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March 7, 2001

Mr. David Burke  
Pennsylvania Department of Environmental Protection  
Southeast Regional Office  
Lee Park, Suite 6010  
Conshohocken, PA 19428

RE: NAPL Delineation Report  
Sunoco, Inc. (R&M)  
Belmont Terminal  
2700 Passyunk Avenue  
Philadelphia, Pennsylvania

Dear Mr. Burke:

On behalf of Sunoco, Inc. (R&M), Handex of Maryland, Inc. is pleased to provide you with the NAPL Delineation Report for the Belmont Terminal.

Should you have any questions regarding the report please feel free to contact either of the undersigned at (410) 674-3200.

Sincerely,

David M. Leety  
Senior Geologic Scientist

Troy A. Carrington  
Senior Project Manager

Attachment

cc: Daniel Shine, Sunoco, Inc. (R&M)  
James Oppenheim, Sunoco, Inc. (R&M)  
Joseph Morrow, Philadelphia Water Department

S:\projects\sunref\belmont\reports\napl\drvc.doc

**Sunoco, Inc. (R&M)  
Belmont Terminal  
Non-Aqueous Phase Liquid (NAPL)  
Delineation Report**

For

Sunoco Inc. (R&M)  
Belmont Terminal  
2700 Passyunk Avenue  
Philadelphia, Pennsylvania

Submitted To

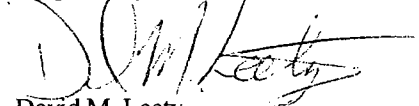
Mr. David Burke  
Pennsylvania Department of Environmental Protection  
Southeast Regional Office  
Lee Park, Suite 6010  
Conshohocken, Pennsylvania 19428

Prepared By

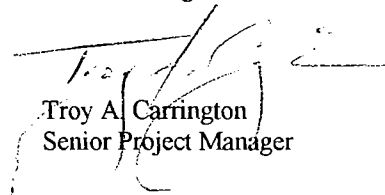
Handex of Maryland, Inc.  
360 Morgan Road  
Odenton, Maryland 21113

March 7, 2001

Respectfully submitted,



David M. Leety  
Senior Geologic Scientist



Troy A. Carrington  
Senior Project Manager

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## **NAPL Delineation Report**

**Sunoco, Inc.  
Belmont Terminal  
2700 Passyunk Avenue  
Philadelphia, Pennsylvania**

### **1.0 INTRODUCTION**

The purpose of this report is to summarize the non-aqueous phase liquid (NAPL) delineation activities that occurred at the Sunoco, Inc. (R&M) Belmont Terminal during the years 2000 and 2001. The Belmont Terminal is located at 2700 Passyunk Avenue in Philadelphia, Pennsylvania (Figure 1). Included within this report are summaries of the following data:

- NAPL sampling activities (May 9, 2000).
- Cone penetrometer (CPT) subsurface investigation.
- Pipeline leak abatement activities.
- Current investigations including the installation of monitoring wells MW-21 through MW-34.
- NAPL samples from the newly installed monitoring wells (January 8, 2001).
- Proposed work at the site.

### **2.0 SUMMARY OF PREVIOUS INVESTIGATIONS**

#### **2.1 NAPL Sampling Activities**

On May 9, 2000, NAPL samples were collected from six wells (RW-1, RW-4, RW-7, RW-15, S-75, and S-76). Well locations are shown on Figure 2. The NAPL samples were submitted to Torkelson Geochemistry, Inc. of Tulsa, Oklahoma, along with virgin product samples of the Sunoco products dispensed at the Belmont Terminal for comparison purposes. The laboratory analytical results indicated that the NAPL in RW-1, RW-4, RW-7, and RW-15 was essentially identical in composition and from the same source. This product type was identified as a motor fuel. When these samples were compared to the virgin product samples, a match could not be made. The samples from wells S-75 and S-76 both appeared to be composed of a mixture of gasoline and another unknown hydrocarbon distillate. The results of NAPL sampling were described in more detail in the Status Report for the Belmont Terminal dated September 29, 2000.

The chromatographs from the NAPL samples collected from the wells were submitted to the Sunoco, Inc. (R&M) Quality Control Laboratory to determine if the Sunoco chemists could identify the product. The Sunoco chemists indicated that the NAPL in the samples collected from RW-1, RW-4, RW-7, and RW-15 appeared to be Sunoco Ultra Octane Fuel.

#### **2.2 Cone Penetrometer Subsurface Investigation**

On August 28 through August 30, 2000, a cone penetrometer (CPT) was utilized to delineate subsurface NAPL at the Belmont Terminal. Twenty-two (22) CPT soundings were installed on the site. Eight of the soundings were converted to temporary monitoring points. See Figure 2 for temporary monitoring point locations. The results of this investigation were presented in the Quarterly Status Report for the Philadelphia Refinery Point Breeze Processing Area dated October 26, 2000. The investigation concluded that soils containing hydrocarbons exist beneath three main areas of the Belmont Terminal property (beneath the loading racks, between the loading racks and the main parking lot, and just south of the main entrance). However, the CPT subsurface investigation did not define the extent of subsurface NAPL, and additional delineation activities were recommended.

### **2.3 Pipeline Leak Abatement Activities**

Based on the results of the NAPL sampling and due to the extent of subsurface NAPL found during the CPT Investigation, the below grade pipelines from the Sunoco Refinery Point Breeze Processing Area to the Belmont Terminal loading rack were tightness tested during the third quarter 2000. The test determined that the pipelines from the refinery to the loading rack were tight, indicating no leak potential. Temporary above grade piping was installed to several of the loading bays to bypass below grade piping.

### **3.0 MONITORING WELL INSTALLATION**

Monitoring wells MW-21 through 34 were installed on the Belmont Terminal property to enhance the CPT work and complete the delineation of subsurface NAPL. The monitoring wells were installed on December 11 through 21, 2000. Monitoring well locations are shown on Figure 2 and boring logs and well construction diagrams are attached in Appendix A.

Well locations were chosen based on the data gathered during the CPT Investigation and subsequent gauging of the temporary monitoring points. Site gauging data for the second and third quarters of 2000 and January 2001 are included in Appendix B. Wells MW-21 through MW-25 were installed as potential recovery wells and were constructed of 8-inch diameter stainless steel. Based on the NAPL thickness observed in RW-15, MW-34 was constructed of 4-inch stainless steel in the event that NAPL was encountered at that location. Stainless steel casing was used in select wells due to chemical reactions between the NAPL and PVC piping causing deterioration of the PVC. The remaining monitoring wells were constructed of 4-inch schedule 40 PVC.

### **4.0 GAUGING DATA**

On January 8, 2001 the site monitoring wells were gauged for depth to NAPL and depth to ground water. This data was supplemented with gauging data from wells on the Point Breeze Processing Area (Point Breeze) collected during on November 6, 2000. A Contoured Ground Water Elevation Map (Figure 3) and a Contoured Apparent NAPL Thickness Map (Figure 4) were generated from this data. Gauging data from both events is included in Appendix B.

#### **4.1 Ground Water Elevation Data**

The Contoured Ground Water Elevation Map (Figure 3) shows that the ground water surface is fairly flat across the site, and off site to the south and west at an elevation of approximately 6 feet above mean sea level (MSL). There are localized depressions at operating recovery wells, RW-1, RW-4, and RW-6, due to ground water extraction. RW-15 was also operating at this time; however, the drawdown was not as great as in other recovery wells. The ground water elevation decreases toward the northwest of the site (MW-34). Although used for contouring, the ground water elevations for the OW, TW, and RW series wells along the Shunk Street Sewer were not printed on the map. Due to these wells close proximity and the scale of the map the elevation data would not print clearly.

Data from several wells was not used when calculating the contours. The justification for not using the data is described below:

- S-75 data was not used because the ground water elevation in this well is historically anomalously higher than in other site and off-site wells.
- S-77 was not used because this well is a shallow well, installed to a depth of only 20 feet below grade. This well appears to have been installed in a shallower aquifer compared to other site wells included in this map.
- PZ-400 data was not used because the ground water elevation in this well is historically anomalously lower than in other site and off-site wells.

#### 4.2 NAPL Thickness Data

The Contoured Apparent NAPL Thickness Map (Figure 4) shows the on-site NAPL thickness ranging from not detected (several wells) to 2.66 feet thick (MW-26). As illustrated by Figure 4, the NAPL plume appears to have been delineated. The delineation is described below:

- To the north, the Shunk Street Sewer intersects the NAPL plume creating a barrier to NAPL migration in that direction.
- To the east, on-site wells OW-14, TW-11, and S-74 have not contained NAPL since their installation in May 1998, May 1998, and July 1987, respectively. Off-site well S-98 has not contained NAPL since December 1999.
- To the south, Point Breeze wells S-77P, S-80, and S-81 have not contained NAPL since December 1995. NAPL thickness data for well S-77 was not included in this map because the ground water elevation in this well is much higher than other site wells. As described in Section 4.1 this well appears to have been installed in a shallower aquifer compared to other site wells.
- To the west, on-site wells MW-30 and MW-33, and off-site well MW-34 have not contained NAPL since their installation in December 2000. In addition, Point Breeze well S-73 has not contained NAPL since December 1995.

#### 5.0 NAPL SAMPLING ACTIVITIES

On January 8, 2001, during site gauging activities, NAPL samples were collected from the newly installed monitoring wells for analysis by the Sunoco Refinery Quality Control Laboratory. Samples were analyzed for American Petroleum Institute (API) gravity and Sulfur. Sufficient sample volume was not available to analyze the MW-31 sample for API gravity.

The API gravity scale, which is used by the petroleum industry, is based on reciprocals of specific gravities. The API scale is measured in degrees API and has a range of 0 to 100 degrees. Water is referenced as the standard and is assigned an arbitrary gravity of 10 degrees API. This gives a range of 90 degrees API between the heaviest and lightest petroleum products. API gravity is inversely proportional to specific gravity (the lower the specific gravity, the higher the API gravity). Therefore, petroleum products that have the lightest weight have the highest API gravities. The standard temperature for expressing API gravities is 60° F. So, gravity taken at other temperatures must be corrected to 60° F.

Results of the analysis are summarized in Table 1 and the laboratory sample results report is attached as Appendix C. As shown on Table 1, the results show a light gasoline range product. Based on the API gravity data it appears there is some variation between the NAPL in wells MW-22 and MW-23 (API gravities of 55.5 and 55.4, respectively) and the remaining wells that were sampled (average API gravity of 49.3).

Based on the API gravity data, additional NAPL samples will be collected from select wells for a Simulated Distillation analysis. This analysis looks at the boiling range of a hydrocarbon mixture to

develop a percent evaporated/temperature graph. This is helpful in identifying specific hydrocarbon products, which will help in determining if the NAPL is from one source or multiple sources. The additional NAPL samples were collected on February 20, 2001. The results of this additional analysis will be forwarded in the next status report.

## 6.0 ANTICIPATED SCHEDULE OF EVENTS

In order to determine if recoverable amounts of NAPL are present in the subsurface, and if so what type of recovery equipment is best suited to the job, the following schedule is proposed:

- **First Quarter 2001**
  - NAPL bail down tests will be conducted on select wells to determine initial NAPL recovery rates.
  - Pumping tests will be performed on select potential recovery wells to determine initial ground water extraction and NAPL recovery rates and determine the radius of influence for the pumping wells.
- **Second Quarter 2001**
  - Provided that the NAPL bail down tests and pumping tests indicate that NAPL recovery is possible, ground water extraction and NAPL recovery equipment will be field tested.
- **Third Quarter 2001**
  - Based on the results of the NAPL bail down and pump tests and the results of the equipment tests, an expanded ground water extraction and NAPL recovery system will be designed.
- **Fourth Quarter 2001**
  - Installation of the expanded ground water extraction and NAPL recovery systems.

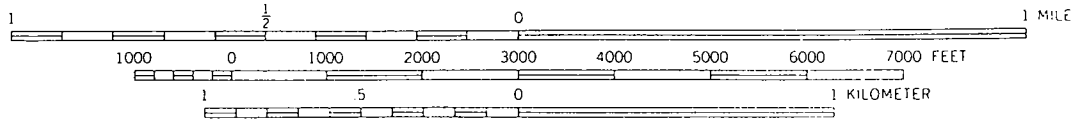
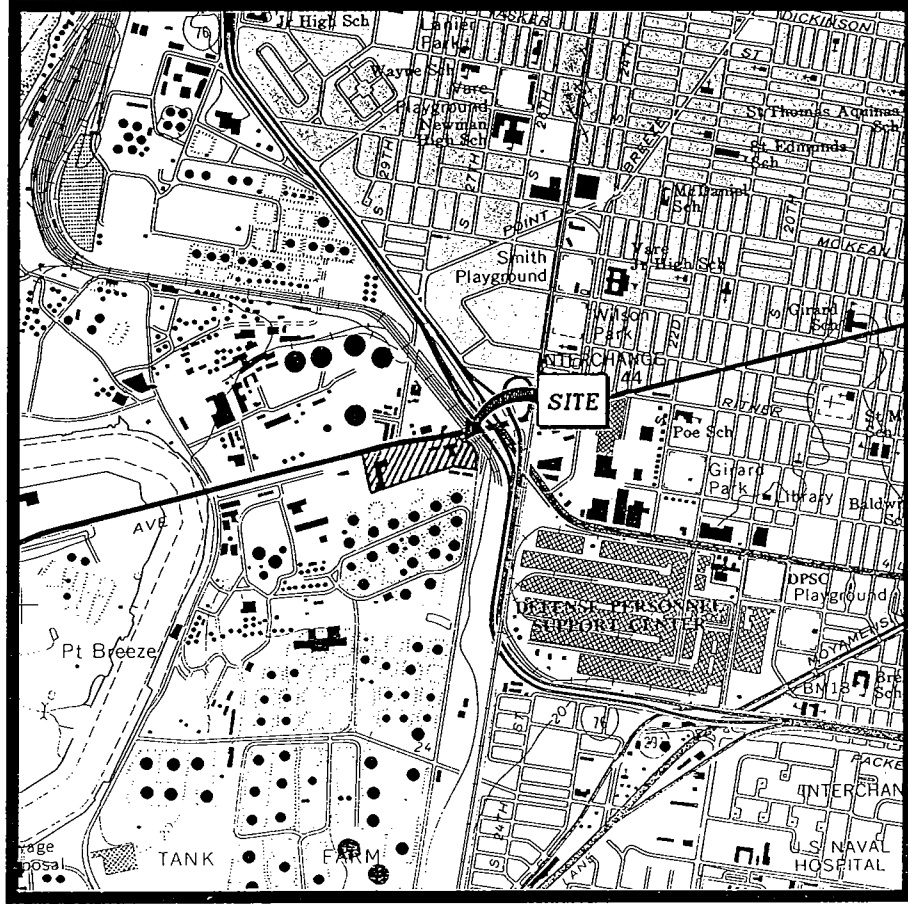
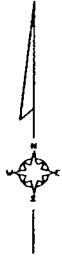
## 7.0 CONCLUSIONS

Based on the data collected from the Belmont Terminal monitoring wells and from nearby Point Breeze monitoring wells, it appears that the Belmont NAPL plume has been delineated. As such, additional delineation is not warranted.

The existing NAPL recovery system will continue to operate throughout the above listed anticipated schedule of events. In addition, site recovery wells will continue to be gauged weekly and the site monitoring wells will continue to be gauged on a quarterly basis. As outlined above in the anticipated schedule of events, Sunoco, Inc. (R&M) will continue to move forward toward an expanded NAPL recovery system, if anticipated testing determines it is feasible.


## FIGURES

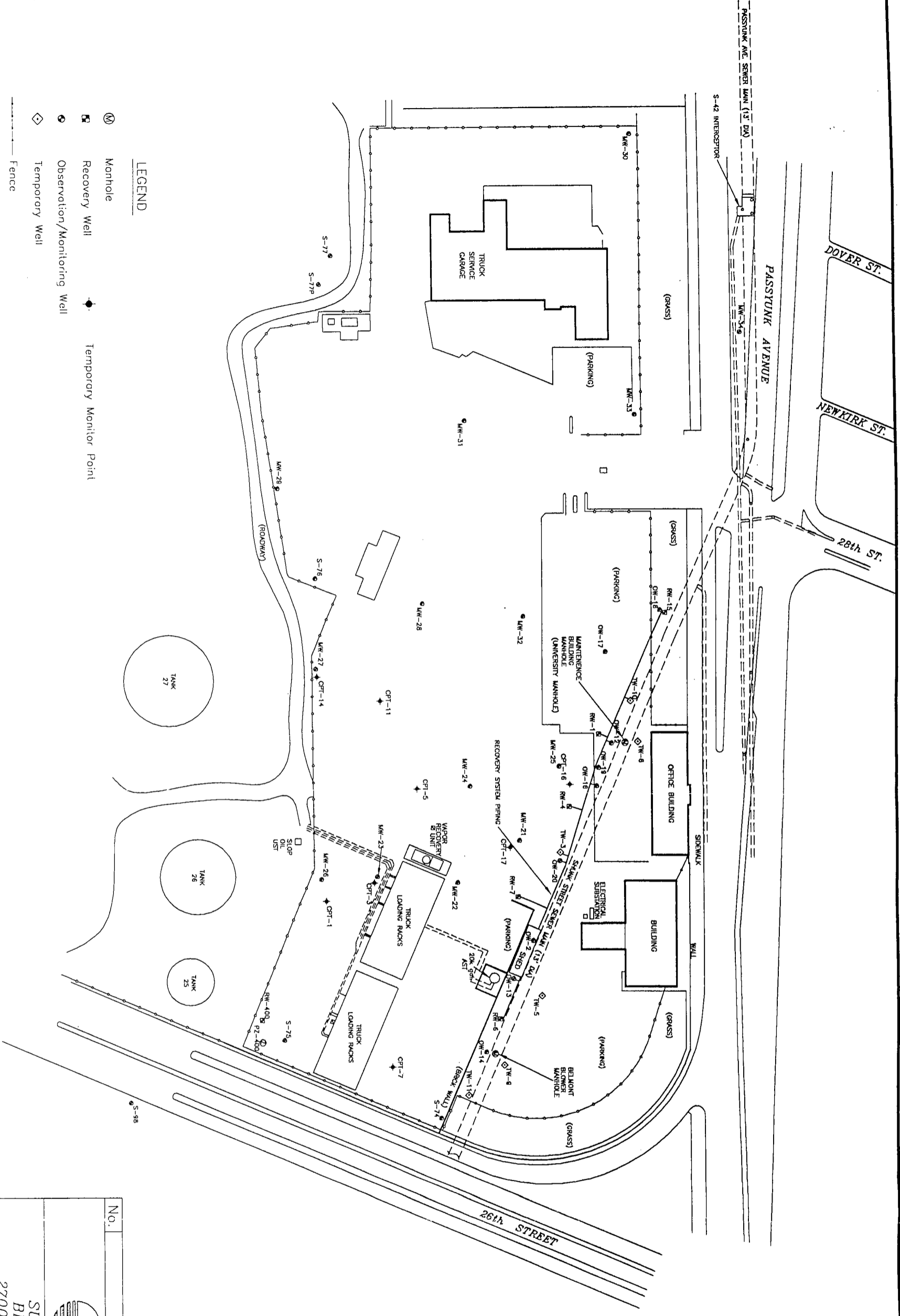




REFERENCE  
 U.S. GEOLOGICAL SURVEY  
 39075-H2-TF-024  
 CONTOUR INTERVAL: 20 FT.

Figure 1

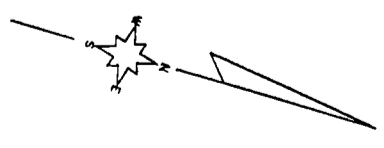
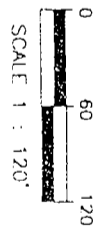
No.	REVISION	DATE
		
<b>SUNOCO BELMONT TERMINAL</b> <b>2700 PASSYUNK AVENUE</b> <b>PHILADELPHIA, PENNSYLVANIA</b>		
<b>SITE LOCATION MAP</b>		
SCALE - 1 : 24,000	JOB No. - 110535.002	
DRAWN: J. Thomson	REV.	
CHECKED BY -	DWG. NAME - 110535S9	
DATE 2-15-01	DWG. No. -	



- LEGEND**
- ⊙ Monohole
  - ⊠ Recovery Well
  - ⊙ Observation/Monitoring Well
  - ◇ Temporary Well
  - Temporary Monitor Point
  - Fence

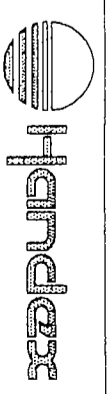
Product lines:  
below grade

Line utilities shown on this drawing are approximated and should be verified in the field.



**Figure 2**

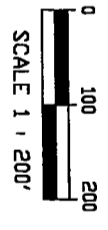
No.	REVISION	DATE



SUNOCO, INC. (R&M)  
BELMONT TERMINAL  
2700 PASSYUNK AVENUE  
PHILADELPHIA, PENNSYLVANIA

**SITE PLAN**

SCALE	1" = 120'	JOB No.	110535.032
DRAWN	J. Thomson	REV.	1-2-01 J.T.
CHECKED	BY	DWG. NAME	1105351B
DATE	4-4-00	DWG. No.	




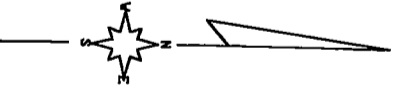
**LEGEND**

- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- INTERMEDIATE MONITORING WELL
- RECOVERY WELL
- ⊗ ABANDONED WELL
- ⊙ PIEZOMETER
- ⊙ MANHOLE
- 5.92 GROUND WATER ELEVATION (FT.)
- (21.16) GROUND WATER ELEVATION NOT USED IN CONTOUR CALCULATIONS
- CONTOUR LINE (DASHED WHERE INFERRED)
- CONTOUR INTERVAL = 1.0 FEET

- NOTES:
1. THE BELMONT TERMINAL WELLS (MW'S, OW'S, TWS AND RW-1, 4, 6, 7 & 15) AND RW-400, 402, 403, 404, 405, & 406 WERE GAUGED ON 01/08/01. THE REMAINING WELLS WERE GAUGED ON 11/06/00.
  2. THE ELEVATION DATA FOR THE BELMONT OW, RW, & TW WELLS COULD NOT BE PLACED ON THIS MAP LEGIBLY. PLEASE SEE THE GAUGING DATA IN APPENDIX B FOR GROUND WATER ELEVATIONS & NAPL THICKNESS.
  3. CONTOURS LESS THAN ZERO (0) ARE NOT SHOWN.

**Figure 3**

No.	REVISION	DATE
		
<b>SUNOCO, INC. (R&amp;M)</b> <b>BELMONT TERMINAL</b> <b>2700 PASSYUNK AVENUE</b> <b>PHILADELPHIA, PENNSYLVANIA</b>		
<b>CONTOURED GROUND WATER ELEVATION</b> <b>MAP JANUARY 8, 2001</b>		
SCALE - 1" = 200'	JOB No. - 110535-02	
DRAWN: A. Taylor	REV.	
CHECKED BY -	DWG. NAME - 1105351D	
DATE - 02/15/01	DWG. No. -	



**LEGEND**

- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- INTERMEDIATE MONITORING WELL
- RECOVERY WELL
- ⊗ ABANDONED WELL
- ⊙ PIEZOMETER
- ⊙ MANHOLE
- 0.43 APPARENT NAPL THICKNESS (FEET)
- (0.25) THICKNESS NOT USED IN CONTOUR CALCULATIONS
- ND NOT DETECTED
- CONTOUR LINE (DASHED WHERE INFERRED)
- CONTOUR INTERVAL = 1.0 FEET

- NOTES:
1. THE BELMONT TERMINAL WELLS (MWS, OWS, TWS AND RW-1, 4, 6, 7 & 15) AND RW-400, 402, 403, 404, 405, & 406 WERE GAUGED ON 01/08/01. THE REMAINING WELLS WERE GAUGED ON 11/06/00.
  2. THE ELEVATION DATA FOR THE BELMONT OW, RW, & TW WELLS COULD NOT BE PLACED ON THIS MAP LEGIBLY. PLEASE SEE THE GAUGING DATA IN APPENDIX B FOR GROUND WATER ELEVATIONS & NAPL THICKNESS.

**Figure 4**

No.	REVISION	DATE
<b>SUNOCO, INC. (R&amp;M)</b> <b>BELMONT TERMINAL</b> <b>2700 PASSYUNK AVENUE</b> <b>PHILADELPHIA, PENNSYLVANIA</b> <b>APPARENT NAPL THICKNESS</b> <b>MAP JANUARY 8, 2001</b>		
SCALE - 1" = 200'	JOB No. - 110535-02	
DRAWN: A. Taylor	REV.	
CHECKED BY -	DWG. NAME - 110535ID	
DATE - 02/15/01	DWG. No. -	

## TABLES

Sunoco, Inc. (R)  
 Belmont Terminal  
 2700 Passyunk Avenue  
 Philadelphia, Pennsylvania

**TABLE 1**

**NAPL Analysis Laboratory Data  
 January 8, 2001**

Sample Location	API Observed (deg. API)	API Gravity (deg. API)	Temperature (°F)	Sulfur (wt%)	Specific Gravity (gm/ml)
MW-22	56.3	55.5	67.0	0.0108	0.7567
MW-23	56.0	55.4	65.0	0.0085	0.7571
MW-24	51.2	50.6	65.5	0.0110	0.7770
MW-25	50.0	49.6	64.0	0.0793	0.7813
MW-26	50.0	49.1	68.5	0.0854	0.7835
MW-27	50.1	49.2	69.0	0.0720	0.7831
MW-28	49.7	49.0	67.0	0.0700	0.7839
MW-29	48.4	47.7	68.0	0.2276	0.7896
MW-31				0.0661	
MW-32	50.7	49.8	68.5	0.0207	0.7805

NOTES: API Observed - Observed API gravity.  
 API Gravity - Observed API Gravity Corrected for Temperature to 60°F.  
 deg. API - Degrees on the API Scale.  
 °F - Degrees Fahrenheit.  
 wt% - Percentage by weight.  
 gm/ml - Grams per milliliter.

$$\text{Specific Gravity} = 141.5 / (\text{degrees API} + 131.5)$$

**APPENDIX A**

**Boring Logs for Wells MW-21 Through MW-34**



Handex Of Maryland

# WELL LOG: MW-21

Permit #: N/A

Drill Date: 12/21/00

Use: Monitoring Well

Location: Sunoco Belmont Terminal, PA

Owner Loc #:

Owner: Sunoco, Inc

Handex Loc #: 110535.032.T3045.900

Owner Address: 3144 Passyunk Ave. Philadelphia, PA

BORING - Depth: 43 ft.

Diameter: 14.25 in.

Drilling Method: Air Rotary & Hollow Stem Auger

CASING - Length: 0.47 / 15.47

Diameter: 8 in.

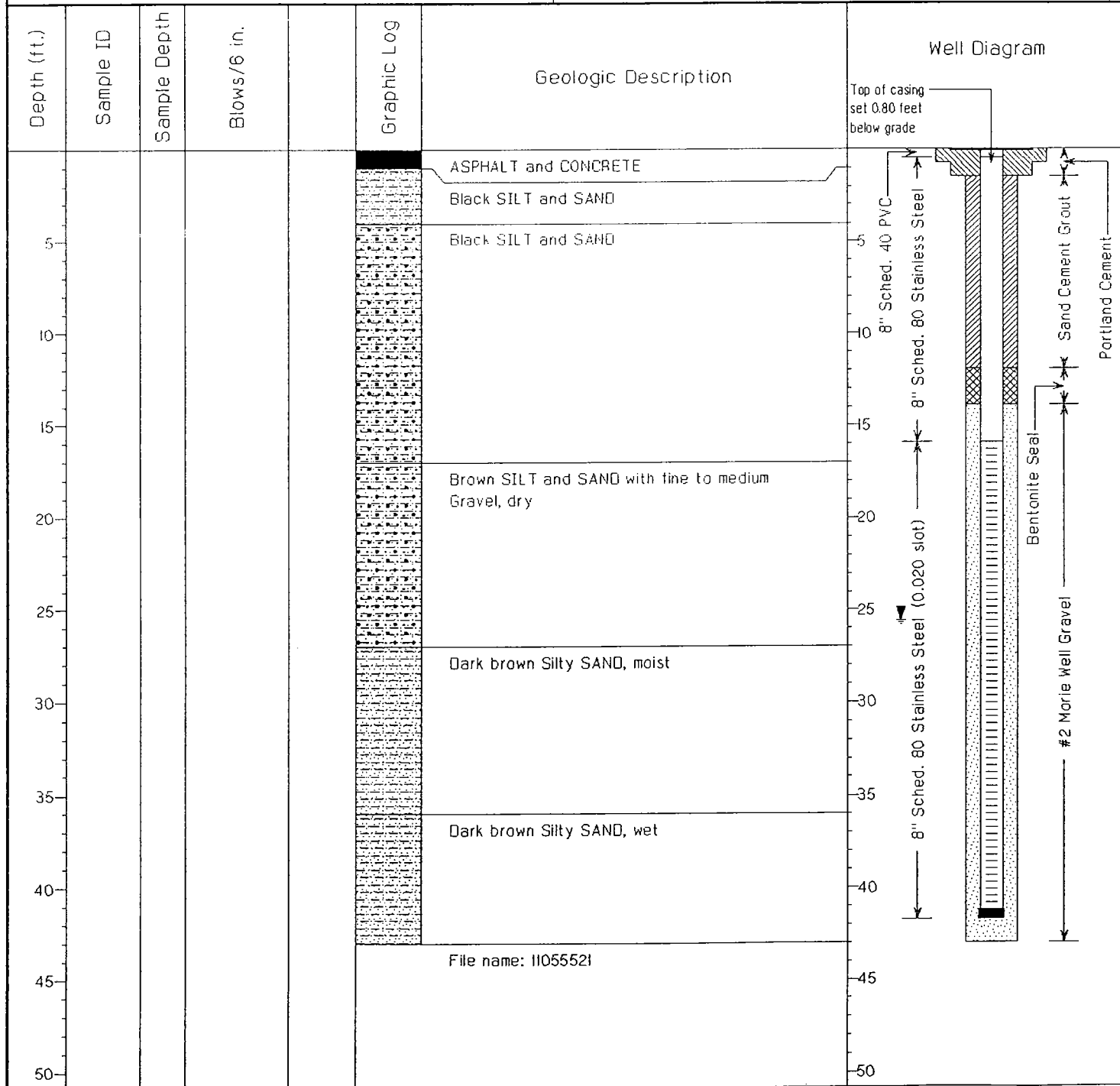
Sampling Method: N/A

SCREEN - Length: 25.8 ft.

Diameter: 8 in.

Static Water Level: 24.79 ft. (1/8/01)

WELL - Depth: 41.74 ft.



Geologist: David Leety

Driller: B.L. Myers Bros.





**Handex**<sup>®</sup>

Handex Of Maryland

# WELL LOG: MW-22

Permit #: N/A

Drill Date: 12/21/00

Use: Monitoring Well

Location: Sunoco Belmont Terminal, PA

Owner Loc #:

Owner: Sunoco, Inc

Handex Loc #: 110535.032.T3045.900

Owner Address: 3144 Passyunk Ave. Philadelphia, PA

BORING - Depth: 44 ft.

Diameter: 14.25 in.

Drilling Method: Air Rotary & Hollow Stem Auger

CASING - Length: 0.92 / 15.47

Diameter: 8 in.

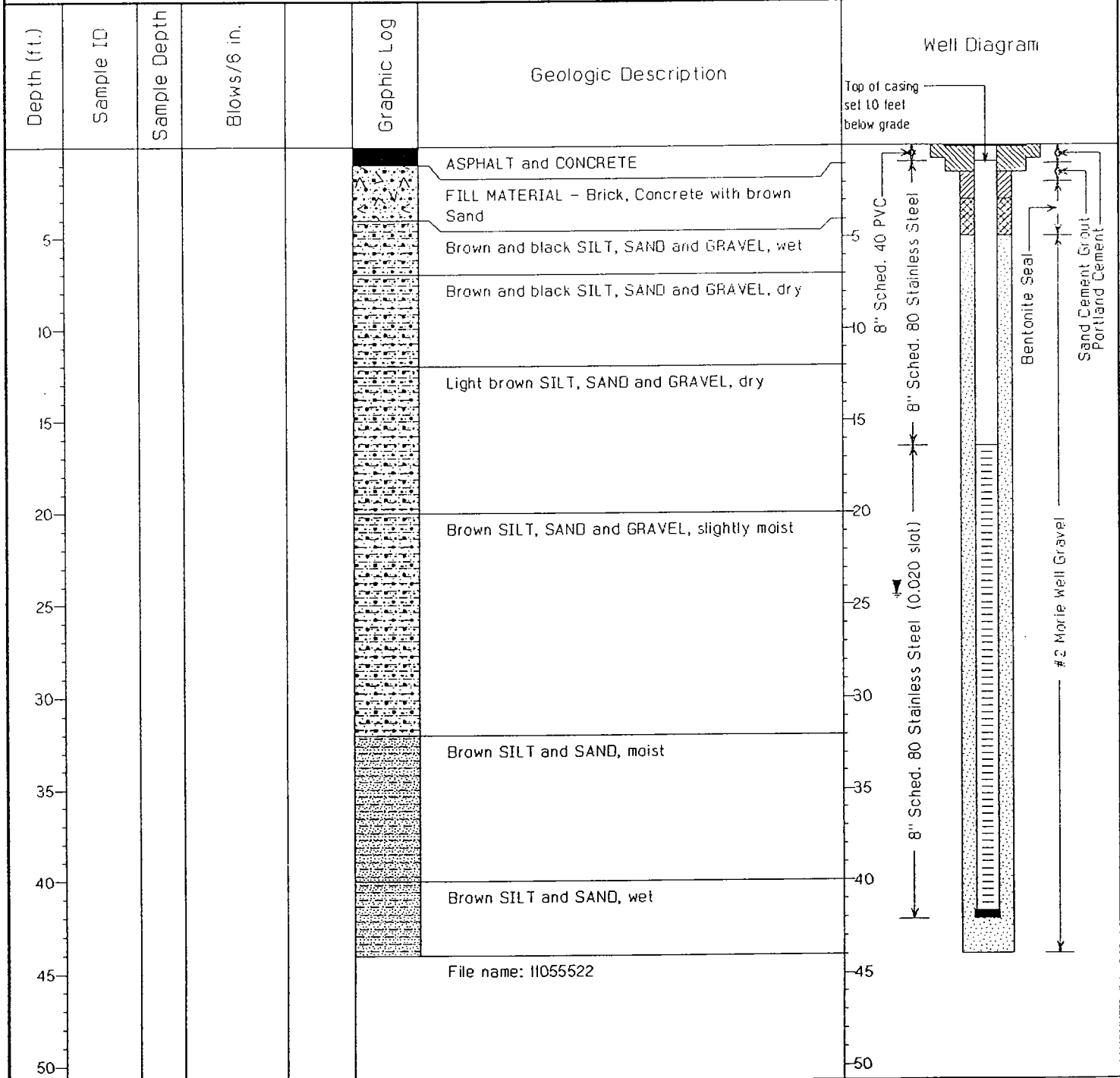
Sampling Method: N/A

SCREEN - Length: 25.8 ft.

Diameter: 8 in.

Static Water Level: 23.49 ft. (1/8/01)

WELL - Depth: 42.19 ft.



Geologist: David Leety

Driller: B.L. Myers Bros.



Handlex Of Maryland

# WELL LOG: MW-23

Permit #: N/A

Drill Date: 12/20/00

Use: Monitoring Well

Location: Sunoco Belmont Terminal, PA

Owner Loc #:

Owner: Sunoco, Inc

Handlex Loc #: 110535.032.T3045.900

Owner Address: 3144 Passyunk Ave. Philadelphia, PA

BORING - Depth: 44 ft.

Diameter: 14.25 in.

Drilling Method: Air Rotary & Hollow Stem Auger

CASING - Length: 1.61 / 15.47

Diameter: 8 in.

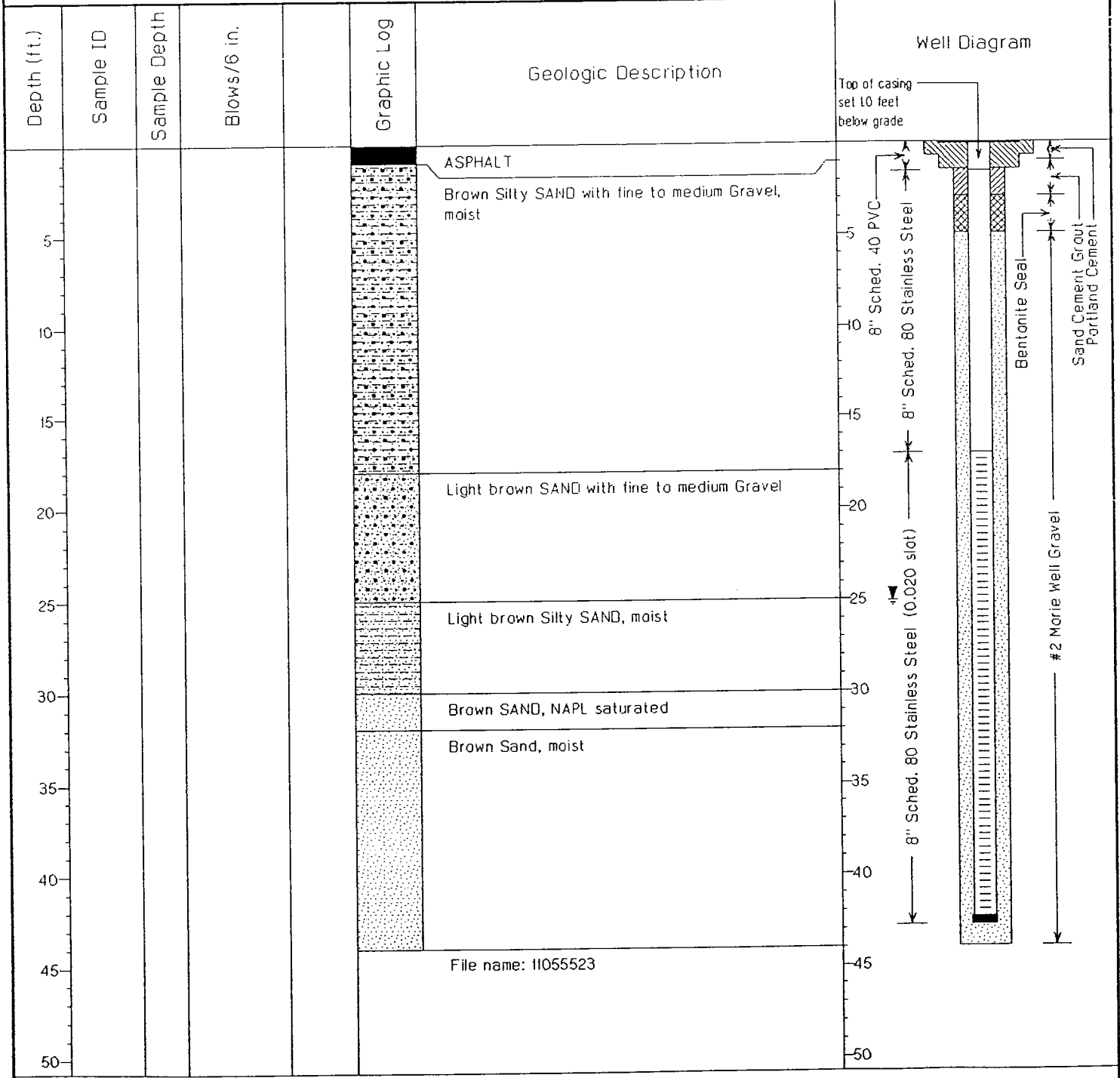
Sampling Method: N/A

SCREEN - Length: 25.8 ft.

Diameter: 8 in.

Static Water Level: 24.10 ft. (1/8/01)

WELL - Depth: 42.88 ft.



Geologist: David Leety

Driller: B.L. Myers Bros.



**Handex**<sup>®</sup>

Handex Of Maryland

# WELL LOG: MW-24

Permit #: N/A

Drill Date: 12/14/00

Use: Monitoring Well

Location: Sunoco Belmont Terminal, PA

Owner Loc #:

Owner: Sunoco, Inc

Handex Loc #: 110535.032.T3045.900

Owner Address: 3144 Passyunk Ave. Philadelphia, PA

BORING - Depth: 44 ft.

Diameter: 14.25 in.

Drilling Method: Air Rotary & Hollow Stem Auger

CASING - Length: 0.17 / 15.47

Diameter: 8 in.

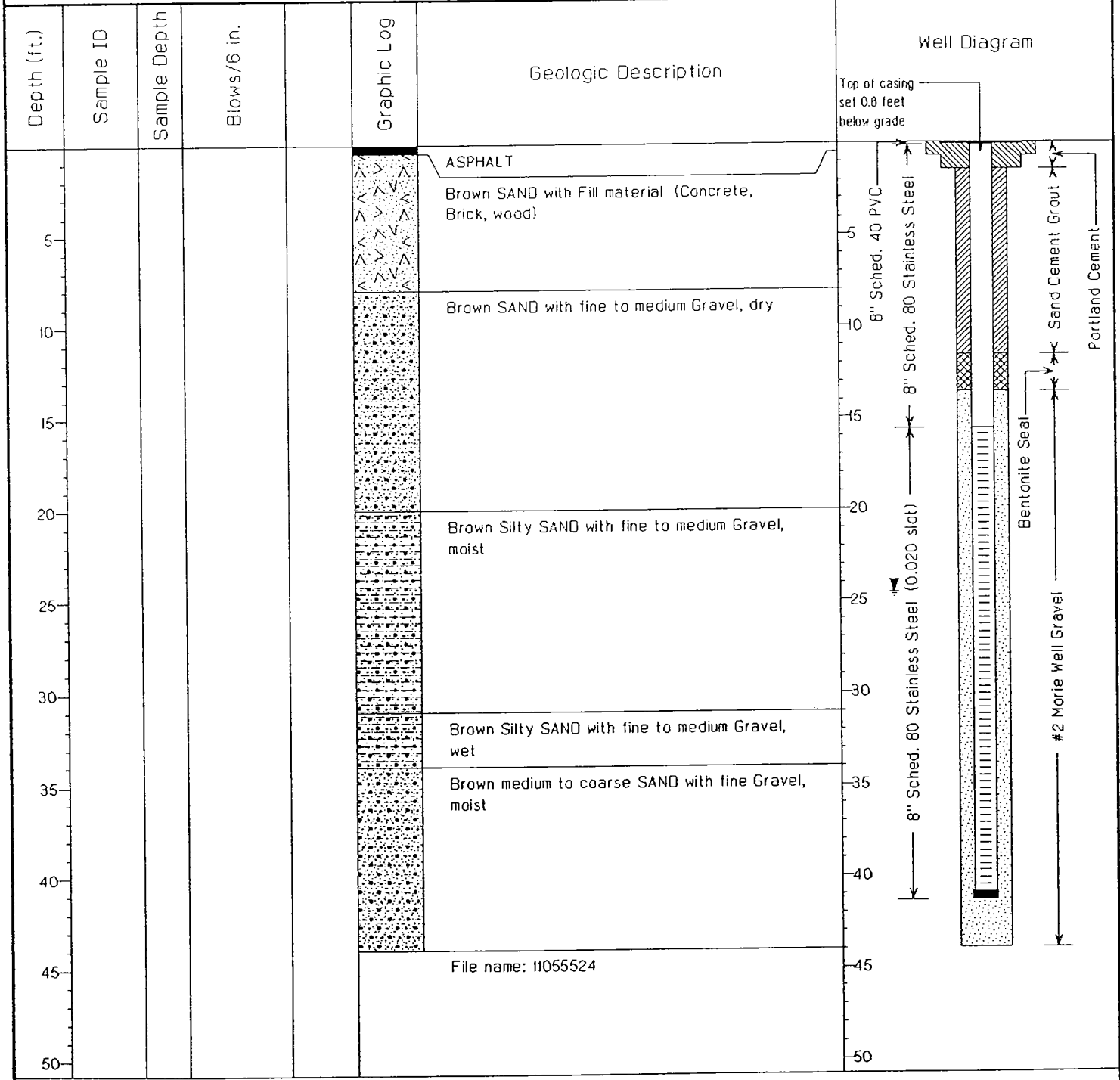
Sampling Method: N/A

SCREEN - Length: 25.8 ft.

Diameter: 8 in.

Static Water Level: 24.02 ft. (1/8/01)

WELL - Depth: 41.44 ft.



Geologist: David Leety

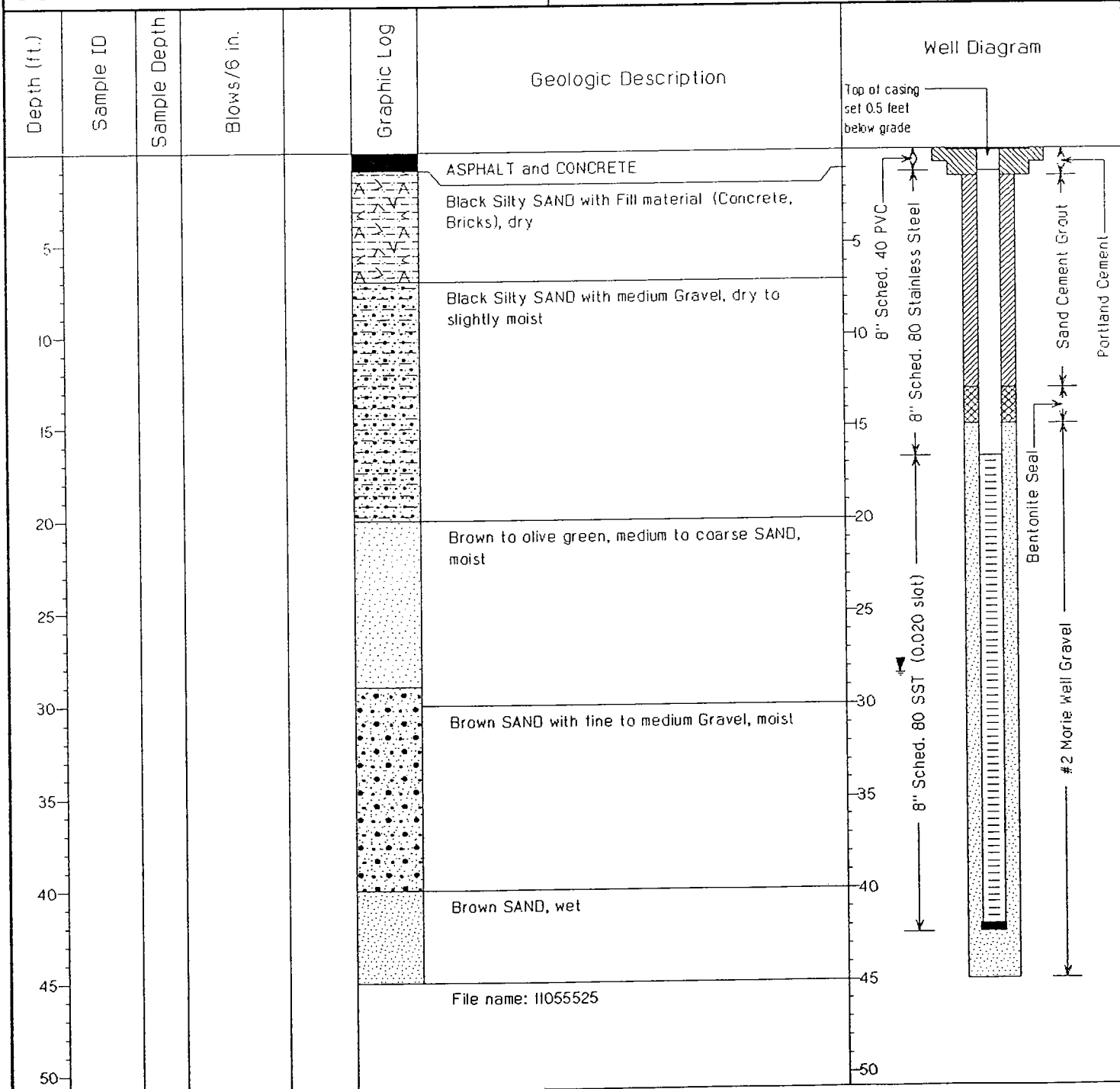
Driller: B.L. Myers Bros.



Handex Of Maryland

# WELL LOG: MW-25

Permit #: <i>N/A</i>	Drill Date: <i>12/13/00</i>	Use: <i>Monitoring Well</i>
Location: <i>Sunoco Belmont Terminal, PA</i>		Owner Loc #:
Owner: <i>Sunoco, Inc</i>		Handex Loc #: <i>110535.032.T3045.900</i>
Owner Address: <i>3144 Passyunk Ave. Philadelphia, PA</i>	BORING - Depth: <i>45 ft.</i>	Diameter: <i>14.25 in.</i>
Drilling Method: <i>Air Rotary &amp; Hollow Stem Auger</i>	CASING - Length: <i>1.23 / 15.47</i>	Diameter: <i>8 in.</i>
Sampling Method: <i>N/A</i>	SCREEN - Length: <i>25.8 ft.</i>	Diameter: <i>8 in.</i>
Static Water Level: <i>27.89 ft. (1/8/01)</i>	WELL - Depth: <i>42.5 ft.</i>	



Geologist: David Leety

Driller: B.L. Myers Bros.



Handex 01 Maryland

# WELL LOG: MW-26

Permit #: N/A

Drill Date: 12/12/00

Use: Monitoring Well

Location: Sunoco Belmont Terminal, PA

Owner Loc #:

Owner: Sunoco, Inc

Handex Loc #: 110535.032.T3045.900

Owner Address: 3144 Passyunk Ave. Philadelphia, PA

BORING - Depth: 31 ft.

Diameter: 10.25 in.

Drilling Method: Hollow Stem Auger

CASING - Length: 9.4 ft.

Diameter: 4 in.

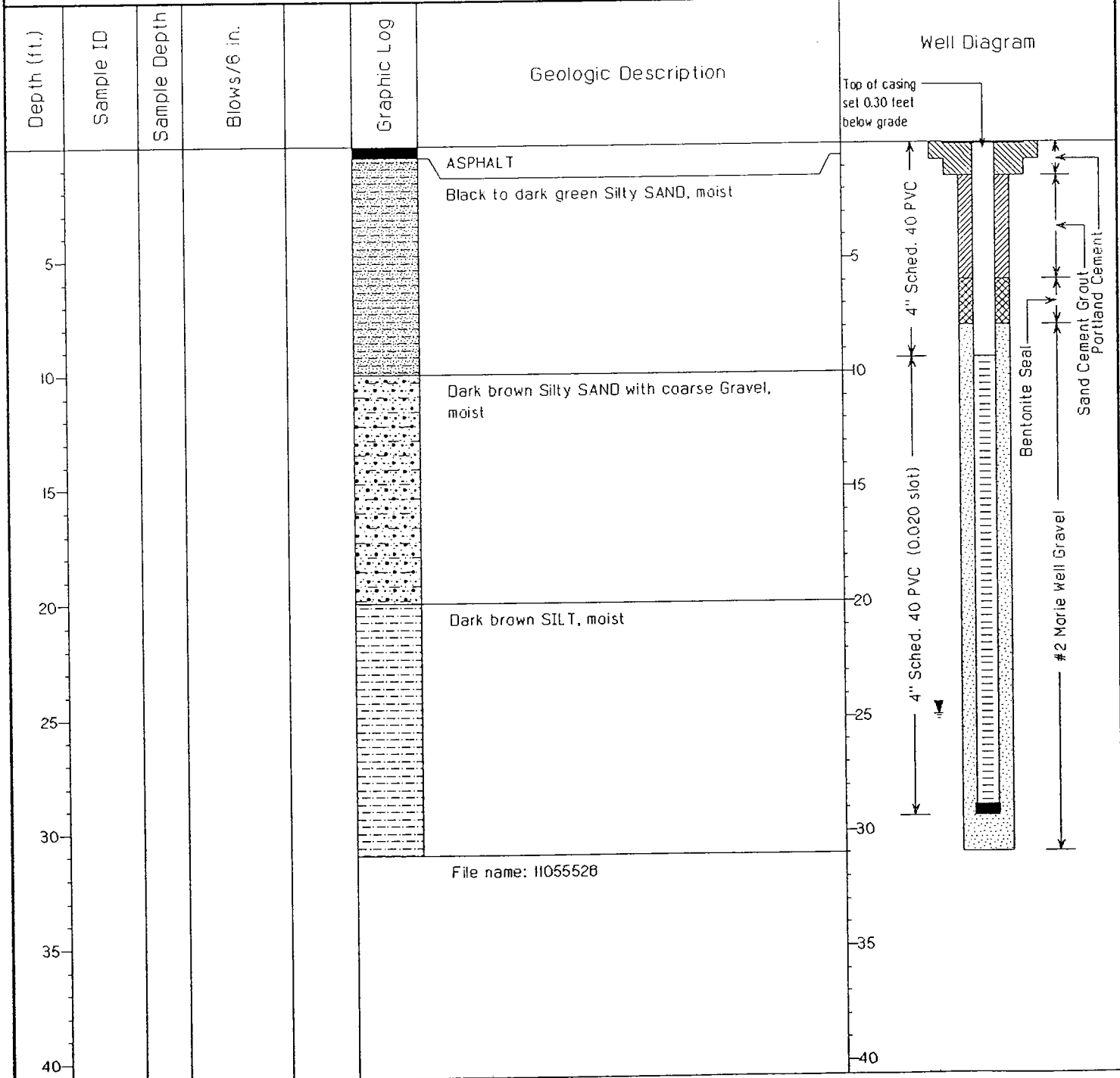
Sampling Method: N/A

SCREEN - Length: 20 ft.

Diameter: 4 in.

Static Water Level: 24.69 ft. (1/8/01)

WELL - Depth: 29.4 ft.



Geologist: David Leety

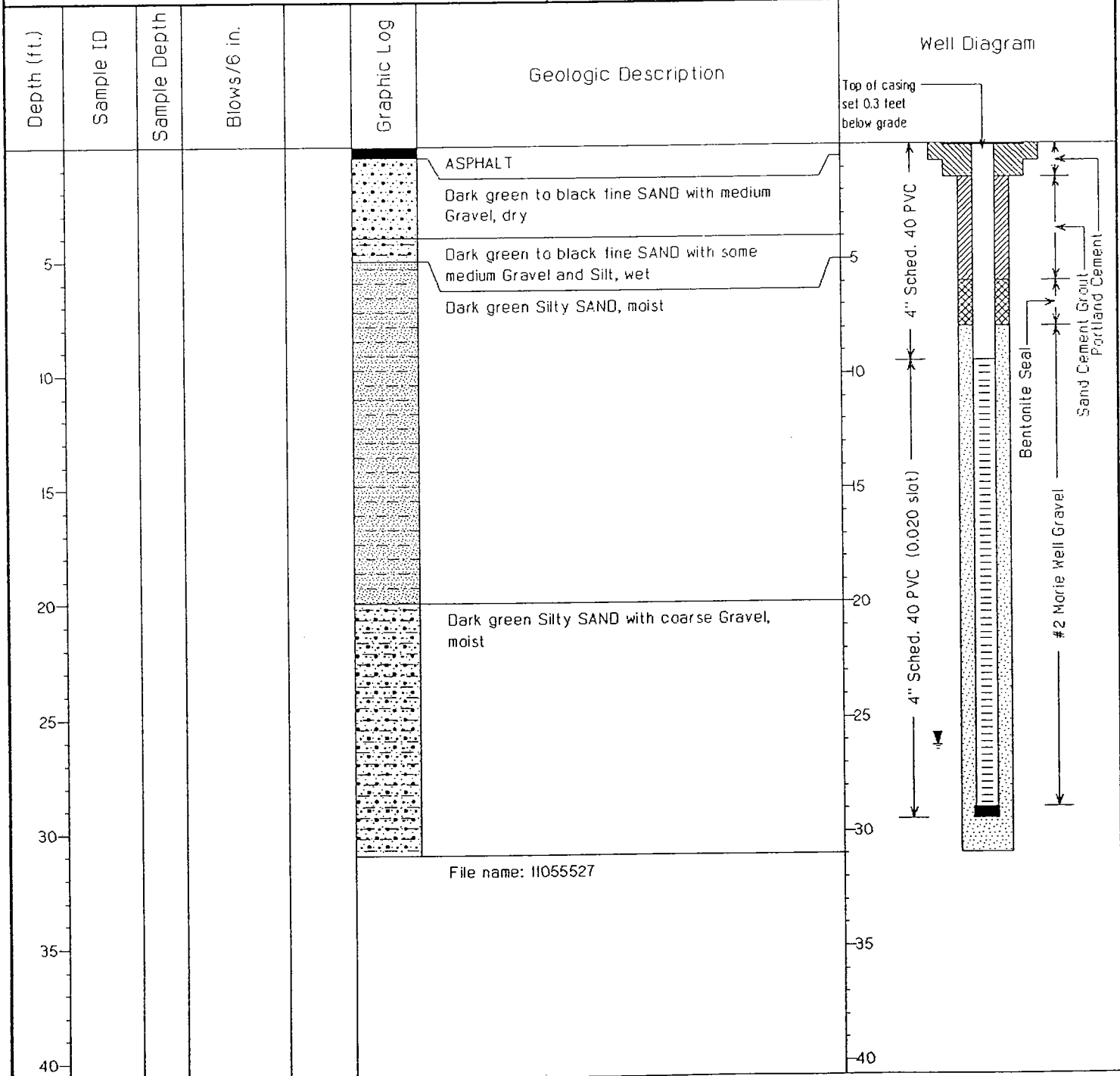
Driller: B.L. Myers Bros.



Handex Of Maryland

# WELL LOG: MW-27

Permit #: N/A	Drill Date: 12/12/00	Use: Monitoring Well
Location: Sunoco Belmont Terminal, PA		Owner Loc #:
Owner: Sunoco, Inc		Handex Loc #: 110535.032.T3045.900
Owner Address: 3144 Passyunk Ave. Philadelphia, PA	BORING - Depth: 31 ft.	Diameter: 10.25 in.
Drilling Method: Hollow Stem Auger	CASING - Length: 9.5 ft.	Diameter: 4 in.
Sampling Method: N/A	SCREEN - Length: 20 ft.	Diameter: 4 in.
Static Water Level: 26.00 ft. (1/8/01)	WELL - Depth: 29.5 ft.	



Geologist: David Leety

Driller: B.L. Myers Bros.



**Handex**<sup>®</sup>

Handex Of Maryland

# WELL LOG: MW-28

Permit #: N/A

Drill Date: 12/13/00

Use: *Monitoring Well*

Location: *Sunoco Belmont Terminal, PA*

Owner Loc #:

Owner: *Sunoco, Inc*

Handex Loc #: *110535.032.T3045.900*

Owner Address: *3144 Passyunk Ave. Philadelphia, PA*

BORING - Depth: *31 ft.*

Diameter: *10.25 in.*

Drilling Method: *Hollow Stem Auger*

CASING - Length: *10 ft.*

Diameter: *4 in.*

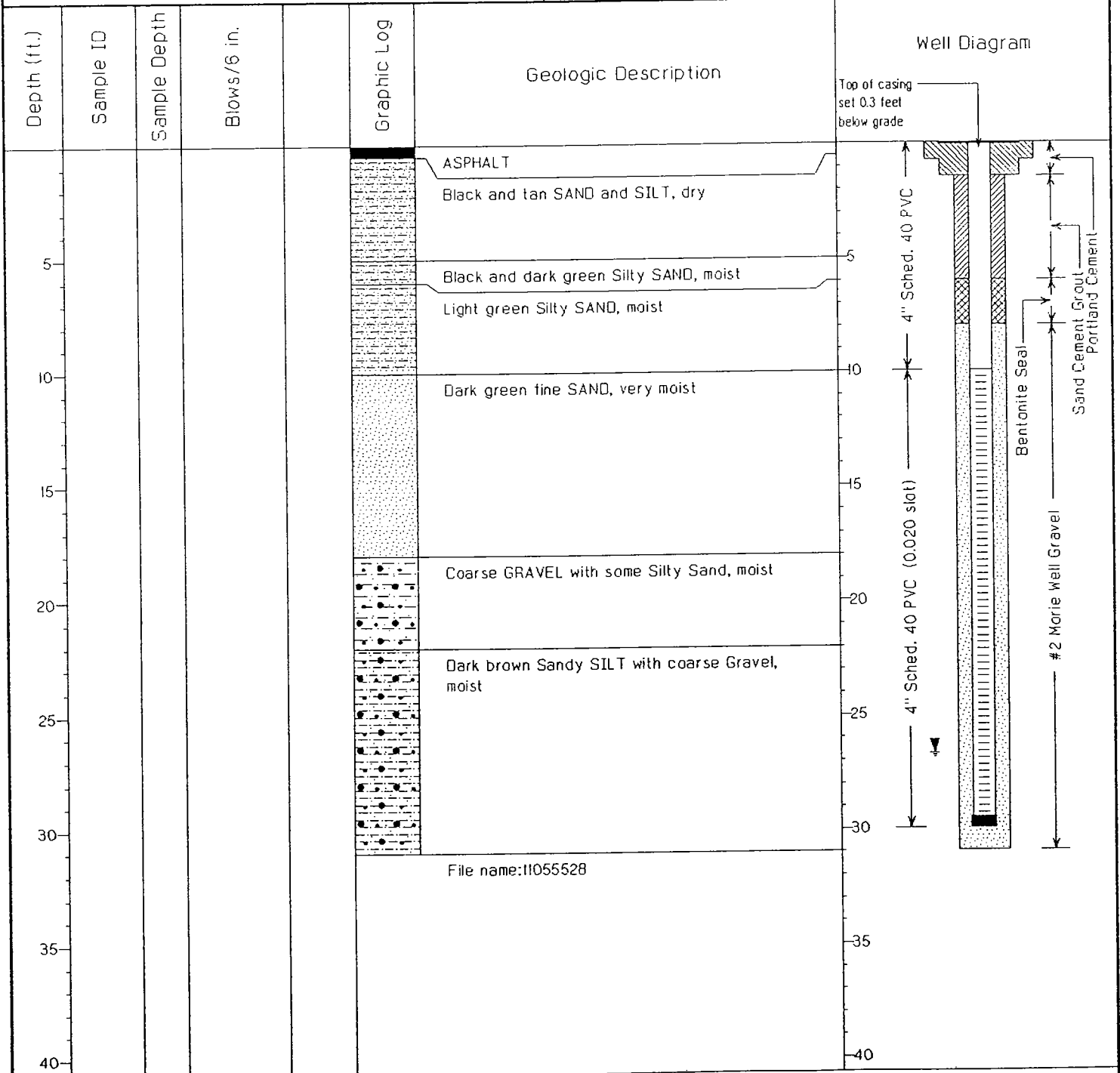
Sampling Method: *N/A*

SCREEN - Length: *20 ft.*

Diameter: *4 in.*

Static Water Level: *26.44 ft. (1/8/01)*

WELL - Depth: *30 ft.*



Geologist: David Leety

Driller: B.L. Myers Bros.



Handex Of Maryland

# WELL LOG: MW-29

Permit #: N/A

Drill Date: 12/11/00

Use: Monitoring Well

Location: Sunoco Belmont Terminal, PA

Owner Loc #:

Owner: Sunoco, Inc

Handex Loc #: 110535.032.T3045.900

Owner Address: 3144 Passyunk Ave. Philadelphia, PA

BORING - Depth: 31 ft.

Diameter: 10.25 in.

Drilling Method: Hollow Stem Auger

CASING - Length: 10 ft.

Diameter: 4 in.

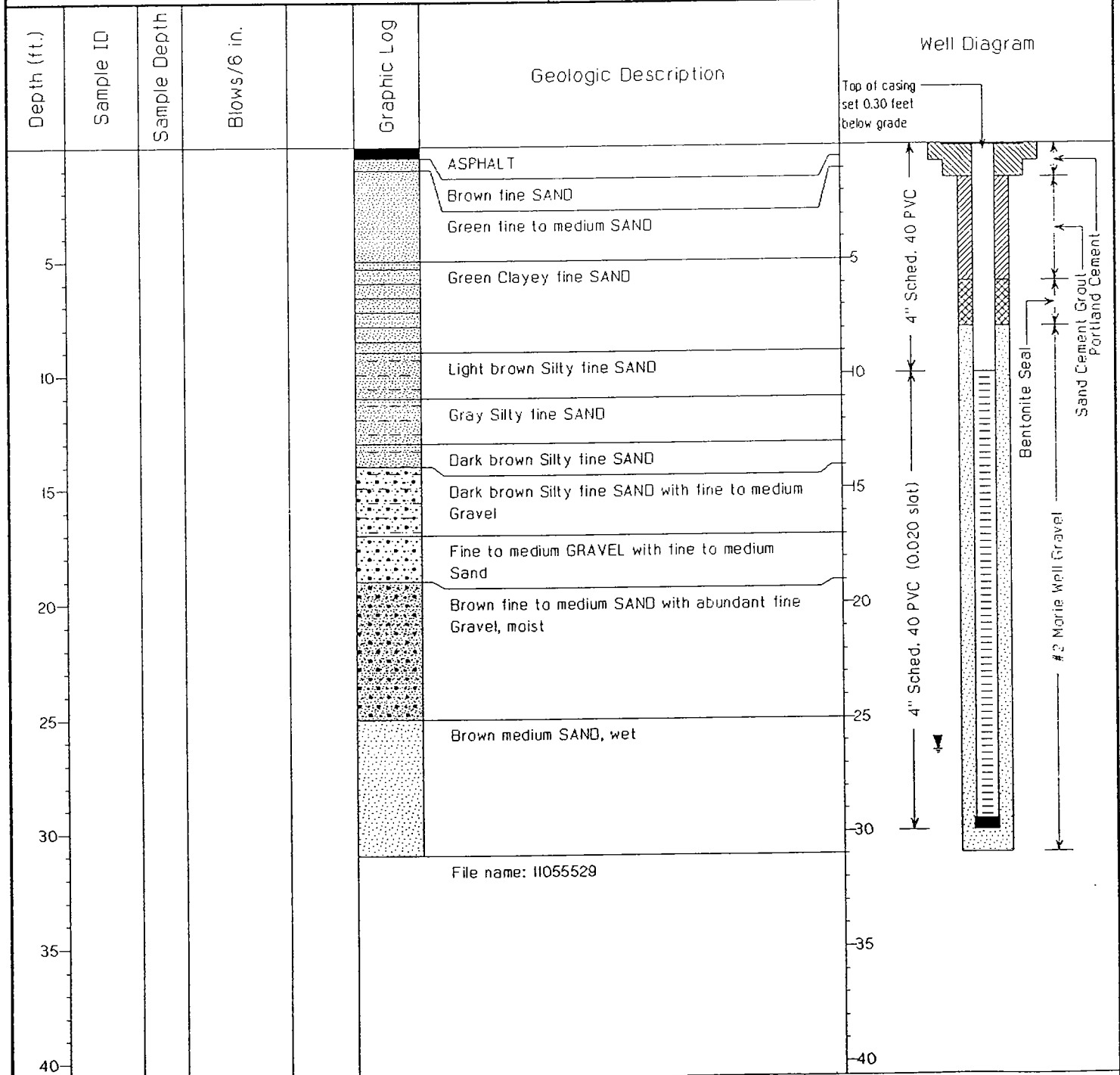
Sampling Method: N/A

SCREEN - Length: 20 ft.

Diameter: 4 in.

Static Water Level: 26.19 ft. (1/8/01)

WELL - Depth: 30 ft.



Geologist: David Leety

Driller: B.L. Myers Bros.