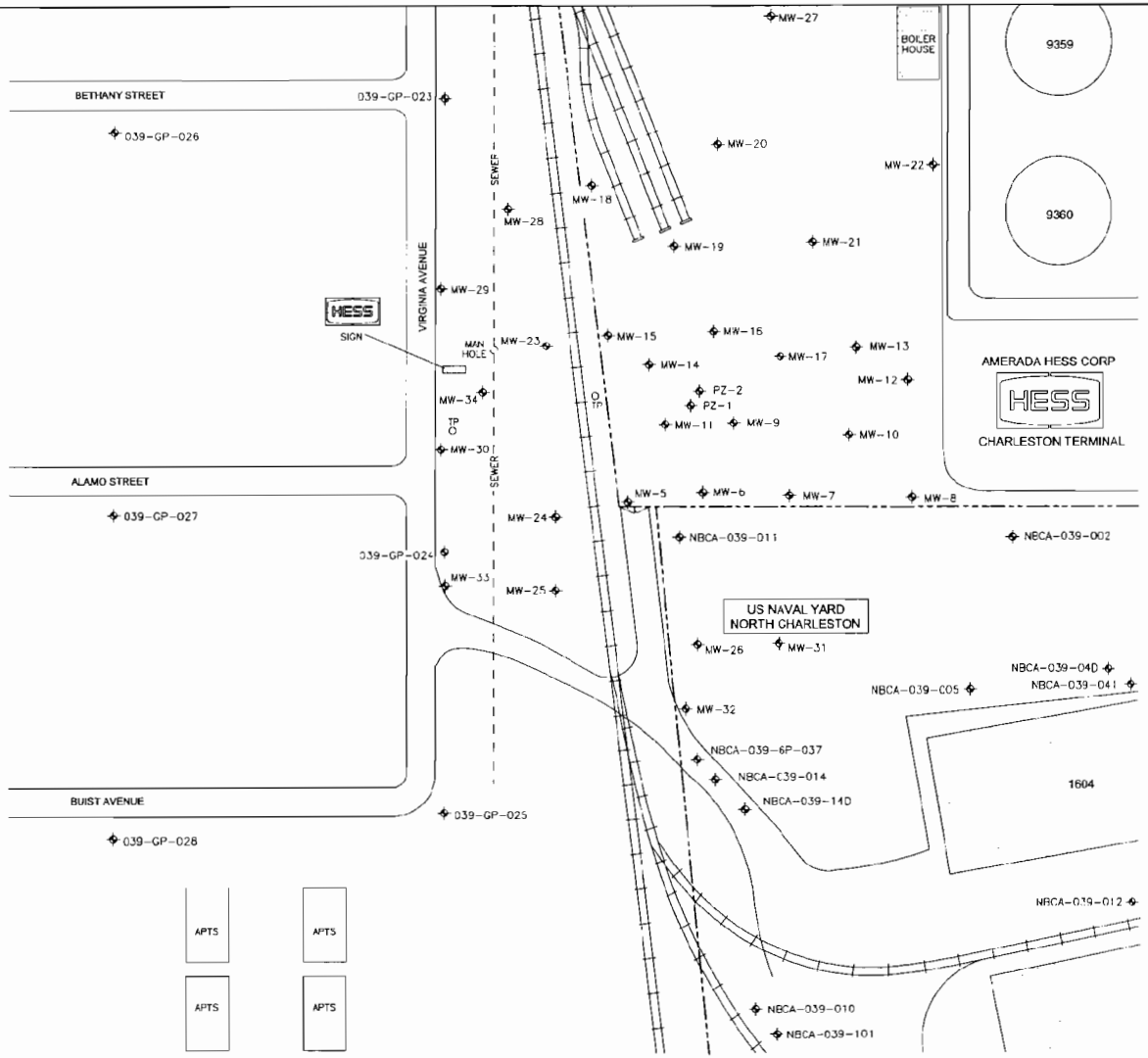
SECTION 6.0
REFERENCES

Felton, Daniel W., Leaky, Maureen C., Bealer, L.J. and Kline, Barry A. "Case Study: Site Remediation Using Air Sparging and Soil Vapor Extraction". NGWA/API Proceedings of the 1992 Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Detection, and Restoration. November 1992 Houston, TX. pp. 395-411.

Leonard, Wendy C., Bouwer, Richard A. "Air Sparging: An Optimal Solution". NGWA/API Proceedings of the 1992 Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Detection, and Restoration. November 1992 Houston, TX. pp. 349-364.

APPENDIX A

Figures



LEGEND

MW-?	MONITORING WELL
MW-?	ABANDONED MONITORING WELL
RW-?	RECOVERY WELL
RW-?	ABANDONED RECOVERY WELL
NBCA-?	US NAVY MONITORING WELL

PROPERTY LINE

H2 ENVIRONMENTAL, INC.
ASSESSMENT & REMEDIATION SPECIALISTS

SCALE: 80' 0 40' 80' 160'

NORTH

PREPARED FOR: Amerada Hess Corporation

SITE ADDRESS: Charleston South Terminal
4650 Virginia Avenue
Charleston, South Carolina

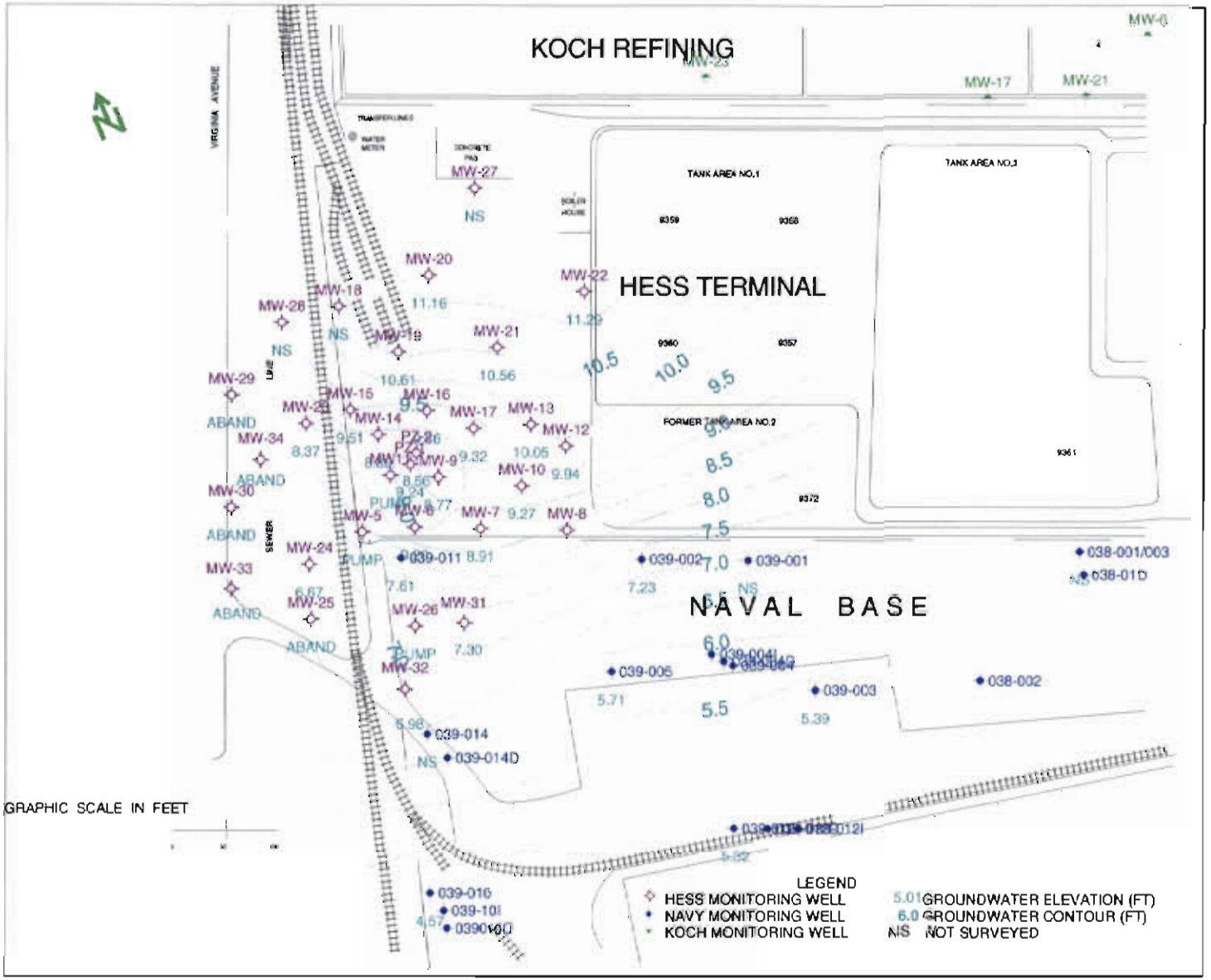
PROJECT NO: HES-CHARLE

DRAWING DATE: 9/24/2000

DRAWN BY: J.Driscoll

FIGURE NO: 1

FIGURE TITLE: SITE PLAN



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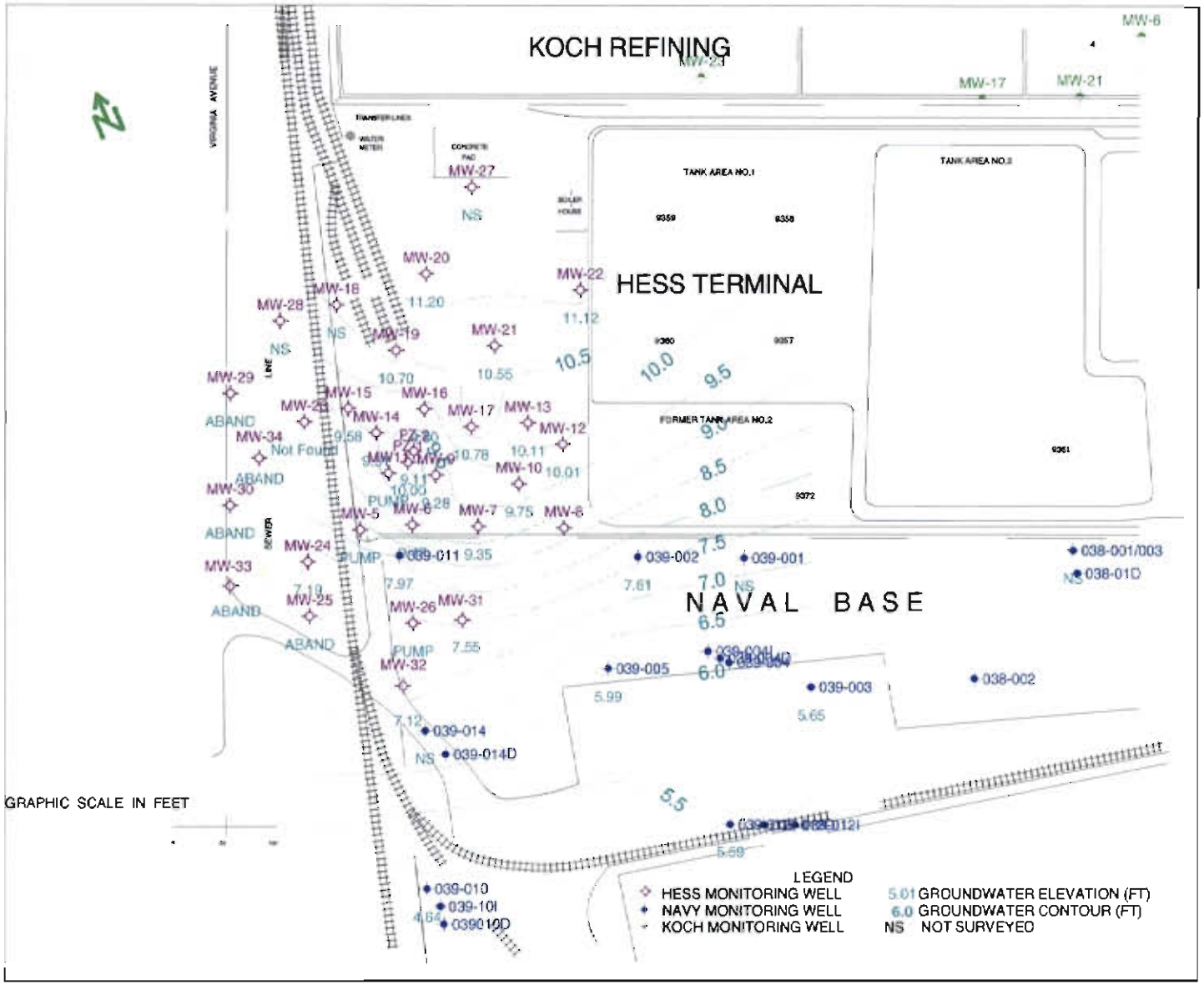
Harding ESE
A MACTEC COMPANY

Groundwater Potentiometric Map
April 24, 2002

Figure: 2A	Drawn By: NAW	Date: 8-26-2002	Scale: As Shown

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
CHARLESTON, SOUTH CAROLINA



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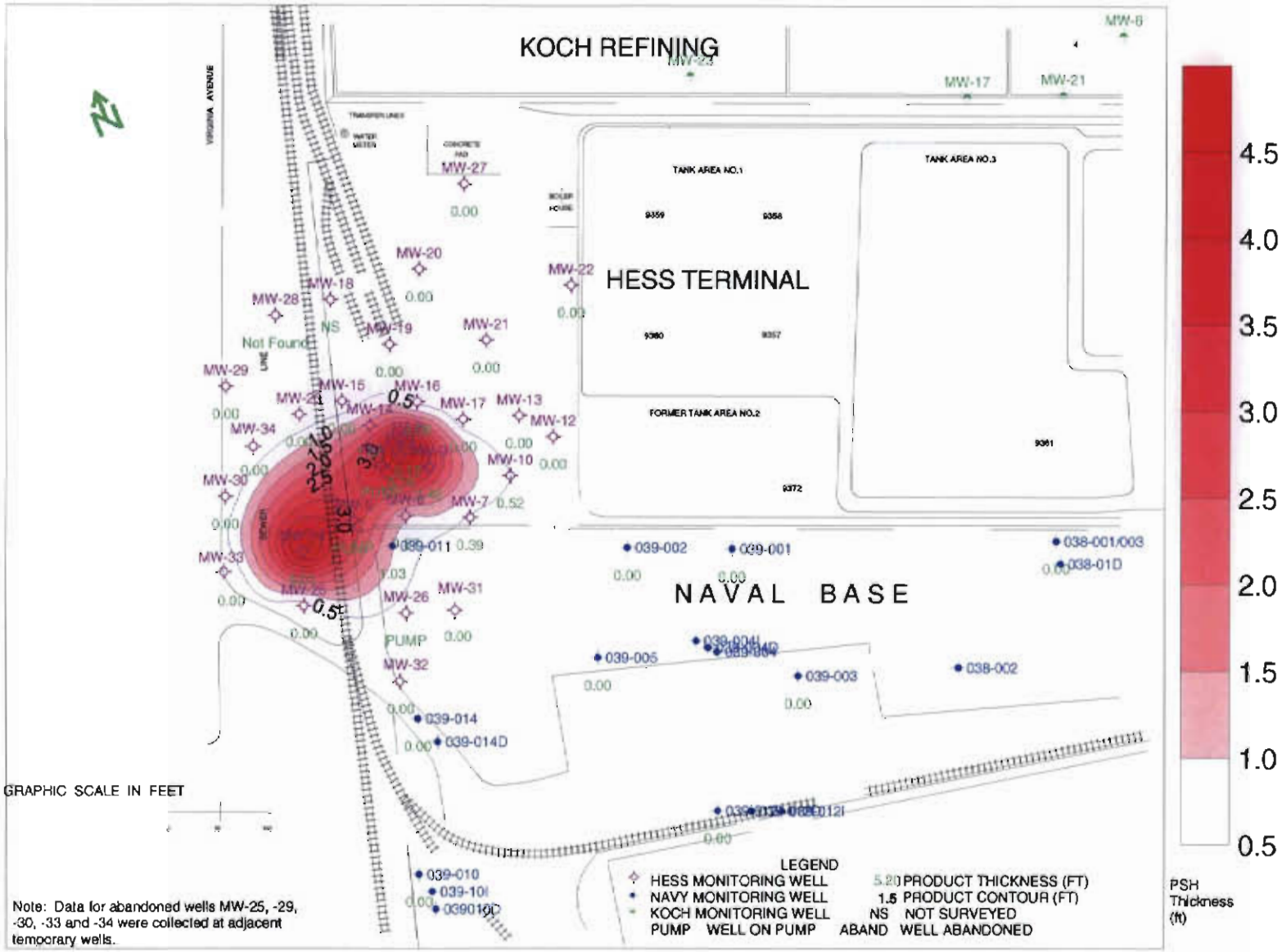
Harding ESE
A MACTEC Company

Groundwater Potentiometric Map
July 31, 2002

Figure: 2B	Drawn By: NAW	Date: 8-26-2002	Scale: As Shown

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
CHARLESTON, SOUTH CAROLINA



Note: Data for abandoned wells MW-25, -29, -30, -33 and -34 were collected at adjacent temporary wells.

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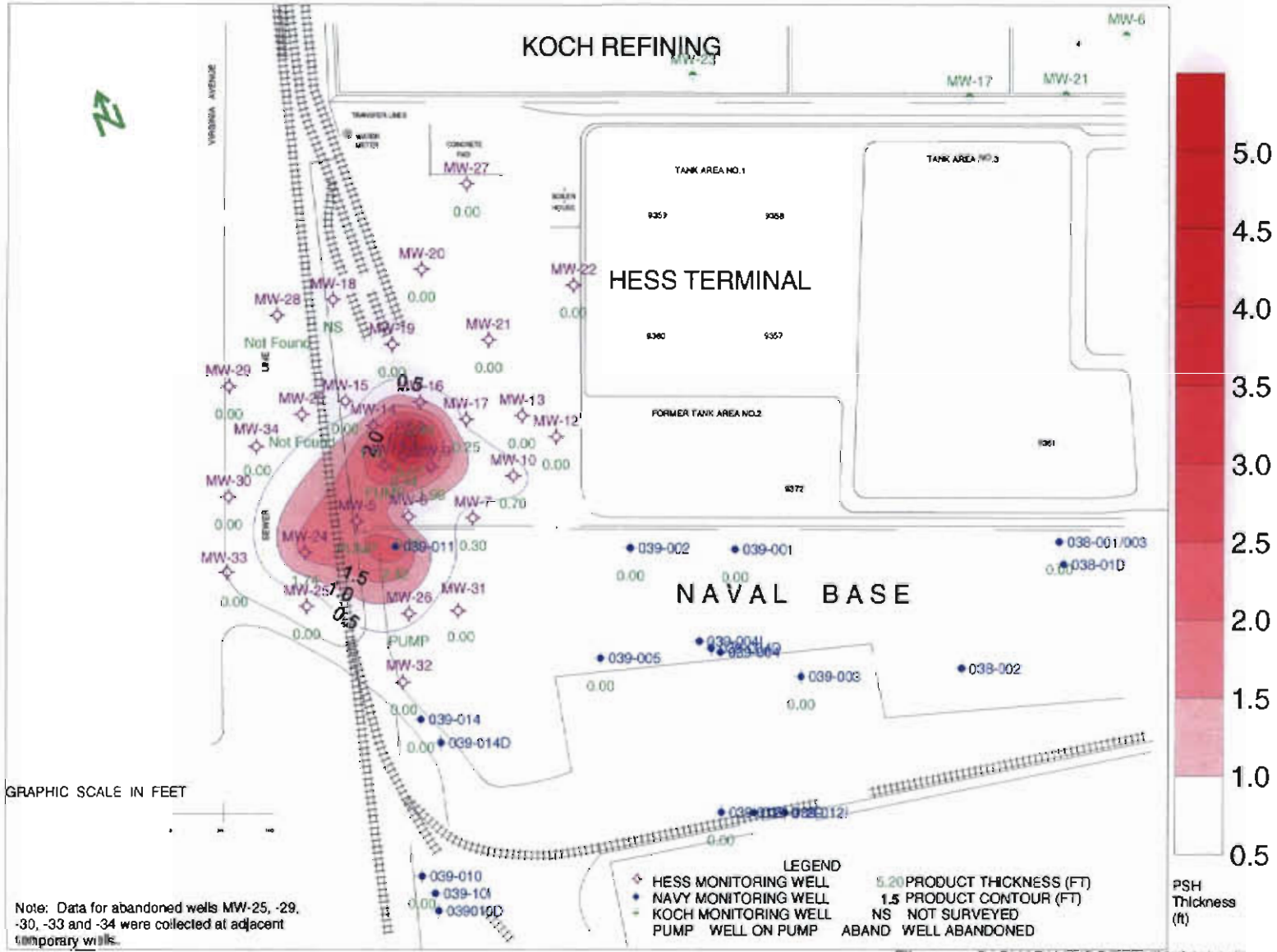
Harding ESE
A MACTEC Company

Phase Separated Hydrocarbon Map
April 24, 2002

Figure: 3A	Drawn By: NAW	Date: 8-26-2002	Scale: As Shown

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
CHARLESTON, SOUTH CAROLINA



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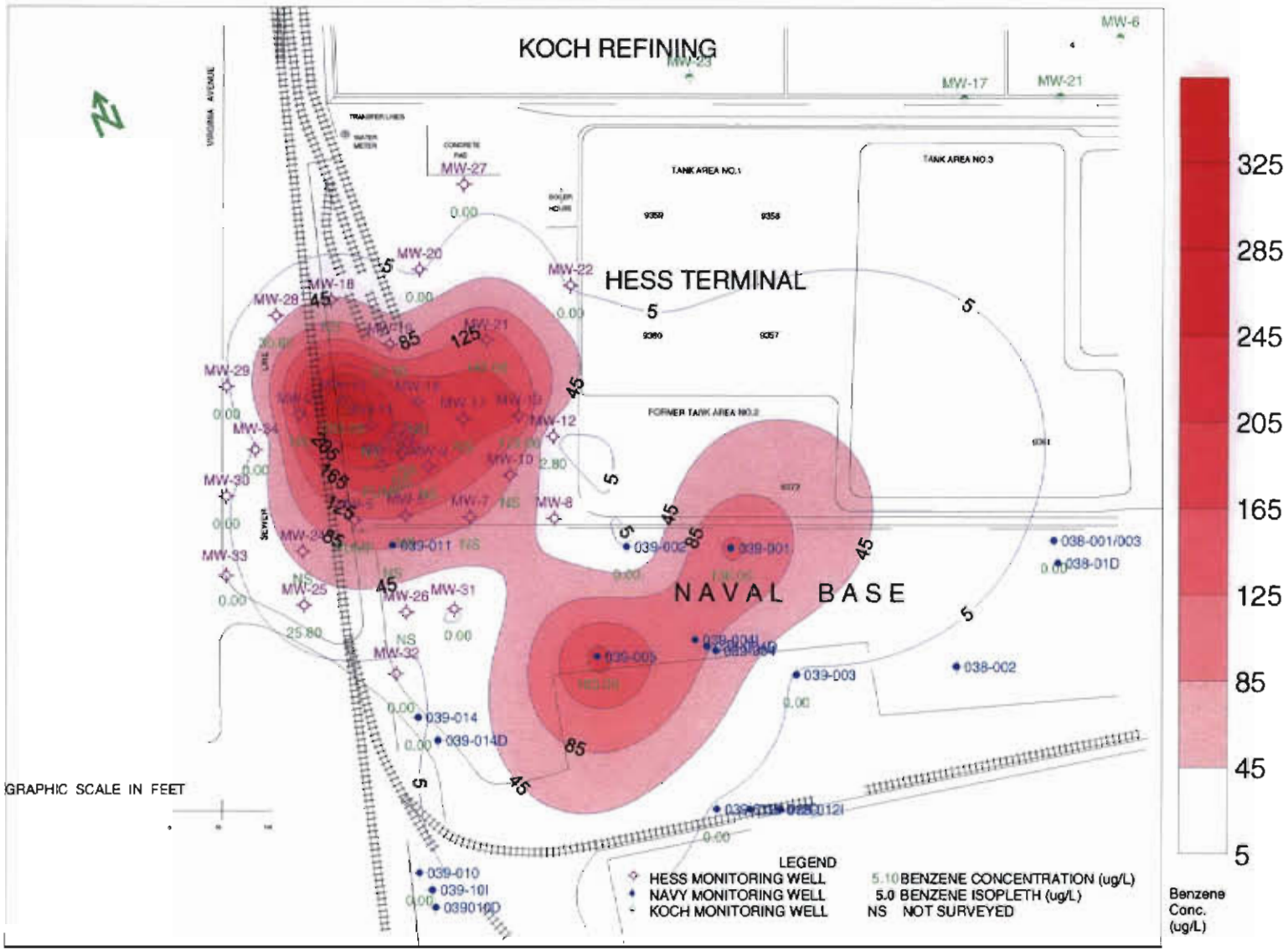
Harding ESE
A MACTEC Company

Phase Separated Hydrocarbon Map
July 31, 2002

Figure: 3B	Drawn By: NAW	Date: 8-26-2002	Scale: As Shown

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
CHARLESTON, SOUTH CAROLINA



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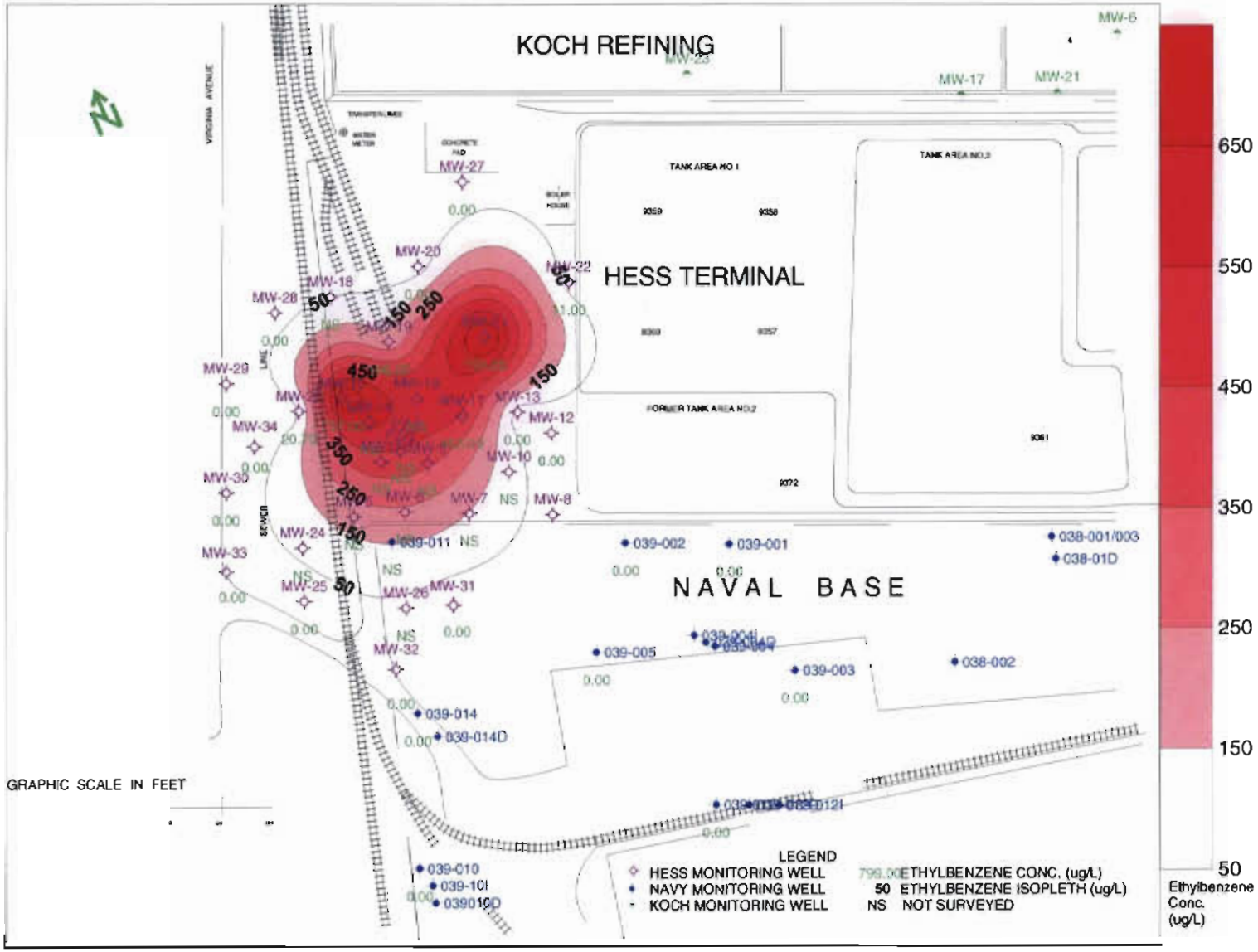
Harding ESE
A MACTEC Company

Benzene Isopleth Map
July 31-Aug 2, 2002

Figure: 4	Drawn By: NAW	Date: 9-09-2002	Scale: As Shown

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
CHARLESTON, SOUTH CAROLINA



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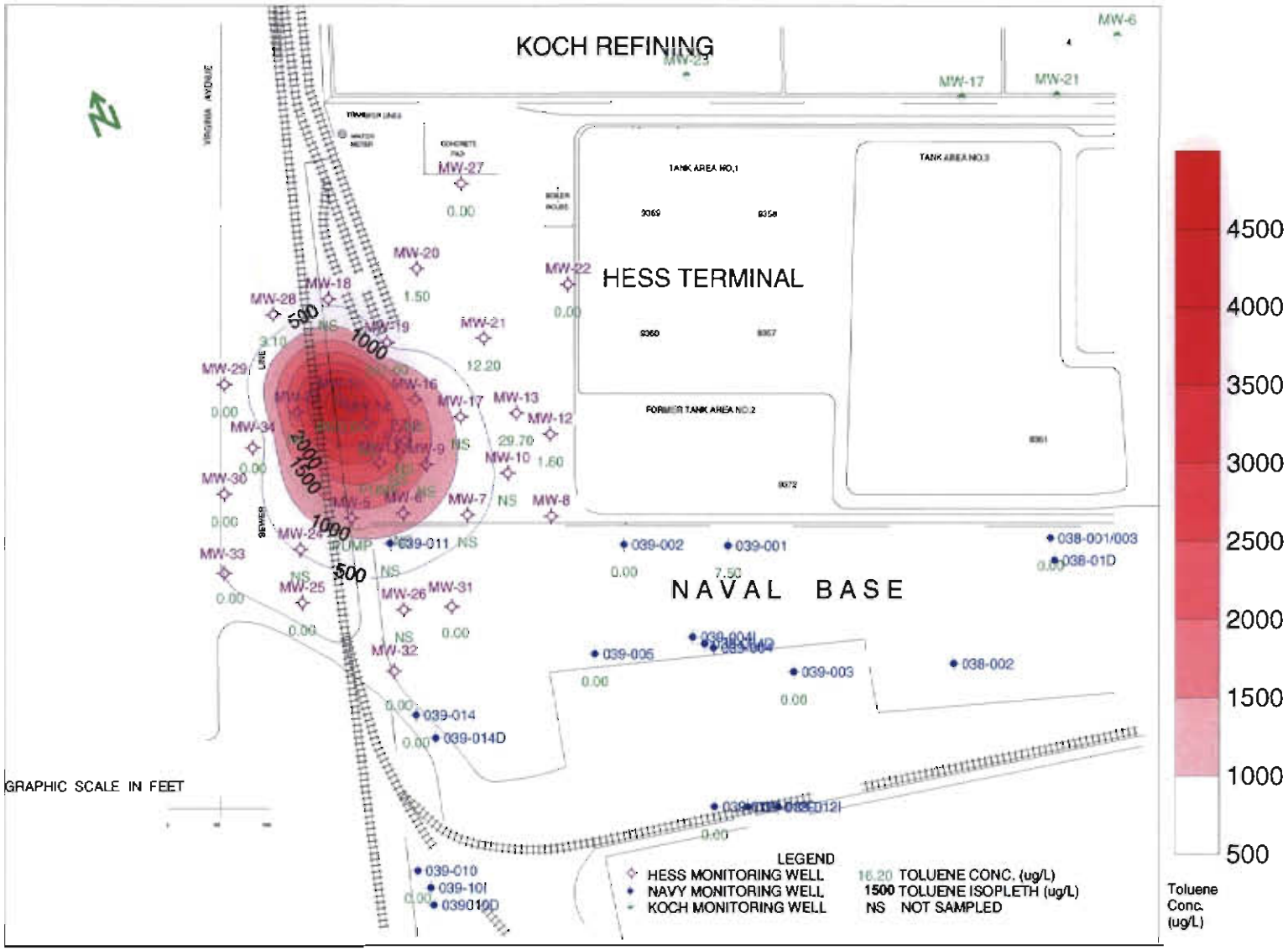
Harding ESE
A MACTEC Company

Ethylbenzene Isopleth Map
July 31-Aug 2, 2002

Figure: 5	Drawn By: NAW	Date: 9-09-2002	Scale: As Shown

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
CHARLESTON, SOUTH CAROLINA



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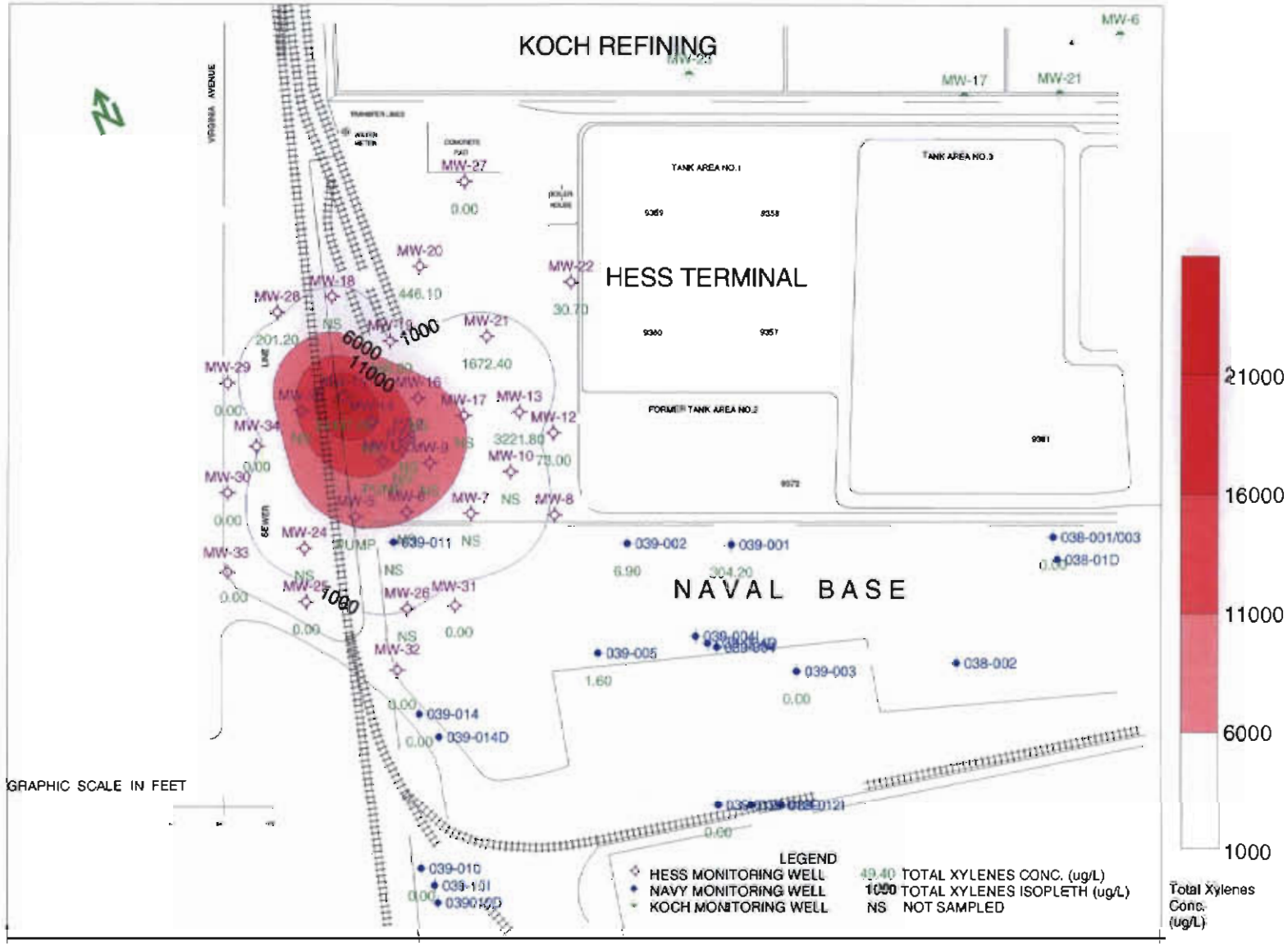
Harding ESE
A MACTEC Company

Toluene Isopleth Map
July 31-Aug 2, 2002

Figure: 6	Drawn By: NAW	Date: 9-09-2002	Scale: As Shown

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
CHARLESTON, SOUTH CAROLINA



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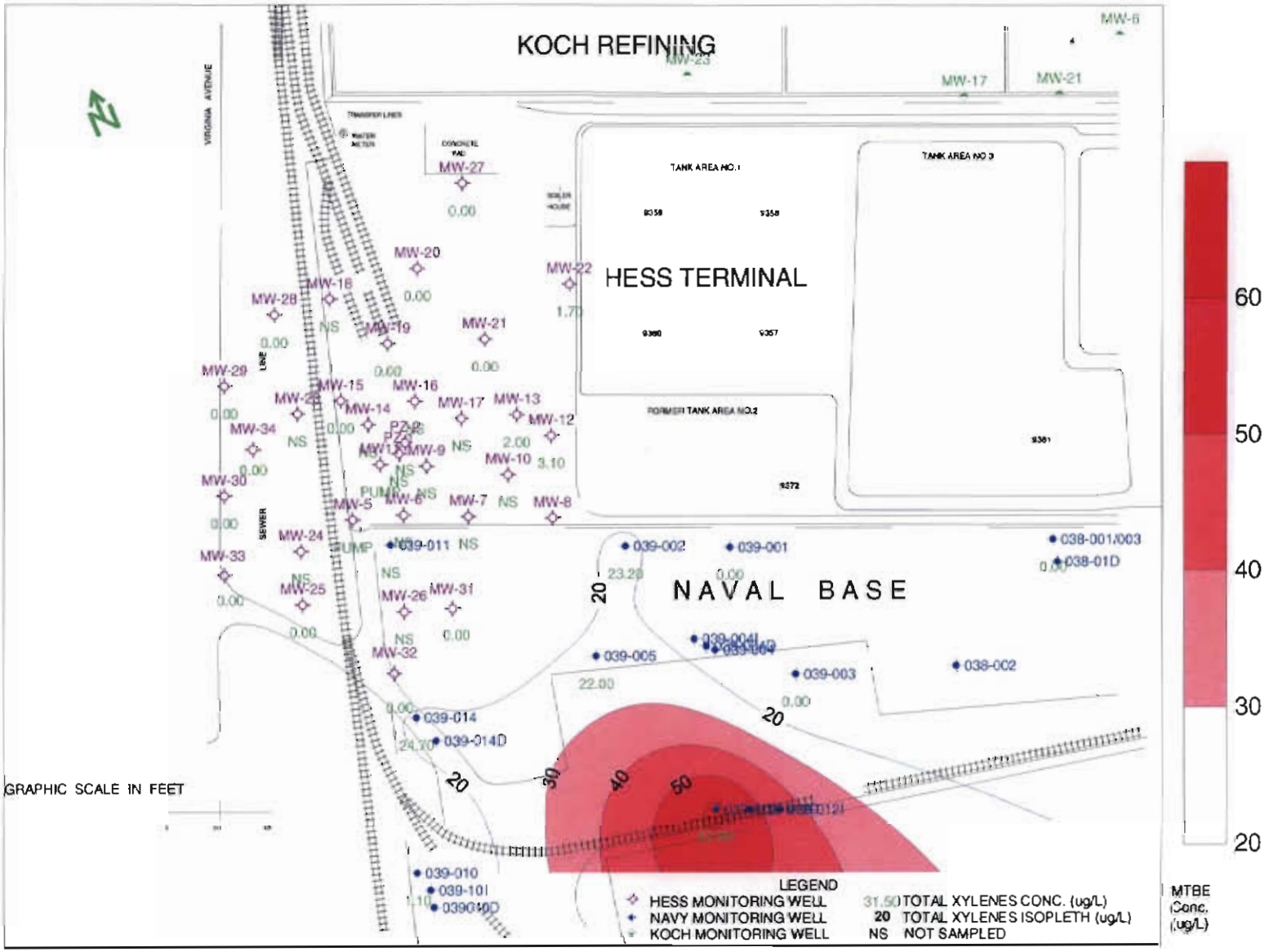
Harding ESE
A MACTEC Company

Total Xylenes Isopleth Map
July 31-Aug 2, 2002

Figure: 7	Drawn By: NAW	Date: 9-09-2002	Scale: As Shown

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
CHARLESTON, SOUTH CAROLINA



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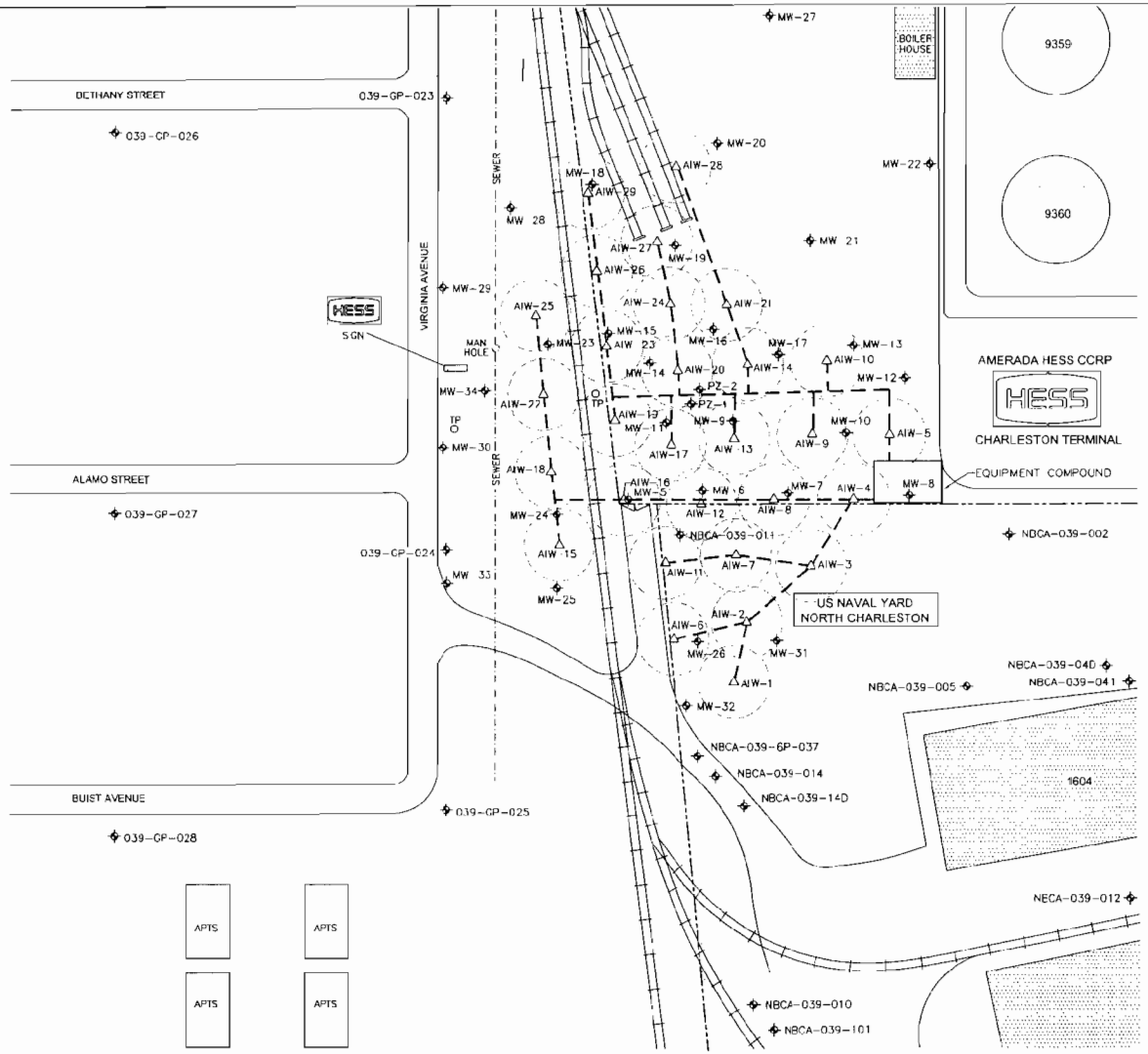
Harding ESE
A MACTEC Company

MTBE Isopleth Map
July 31-Aug 2, 2002

Figure: 8	Drawn By: NAW	Date: 9-09-2002	Scale: As Shown

AMERADA HESS CORPORATION
CHARLESTON SOUTH TERMINAL
CHARLESTON, SOUTH CAROLINA



LEGEND

MW-?	MONITORING WELL
MW-?	ABANDONED MONITORING WELL
RW-?	RECOVERY WELL
RW-?	ABANDONED RECOVERY WELL
NBCA-?	US NAVY MONITORING WELL
AIW-?	AIR INJECTION WELL
	RADIUS OF INFLUENCE (25 ft)

PROPERTY LINE

H2 ENVIRONMENTAL, INC.
ASSESSMENT & REMEDIATION SPECIALISTS

SCALE: 80' 0 40' 80' 160'

NORTH

PREPARED FOR: Amerada Hess Corporation

SITE ADDRESS: Charleston South Terminal, 4650 Virginia Avenue, Charleston, South Carolina

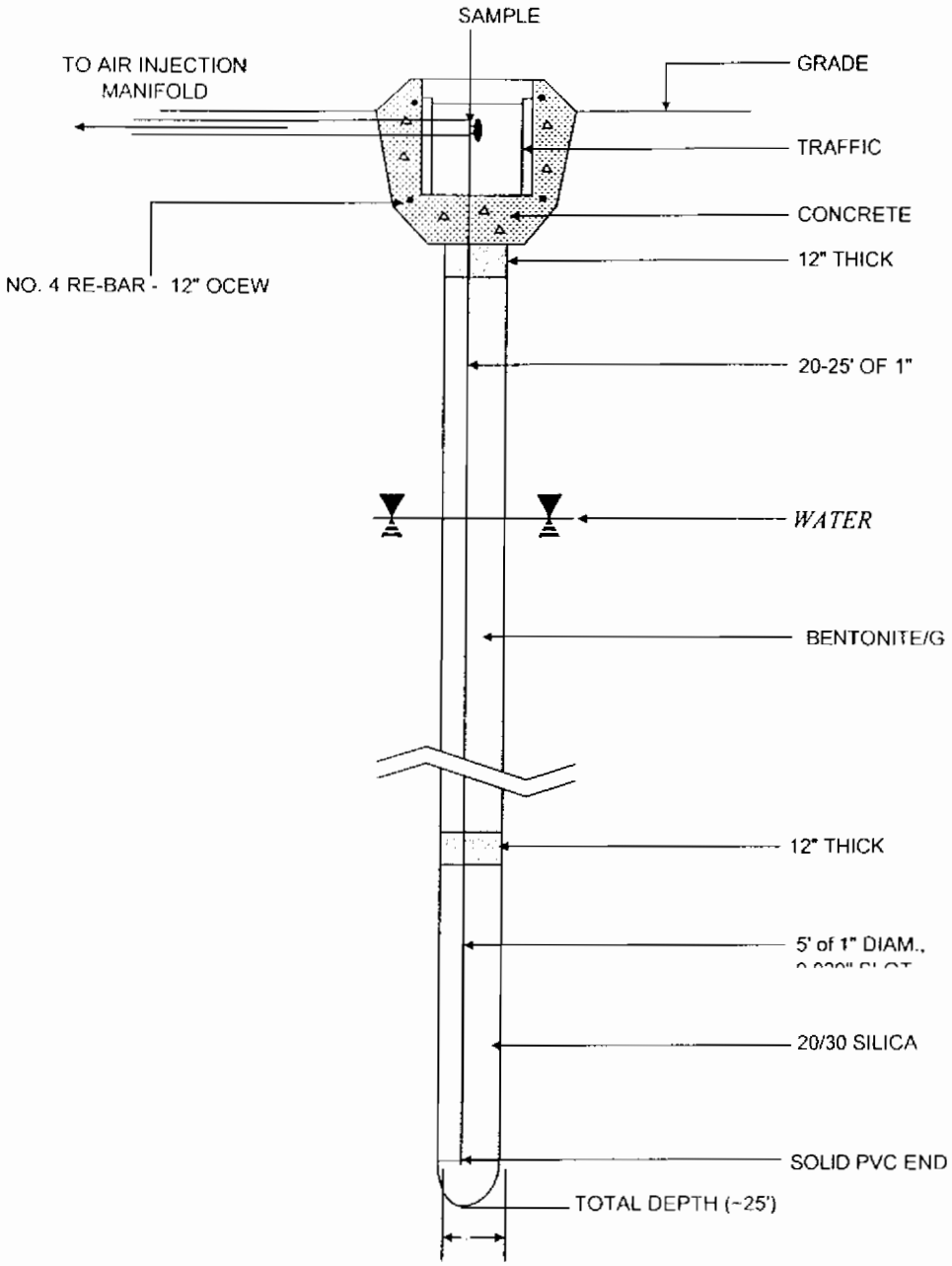
PROJECT NO: HES-CHARLE

DRAWING DATE: 10/24/2002

DRAWN BY: JJD

FIGURE NO: 9

FIGURE TITLE: REMEDIATION SYSTEM LAYOUT



H2O ENVIRONMENTAL, INC.
ASSESSMENT & REMEDIATION SPECIALISTS

SITE
Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina
SCDHEC Site ID # 14003

TITLE
AIR SPARGING WELL- CONSTRUCTION DETAILS

FIG
10

APPENDIX B

Tables

TABLE 1
Groundwater Monitoring Summary

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Well Identification	Date Measured	Casing Elevation	Depth to Product	Depth to Water	Product Thickness	Corrected Ground Water Elevation
MW1	24-Aug-99	NS		4.18		NS
MW2	24-Aug-99	NS		4.57		NS
MW3	24-Aug-99	NS		5.37		NS
MW4	24-Aug-99	NS		3.81		NS
MW-5	21-Dec-96	14.89		6.21		8.68
4" dia.	22-Jan-97		6.11	6.21	0.10	8.76
	26-Dec-97		3.72	4.20	0.48	11.07
	14-May-98		4.05	4.45	0.40	10.76
	14-Jan-99		6.42	6.73	0.31	8.41
	24-Aug-99		6.13	7.12	0.99	8.56
	23-Nov-99		5.67	6.32	0.65	9.09
	2-Mar-00		5.26	5.76	0.50	9.53
	18-May-00	On Pump	—	—	—	—
	6-Aug-00	On Pump	—	—	—	—
	13-Nov-00		5.70	5.72	0.02	9.19
	1-Feb-01	On Pump	—	—	—	—
	11-May-01	On Pump	—	—	—	—
	3-Aug-01	On Pump	—	—	—	—
	2-Nov-01	On Pump	—	—	—	—
	4-Feb-02	On Pump	—	—	—	—
	24-Apr-02	On Pump				
	31-Jul-02	On Pump				
MW-6	21-Dec-96	16.88		6.87		10.01
4" dia.	22-Jan-97			6.90		9.98
	26-Dec-97		5.76	5.90	0.14	11.09
	14-May-98		4.90	5.01	0.11	11.96
	14-Jan-99			6.30		10.58
	24-Aug-99		6.89	7.12	0.23	9.94
	23-Nov-99		6.40	6.74	0.34	10.41
	2-Mar-00		6.10	6.20	0.10	10.76
	18-May-00		7.26	7.34	0.08	9.60
	6-Aug-00		5.20	7.24	2.04	11.27
	13-Nov-00		7.14	7.31	0.17	9.71
	1-Feb-01		7.35	7.48	0.13	9.50
	11-May-01		7.03	7.11	0.08	9.83
	3-Aug-01		4.96	5.04	0.08	11.90
	2-Nov-01		7.42	7.55	0.13	9.43
	4-Feb-02		7.77	8.49	0.72	8.97
	24-Apr-02		7.51	8.38	0.87	9.20
	31-Jul-02		7.30	7.86	0.56	9.47
MW-7	21-Dec-96	16.22		6.79		9.43
4" dia.	17-Jan-97			6.02		10.20
	26-Dec-97		4.85	4.86	0.01	11.37
	14-May-98		4.90	4.91	0.01	11.32
	14-Jan-99			6.21		10.01
	24-Aug-99		6.81	6.87	0.06	9.40
	23-Nov-99		6.41	6.44	0.03	9.80
	2-Mar-00			6.08	0.00	10.14
	18-May-00		7.15	7.62	0.47	8.98
	6-Aug-00		5.68	5.88	0.20	10.50
	13-Nov-00		6.71	6.90	0.19	9.47
	1-Feb-01		6.95	7.08	0.13	9.24
	11-May-01		6.67	6.91	0.24	9.50
	3-Aug-01		4.60	4.82	0.22	11.58
	2-Nov-01		7.01	7.52	0.51	9.11
	4-Feb-02		7.39	7.87	0.48	8.73
	24-Apr-02		7.23	7.62	0.39	8.91
	31-Jul-02		6.81	7.11	0.30	9.35
MW-8	21-Dec-96	16.51		7.60		8.91
4" dia.	22-Jan-97			7.40		9.11
	26-Dec-97			5.93		10.58
	18-May-00	Not Found	—	—	—	—
	6-Aug-00	Not Found	—	—	—	—
	13-Nov-00	Not Found	—	—	—	—
	1-Feb-01	Not Found	—	—	—	—

TABLE 1
Groundwater Monitoring Summary

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Well Identification	Date Measured	Casing Elevation	Depth to Product	Depth to Water	Product Thickness	Corrected Ground Water Elevation
MW-9	21-Dec-96	16.40		6.76		9.64
4" dia.	22-Jan-97			6.69		9.71
	26-Dec-97		4.59	5.40	0.81	11.65
	14-May-98		4.68	4.92	0.24	11.67
	14-Jan-99		6.10	6.40	0.3	10.24
	24-Aug-99		6.25	9.00	2.75	9.60
	23-Nov-99		6.24	6.88	0.64	10.03
	2-Mar-00		5.95	6.27	0.32	10.39
	18-May-00		6.75	8.83	2.08	9.23
	6-Aug-00		5.30	7.56	2.26	10.65
	13-Nov-00		6.90	6.96	0.06	9.49
	1-Feb-01		6.90	8.42	1.52	9.20
	11-May-01		6.29	9.20	2.91	9.53
	3-Aug-01		4.71	5.41	0.70	11.55
	2-Nov-01		6.88	7.46	0.58	9.40
	4-Feb-02		6.88	11.08	4.20	8.68
	24-Apr-02		6.93	10.41	3.48	8.77
	31-Jul-02		6.72	8.71	1.99	9.28
MW-10	21-Dec-96	16.97		6.98		9.99
4" dia.	22-Jan-97			6.91		10.06
	26-Dec-97			5.15		11.82
	14-May-98			5.12		11.85
	14-Jan-99			6.34		10.63
	24-Aug-99			6.93		10.04
	23-Nov-99			6.48		10.49
	2-Mar-00			6.46		10.51
	18-May-00			7.31		9.66
	6-Aug-00		5.80	6.70	0.90	10.99
	13-Nov-00		7.07	7.43	0.36	9.83
	1-Feb-01		7.38	7.50	0.12	9.57
	11-May-01		7.09	7.20	0.11	9.86
	3-Aug-01			4.94		12.03
	2-Nov-01		7.39	7.46	0.07	9.57
	4-Feb-02		7.64	8.45	0.81	9.17
	24-Apr-02		7.60	8.12	0.52	9.27
	31-Jul-02		7.08	7.78	0.70	9.75
MW-11	21-Dec-96	16.32	7.65	8.50	0.85	8.50
4" dia	22-Jan-97		6.25	9.04	2.79	9.51
	26-Dec-97		4.74	4.83	0.09	11.56
	14-May-98		4.50	4.58	0.08	11.80
	14-Jan-99		5.86	7.64	1.78	10.10
	24-Aug-99		6.20	9.43	3.23	9.47
	23-Nov-99		5.91	8.16	2.25	9.96
	2-Mar-00		5.62	7.44	1.82	10.34
	18-May-00	On Pump	—	—	—	—
	6-Aug-00	On Pump	—	—	—	—
	13-Nov-00		6.41	7.16	0.75	9.76
	1-Feb-01	On Pump	—	—	—	—
	11-May-01	On Pump	—	—	—	—
	3-Aug-01	On Pump	—	—	—	—
	2-Nov-01	On Pump	—	—	—	—
	4-Feb-02	On Pump	—	—	—	—
	24-Apr-02	On Pump	—	—	—	—
	31-Jul-02	On Pump	—	—	—	—
MW-12	21-Dec-96	16.20		5.95		10.25
4" dia.	22-Jan-97			5.91		10.29
	26-Dec-97			4.20		12.00
	14-May-98			4.16		12.04
	14-Jan-99			5.36		10.84
	24-Aug-99			5.96		10.24
	23-Nov-99			5.50		10.70
	2-Mar-00			5.33		10.87
	18-May-00			6.30		9.90
	6-Aug-00			5.01		11.19
	13-Nov-00			6.15		10.05
	1-Feb-01			6.39		9.81
	11-May-01			6.83		9.37
	3-Aug-01			3.91		12.29
	2-Nov-01			6.42		9.78
	4-Feb-02			6.69		9.51
	24-Apr-02			6.26		9.94
	31-Jul-02			6.19		10.01

TABLE 1
Groundwater Monitoring Summary

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Well Identification	Date Measured	Casing Elevation	Depth to Product	Depth to Water	Product Thickness	Corrected Ground Water Elevation
MW-13	21-Dec-96	17.09		6.70		10.39
4" dia.	22-Jan-97			6.64		10.45
	26-Dec-97			4.87		12.22
	14-May-98			4.87		12.22
	14-Jan-99			6.04		11.05
	24-Aug-99			6.63		10.46
	23-Nov-99			6.22		10.87
	2-Mar-00			6.03		11.06
	18-May-00			7.03		10.06
	6-Aug-00			5.80		11.29
	13-Nov-00			6.90		10.19
	1-Feb-01			7.12		9.97
	11-May-01			6.12		10.97
	3-Aug-01			4.76		12.33
	2-Nov-01			7.19		9.90
	4-Feb-02			7.46		9.63
	24-Apr-02			7.04		10.05
	31-Jul-02			6.98		10.11
MW-14	21-Dec-96	16.49		7.40		9.09
4" dia	22-Jan-97		6.29	6.58	0.29	10.14
	26-Dec-97		3.86	5.24	1.38	12.35
	14-May-98		3.95	4.21	0.26	12.49
	14-Jan-99			5.69		10.80
	24-Aug-99			6.37		10.12
	23-Nov-99		5.89	5.94	0.05	10.59
	2-Mar-00		5.50	5.53	0.03	10.98
	18-May-00		6.70	6.78	0.08	9.77
	6-Aug-00		5.32	5.81	0.49	11.07
	13-Nov-00		6.52	6.73	0.21	9.93
	1-Feb-01		6.90	6.98	0.08	9.57
	11-May-01		6.37	6.65	0.28	10.06
	3-Aug-01		4.72	4.92	0.20	11.73
	2-Nov-01		6.70	7.18	0.48	9.69
	4-Feb-02		7.26	9.04	1.78	8.87
	24-Apr-02		7.28	8.89	1.61	8.89
	31-Jul-02		6.68	8.20	1.52	9.51
MW-15	21-Dec-96	16.00		5.85		10.15
4" dia	22-Jan-97			5.90		10.10
	26-Dec-97			3.36		12.64
	14-May-98			3.43		12.57
	14-Jan-99			5.18		10.82
	24-Aug-99			5.98		10.02
	23-Nov-99			5.43		10.57
	2-Mar-00			5.00		11.00
	18-May-00			6.25		9.75
	6-Aug-00			4.61		11.39
	13-Nov-00			6.07		9.93
	1-Feb-01			6.39		9.61
	11-May-01			5.91		10.09
	3-Aug-01			4.14		11.86
	2-Nov-01			6.31		9.69
	4-Feb-02			7.04		8.96
	24-Apr-02			6.49		9.51
	31-Jul-02			6.42		9.58
MW-16	21-Dec-96	16.47		6.15		10.32
4" dia	22-Jan-97			6.18		10.29
	26-Dec-97			4.40		12.07
	14-May-98			3.92		12.55
	14-Jan-99			5.53		10.94
	24-Aug-99			6.08		10.39
	23-Nov-99			5.61		10.86
	2-Mar-00		5.35	5.48	0.13	11.09
	18-May-00		6.37	6.64	0.27	10.05
	6-Aug-00		5.23	5.64	0.41	11.16
	13-Nov-00		6.30	6.47	0.17	10.14
	1-Feb-01		6.61	6.77	0.16	9.83
	11-May-01		6.18	6.24	0.06	10.28
	3-Aug-01			4.54		11.93
	2-Nov-01		6.50	6.52	0.02	9.97
	4-Feb-02		7.12	7.17	0.05	9.34
	24-Apr-02		7.10	7.16	0.06	9.36
	31-Jul-02		6.48	7.42	0.94	9.80

TABLE 1
Groundwater Monitoring Summary

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Well Identification	Date Measured	Casing Elevation	Depth to Product	Depth to Water	Product Thickness	Corrected Ground Water Elevation
MW-17	21-Dec-96	16.55		6.38		10.17
4" dia	22-Jan-97			6.31		10.24
	26-Dec-97			4.48		12.07
	14-May-98			4.39		12.16
	14-Jan-99			5.75		10.80
	24-Aug-99			6.34		10.21
	23-Nov-99			5.88		10.67
	2-Mar-00			5.66		10.89
	18-May-00			6.68		9.87
	6-Aug-00			5.46		11.09
	13-Nov-00			6.15		10.40
	1-Feb-01			6.76		9.79
	11-May-01			6.45		10.10
	3-Aug-01			4.53		12.02
	2-Nov-01			6.81		9.74
	4-Feb-02			7.19		9.36
	24-Apr-02			7.23		9.32
	31-Jul-02		6.67	6.92	0.25	10.78
MW-18	21-Dec-96	17.50		7.40		10.10
4" dia.	22-Jan-97			7.54		9.96
	26-Dec-97		3.60	5.94	2.34	13.43
	14-May-98		5.23	5.24	0.01	12.27
	14-Jan-99		6.76	6.78	0.02	10.74
	24-Aug-99		7.28	10.42	3.14	9.59
	23-Nov-99		6.84	7.00	0.16	10.63
	2-Mar-00		6.62	6.65	0.03	10.87
	18-May-00		7.65	7.76	0.11	9.83
	6-Aug-00		6.02	9.38	3.36	10.81
	13-Nov-00		7.38	7.39	0.01	10.12
	1-Feb-01		7.75	7.82	0.07	9.74
	11-May-01	Well Damaged	—	—	—	—
	3-Aug-01	Well Damaged	—	—	—	—
MW-19	21-Dec-96	17.44		6.42		11.02
4" dia.	22-Jan-97			6.47		10.97
	26-Dec-97		3.98	4.13	0.15	13.43
	14-May-98		3.90	4.11	0.21	13.50
	14-Jan-99			5.70		11.74
	24-Aug-99			6.41		11.03
	23-Nov-99			5.89		11.55
	2-Mar-00			5.56		11.88
	18-May-00			6.65		10.79
	6-Aug-00			5.25		12.19
	13-Nov-00			6.46		10.98
	1-Feb-01			6.81		10.63
	11-May-01			6.40		11.04
	3-Aug-01			4.59		12.85
	2-Nov-01			6.65		10.79
	4-Feb-02			7.36		10.08
	24-Apr-02			6.83		10.61
	31-Jul-02			6.74		10.70
MW-20	21-Dec-96	17.43		6.35		11.08
4" dia.	22-Jan-97			6.32		11.11
	26-Dec-97		4.10	4.35	0.25	13.28
	14-May-98		4.20	4.22	0.02	13.23
	14-Jan-99			5.70		11.73
	24-Aug-99			6.25		11.18
	23-Nov-99			5.60		11.83
	2-Mar-00			5.28		12.15
	18-May-00		6.04	6.05	0.01	11.39
	6-Aug-00			4.70		12.73
	13-Nov-00			6.02		11.41
	1-Feb-01			6.35		11.08
	11-May-01			5.82		11.61
	3-Aug-01			3.94		13.49
	2-Nov-01			6.06		11.37
	4-Feb-02			6.83		10.60
	24-Apr-02			6.27		11.16
	31-Jul-02			6.23		11.20

TABLE 1
Groundwater Monitoring Summary

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Well Identification	Date Measured	Casing Elevation	Depth to Product	Depth to Water	Product Thickness	Corrected Ground Water Elevation
MW-21	21-Dec-96	16.74		5.83		10.91
4" dia.	22-Jan-97			5.75		10.99
	26-Dec-97			3.68		13.06
	14-May-98			3.73		13.01
	14-Jan-99			5.16		11.58
	24-Aug-99			5.74		11.00
	23-Nov-99			5.28		11.46
	2-Mar-00			5.07		11.67
	18-May-00			6.13		10.61
	6-Aug-00			4.92		11.82
	13-Nov-00			5.97		10.77
	1-Feb-01			6.20		10.54
	11-May-01			5.88		10.86
	3-Aug-01			3.98		12.76
	2-Nov-01			6.29		10.45
	4-Feb-02			6.58		10.16
	24-Apr-02			6.18		10.56
	31-Jul-02			6.19		10.55
MW-22	21-Dec-96	17.24		5.65		11.59
4" dia.	22-Jan-97			5.59		11.65
	26-Dec-97			3.84		13.40
	14-Jan-99			5.05		12.19
	24-Aug-99			5.68		11.56
	23-Nov-99			5.28		11.96
	2-Mar-00			5.11		12.13
	18-May-00			6.06		11.18
	6-Aug-00			5.69		11.55
	13-Nov-00			5.99		11.25
	1-Feb-01			6.11		11.13
	11-May-01			5.91		11.33
	3-Aug-01			4.81		12.43
	2-Nov-01			6.48		10.76
	4-Feb-02			6.27		10.97
	24-Apr-02			5.95		11.29
	31-Jul-02			6.12		11.12
MW-23	26-Dec-97	15.73		3.62		12.11
4" dia.	14-May-98			4.26		11.47
	14-Jan-99			6.00		9.73
	24-Aug-99			7.10		8.63
	23-Nov-99			6.31		9.42
	1-Mar-00			5.72		10.01
	18-May-00			7.13		8.60
	6-Aug-00			5.11		10.62
	13-Nov-00			6.98		8.75
	1-Feb-01			7.12		8.61
	11-May-01			6.69		9.04
	3-Aug-01			4.76		10.97
	2-Nov-01			7.31		8.42
	4-Feb-02			7.96		7.77
	24-Apr-02			7.36		8.37
	31-Jul-02	Covered with soil pile		—		—
MW-24	26-Dec-97	14.82		3.80		11.02
4" dia.	14-May-98			4.53		10.29
	14-Jan-99		5.98	6.03	0.05	8.83
	24-Aug-99		6.85	8.46	1.61	7.65
	23-Nov-99		6.82	6.85	0.03	7.99
	2-Mar-00		5.84	6.10	0.26	8.93
	18-May-00		6.81	9.66	2.85	7.44
	6-Aug-00		4.41	7.93	3.52	9.71
	13-Nov-00		7.11	7.52	0.41	7.63
	1-Feb-01		6.74	9.80	3.06	7.47
	11-May-01		6.30	9.90	3.60	7.80
	3-Aug-01		4.23	8.61	4.38	9.71
	2-Nov-01		6.81	11.57	4.76	7.06
	4-Feb-02		7.18	12.22	5.04	6.63
	24-Apr-02		7.15	12.16	5.01	6.67
	31-Jul-02		7.28	9.02	1.74	7.19
MW-25	26-Dec-97	14.10		3.15		10.95
4" dia.	14-May-98			4.44		9.66
	14-Jan-99			5.85		8.25
	24-Aug-99			6.72		7.38
	23-Nov-99			6.73		7.37
	1-Mar-00			5.58		8.52
	18-May-00			7.09		7.01
	6-Aug-00			4.23		9.87
	13-Nov-00			6.99		7.11
	1-Feb-01			6.84		7.26
	11-May-01			6.75		7.35
	3-Aug-01	Well Abandoned		—		—

TABLE 1
Groundwater Monitoring Summary

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Well Identification	Date Measured	Casing Elevation	Depth to Product	Depth to Water	Product Thickness	Corrected Ground Water Elevation
MW-26	26-Dec-97	11.94	NM	NM		NM
4" dia	14-May-98			2.55		9.39
	14-Jan-99			3.73		8.21
	24-Aug-99		4.43	4.48	0.05	7.50
	23-Nov-99		3.95	5.63	1.68	7.65
	2-Mar-00		3.45	4.33	0.88	8.31
	18-May-00		4.42	6.10	1.68	7.18
	6-Aug-00		2.45	5.19	2.74	8.94
	13-Nov-00		4.76	4.81	0.05	7.17
	1-Feb-01	On Pump	—	—	—	—
	11-May-01	On Pump	—	—	—	—
	3-Aug-01	On Pump	—	—	—	—
	2-Nov-01	On Pump	—	—	—	—
	4-Feb-02	On Pump	—	—	—	—
	24-Apr-02	On Pump	—	—	—	—
	31-Jul-02	On Pump	—	—	—	—
MW-27	14-May-98	NS		2.00		NS
	14-Jan-99	NS		3.77		NS
	24-Aug-99	NS		4.78		NS
	23-Nov-99	NS		4.18		NS
	2-Mar-00	NS		4.05		NS
	18-May-00	NS		5.15		NS
	6-Aug-00	NS		3.72		NS
	13-Nov-00	NS		4.87		NS
	1-Feb-01	NS		5.30		NS
	11-May-01	NS		4.92		NS
	3-Aug-01	NS		3.18		NS
	2-Nov-01	NS		5.16		NS
	4-Feb-02	NS		5.94		NS
	24-Apr-02	NS		5.51		NS
	31-Jul-02	NS		5.31		NS
MW-28	14-May-98	NS		4.25		NS
	14-Jan-99	NS		5.94		NS
	23-Nov-99	NS		6.20		NS
	24-Aug-99	NS		7.02		NS
	1-Mar-00	NS		5.62		NS
	18-May-00	NS		6.85		NS
	6-Aug-00	NS		5.42		NS
	13-Nov-00	NS		6.71		NS
	1-Feb-01	NS		6.95		NS
	11-May-01	NS		6.45		NS
	3-Aug-01	NS		4.61		NS
	2-Nov-01	NS		7.02		NS
	4-Feb-02	NS		7.75		NS
	24-Apr-02	Well Not Found		7.75		NS
	31-Jul-02	NS		7.32		NS
MW-29	14-May-98	NS		4.16		NS
	14-Jan-99	NS		6.05		NS
	24-Aug-99	NS		7.64		NS
	1-Mar-00	NS		5.71		NS
	18-May-00	NS		7.22		NS
	6-Aug-00	NS		5.05		NS
	13-Nov-00	NS		7.16		NS
	1-Feb-01	NS		7.21		NS
	11-May-01	Well covered		---		---
	3-Aug-01	Well Abandoned		---		—
MW-30	14-May-98	14.10		3.15		10.95
	14-Jan-99			5.77		8.33
	24-Aug-99			7.42		6.68
	1-Mar-00			5.43		8.67
	18-May-00			7.18		6.92
	6-Aug-00			5.72		8.38
	13-Nov-00			7.12		6.98
	1-Feb-01			7.00		7.10
	11-May-01	Well covered		—		---
	3-Aug-01	Well Abandoned		—		—
MW-31	15-Sep-00	11.05		1.43		9.62
4" dia.	13-Nov-00			3.45		7.60
	1-Feb-01			3.52		7.53
	11-May-01			3.41		7.64
	3-Aug-01			1.41		9.64
	[illegible]			[illegible]		[illegible]
	4-Feb-02			4.13		6.92
	24-Apr-02			3.75		7.30
	31-Jul-02			3.50		7.55

TABLE 1
Groundwater Monitoring Summary

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Well Identification	Date Measured	Casing Elevation	Depth to Product	Depth to Water	Product Thickness	Corrected Ground Water Elevation
MW-32	15-Sep-00	11.94		2.75		9.19
4" dia.	13-Nov-00			4.60		7.34
	1-Feb-01			4.60		7.34
	11-May-01			4.43		7.51
	3-Aug-01			4.43		7.51
	2-Nov-01			5.14		6.80
	4-Feb-02			5.32		6.62
	24-Apr-02			4.96		6.98
	31-Jul-02			4.82		7.12
MW-33	15-Sep-00	13.70		5.38		8.32
4" dia.	13-Nov-00			7.46		6.24
	1-Feb-01			7.33		6.37
	11-May-01	Well covered		—		—
	3-Aug-01	Well Abandoned		—		—
MW-34	15-Sep-00	14.63		5.24		9.39
4" dia.	13-Nov-00			7.48		7.15
	1-Feb-01			7.40		7.23
	11-May-01			7.01		7.62
	3-Aug-01	Well Abandoned		—		—
PZ-1	21-Dec-96	16.23	6.35	7.55	1.2	9.64
2" dia	22-Jan-97		6.15	8.29	2.14	9.65
	26-Dec-97		4.87	4.96	0.09	11.34
	14-May-98		4.36	4.60	0.24	11.82
	14-Jan-99		5.85	6.73	0.88	10.20
	23-Nov-99		5.70	7.79	2.09	10.11
	2-Mar-00		5.47	6.65	1.18	10.52
	18-May-00		6.56	10.65	4.09	8.85
	6-Aug-00	On Pump				
	13-Nov-00		5.83	5.95	0.12	10.38
	1-Feb-01		6.06	6.72	0.66	10.04
	11-May-01		5.40	7.05	1.65	10.50
	3-Aug-01		4.02	4.42	0.40	12.13
	2-Nov-01		5.75	7.28	1.53	10.17
	4-Feb-02		5.81	11.21	5.40	9.34
	24-Apr-02		5.96	11.12	5.16	9.24
	31-Jul-02		5.54	8.98	3.44	10.00
PZ-2	21-Dec-96	16.62	6.80	7.25	0.45	9.73
2" dia.	22-Jan-97		6.60	7.94	1.34	9.75
	26-Dec-97		4.91	5.09	0.18	11.67
	14-May-98		4.65	5.04	0.39	11.89
	14-Jan-99		6.13	6.80	0.67	10.36
	23-Nov-99		6.03	7.91	1.88	10.21
	2-Mar-00		5.85	7.20	1.35	10.50
	18-May-00	On Pump				
	6-Aug-00		5.58	7.40	1.82	10.68
	13-Nov-00		6.88	7.60	0.72	9.60
	1-Feb-01		6.97	8.92	1.95	9.26
	11-May-01		6.33	8.86	2.53	9.78
	3-Aug-01		5.10	5.35	0.25	11.47
	2-Nov-01		6.88	9.35	2.47	9.25
	4-Feb-02		7.00	12.20	5.20	8.58
	24-Apr-02		7.03	12.16	5.13	8.56
	31-Jul-02		6.50	11.57	5.07	9.11
NBCA-038-003	14-Jan-99	NS		3.32		NS
2" dia.	18-May-00	Not Found	—	—	—	—
	6-Aug-00	Not Found	—	—	—	—
	13-Nov-00	Not Found	—	—	—	—
	1-Feb-01	Not Found	—	—	—	—
	11-May-01	Not Found	—	—	—	—
	3-Aug-01	Well Uncovered		2.46		NS
	2-Nov-01	NS	—	3.73		NS
	4-Feb-02	Not Found	—	—	—	—
	24-Apr-02	NS		3.84		NS
	31-Jul-02	NS		3.42		NS

TABLE 1
Groundwater Monitoring Summary

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Well Identification	Date Measured	Casing Elevation	Depth to Product	Depth to Water	Product Thickness	Corrected Ground Water Elevation
NBCA-039-001	1-Mar-00	NS		4.72		NS
2" dia	18-May-00	NS		5.89		NS
	6-Aug-00	NS		4.54		NS
	13-Nov-00	NS		5.68		NS
	1-Feb-01	NS		5.30		NS
	11-May-01	NS		5.61		NS
	3-Aug-01	NS		3.52		NS
	2-Nov-01	NS		5.63		NS
	4-Feb-02	NS		5.86		NS
	24-Apr-02	NS		5.52		NS
	31-Jul-02	NS		5.12		NS
NBCA-039-002	14-Jan-99	14.35		6.46		7.89
2" dia.	24-Aug-99			6.95		7.40
	23-Nov-99			6.60		7.75
	1-Mar-00			6.34		8.01
	18-May-00			7.34		7.01
	6-Aug-00			6.02		8.33
	13-Nov-00			7.22		7.13
	1-Feb-01			7.18		7.17
	11-May-01			7.09		7.26
	3-Aug-01			4.95		9.40
	2-Nov-01			7.22		7.13
	4-Feb-02			7.50		6.85
	24-Apr-02			7.12		7.23
	31-Jul-02			6.74		7.61
NBCA-039-003	14-Jan-99	8.64		2.87		5.77
2" dia.	24-Aug-99			3.09		5.55
	23-Nov-99			2.95		5.69
	1-Mar-00			2.74		5.90
	18-May-00			3.44		5.20
	6-Aug-00			2.43		6.21
	13-Nov-00			3.36		5.28
	1-Feb-01			3.30		5.34
	11-May-01			3.23		5.41
	3-Aug-01			2.14		6.50
	2-Nov-01			3.39		5.25
	4-Feb-02			3.63		5.01
	24-Apr-02			3.25		5.39
	31-Jul-02			2.99		5.65
NBCA-039-004	18-May-00	NS		7.10		NS
NBCA-039-005	14-Jan-99	12.67		6.32		6.35
2" dia.	24-Aug-99			6.66		6.01
	23-Nov-99			6.44		6.23
	1-Mar-00			6.20		6.47
	18-May-00			6.10		6.57
	6-Aug-00			5.63		7.04
	13-Nov-00			7.07		5.60
	1-Feb-01			6.93		5.74
	11-May-01			6.89		5.78
	3-Aug-01			5.39		7.28
	2-Nov-01			7.15		5.52
	4-Feb-02			7.35		5.32
	24-Apr-02			6.96		5.71
	31-Jul-02			6.68		5.99
NBCA-039-010	14-Jan-99	13.74		8.10		5.64
2" dia.	24-Aug-99			9.05		4.69
	1-Mar-00			8.12		5.62
	18-May-00			9.38		4.36
	6-Aug-00			7.17		6.57
	13-Nov-00			9.29		4.45
	1-Feb-01			9.00		4.74
	11-May-01			9.11		4.63
	3-Aug-01			7.38		6.36
	2-Nov-01			9.53		4.21
	4-Feb-02			9.57		4.17
	24-Apr-02			9.17		4.57
	31-Jul-02			9.10		4.64
NBCA-039-011	14-Jan-99	15.20	6.01	6.03	0.02	9.19
2" dia.	24-Aug-99		6.77	6.82	0.05	8.42
	23-Nov-99		6.75	6.80	0.05	8.44
	2-Mar-00		5.85	6.00	0.15	9.32
	18-May-00		7.02	7.29	0.27	8.13
	6-Aug-00		5.21	5.86	0.65	9.86
	13-Nov-00		6.81	7.60	0.79	8.23
	1-Feb-01		6.88	7.77	0.89	8.14
	11-May-01		6.72	7.48	0.76	8.33
	3-Aug-01		4.55	5.59	1.04	10.44
	2-Nov-01		7.20	8.26	1.06	7.79
	4-Feb-02		7.58	8.35	0.77	7.47
	24-Apr-02		7.38	8.41	1.03	7.61
	31-Jul-02		6.75	9.17	2.42	7.97

TABLE 1
Groundwater Monitoring Summary

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Well Identification	Date Measured	Casing Elevation	Depth to Product	Depth to Water	Product Thickness	Corrected Ground Water Elevation
NBCA-039-012	14-Jan-99	8.54		2.80		5.74
2" dia.	24-Aug-99			2.97		5.57
	23-Nov-99			2.83		5.71
	1-Mar-00			2.62		5.92
	18-May-00			3.42		5.12
	6-Aug-00			2.16		6.38
	13-Nov-00			3.36		5.18
	1-Feb-01			3.26		5.28
	11-May-01			3.21		5.33
	3-Aug-01			1.91		6.63
	2-Nov-01			3.41		5.13
	4-Feb-02			3.65		4.89
	24-Apr-02			3.22		5.32
	31-Jul-02			2.95		5.59
NBCA-039-014	14-Jan-99	NS		6.24		NS
2" dia.	24-Aug-99	NS		6.82		NS
	23-Nov-99	NS		6.43		NS
	1-Mar-00	NS		5.94		NS
	18-May-00	NS		7.10		NS
	6-Aug-00	NS		5.12		NS
	13-Nov-00	NS		7.04		NS
	1-Feb-01	NS		6.92		NS
	11-May-01	NS		6.82		NS
	3-Aug-01	NS		4.92		NS
	2-Nov-01	NS		7.46		NS
	4-Feb-02	NS		7.66		NS
	24-Apr-02	NS		7.26		NS
	31-Jul-02	NS		7.02		NS
NBCA-039-014D	1-Mar-00	NS		5.11		NS

NOTES:
All measurements in units of feet.
NS = Not Surveyed.

TABLE 2

Hess Groundwater Analytical Results Summary
(Methods 602, 610, 5030, 3510, 8260, 8270)

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Sample Identification	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	MTBE	Naph-thalene	Total PAH
MW-1	26-Dec-97	<1.0	<1.0	<1.0	<1.0	ND	<5.0	<5.0	<1.0
MW-2	26-Dec-97	<1.0	<1.0	<1.0	<1.0	ND	<50	<50	<1.0
MW-3	26-Dec-97	<1.0	<1.0	<1.0	<1.0	ND	<5.0	<5.0	<1.0
MW-4	26-Dec-97	<1.0	<1.0	<1.0	<1.0	ND	<5.0	<5.0	<1.0
MW-5	23-Dec-96	90.80	<5.0	5.00	17.00	113.00	<40.0	51.30	<1.0
MW-6	23-Dec-96	598.00	5.09	121.00	409.00	1130.00	<40.0	587.00	<1.0
	14-Jan-99	574.00	123.00	275.00	684.00	1656.00	<1.0	157.00	189.40
MW-7	23-Dec-96	12.40	<5.0	<5.0	<5.0	12.40	<40.0	<5.0	<1.0
	14-Jan-99	116.00	<1.0	7.07	29.57	152.64	6.85	9.70	<5.0
	2-Mar-00	109.00	<100	<100	123.00	232.00	<100	618.00	996.70
MW-8	23-Dec-96	<5.0	<5.0	<5.0	<5.0	ND	<40.0	<5.0	<1.0
	26-Dec-97	<1.0	<1.0	<1.0	1.46	1.46	47.40	<5.0	<1.0
MW-9	23-Dec-96	490.00	1030.00	900.00	2920.00	5340.00	<40.0	480.00	<1.0
MW-10	23-Dec-96	26.40	9.96	266.00	1710.00	2010.00	<40.0	35.40	<1.0
	26-Dec-97	11.60	<5.0	131.00	466.00	608.60	26.80	23.70	<1.0
	14-May-98	15.10	<1.0	114.00	474.00	603.10	<1.0	<1.0	<5.0
	14-Jan-99	<1.0	<1.0	57.80	49.20	107.00	22.80	2.10	<5.0
	26-Aug-99	10.30	1.23	49.70	129.88	191.11	37.10	1.86	<5.0
	2-Mar-00	<1.0	9.26	<1.0	79.40	88.66	<1.0	9.22	<5.0
MW-12	23-Dec-96	<5.0	<5.0	<5.0	<5.0	ND	76.30	<5.0	<1.0
	26-Dec-97	<1.0	<1.0	<1.0	10.10	10.10	52.60	<5.0	<1.0
	14-May-98	<1.0	<1.0	<1.0	<1.0	ND	10.50	<1.0	<5.0
	14-Jan-99	<1.0	<1.0	<1.0	3.17	3.17	67.40	<1.0	<5.0
	26-Aug-99	<1.0	<1.0	<1.0	16.00	16.00	58.10	<1.0	<5.0
	2-Mar-00	<1.0	<1.0	<1.0	3.16	3.16	43.30	<5.0	<5.0
	6-Aug-00	1.19	<1.0	1.02	5.11	7.32	57.20	<1.0	<5.0
	1-Feb-01	<1.0	<1.0	1.63	26.10	27.73	60.20	<1.0	<1.0
	5-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	25.00	<1.0	<1.0
	1-Feb-02	<5.0	<5.0	<5.0	<10.0	<10.0	32.60	<5.0	<10.0
	1-Aug-02	2.80	1.60	2.20	73.00	79.60	3.10	50.00	<10
MW-13	23-Dec-96	32.10	<50	16.50	142.00	190.60	<40	<5.0	<1.0
	26-Dec-97	336.00	<50	413.00	1170.00	1919.00	<50	<50	<1.0
	14-May-98	866.00	55.20	1160.00	49600.00	51700.00	<1.00	42.50	132.00
	14-Jan-99	383.00	18.10	412.00	747.00	1560.10	<1.0	118.00	98.60
	26-Aug-99	154.00	20.30	147.00	734.70	1056.00	5.27	48.80	33.60
	2-Mar-00	491.00	23.00	336.00	1279.50	2129.50	1.34	122.00	87.40
	6-Aug-00	29.80	1.07	12.60	21.07	64.54	<1.0	<1.0	<5.0
	1-Feb-01	87.50	3.38	44.60	175.68	311.16	3.59	<1.0	<1.0
	5-Jun-01	299.00	<10.0	76.20	553.00	928.20	<10.0	43.90	121.20
	2-Feb-02	14.60	<5.0	<5.0	<10.0	14.60	<5.0	18.30	<10.0
	1-Aug-02	179.00	29.70	149.00	3221.80	3579.50	2.00	12.00	<10
MW-14	23-Dec-96	486.00	610.00	408.00	1300.00	2800.00	<40.0	<20.0	<1.0
	14-Jan-99	663.00	1470.00	437.00	7713.00	10283.00	<1.00	322.00	385.61
	27-Aug-99	855.00	1690.00	561.00	9699.00	12805.00	<10.0	375.00	3609.00
MW-15	23-Dec-96	220.00	11200.00	368.00	31700.00	43500.00	<40.0	<20.0	<1.0
	26-Dec-97	206.00	11100.00	565.00	34100.00	46000.00	<50	<50	<1.0
	14-May-98	128.00	4800.00	337.00	26400.00	31700.00	<1.00	92.00	68.80
	14-Jan-99	153.00	7550.00	273.00	31022.00	38998.00	<1.00	94.00	45.15
	26-Aug-99	222.00	11700.00	625.00	42797.00	55344.00	<1.0	85.00	63.80
	2-Mar-00	271.00	12000.00	374.00	60400.00	73045.00	<1.0	150.00	60.00
	6-Aug-00	109.00	233.00	277.00	7686.00	8305.00	<1.0	219.00	189.30
	1-Feb-01	184.00	3320.00	987.00	38752.00	43243.00	<1.0	113.00	132.90
	5-Jun-01	<1000.0	1090.00	I-111	10018.00	11219.00	<1000	I-102	115.30
	1-Feb-02	285.00	3770.00	757.00	39159.00	43971.00	<5.0	122.00	66.00
	1-Aug-02	363.00	4890.00	1120.00	24437.00	30810.00	<1.0	76.00	<10
MW-16	23-Dec-96	774.00	499.00	1190.00	11600.00	14100.00	<40.0	737.00	<1.0
	26-Dec-97	1010.00	392.00	1610.00	14500.00	17500.00	<50	<50	<1.0
	14-May-98	798.00	529.00	1600.00	1990.00	4920.00	<1.0	219.00	314.00
	14-Jan-99	1240.00	737.00	1980.00	21299.00	25256.00	<1.00	404.00	286.03
	27-Aug-99	1270.00	542.00	1710.00	20884.00	24406.00	<1.00	331.00	504.13

TABLE 2

Hess Groundwater Analytical Results Summary
(Methods 602, 610, 5030, 3510, 8260, 8270)

Formerly Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Sample Identification	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	MTBE	Naph-thalene	Total PAH
MW-17	23-Dec-96	<1.0	<1.0	4400.00	15000.00	19400.00	NS	110.00	305.00
	26-Dec-97	<20	35.60	945.00	4760.00	5740.60	<20	<20	<1.0
	14-May-98	180.00	603.00	3090.00	139000.00	143000.00	<1.0	268.00	326.00
	14-Jan-99	124.00	51.70	4710.00	25000.00	29885.70	40.00	127.00	130.83
	26-Aug-99	361.00	97.70	5200.00	17560.00	23218.70	1.33	212.00	198.30
	2-Mar-00	273.00	54.70	2700.00	8970.00	11997.70	3.77	272.00	232.12
	6-Aug-00	186.00	6.18	294.00	509.10	995.28	3.34	130.00	153.50
	1-Feb-01	303.00	I-16.0	2130.00	3068.80	5517.80	<100.00	I-54.3	236.50
	5-Jun-01	I-222	<1000	3310.00	7860.00	11392.00	<1000	I-425	737.89
	1-Feb-02	253.00	<5.0	453.00	63.10	769.10	<5.0	146.00	28.00
MW-18	23-Dec-96	293.00	1190.00	25.70	88800.00	90300.00	<40.0	<5.0	<1.0
MW-19	23-Dec-96	<1.0	<1.0	<1.0	30000.00	30000.00	NS	82.00	345.00
	14-Jan-99	131.00	866.00	252.00	32572.00	33821.00	<1.00	128.00	119.62
	26-Aug-99	<1.0	506.00	236.00	39354.00	40096.00	<1.0	141.00	113.70
	2-Mar-00	114.00	826.00	224.00	36936.00	38100.00	<100	<100	140.54
	6-Aug-00	239.00	46.80	220.00	426.60	932.40	<1.0	552.00	300.20
	1-Feb-01	I-81.3	702.00	260.00	203197.00	204240.30	<100.0	I-80.0	211.00
	5-Jun-01	I-44.0	600.00	I-54.6	18372.20	19070.80	<100.0	I-76.0	269.60
	1-Feb-02	70.10	604.00	166.00	37865.00	38705.10	<5.0	149.00	78.00
	1-Aug-02	67.30	241.00	99.00	168.00	575.30	<1.0	78.00	<10
MW-20	23-Dec-96	<1.0	<1.0	<1.0	2080.00	2080.00	<40.0	<1.0	<1.0
	14-Jan-99	<1.0	1.18	4.90	2781.60	2787.68	<1.0	1.60	19.53
	25-Aug-99	<1.0	<1.0	3.34	1782.47	1785.81	<1.0	1.66	12.10
	2-Mar-00	<1.0	1.80	4.08	6478.87	6484.75	<1.0	17.20	660.34
	8-Aug-00	<1.0	<1.0	1.89	884.44	886.33	<1.0	<1.0	91.90
	1-Feb-01	<1.0	I-7.86	I-3.64	378.71	390.21	<10.0	<10.0	<1
	5-Jun-01	<10.0	12.10	<10.0	<10.0	12.10	<10.0	<10.0	<1
	1-Feb-02	<5.0	7.40	<5.0	320.60	328.00	<5.0	<5.0	<10.0
	1-Aug-02	<1.0	1.50	378.00	446.10	825.60	<1.0	<10.0	<10.0
MW-21	23-Dec-96	325.00	90.00	965.00	3210.00	4590.00	<50.0	<50.0	<1.0
	26-Dec-97	638.00	<50	1090.00	3450.00	5180.00	<50	<50	<1.0
	14-May-98	824.00	109.00	1280.00	4990.00	7200.00	<1.0	478.00	177.00
	14-Jan-99	900.00	110.00	1130.00	2726.60	4866.60	<1.00	156.00	69.60
	27-Aug-99	260.00	69.50	910.00	1927.50	3167.00	<1.00	255.00	116.20
	2-Mar-00	449.00	82.70	1760.00	3839.00	6130.70	<1.00	116.00	133.16
	6-Aug-00	211.00	3480.00	167.00	9635.00	13493.00	<1.00	288.00	131.20
	1-Feb-01	256.00	I-28.6	1110.00	2090.00	3484.60	<100.0	208.00	378.10
	5-Jun-01	233.00	<100.0	538.00	1240.00	2011.00	<100.0	121.00	350.60
	1-Feb-02	144.00	16.20	799.00	839.70	1798.90	<5.0	332.00	<10
	1-Aug-02	147.00	12.20	800.00	1672.40	2631.60	<1.0	186.00	<10
MW-22	23-Dec-96	<5.0	7.33	<5.0	89.40	96.73	<40.0	<5.0	<1.0
	26-Dec-97	<1.0	<1.0	27.10	25.20	52.30	<5.0	<5.0	<1.0
	14-May-98	<1.0	<1.0	18.90	23.40	42.30	<1.0	44.00	177.00
	14-Jan-99	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	25-Aug-99	<1.0	<1.0	<1.0	1.25	1.25	2.77	2.03	<5.0
	2-Mar-00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0
	6-Aug-00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	20.70
	1-Feb-01	<1.0	1.03	<1.0	12.30	13.33	1.63	<1.0	<1.0
	5-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<1.0
	1-Feb-02	<5.0	<5.0	11.0	29.10	40.10	<5.0	16.80	<5.0
	1-Aug-02	<1.0	<1.0	1.7	30.70	32.40	1.70	<10	<10.0
MW-23	27-Aug-97	1.7	29.00	5.2	460.00	489.00	<1.00	4.8	9.8
	26-Dec-97	<1.0	<1.0	<1.0	4.53	4.53	<5.0	<5.0	<1.0
	14-May-98	<1.0	<1.0	<1.0	4.93	4.93	<1.0	<1.0	<5.0
	14-Jan-99	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0
	25-Aug-99	12.00	3.06	25.80	1985.90	2026.76	<1.0	16.50	<5.0
	1-Mar-00	<1.0	<1.0	1.50	56.30	57.80	<1.0	14.90	<5.0
	7-Aug-00	11.20	6.85	18.80	323.00	359.85	<1.0	28.80	11.40
	1-Feb-01	30.40	17.20	49.50	5872.60	5969.70	<1.0	29.60	16.60
	4-Jun-01	24.40	8.86	38.50	3890.30	3962.06	<1.0	19.10	13.30
	4-Feb-02	25.40	9.70	20.70	5930.00	5985.80	<5.0	19.80	<10.0
MW-24	27-Aug-97	73.00	1200.00	150.00	880.00	2300.00	<1.0	110.00	394.00
	26-Dec-97	21.10	260.00	75.70	302.00	658.80	<50	<50	<1.0
	14-May-98	12.00	80.00	53.70	270.00	415.70	<1.0	94.00	556.00

TABLE 2

Hess Groundwater Analytical Results Summary
(Methods 602, 610, 5030, 3510, 8260, 8270)

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Sample Identification	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	MTBE	Naph-thalene	Total PAH
MW-25	27-Aug-97	12.00	160.00	39.00	190.00	401.00	<50	1.9	13.00
	26-Dec-97	<1.0	<1.0	<1.0	<1.0	ND	<5.0	<5.0	<1.0
	14-May-98	<1.0	<1.0	1.01	2.95	3.96	<1.0	<1.0	<5.0
	14-Jan-99	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0
	25-Aug-99	<1.0	1.48	1.25	2.68	5.41	<1.0	2.73	<5.0
	1-Mar-00	<1.0	<1.0	<1.0	2.86	2.86	<1.0	<1.0	<5.0
	7-Aug-00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0
	1-Feb-01	<1.0	<1.0	6.92	148.00	154.92	<1.0	<1.0	<1.0
	4-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<1.0
	1-Feb-02*	<5.0	<5.0	<5.0	<10.0	ND	<5.0	<5.0	<10.0
	2-Aug-02*	25.80	<1.0	18.80	<1.0	44.60	<1.0	58.00	<10.0
MW-26	27-Aug-97	81.00	2.0	49.00	92.00	222.00	15.00	21.00	130.00
	14-May-98	183.00	5.43	123.00	206.00	517.43	<1.0	144.00	182.00
	14-Jan-99	111.00	<1.0	35.90	45.96	192.86	13.40	12.30	14.54
MW-27	14-May-98	<1.0	<1.0	<1.0	1.78	1.78	<1.00	<1.0	<5.0
	14-Jan-99	<1.0	<1.0	<1.0	2.96	2.96	<1.0	<1.0	<5.0
	25-Aug-99	<1.0	<1.0	<1.0	2.79	2.79	<1.0	<1.0	<5.0
	2-Mar-00	<1.0	<1.0	<1.0	22.60	22.60	<1.0	7.79	<5.0
	8-Aug-00	<1.0	<1.0	<1.0	4.01	4.01	<1.0	<1.0	<5.0
	1-Feb-01	<1.0	1.55	<1.0	23.60	25.15	<1.0	<1.0	<1.0
	5-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<1.0
	1-Feb-02	<5.0	<5.0	<5.0	34.50	34.50	<5.0	<5.0	<10
	1-Aug-02	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<10.0	<10
MW-28	14-May-98	15.30	1.90	16.90	7390.00	7420.00	<1.0	<1.0	<5.0
	14-Jan-99	181.00	17.70	53.30	12108.38	12360.38	<1.0	3.80	<5.0
	26-Aug-99	252.00	14.70	48.50	13112.20	13427.40	<1.0	7.72	<5.0
	1-Mar-00	143.00	12.40	42.10	2210.00	2407.50	<1.0	17.50	<5.0
	7-Aug-00	99.60	27.10	40.60	223.39	390.69	<1.0	<1.0	<5.0
	1-Feb-01	166.00	6.34	48.70	12400.00	12621.04	<1.0	<1.0	<1.0
	4-Jun-01	350.00	16.00	34.90	8500.00	8900.90	<1.0	<1.0	<1.0
	4-Feb-02	196.00	<5.0	<5.0	7976.80	8172.80	<5.0	<5.0	<10
	1-Aug-02	30.60	3.10	2.60	201.20	237.50	<1.0	<10	<10
MW-29	14-May-98	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<5.0
	14-Jan-99	<1.0	<1.0	<1.0	266.00	266.00	<1.0	<1.0	<5.0
	25-Aug-99	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0
	1-Mar-00	<1.0	<1.0	<1.0	2.07	2.07	<1.0	<1.0	<5.0
	6-Aug-00	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<5.0
	1-Feb-01	<1.0	<1.0	13.40	152.00	165.40	<1.0	<1.0	<1.0
	4-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<1.0
	1-Feb-02*	<5.0	<5.0	<5.0	<10.0	ND	<5.0	<5.0	<10.0
	2-Aug-02*	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<10.0	<10.0
MW-30	14-May-98	<1.0	<1.0	<1.0	13.20	13.20	<1.0	<1.0	<5.0
	14-Jan-99	<1.0	<1.0	<1.0	113.00	113.00	<1.0	<1.0	<5.0
	25-Aug-99	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0
	1-Mar-00	<1.0	<1.0	<1.0	1.18	1.18	<1.0	<1.0	<5.0
	6-Aug-00	<1.0	17.10	<1.0	115.00	132.10	<1.0	<1.0	<5.0
	1-Feb-01	<1.0	<1.0	4.36	51.80	56.16	<1.0	<1.0	<5.0
	4-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<1.0
	1-Feb-02*	<5.0	<5.0	<5.0	<10.0	ND	<5.0	<5.0	<10.0
	2-Aug-02*	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<10.0	<10.0
MW-31	15-Sep-00	<1.0	<1.0	<1.0	<1.0	<1.0	43.00	<1.0	<1.0
	1-Feb-01	<1.0	<1.0	<1.0	<1.0	<1.0	58.70	<1.0	<1.0
	4-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	65.50	<1.0	<1.0
	2-Feb-02	<5.0	<5.0	<5.0	<10.0	ND	56.30	<5.0	<10.0
	31-Jul-02	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<10.0	<10.0
MW-32	15-Sep-00	18.1	<1.0	5.07	<1.0	23.17	31.6	<1.0	<1.0
	1-Feb-01	1.62	<1.0	1.21	4.56	7.39	36.50	<1.0	<1.0
	5-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<1.0
	2-Feb-02	11.0	<5.0	<5.0	<10.0	11.00	39.80	<5.0	<10.0
	31-Jul-02	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<10.0	<10.0
MW-33	15-Sep-00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1-Feb-01	<1.0	<1.0	1.48	26.00	27.48	<1.0	<1.0	<1.0
	4-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<1.0
	1-Feb-02*	<5.0	<5.0	<5.0	<10.0	ND	<5.0	<5.0	<10.0
	2-Aug-02*	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<10.0	<10.0

TABLE 2

Hess Groundwater Analytical Results Summary

(Methods 602, 610, 5030, 3510, 8260, 8270)

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Sample Identification	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	MTBE	Naph-thalene	Total PAH
MW-34	15-Sep-00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1-Feb-01	<1.0	<1.0	10.60	119.00	129.60	<1.0	<1.0	<1.0
	4-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<1.0
	1-Feb-02*	<5.0	<5.0	<5.0	<10.0	ND	<5.0	<5.0	<10.0
	2-Aug-02*	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<10.0	<10.0

Sample Identification	Date Sampled	1,1-Dicloroethene	1,1-Dicloroethane	1,2-Dicloroethane	Trichloroethene	Tetrachloro-ethene
MW-7	2-Mar-00	<100.0	<100.0	<100.0	<100.0	<100.0
MW-10	2-Mar-00	<1.0	<1.0	<1.0	<1.0	<1.0
MW-25	2-Mar-00	<1.0	<1.0	<1.0	<1.0	<1.0
	1-Feb-01	<1.0	<1.0	<1.0	<1.0	<1.0

NOTES:
All concentrations in ppb (ug/l).
Total BTEX - sum of benzene, toluene, ethyl benzene, and total xylenes.
MTBE - methyl-tert-butyl ether
Total PAH - sum of all PAH compounds except Naphthalene.
ND - not detected.
Concentrations in bold are above SC Risk Based Screening Levels (Benzene 5 ug/l, Toluene 1000 ug/l, Ethylbenzene 700 ug/l, Xylenes 10,000 ug/l, MTBE 40 ug/l, Naphthalene 10 ug/l, and PAH 25 ug/l).
Samples analyzed from March 2000 to present have been analyzed by EPA Methods 8260 and 8270
* These samples were collected from temporary wells installed adjacent to previously abandoned wells of same designation.
See Table 4 for other compounds detected during the July-August 2002 sampling event.

TABLE 3

Navy Groundwater Analytical Results Summary
(Methods 602, 610, 5030, 3510, 8260, 8270)

4650 Virginia Avenue, North Charleston, South Carolina

Sample Identification	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	MTBE	Naph-thalene	Total PAH
NBCA-038-001	7-Dec-96	<5	<5	<5	<5	ND	NA	NA	NA
NBCA-038-01D	7-Feb-95	<5	<5	<5	<5	ND	NA	<12	ND
NBCA-038-002	7-Dec-96	<5	<5	<5	<5	ND	NA	NA	NA
NBCA-038-003	14-Jan-99	<1	<1	<1	<1	ND	<1	<1	<5
	31-Jul-02	<1	<1	<1	<1	ND	<1	<10	<10
NBCA-039-001	7-Feb-95	<5	<5	<5	<5	ND	NA	NA	NA
	23-Apr-96	**47**	<3.9	9	68	124	NA	<11	ND
	20-Jun-96	**35**	<2.2	10	81	126	NA	<11	ND
	7-Oct-96	**110**	<4	34	72	216	NA	<10	ND
	14-May-98	**198**	<1.0	37.1	137	372.1	11	<1.0	11.6
	1-Mar-00	**60.8**	1.85	15.3	190.36	268.32	**89.3**	3.25	7.9
	7-Aug-00	**59.3**	37.90	3.97	27	128.17	**24.8**	<1.0	7.4
	1-Feb-01	**7.26**	2.70	2.49	<1.0	12.45	**49.8**	<1.0	7.02
	4-Jun-01	**35.7**	26.90	7.2	59.61	129.41	**47.3**	<1.0	7.32
	2-Feb-02	**5.1**	<5.0	<5.0	<10.0	5.1	<5.0	<5.0	<10.0
	31-Jul-02	**136**	7.50	45.2	304.2	492.9	<1.0	<10.0	<10.0
NBCA-039-002	3-Dec-95	<5	<5	<5	<5	ND	NA	<12	ND
	5-Dec-95	<5	<5	<5	<5	ND	NA	<12	ND
	23-Apr-96	<5	<5	<5	<5	ND	NA	<10	ND
	20-Jun-96	<5	<5	<5	<5	ND	NA	<11	ND
	8-Oct-96	<5	<5	<5	<5	ND	NA	<11	ND
	14-May-98	<1.0	<1.0	<1.0	2.15	2.2	<1.0	<1.0	<5.0
	14-Jan-99	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0
	24-Aug-99	<1.0	<1.0	<1.0	2.64	2.64	31.1	2.49	<5.0
	1-Mar-00	<1.0	<1.0	1.98	2.43	4.41	**58.1**	3.07	<5.0
	7-Aug-00	<1.0	<1.0	<1.0	6.75	6.75	**47.7**	<1.0	<5.0
	1-Feb-01	<1.0	<1.0	<1.0	<1.0	<1.0	35.1	<1.0	<1.0
	4-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	10.2	<1.0	<1.0
	2-Feb-02	<5.0	<5.0	<5.0	<10.0	ND	19.5	<5.0	<10.0
	31-Jul-02	<1.0	<1.0	6	10.7	16.7	23.2	<10.0	<10.0
NBCA-039-003	14-May-98	<1.0	<1.0	<1.0	<1.0	ND	3.91	<1.0	<5.0
	14-Jan-99	<1.0	<1.0	1.31	2.5	3.8	16.00	2.14	<5.0
	24-Aug-99	<1.0	<1.0	<1.0	<1.0	<1.0	13.70	<1.0	<5.0
	1-Mar-00	<1.0	<1.0	<1.0	<1.0	<1.0	19.70	<1.0	<5.0
	7-Aug-00	1.05	<1.0	<1.0	1.43	2.48	16.60	<1.0	<5.0
	1-Feb-01	<1.0	<1.0	<1.0	<1.0	<1.0	34.10	<1.0	<1.0
	4-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	21.90	<1.0	<1.0
	4-Feb-02	<5.0	<5.0	<5.0	49.4	49.4	31.50	<5.0	<10.0
	31-Jul-02	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<10.0	<10.0
NBCA-039-004	14-May-98	<1.0	<1.0	<1.0	1.67	1.7	21	<1.0	<5.0
NBCA-039-04D	6-Dec-95	<5	<5	<5	<5	ND	NA	<11	ND
	25-Apr-96	<5	<5	<5	<5	ND	NA	<11	ND
	21-Jun-96	<5	<5	<5	<5	ND	NA	<12	ND
	8-Oct-96	<5	<5	<5	<5	ND	NA	<12	ND
	21-Oct-96	<5	<5	<5	<5	ND	NA	NA	NA
NBCA-039-005	6-Dec-95	**90**	<5	<1.4	<5	90	NA	<9.1	13
	24-Apr-96	**100**	<1.7	<3	11	111	NA	**64**	**87**
	21-Jun-96	**170**	<1.3	<1.1	<4.5	170	NA	<35	ND
	9-Oct-96	**78**	<5	<5	<5	78	NA	<10	ND
	14-May-98	**71.7**	<1.0	24.6	7.66	104	**55.8**	**39.0**	**27.9**
	14-Jan-99	**346**	1	<1.0	3.25	350.58	**103**	9.8	**61.07**
	24-Aug-99	**172**	<1.0	<1.0	2.3	174.3	**63.80**	2.53	16.6
	1-Mar-00	**179**	<1.0	<1.0	6.49	185.49	**124.00**	<1.0	19.8
	7-Aug-00	**80.6**	<1.0	<1.0	2.21	82.81	38.00	<1.0	ND
	1-Feb-01	**250**	<1.0	<1.0	<1.0	250	**53.60**	<1.0	**52.23**
	4-Jun-01	**131**	<1.0	5.4	8.17	144.57	**48.80**	<1.0	**41.2**
	2-Feb-02	**146**	<5.0	<5.0	<10.0	146	**40.80**	<5.0	<10.0
	31-Jul-02	**183**	<1.0	<1.0	1.6	184.6	22.00	<10.0	<10.0

TABLE 3

Navy Groundwater Analytical Results Summary
(Methods 602, 610, 5030, 3510, 8260, 8270)

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Sample Identification	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	MTBE	Naph-thalene	Total PAH
NBCA-039-010	1-Aug-96	<5	<5	<5	<5	ND	NA	NA	NA
	11-Oct-96	<5	<5	<5	<5	ND	NA	<4	ND
	11-Mar-97	<5	<5	<5	<5	ND	NA	<10	ND
	14-May-98	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	5.1
	14-Jan-99	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.81
	24-Aug-99	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1-Mar-00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0
	8-Aug-00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0
	1-Feb-01	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	4-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<1.0
	2-Feb-02	<5.0	<5.0	<5.0	42.1	42.1	<5.0	<5.0	<10.0
	31-Jul-02	<1.0	<1.0	<1.0	<1.0	ND	1.1	<10.0	<10.0
NBCA-039-10I	19-Sep-96	<5	<5	<5	<5	ND	NA	NA	NA
	28-Sep-96	<5	<4	<5	<5	ND	NA	<10	ND
	6-Nov-96	<5	<5	<5	<5	ND	NA	NA	NA
	11-Mar-97	<5	<5	<5	<5	ND	NA	<10	ND
NBCA-039-10D	19-Sep-96	<5	<5	<5	<5	ND	NA	NA	NA
	28-Sep-96	<5	<5	<5	<5	ND	NA	<9.1	ND
	6-Nov-96	<5	<5	<5	<5	ND	NA	<10	ND
	11-Mar-97	<5	<5	<5	<5	ND	NA	<10	ND
NBCA-039-011	2-Aug-96	**620**	140	190	413	1363	NA	**4**	NA
	10-Oct-96	**200**	24	140	165	529	NA	**330**	**540**
	15-Oct-96	**200**	<5	190	440	830	NA	**480**	**794**
NBCA-039-012	14-May-98	**33.8**	<1.0	<1.0	3.47	37.27	**361**	<1.0	<5.0
	14-Jan-99	1.76	<1.0	<1.0	<1.0	1.76	**77**	<1.0	<5.0
	24-Aug-99	<1.0	<1.0	<1.0	<1.0	<1.0	39.1	<1.0	<5.0
	1-Mar-00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0
	7-Aug-00	<1.0	<1.0	<1.0	2.26	2.26	16.3	<1.0	<5.0
	1-Feb-01	<1.0	<1.0	<1.0	<1.0	<1.0	**64.6**	<1.0	<1.0
	4-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	36	<1.0	<1.0
	4-Feb-02	<5.0	<5.0	<5.0	16.9	16.9	**46.1**	<5.0	<10.0
	31-Jul-02	<1.0	<1.0	<1.0	<1.0	ND	**52.8**	<10.0	<10.0
NBCA-039-014	6-Feb-97	**8**	<5	<5	<5	8	NA	<5	<5.0
	20-Mar-97	**23**	<5	<5	<5	23	NA	<10	<5.0
	14-May-98	17.7	<1.0	<1.0	1.21	18.9	18.5	<1.0	11.6
	14-Jan-99	2.05	<1.0	1.25	10.63	13.9	18.9	7.03	9.43
	24-Aug-99	<1.0	<1.0	<1.0	1.83	1.83	23.3	<1.0	<5.0
	1-Mar-00	<1.0	<1.0	<1.0	4.64	4.64	35.4	<1.0	<5.0
	7-Aug-00	1.10	<1.0	<1.0	1.85	2.95	21.2	<1.0	8.4
	1-Feb-01	<1.0	<1.0	<1.0	<1.0	<1.0	**45.5**	<1.0	<1.0
	5-Jun-01	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	<1.0
	2-Feb-02	<5.0	<5.0	<5.0	53.5	53.50	21.4	<5.0	<10.0
	31-Jul-02	<1.0	<1.0	<1.0	<1.0	ND	24.7	<10.0	<10.0
NBCA-039-14D	6-Feb-97	<5	<5	<5	<5	<5	NA	<5	<5.0
	21-Mar-97	<5	<5	<5	<5	<5	NA	<10	<5.0
	1-Mar-00	<1.0	<1.0	1.25	8.29	9.54	17.3	1.97	<5.0

Sample Identification	Date Sampled	1,1-Dicloroethene	1,1-Dicloroethane	1,2-Dicloroethane	Trichloroethene	Tetrachloro-ethene
NBCA-039-002	1-Mar-00	<1.0	<1.0	<1.0	<1.0	<1.0
	1-Feb-01	<1.0	<1.0	<1.0	<1.0	<1.0
NBCA-039-003	1-Feb-01	<1.0	<1.0	<1.0	25.6	1.18
NBCA-039-005	1-Mar-00	<1.0	5.91	<1.0	<1.0	<1.0
	1-Feb-01	<1.0	<1.0	<1.0	<1.0	<1.0
NBCA-039-012	1-Feb-01	3.61	4.07	<1.0	75	<1.0
NBCA-039-014	1-Mar-00	<1.0	<1.0	<1.0	<1.0	<1.0
	1-Feb-01	<1.0	<1.0	<1.0	<1.0	<1.0

NOTES:
All concentrations in ppb (ug/l).
Total BTEX - sum of benzene, toluene, ethyl benzene, and total xylenes.
MTBE - methyl-tert-butyl ether
Total PAH - sum of all PAH compounds except Naphthalene.
ND - not detected
NA - not available or applicable
Concentrations in bold are above the SC Risk Based Screening Levels (Benzene 5 ug/l, Toluene 1000 ug/l, Ethylbenzene 700 ug/l, Xylenes 10,000 ug/l, MTBE 40 ug/l, Naphthalene 10 ug/l, and PAH 25 ug/l).
March and August 2000 samples analyzed by Methods 8260 and 8270.

TABLE 4

Other Detected Compounds

July-August 2002 Sampling Event

Amerada Hess - Charleston South Terminal
4650 Virginia Avenue, North Charleston, South Carolina

Sample Identification	Cis-1-2-Dichloroethene	Trichloroethene	Trans-1,2-dichloroethane
NBCA-038-003	2.6	ND	ND
NBCA-039-003	ND	20.7	ND
NBCA-039-012	6.3	1	ND

NOTES:
All concentrations in ppb (ug/l).
ND - not detected
Samples analyzed by Method 8260.

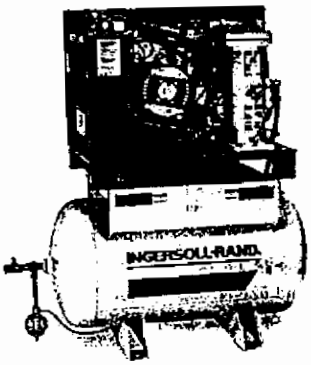
APPENDIX C

Air Sparging Equipment Specifications

Ingersoll-Rand

New

No. 5ZL87



No. 4MJ38

Made in U.S.A.

Rotary Screw Air Compressors

Provide easy operation, low maintenance, and reliable air supply. Two intermeshing rotors turn to compress trapped air, providing higher efficiency and lower operating temperatures than reciprocating models. Fully-packaged units are easy to install. Prewired and mounted full voltage starter included. Leak-free design.

Uses: Light industrial, commercial, and automotive aftermarket such as body shops.

- 100% continuous duty
- Operating pressure: 125 psi
- Handle 115°F ambient conditions
- 8,000 hour/2-year G-Cool lubricant
- Air cooled after cooler

2-YEAR IR LIMITED WARRANTY

Ingersoll-Rand warrants compressor for 2 years with use of No. 1M100 G-Cool Lubricant. Text of warranty available upon request. See "Manufacturer's Warranties" on page opposite inside back cover.

SSR SERIES

Feature Online, Offline and auto Start/Stop control. Choose space saving tank-mounted or baseplate design.

- Low noise levels from 75 dBA (enclosed) to 85 dBA (unenclosed)

SE SERIES

Intellisys® microprocessor control provides finger touch panel with full operating control. Displays discharge pressure and temperatures. Fault warnings, shutdowns, and additional operating diagnostics minimize downtime. Feature EPACT high-efficiency motors with overload protection.

- Fully enclosed cabinet for quiet operation
- Adjustable Offline/Online and Lead/Lag settings

HP	Delivered CFM	Receiver	Mount Type	(F) NPT Outlet (in.)	dBA @ 3 Feet	Voltage/ Phase	Full Amp	Overall Dimensions (in.) L	W	H	IR Model	Stock No	List	Each	Shpg. Wt.
SSR SERIES*															
7.5	28	—	Baseplate	3/4	80	230-1	41	36	29	29	EP7.5/BM/UN	4MJ11	$5959.59	$4696.00	650.0
7.5	28	—	Baseplate	3/4	80	200-3	23.4	36	29	29	EP7.5/BM/UN	4MJ12	5777.00	4513.00	650.0
7.5	28	—	Baseplate	3/4	80	230-3	20.4	36	29	29	EP7.5/BM/UN	4MJ13	5777.00	4553.00	650.0
7.5	28	—	Baseplate	3/4	80	460-3	10.2	36	29	29	EP7.5/BM/UN	4MJ14	5777.00	4553.00	650.0
7.5	28	—	Baseplate	3/4	80	575-3	8.2	36	29	29	EP7.5/BM/UN	4MJ15	5777.00	4553.00	650.0
7.5	28	80H	Tank	1	80	230-1	41	56	29	60	EP7.5/TM/UN	4MJ21	6534.67	5180.00	950.0
7.5	28	80H	Tank	1	80	200-3	23.4	56	29	60	EP7.5/TM/UN	4MJ22	6350.00	5037.00	950.0
7.5	28	80H	Tank	1	80	230-3	20.4	56	29	60	EP7.5/TM/UN	4MJ23	6350.00	5037.00	950.0
7.5	28	80H	Tank	1	80	460-3	10.2	56	29	60	EP7.5/TM/UN	4MJ24	6350.00	5037.00	950.0
10	37	—	Baseplate	3/4	80	200-3	32.8	36	29	29	EP10/BM/UN	4MJ31	6545.55	5150.00	660.0
10	37	—	Baseplate	3/4	80	230/460-3	28.8/14.4	36	29	29	EP10/BM/UN	4MJ32	6545.55	5150.00	660.0
10	37	80H	Tank	1	80	200-3	32.8	56	29	60	EP10/TM/UN	4MJ37	6707.70	5576.00	960.0
10	37	80H	Tank	1	80	230/460-3	28.8/14.4	56	29	60	EP10/TM/UN	4MJ38	6707.70	5576.00	960.0
15	53	—	Baseplate	3/4	85	200-3	47.2	36	29	29	EP15/BM/UN	4MJ43	7785.00	6188.00	670.0
15	53	—	Baseplate	3/4	85	230/460-3	43.2/20.6	36	29	29	EP15/BM/UN	4MJ44	7785.00	6188.00	670.0
15	53	120H	Tank	1	85	200-3	47.2	76	29	60	EP15/TM/UN	4MJ49	7908.00	6686.00	1070.0
15	53	120H	Tank	1	85	230/460-3	43.2/20.6	76	29	60	EP15/TM/UN	4MJ50	7908.00	6686.00	1070.0
20	79	—	Baseplate	1	85	200-3	60.7	45	30	38	EP20/BM/UN	4TN99	9025.00	7112.00	952.0
20	79	—	Baseplate	1	85	230/460-3	52.9/26.8	45	30	38	EP20/BM/UN	4TN01	9025.00	7112.00	952.0
20	79	120H	Tank	1	85	200-3	60.7	76	30	64	EP20/TM/UN	4TN03	9560.00	7579.00	1352.0
20	79	120H	Tank	1	85	230/460-3	52.9/26.8	76	30	64	EP20/TM/UN	4TN04	9560.00	7579.00	1352.0
25	97	—	Baseplate	1	85	200-3	75.0	45	30	38	EP25/BM/UN	4TN06	9675.00	7623.00	992.0
25	97	—	Baseplate	1	85	230/460-3	65.3/33.0	45	30	38	EP25/BM/UN	4TN07	9675.00	7623.00	992.0
25	97	120H	Tank	1	85	200-3	75.0	76	30	64	EP25/TM/UN	4TN09	10250.00	8121.00	1392.0
25	97	120H	Tank	1	85	230/460-3	65.3/33.0	76	30	64	EP25/TM/UN	4TN10	10250.00	8121.00	1392.0
30	112	—	Baseplate	1	85	200-3	90.4	45	30	38	EP30/BM/UN	4TN12	10742.00	8452.00	1017.0
30	112	—	Baseplate	1	85	230/460-3	78.7/39.7	45	30	38	EP30/BM/UN	4TN13	10742.00	8452.00	1017.0
30	112	120H	Tank	1	85	200-3	90.4	76	30	64	EP30/TM/UN	4TN15	11395.00	9011.00	1417.0
30	112	120H	Tank	1	85	230/460-3	78.7/39.7	76	30	64	EP30/TM/UN	4TN16	11395.00	9011.00	1417.0
SE SERIES*															
30	117	—	Baseplate	1.5	75	200-3	96.0	49	42	54	EP30SE	4R646	14581.00	11679.00	1400.0
30	117	—	Baseplate	1.5	75	230/460-3	83.0/42.0	49	42	54	EP30SE	4R648	14581.00	11679.00	1400.0
40	157	—	Baseplate	1.5	75	200/3/60	125	49	42	54	EP40SE	5ZL87	16717.00	13350.00	1552.0
40	157	—	Baseplate	1.5	75	230/460/3/60	108/54	49	42	54	EP40SE	5ZL88	16717.00	13350.00	1552.0

(*) Additional pressure ratings of 140 psi (HP Series 7.5-30 HP) and 175 psi (XP Series 7.5-15 HP). Please contact your local Grainger Branch.