


A Report Prepared for
Port of Seattle
Pier 66
Seattle, Washington 98111

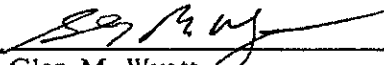
**UNDERGROUND STORAGE TANK INVESTIGATION
IN THE VICINITY OF THE CAR WASH BUILDING
TERMINAL 115
FOR THE PORT OF SEATTLE**

HLA Job No. 14124,011.09

by



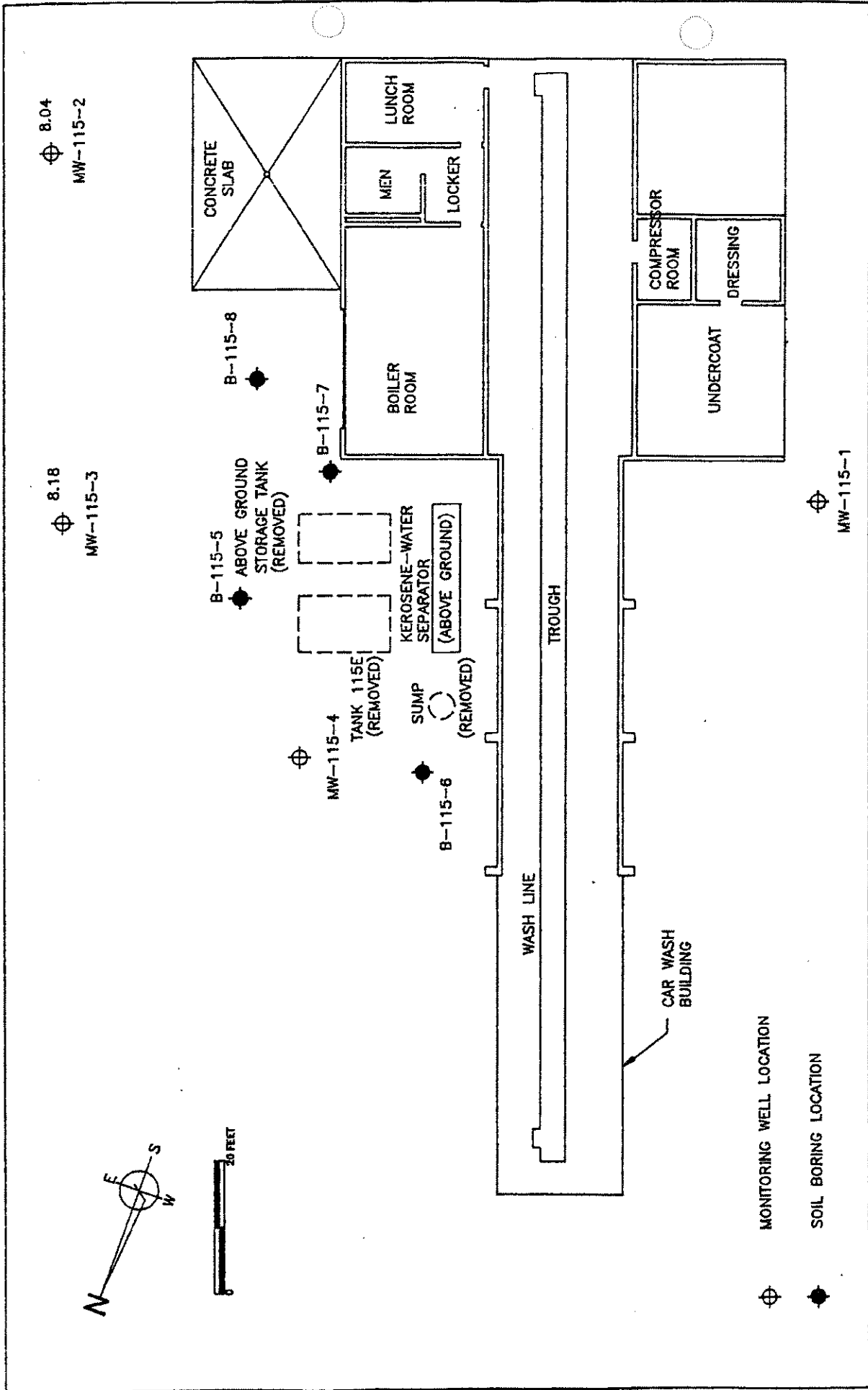
Susan C. Walker
Staff Geologist



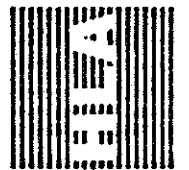
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December 5, 1990



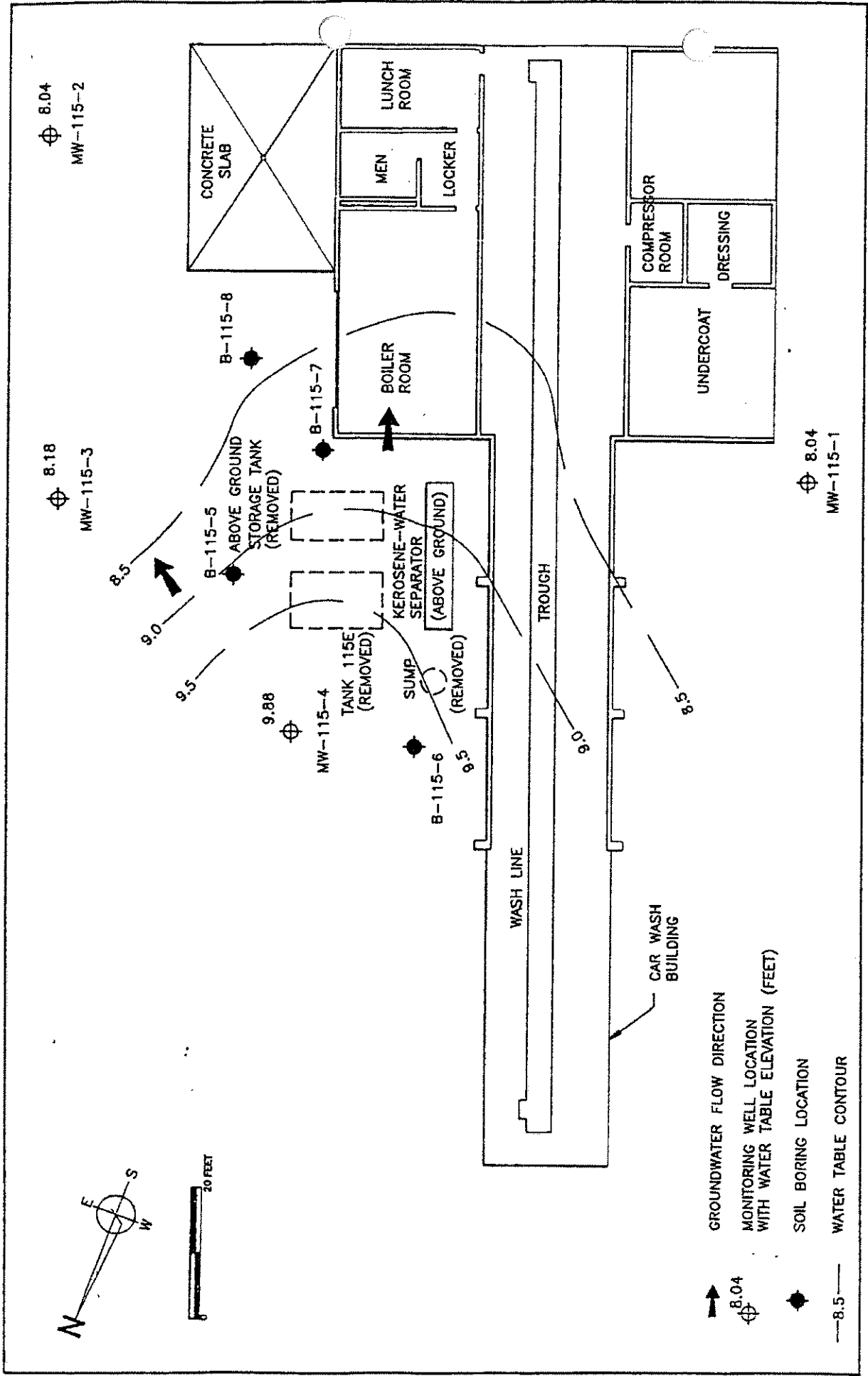
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TERMINAL 115 CAR WASH BUILDING SOIL BORING LOCATION

Figure

1-3



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Figure 2-2

TERMINAL 115 WATER TABLE ELEVATIONS 6-1-90



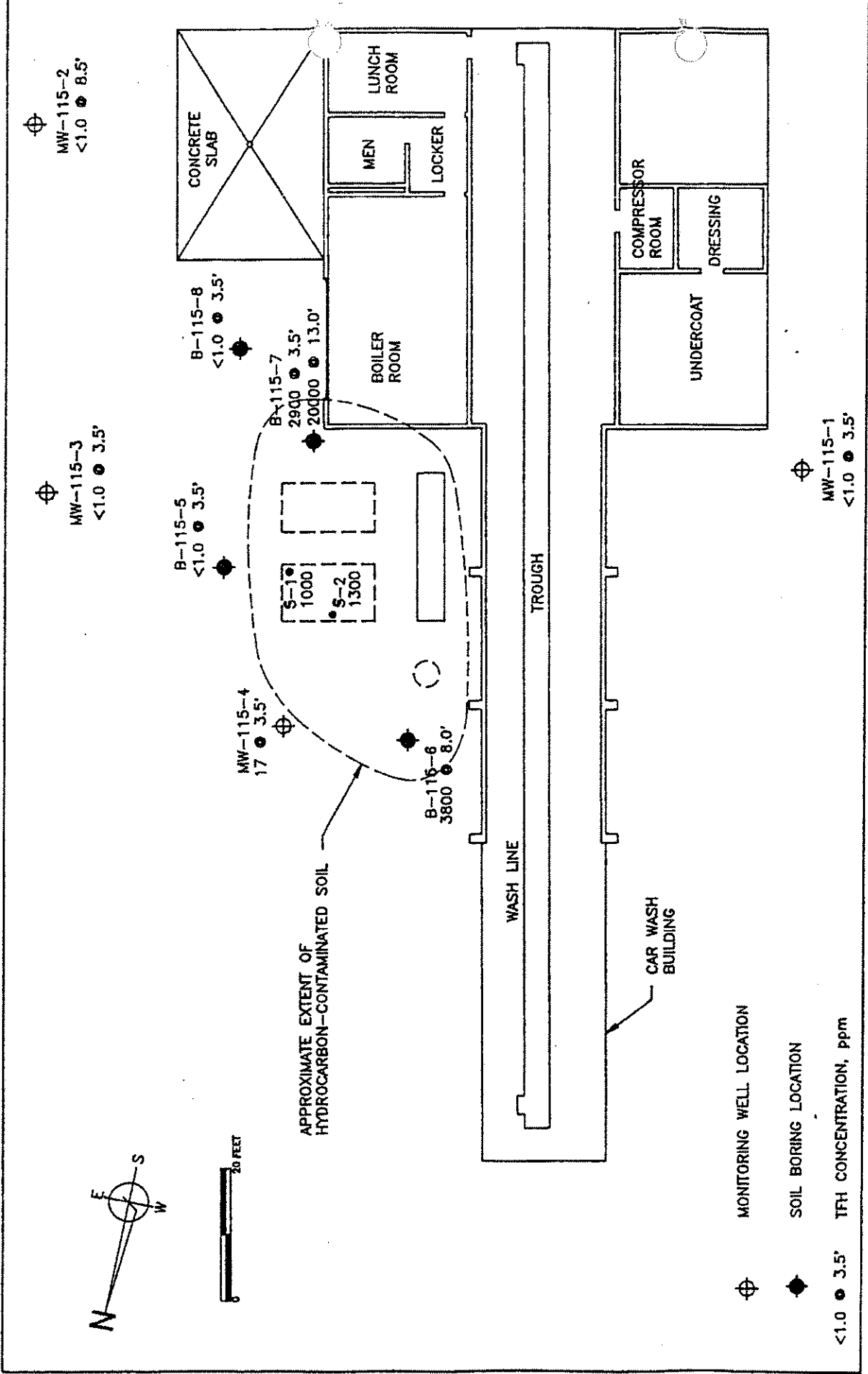


Figure 2-3

APPROXIMATE EXTENT HYDROCARBON-CONTAMINATED SOIL

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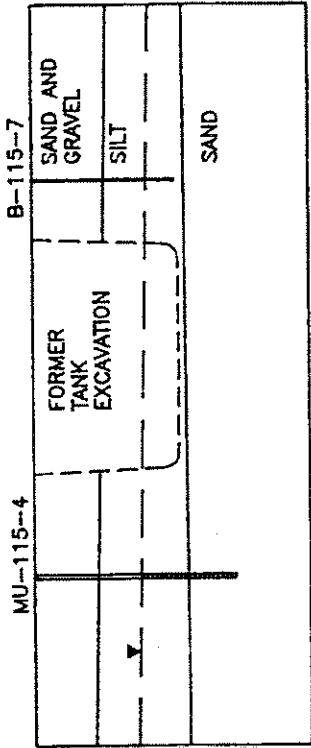
Table 2-5. Soil Sample Analyses.

Sample Number	Sample Depth (feet)	Vapor Reading (ppm)	TFH By 8015 (ppm)	TPH By 418.1 (ppm)	Fuel Type
S-1	13	153	1,000	751	Diesel Fuel #1
S-2	13	180	1,300	3,856	Diesel Fuel #1
MW-115-1-2	3.5	35	<1.0	--	None
MW-115-2-2	8.5	0.2	<1.0	--	None
MW-115-3-1	3.5	2.2	<1.0	--	None
MW-115-4-1	3.5	12.2	17	--	Lubricating Oil
B-115-5-1	3.5	39	<1.0	--	None
B-115-6-2	8.0	180	3,800	2,126	Diesel Fuel #1
B-115-6-2	8.5	--	<1.0	--	None
B-115-7-1	3.5	74	2,900	--	Diesel Fuel #1
B-115-7-3	13.0	231	20,000	31,360	Diesel Fuel #1
B-115-7-3	13.5	--	12	--	Diesel Fuel #1
B-115-8-1	3.5	3.9	<1.0	--	None

Fuel type was characterized during TFH analyses. Number 1 diesel fuel (equivalent to kerosene) was generally identified as the type of fuel hydrocarbon present in the soil samples. Light hydrocarbons (BTEX) characteristic of gasoline were not identified in the gas chromatograms from the TFH analyses.

Samples B-115-6-2 and B-117-7-3, from 7.5 to 8.0 and 12.5 to 13.0 feet, respectively, were analyzed following the receipt of sample analyses from deeper samples. The additional samples were of soils retained in plastic bags from above the samples retained in brass tubes originally submitted for laboratory analysis. The bagged samples were stained with free product and had strong hydrocarbon odors. These analyses were requested because of the undetected or low product concentrations in the underlying samples. The bagged samples had 3,800 and 20,000 ppm TFH, respectively. The reason for the variation in TFH concentrations within each borehole is unknown.

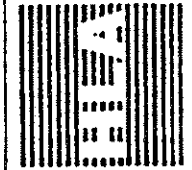
Water samples from the monitoring wells were analyzed for TFH concentration by Enviro in their Bellevue laboratory. TFH was not detected in the samples (<1 ppm). The sample from MW-115-4 was also analyzed for BETX; the respective concentrations were below detection limit (0.050 ppm).



▽ WATER TABLE ELEVATION

1" = 20'

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CROSS SECTION THROUGH TANK EXCAVATION

Figure

3-1

9A48B/C1

Top of Casing 21.24 ft

Equipment: Mobile B-61 HSA

Elevation 21.46 ft Date 1/22/90

(See Plate ___ for Wellhead Construction) Bentonite Seal

8" dia. Borehole

2" dia. Blank PVC Casing

Filter Sand (No. 2/16)

2" dia. Slotted PVC Casing (0.020" Slots)

Bottom Cap

Blows/ft
Core Rec.
HC Odor
OUM

Depth ft
Sample

34	15	No	35.0
4	15	Yes	27.0
7	16	No	1.1
7	14		52.0

DARK BROWN SAND (SP)
dry, loose, no odor, fine to medium sand and fine gravel, trace coarse gravel (fill)
grades with product odor at 1.5 feet

BLACK SILT (ML)
dense, HC odor, product saturated

grades gray with minor roots, no product odor
water level measured on 1/22/90

DARK GRAY SAND (SP)
loose, wet, fine to medium sand, with trace silt, no product odor

Boring terminated at 22.5 feet.
Ground water encountered at 14.5 feet during drilling.
Well completed on 1/22/90.

MW-115-1 Coordinates
N 1791.7
E 30388.0



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Log of Boring MW-115-1 (sheet 1 of 1) PLATE
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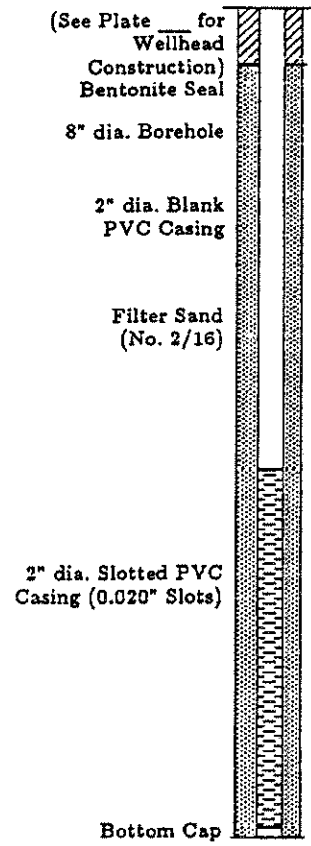
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Top of Casing 20.32 ft

Equipment Mobile B-61 HSA
 Elevation 20.68 ft Date 1/22/90



Blows/ft	Core Rec.	HC Odor	QUM	0 Depth ft Sample
44	16	No	0.2	0
15	18	Lo	0.2	5
7	16	No	0.0	10
18	16	No	0.0	15

ASPHALT
 DARK BROWN SAND (SP)
 dry, loose, fine to medium sand and fine gravel,
 trace of coarse gravel

dark gray

BLACK SILT (ML)
 moderately stiff, slight HC odor

grades gray with minor roots and lens of fine to medium sand
 water level measured on 1/22/90

DARK GRAY SAND (SP)
 loose, wet, fine to medium sand, with trace silt, no product odor

Boring terminated at 22.5 feet.
 Ground water encountered at 13.5 feet during drilling.
 Well completed on 1/22/90.

MW-115-2 Coordinates
 N 1778.2
 E 30512.8



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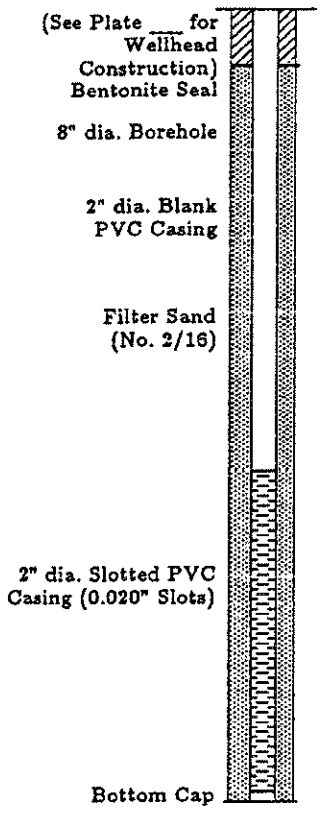
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88488/C

Top of Casing 20.37 ft

Equipment Mobile B-61 HSA

Elevation 21.06 ft Date 1/23/90



Blows/ft	Core Rec.	HC Odor	QUM	Depth ft	Sample
45	17	No	2.2	0	
16	18	No	0.1	5	
8	18	No	0.9	10	
16	18	No	0.3	15	

4-6" ASPHALT

DARK BROWN SAND (SP)
dry, loose, fine to medium sand and fine gravel, trace coarse gravel, no odor (fill)

BLACK SILT (ML)
dry, moderately stiff, no odor
moist, with trace of clay
very slight sheen

gray, dry, stiff, with minor roots, no product odor
water level measured on 1/23/90

DARK GRAY SAND (SP)
loose, wet, fine to medium sand, with trace of silt, no product odor

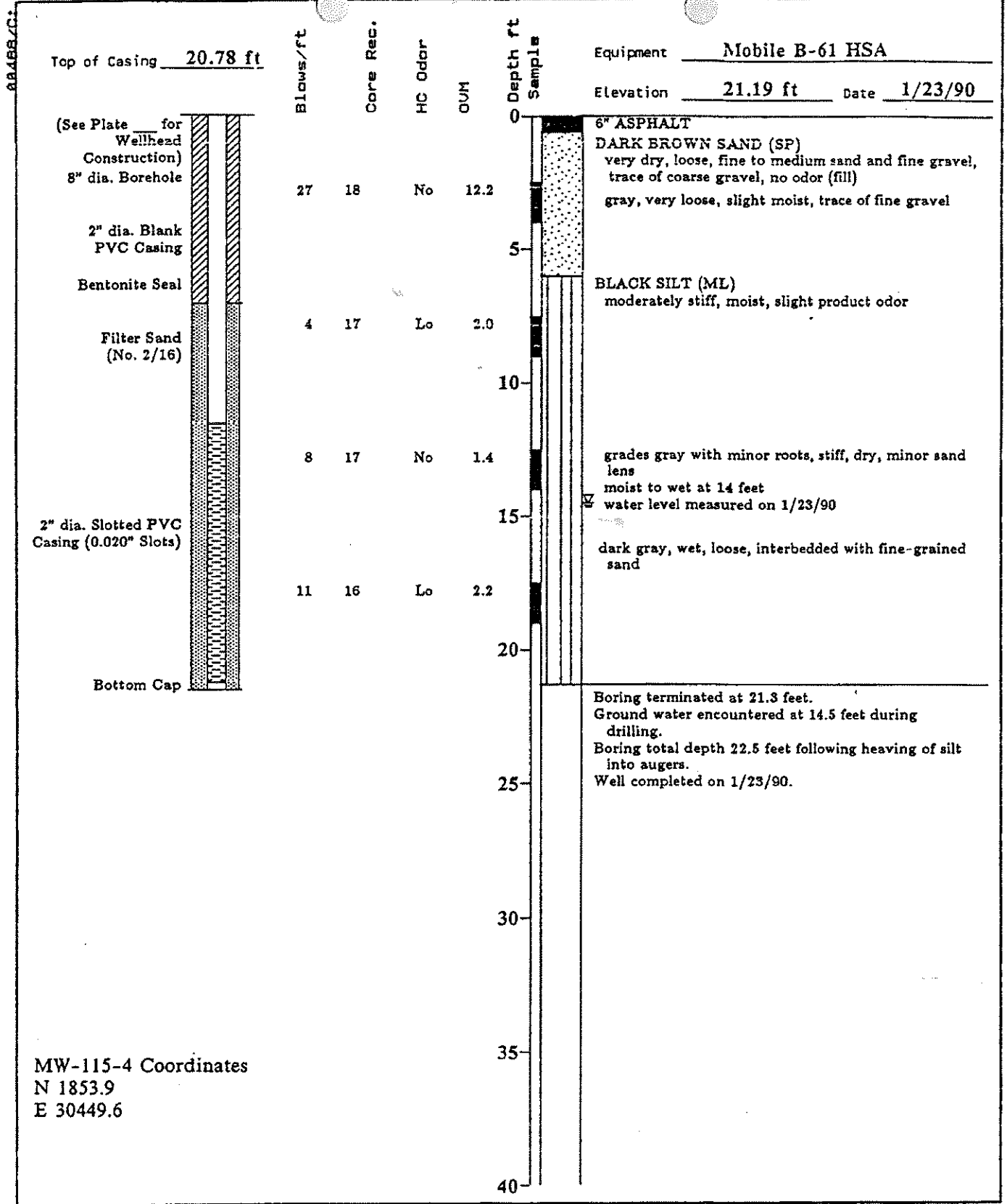
Boring terminated at 22.0 feet.
Ground water encountered at 15.0 feet during drilling.
Well completed on 1/23/90.

MW-115-3 Coordinates
N 1831.2
E 30493.4



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MW-115-4 Coordinates
 N 1853.9
 E 30449.6



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00488/C

Blows/ft	Core Rec.	HC Odor	QUM
43	13	No	39.0
8	18	No	2.0
8	17	No	1.4

Depth ft
Sample

Equipment Mobile B-61 HSA
 Elevation NA Date 1/24/90

0
5
10
15
20
25
30
35
40

ASPHALT
 DARK BROWN SAND (SP)
 dry, loose, fine to medium sand and fine gravel,
 trace of coarse gravel, no odor (fill)

BLACK SILT (ML)
 moist, moderately stiff, no product odor
 wet, no noticeable odor

gray, stiff, dry, with minor fine-grained sand, with
 minor roots, no product odor
 water level measured on 1/24/90

Boring terminated at 15.0 feet.
 Ground water level 13.75 feet below grade after
 drilling.
 Boring backfilled with bentonite and with ready mix
 on 1/24/90.



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BM488/C:

Blows/ft
Core Rec.
HC Odor
OUM

Depth ft
Sample

Equipment Mobile B-61 HSA
Elevation NA Date 1/24/90

25	13	No	2.2
6	18	No	180.0
8	17	Yes	11.0 48.0

0
5
10
15
20
25
30
35
40

ASPHALT
DARK BROWN SAND (SF)
dry, loose, fine to medium sand and fine gravel,
trace of coarse gravel

grades moist to wet

BLACK SILT (ML)
moderately stiff, wet, with trace fine sand, no
product odor

grades gray, stiff, wet

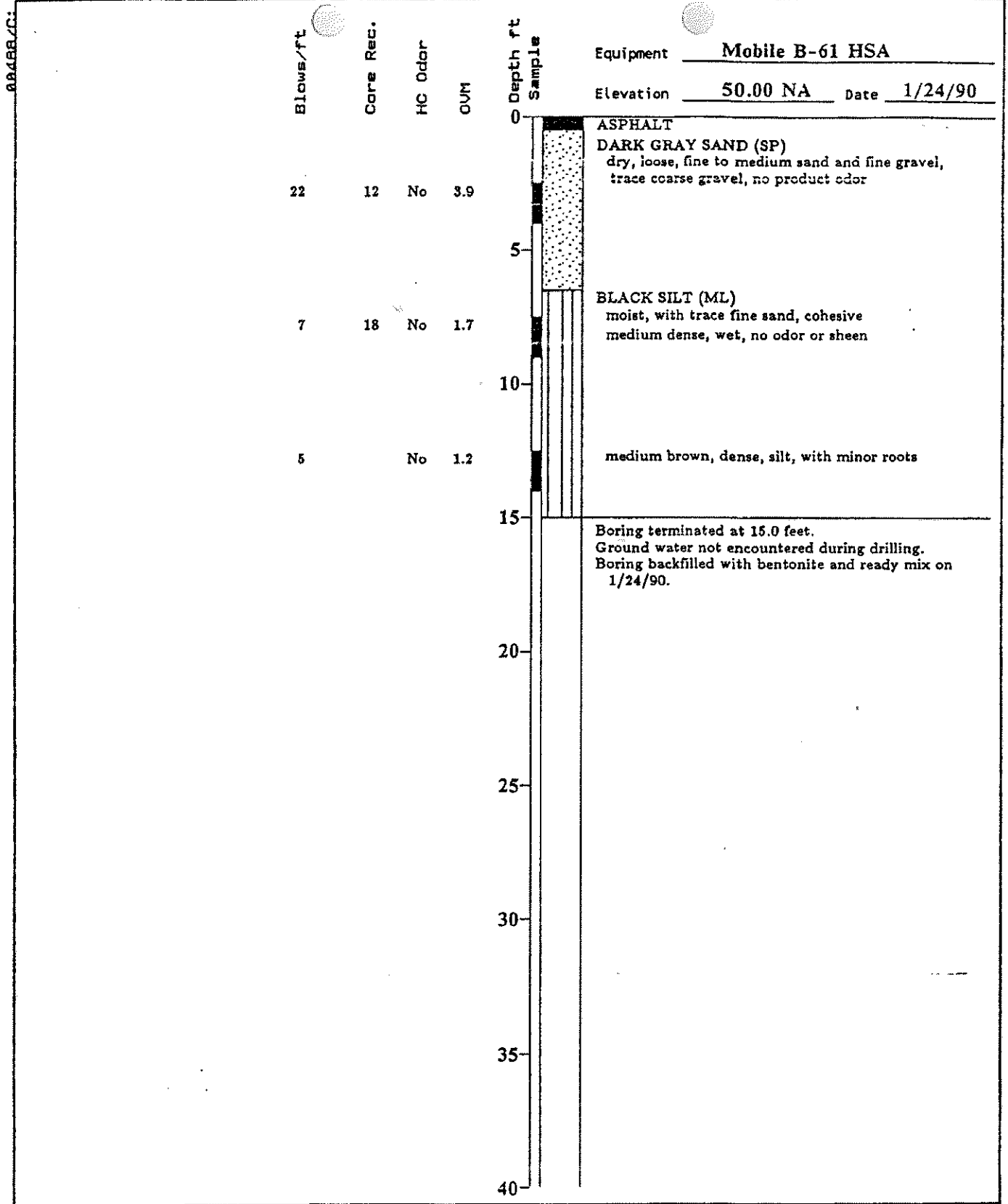
grades loose, wet, with product

Boring terminated at 15.0 feet.
Ground water level 13.8 feet below grade after
drilling.
Boring backfilled with bentonite and ready mix on
1/24/90.



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