



December 5, 2012

Mrs. Jenny Herman
Maryland Department of the Environment
Oil Control Program
1800 Washington Boulevard
Baltimore, Maryland 21230-1719

Re: **Additional Monitoring Well Installation – Report of Results
Gasoline Fueling Station – Royal Farms #64
7950 Pulaski Highway, Baltimore, Maryland 21237
MDE Case No. 10-0339-BA
MDE Facility No. 3975**

Dear Mrs. Herman,

In response to MDE's *Request for Work Plan* dated July 10, 2012, Advantage Environmental Consultants, LLC (AEC) has completed the installation, development, and sampling of soil and groundwater for two monitoring wells at the above referenced site. A brief overview of the work performed is as follows:

Well Installation

On October 24, 2012, two additional monitoring wells were installed on the 1207 Chesaco Ave. property located northwest of the site. The locations of the wells (identified as MW-23 and MW-24) and the recent groundwater gradient are depicted on Figure 1 in Attachment A. Installation was performed by Connelly and Associates of Frederick, Maryland. All drill cuttings were containerized and properly disposed. A waste manifest for the disposed of soil is included as attachment B. Boring logs taken during installation are included as Attachment C. Well construction diagrams are included as Attachment D.

Well Development and Sampling

Soil samples were collected on the day of installation. Soil cores were field screened for volatile organic compounds (VOCs) using a photoionization detector (PID). The criterion for selecting the soil samples was based on elevated PID readings. One sample was taken from MW-23 and two from MW-24. Both samples were collected above the water table.

Both wells were developed by Connelly and Associates on November 7. On November 29, groundwater in MW-23 and MW-24 was sampled in accordance with the sampling procedures outlined in AEC's *Additional Monitoring Well Installation Work Plan* dated July 30 2012.

Groundwater samples and one soil sample from each well (MW-23 4-5' and MW-24 6-8') were analyzed for Total Petroleum Hydrocarbons (TPH) Diesel Range Organics (DRO) and Gasoline Range Organics (GRO) using Environmental Protection Agency (EPA) Analytical Method 8015B, and

VOCs, including fuel oxygenates, via EPA Analytical Method 8260. The second soil sample from MW-24 (MW-24 2-4') was analyzed for Total Organic Carbon.

Results

Results from soil samples reported that all compounds were below laboratory detection limits (BDL) for TPH DRO, TPH GRO, and VOCs. Soil sample MW-24 2-4' indicated that total organic carbon was also BDL.

Analytical results for groundwater samples reported concentrations of VOCs and TPH DRO above regulatory standards in MW-23 and MW-24, and concentrations of TPH GRO above regulatory standards in MW-24. The regulatory standards pertain to drinking water. It should be noted that no potable drinking water wells are present in the area. The laboratory analytical reports are presented in Attachment E.

If there are any questions regarding this letter, please contact AEC at (301) 776-0500.

Sincerely, **Advantage Environmental Consultants, LLC**



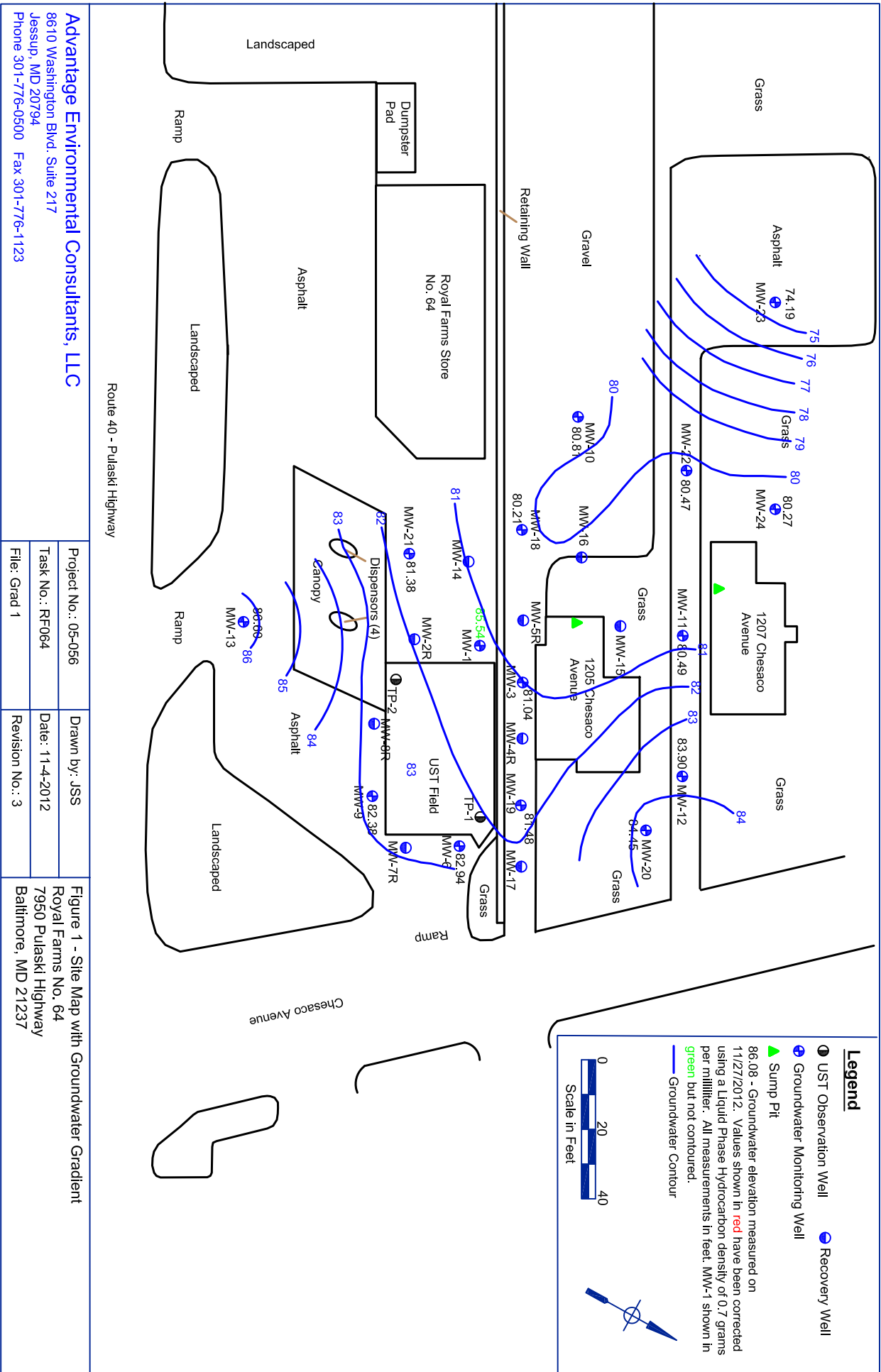
Jeffery Stein
Principal



James Wolf
Project Manager

cc: T. Ruszin

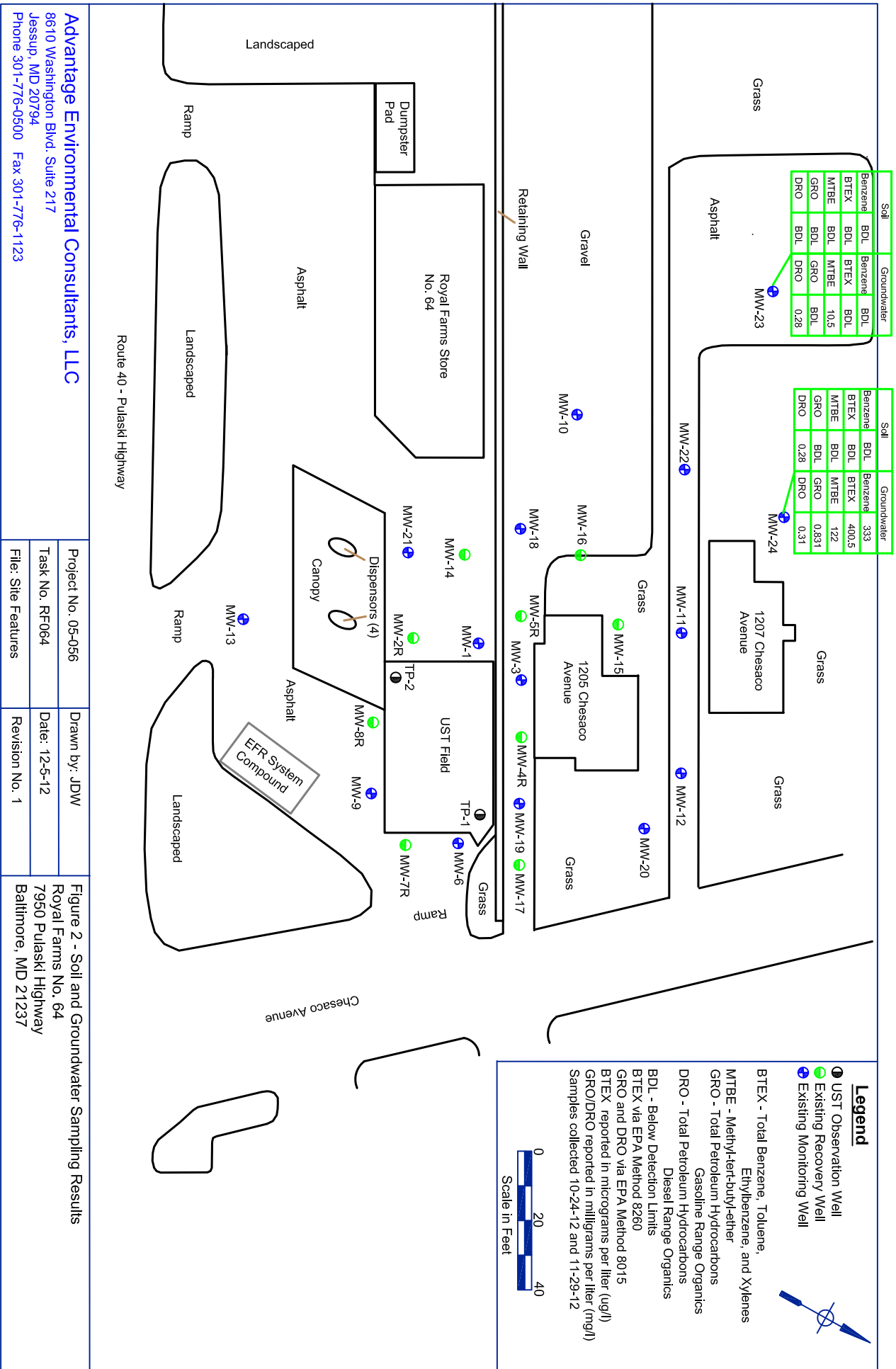
Attachment A



Advantage Environmental Consultants, LLC
 8610 Washington Blvd. Suite 217
 Jessup, MD 20794
 Phone 301-776-0500 Fax 301-776-1123

Project No.: 05-056	Drawn by: JSS
Task No.: RF064	Date: 11-4-2012
File: Grad 1	Revision No.: 3

Figure 1 - Site Map with Groundwater Gradient
 Royal Farms No. 64
 7950 Pulaski Highway
 Baltimore, MD 21237

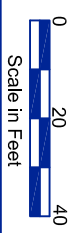


Soil		Groundwater	
Benzene	BDL	Benzene	BDL
BTEX	BDL	BTEX	BDL
MTBE	BDL	MTBE	10.5
GRO	BDL	GRO	BDL
DRO	BDL	DRO	0.28

Soil		Groundwater	
Benzene	BDL	Benzene	333
BTEX	BDL	BTEX	400.5
MTBE	BDL	MTBE	122
GRO	BDL	GRO	0.831
DRO	0.28	DRO	0.31

- Legend**
- UST Observation Well
 - Existing Recovery Well
 - Existing Monitoring Well

BTEX - Total Benzene, Toluene, Ethylbenzene, and Xylenes
 MTBE - Methyl-tert-butyl-ether
 GRO - Total Petroleum Hydrocarbons Gasoline Range Organics
 DRO - Total Petroleum Hydrocarbons Diesel Range Organics
 BDL - Below Detection Limits
 BTEX via EPA Method 8260
 GRO and DRO via EPA Method 8015
 BTEX reported in micrograms per liter (ug/l)
 GRO/DRO reported in milligrams per liter (mg/l)
 Samples collected 10-24-12 and 11-29-12



Advantage Environmental Consultants, LLC
 8610 Washington Blvd. Suite 217
 Jessup, MD 20794
 Phone 301-776-0500 Fax 301-776-1123

Project No. 05-056	Drawn by: JDW	Figure 2 - Soil and Groundwater Sampling Results Royal Farms No. 64 7950 Pulaski Highway Baltimore, MD 21237
Task No. RF064	Date: 12-5-12	
File: Site Features	Revision No. 1	

Attachment B

Petroleum Management, Inc.

MD. Oil Operations Permit No: 2009-OPT-31821
 EPA Identification No: MDR-000522794
 Federal ID No: 52-2014536

5218 Curtis Avenue ♦ Baltimore, Maryland 21226 ♦ Phone 410-354-0200 ♦ Fax 410-354-0201

Bill of Lading/Manifest

No 7414

Generator/Shipper: Royal Farms		Billing Name: Advantage Environmental	
Site Address: 7956 Pulaski Hwy		Address:	
City: Rosedale	State: MD Zip:	City:	State: Zip:
Phone: ()	Contact:	Phone: ()	Contact:

Purchase Order NO:

MATERIAL CHARACTERIZATION (CHECK ALL THAT APPLY):

Description:	Gallons	Description:	Gallons	Description:	Gallons
Gasoline, 3, UN1203, PGII		Hazardous Waste, Liquid, 9 NA3082, PGIII		JP#4	
#2 Fuel Oil, 3, NA1993, PGIII		Hazardous Waste, Solid, 9 NA3077, PGIII		JP#5	
#4 Fuel Oil, 3, NA1993, PGIII		Paint Thinners, 3, UN1263, PGI		Jet A	
#6 Fuel Oil, 3, NA1993, PGIII		Ethylene Glycol, 9, UN3082, PGIII		Sludge	
Diesel, 3, NA1993, PGIII		Lube Oil		Petroleum Contaminated Water	
Flammable Liquids, NOS, 3, UN1993, PGI		Waste Oil		Other:	
Corrosive Liquids, NOS, 8, UN1760, PGI		Kerosene		Other:	
No. of Drums		No. of Tanks:		Other:	
Scale Weights (Soil): Total: (Tons)		Tare: (Tons)		Net: (Tons)	

Service Description:
Oil Drums

PLACARDS TENDERED: YES NO EMERGENCY CONTACT (410) 760-3703

Generator/Shipper Certification Statement

As the generator or shipper, I hereby certify that this material is properly classified and does not contain Polychlorinated Biphenyls (PCB'S). To the best of my knowledge it has not been mixed, combined or blended in any amount with any other material defined as hazardous waste under applicable law. Generator/Shipper agrees to indemnify and hold Petroleum Management, Inc. harmless for any damages arising from or in any way relating to a breach of this Certification Statement.

Generator/Shipper Authorized Agent (Print) **James Wolf** Date of Service **10/31/12**

Generator/Shipper Authorized Agent Signature **[Signature]**

HAULER/CARRIER INFORMATION

Co. Name Petroleum Management, Inc.		Driver Name (print) James Wolf	
Street 5218 Curtis Avenue		Driver Signature [Signature]	
City Baltimore	State MD	Zip 21226	Phone

The above mentioned materials have been received by this facility and will be handled in accordance with all applicable rules and regulations. All quantities are subject to final verification by this facility and are indicated in far right box.

RECEIVING FACILITY ACCEPTANCE	
Facility Name	
Acceptance Signature	
Phone	Total Quantity Received

White - Original Yellow - Transporter Pink - Facility Gold - Customer

Attachment C

Page 1 of Page 1		Boring / Well Completion Report	
Boring / Well ID: MW-23		Permit Number:	Permit Date:
Date Work Began: 10-24-12		Date Work Ended: 10-24-12	AEC Project No.: 05-056 RF-64
Address: 7950 Pulaski Highway		City / State: Rosedale, MD	

Geologic Log					
Drilling Method: HSA			Drilling Fluid: N/A		
Boring Diameter (inches): 4.25			Drilling Contractor: Connelly		
Depth from Surface		Description			
Feet	Feet	Soil Classification	PID	Odor Comments	Sample Interval
0	0.5	Asphalt			
0.5	4	Orange gray silty CLAY, med. stiffness	3.8		
4	7	Orange gray fine SAND, loose, moist	5.2		4-5
7	8.5	Gray fine SAND with clay, stiff, moist	6.1		
8.5	9	Red SAND, loose, moist	2.3		
9	12.5	Red SAND/CLAY, stiff, dry	3.5		
12.5	13	Red SAND with gravel	3.4		
13	14	Red sandy CLAY, med. stiff, dry	0.0		
14	14.5	Tan orange SILT, loose	0.0		
14.5	19	Red white mottled SILT, moist med. stiff	0.0		
19	21	Purple white mottled SILT, stiff	0.0		
21	23	Red white mottled SILT, loose, moist	0.0		
23	25	White red mottled SILT, stiff, dry	0.0		
		Boring terminated @ 25'			

Water Level of Completed Well	
First water (ft. bgs): Dry	Date Measured: 10-24-12
Static Water (ft. bgs): 11.64	Date Measured: 11-27-12

Well Construction Details	
Well Diameter (inches)	2
Depth to Top of Bentonite Seal (ft. bgs)	0.75
Depth to Bottom of Bentonite Seal (ft. bgs)	1.5
Depth to Top of Sand Pack (ft. bgs)	1.5
Depth to Bottom of Sand Pack (ft. bgs)	25.00
Depth to Top of Solid Casing (ft. bgs)	0.2
Depth to Bottom of Solid Casing (ft. bgs)	2.5
Depth to Top of Screen (ft. bgs)	2.5
Depth to Bottom of Screen (ft. bgs)	25.00
Solid Casing and Screen Material	Schedule 40 PVC
Screen Slot Size	10

Boring Location Sketch

↑

See Figures

GW - Well-graded gravels and gravel-sand mixtures, little or no fines. GP - Poorly graded gravels and gravel-sand mixtures, little or no fines.
 GM - Silty gravels, gravel-sand-silt mixtures. GC - Clayey gravels, gravel-sand-clay mixtures. SW - Well-graded sands and gravelly sands, little or no fines
 SP - Poorly graded sands and gravelly sands, little or no fines. SM - Silty sands, sand-silt mixtures. SC - Clayey sands, sand-clay mixtures.
 ML - Inorganic silts, very fine sands, rock flour, silty or clayey fine sands. CL - Inorganic clays of low to medium plasticity, gravelly/sandy/silty/lean clays.
 OL - Organic silts and organic silty clays of low plasticity. MH - Inorganic silts micaceous or diatomaceous fine sands or silts, elastic silts.
 CH - Inorganic clays or high plasticity, fat clays. OH - Organic clays of medium to high plasticity. PT - Peat, muck, and other highly organic soils

Page 1 of Page 1		Boring / Well Completion Report	
Boring / Well ID: MW-24		Permit Number:	Permit Date:
Date Work Began: 10-24-12		Date Work Ended: 10-24-12	AEC Project No.: 05-056 RF-64
Address: 7950 Pulaski Highway		City / State: Rosedale, MD	

Geologic Log					
Drilling Method: HSA			Drilling Fluid: N/A		
Boring Diameter (inches): 4.25			Drilling Contractor: Connelly		
Depth from Surface		Description			
Feet	Feet	Soil Classification	PID	Odor Comments	Sample Interval
0	0.5	Top soil	0.0		
0.5	2	Tan silty SAND w/organics	0.0		
2	3	Tan fine sandy SILT, dry	0.0		2-4
3	4.5	Tan gray mottled fine sandy SILT, stiff	0.2		
4.5	6	Red tan mottled clay SILT with gravel, dry, stiff	0.4		
6	8.5	Red gray mottled SILT, moist	6.6		6-8
8.5	10.5	Red SAND, wet	5		
10.5	12.5	Red silty SAND, loose, wet	5.3		
12.5	13	Red clayey SILT, med. stiff, dry	0.0		
13	15.5	Red clayey SILT w/course sand, moist	0.0		
15.5	16	Red silty course SAND, loose, wet	0.0		
16	18	Red silty gravel SAND, loose, wet	0.0		
18	20	Purple gray mottled SILT, stiff, wet	0.0		
		Boring terminated @ 20'			

Water Level of Completed Well	
First water (ft. bgs): 8.00	Date Measured: 10-24-12
Static Water (ft. bgs): 8.39	Date Measured: 11-27-12

Boring Location Sketch

↑

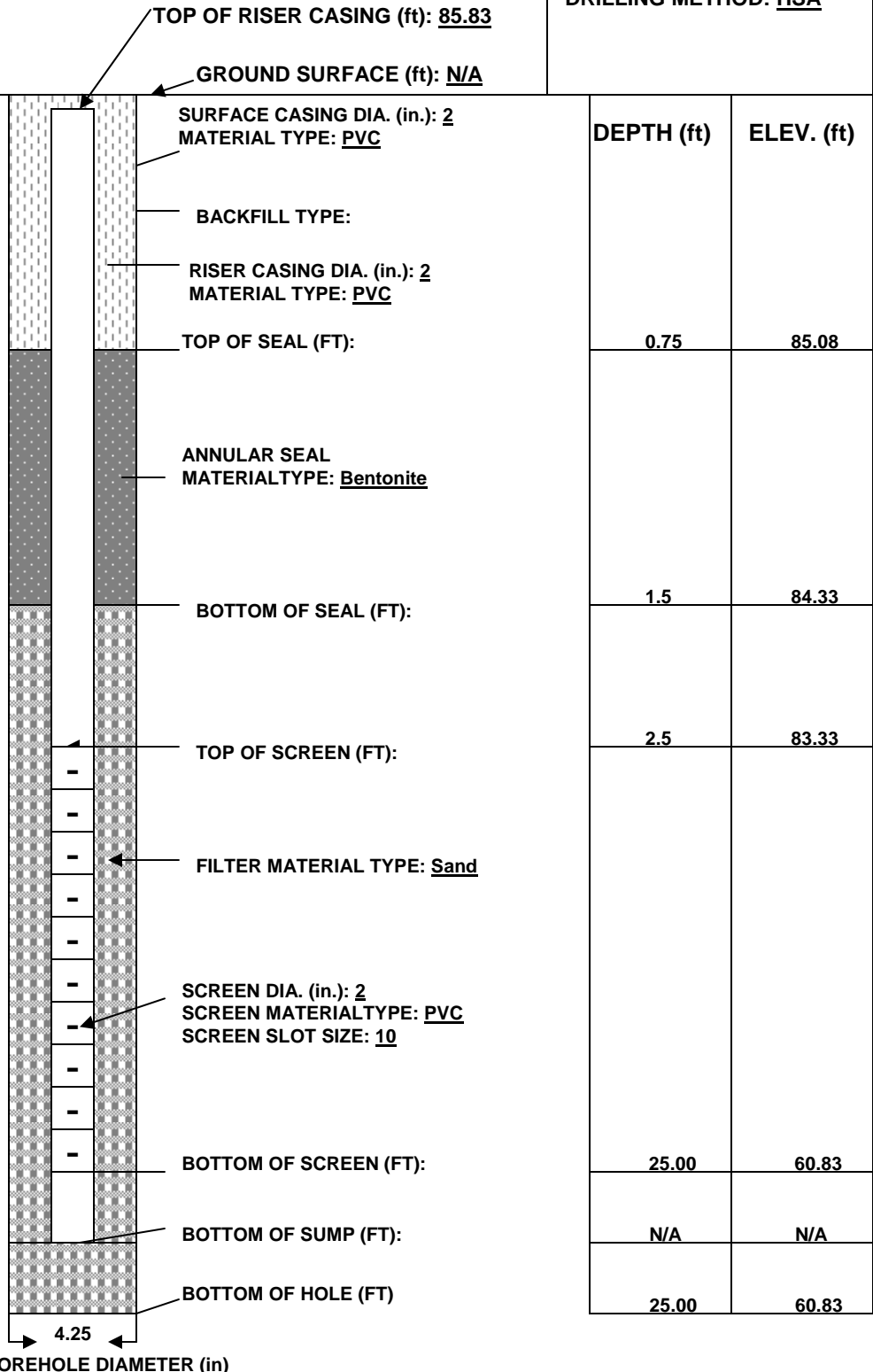
See Figures

Well Construction Details	
Well Diameter (inches)	2
Depth to Top of Bentonite Seal (ft. bgs)	0.75
Depth to Bottom of Bentonite Seal (ft. bgs)	1.5
Depth to Top of Sand Pack (ft. bgs)	1.5
Depth to Bottom of Sand Pack (ft. bgs)	20.00
Depth to Top of Solid Casing (ft. bgs)	0.2
Depth to Bottom of Solid Casing (ft. bgs)	2.5
Depth to Top of Screen (ft. bgs)	2.5
Depth to Bottom of Screen (ft. bgs)	20.00
Solid Casing and Screen Material	Schedule 40 PVC
Screen Slot Size	10

GW - Well-graded gravels and gravel-sand mixtures, little or no fines. GP - Poorly graded gravels and gravel-sand mixtures, little or no fines.
GM - Silty gravels, gravel-sand-silt mixtures. GC - Clayey gravels, gravel-sand-clay mixtures. SW - Well-graded sands and gravelly sands, little or no fines
SP - Poorly graded sands and gravelly sands, little or no fines. SM - Silty sands, sand-silt mixtures. SC - Clayey sands, sand-clay mixtures.
ML - Inorganic silts, very fine sands, rock flour, silty or clayey fine sands. CL - Inorganic clays of low to medium plasticity, gravelly/sandy/silty/lean clays.
OL - Organic silts and organic silty clays of low plasticity. MH - Inorganic silts micaceous or diatomaceous fine sands or silts, elastic silts.
CH - Inorganic clays or high plasticity, fat clays. OH - Organic clays of medium to high plasticity. PT - Peat, muck, and other highly organic soils

Attachment D

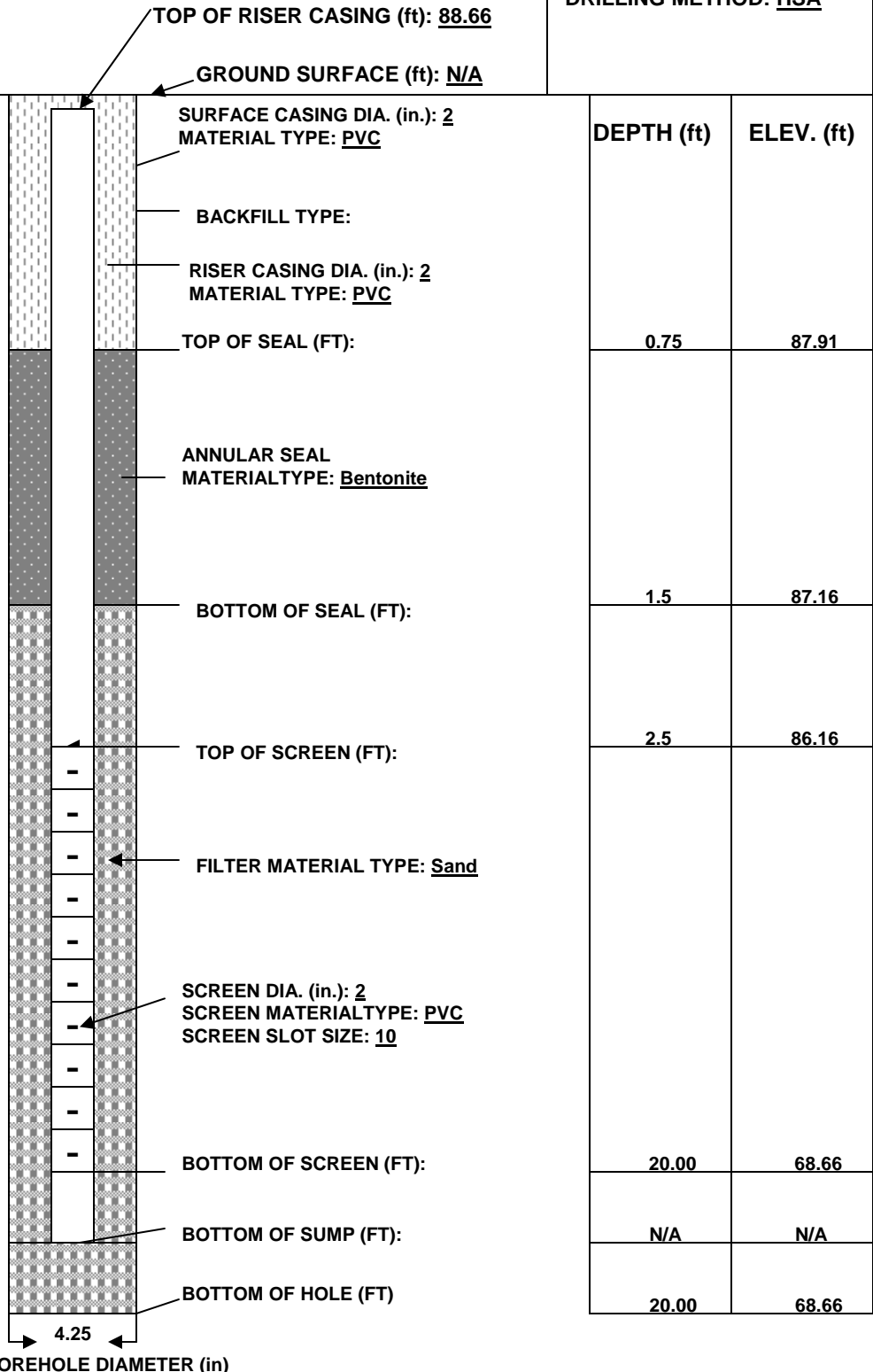
Monitoring Well Installation Report	PROJECT #: 05-056 RF-64	Advantage Environmental Consultants, LLC
DRILLING CONTRACTOR: <u>Connelly and Associates</u> AEC SUPERVISOR: James Wolf	WELL ID: <u>MW-23</u>	DATE BEGUN: <u>10.24.12</u> DATE FINISHED: <u>10.24.12</u>
Reference Points & Elevations		WATER LEVEL (ft): <u>11.64</u> DEPTH OF WELL (ft): <u>25.00</u> DRILLING METHOD: <u>HSA</u>



DATE DEVELOPED: N/A
METHOD DEVELOPED: N/A

BOREHOLE DIAMETER (in)

Monitoring Well Installation Report	PROJECT #: 05-056 RF-64	Advantage Environmental Consultants, LLC
DRILLING CONTRACTOR: <u>Connelly and Associates</u> AEC SUPERVISOR: James Wolf	WELL ID: <u>MW-24</u>	DATE BEGUN: <u>10.24.12</u> DATE FINISHED: <u>10.24.12</u>
Reference Points & Elevations		WATER LEVEL (ft): <u>8.39</u> DEPTH OF WELL (ft): <u>20.00</u> DRILLING METHOD: <u>HSA</u>



DATE DEVELOPED: N/A
METHOD DEVELOPED: N/A

BOREHOLE DIAMETER (in)

Attachment E

08 November 2012

James Wolf
Advantage Environmental Consultants, LLC
8610 Baltimore Washington Blvd, Suite 217
Jessup, MD 20794
RE: RF-64

Enclosed are the results of analyses for samples received by the laboratory on 10/26/12 13:46.

Maryland Spectral Services, Inc. is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

Please visit our website at www.mdspectral.com for a complete listing of our NELAP accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Sam Hamner".

Sam Hamner
Laboratory Manager

Analytical Results

Project: RF-64

Project Number: 05-056 RF-64
Project Manager: James Wolf

Reported:
11/08/12 17:21

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-23 4-5'		2102608-01	Soil	10/24/12 11:40	10/26/12 13:46
MW-24 6-8'		2102608-02	Soil	10/24/12 14:15	10/26/12 13:46
MW-24 2-4'		2102608-03	Soil	10/24/12 13:55	10/26/12 13:46



Sam Hamner, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: RF-64

Project Number: 05-056 RF-64
Project Manager: James Wolf

Reported:
11/08/12 17:21

MW-23 4-5'

2102608-01 (Soil)

Analyte	Result	Units	Reporting			Prepared	Analyzed	Analyst	Notes
			Limit	Dilution					
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS)									
Acetone	ND	ug/kg dry	11.9	1		10/26/12	10/26/12 17:37	WB	
tert-Amyl alcohol (TAA)	ND	ug/kg dry	59.5	1		10/26/12	10/26/12 17:37	WB	
tert-Amyl methyl ether (TAME)	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Benzene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Bromobenzene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Bromochloromethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Bromodichloromethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Bromoform	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Bromomethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
tert-Butanol (TBA)	ND	ug/kg dry	59.5	1		10/26/12	10/26/12 17:37	WB	
2-Butanone (MEK)	ND	ug/kg dry	11.9	1		10/26/12	10/26/12 17:37	WB	
n-Butylbenzene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
sec-Butylbenzene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
tert-Butylbenzene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Carbon disulfide	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Carbon tetrachloride	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Chlorobenzene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Chloroethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Chloroform	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Chloromethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
2-Chlorotoluene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
4-Chlorotoluene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
1,2-Dibromo-3-chloropropane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Dibromochloromethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
1,2-Dibromoethane (EDB)	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Dibromomethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
1,2-Dichlorobenzene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
1,3-Dichlorobenzene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
1,4-Dichlorobenzene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Dichlorodifluoromethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
1,1-Dichloroethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
1,2-Dichloroethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
1,1-Dichloroethene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
cis-1,2-Dichloroethene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
trans-1,2-Dichloroethene	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
Dichlorofluoromethane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
1,2-Dichloropropane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
1,3-Dichloropropane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	
2,2-Dichloropropane	ND	ug/kg dry	6.0	1		10/26/12	10/26/12 17:37	WB	

Sam Hamner, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: RF-64

Project Number: 05-056 RF-64
Project Manager: James Wolf

Reported:
11/08/12 17:21

MW-23 4-5'

2102608-01 (Soil)

Analyte	Result	Units	Reporting		Dilution	Prepared	Analyzed	Analyst	Notes
			Limit						
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
1,1-Dichloropropene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
cis-1,3-Dichloropropene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
trans-1,3-Dichloropropene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Diisopropyl ether (DIPE)	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Ethyl tert-butyl ether (ETBE)	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Ethylbenzene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Hexachlorobutadiene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
2-Hexanone	ND	ug/kg dry	11.9		1	10/26/12	10/26/12 17:37	WB	
Isopropylbenzene (Cumene)	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
4-Isopropyltoluene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Methyl tert-butyl ether (MTBE)	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
4-Methyl-2-pentanone	ND	ug/kg dry	11.9		1	10/26/12	10/26/12 17:37	WB	
Methylene chloride	ND	ug/kg dry	11.9		1	10/26/12	10/26/12 17:37	WB	
Naphthalene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
n-Propylbenzene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Styrene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
1,1,1,2-Tetrachloroethane	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
1,1,2,2-Tetrachloroethane	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Tetrachloroethene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Toluene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
1,2,3-Trichlorobenzene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
1,2,4-Trichlorobenzene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
1,1,1-Trichloroethane	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
1,1,2-Trichloroethane	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Trichloroethene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Trichlorofluoromethane	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
1,2,3-Trichloropropane	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
1,2,4-Trimethylbenzene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
1,3,5-Trimethylbenzene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
Vinyl chloride	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
o-Xylene	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	
m- & p-Xylenes	ND	ug/kg dry	6.0		1	10/26/12	10/26/12 17:37	WB	

Sam Hamner, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: RF-64

Project Number: 05-056 RF-64
Project Manager: James Wolf

Reported:
11/08/12 17:21

MW-23 4-5'

2102608-01 (Soil)

Analyte	Result	Units	Reporting		Prepared	Analyzed	Analyst	Notes
			Limit	Dilution				
GASOLINE RANGE ORGANICS BY EPA 5030/8015B								
Gasoline-Range Organics	ND	mg/kg dry	0.12	1	10/26/12	10/26/12 17:20	ECM	
DIESEL RANGE ORGANICS BY EPA 3540/8015B								
Diesel-Range Organics	ND	mg/kg dry	12	1	10/29/12	10/31/12 17:38	CMK	
PERCENT SOLIDS								
Percent Solids	84	%		1	10/26/12	10/29/12 10:31	WB	

Sam Hamner, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: RF-64

Project Number: 05-056 RF-64
Project Manager: James Wolf

Reported:
11/08/12 17:21

MW-24 6-8'

2102608-02 (Soil)

Analyte	Result	Units	Reporting		Dilution	Prepared	Analyzed	Analyst	Notes
			Limit						
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS)									
Acetone	ND	ug/kg dry	11.8		1	10/26/12	10/26/12 18:17	WB	
tert-Amyl alcohol (TAA)	ND	ug/kg dry	58.8		1	10/26/12	10/26/12 18:17	WB	
tert-Amyl methyl ether (TAME)	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Benzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Bromobenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Bromochloromethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Bromodichloromethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Bromoform	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Bromomethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
tert-Butanol (TBA)	ND	ug/kg dry	58.8		1	10/26/12	10/26/12 18:17	WB	
2-Butanone (MEK)	ND	ug/kg dry	11.8		1	10/26/12	10/26/12 18:17	WB	
n-Butylbenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
sec-Butylbenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
tert-Butylbenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Carbon disulfide	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Carbon tetrachloride	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Chlorobenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Chloroethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Chloroform	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Chloromethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
2-Chlorotoluene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
4-Chlorotoluene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,2-Dibromo-3-chloropropane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Dibromochloromethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,2-Dibromoethane (EDB)	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Dibromomethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,2-Dichlorobenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,3-Dichlorobenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,4-Dichlorobenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Dichlorodifluoromethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,1-Dichloroethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,2-Dichloroethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,1-Dichloroethene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
cis-1,2-Dichloroethene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
trans-1,2-Dichloroethene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Dichlorofluoromethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,2-Dichloropropane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,3-Dichloropropane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
2,2-Dichloropropane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	

Sam Hamner, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: RF-64

Project Number: 05-056 RF-64
Project Manager: James Wolf

Reported:
11/08/12 17:21

MW-24 6-8'

2102608-02 (Soil)

Analyte	Result	Units	Reporting		Dilution	Prepared	Analyzed	Analyst	Notes
			Limit						
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
1,1-Dichloropropene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
cis-1,3-Dichloropropene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
trans-1,3-Dichloropropene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Diisopropyl ether (DIPE)	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Ethyl tert-butyl ether (ETBE)	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Ethylbenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Hexachlorobutadiene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
2-Hexanone	ND	ug/kg dry	11.8		1	10/26/12	10/26/12 18:17	WB	
Isopropylbenzene (Cumene)	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
4-Isopropyltoluene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Methyl tert-butyl ether (MTBE)	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
4-Methyl-2-pentanone	ND	ug/kg dry	11.8		1	10/26/12	10/26/12 18:17	WB	
Methylene chloride	ND	ug/kg dry	11.8		1	10/26/12	10/26/12 18:17	WB	
Naphthalene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
n-Propylbenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Styrene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,1,1,2-Tetrachloroethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,1,2,2-Tetrachloroethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Tetrachloroethene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Toluene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,2,3-Trichlorobenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,2,4-Trichlorobenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,1,1-Trichloroethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,1,2-Trichloroethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Trichloroethene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Trichlorofluoromethane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,2,3-Trichloropropane	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,2,4-Trimethylbenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
1,3,5-Trimethylbenzene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
Vinyl chloride	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
o-Xylene	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	
m- & p-Xylenes	ND	ug/kg dry	5.9		1	10/26/12	10/26/12 18:17	WB	

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Sam Hamner, Laboratory Manager

Analytical Results

Project: RF-64

Project Number: 05-056 RF-64
Project Manager: James Wolf

Reported:
11/08/12 17:21

MW-24 6-8'

2102608-02 (Soil)

Analyte	Result	Units	Reporting		Prepared	Analyzed	Analyst	Notes
			Limit	Dilution				
GASOLINE RANGE ORGANICS BY EPA 5030/8015B								
Gasoline-Range Organics	ND	mg/kg dry	0.12	1	10/26/12	10/26/12 17:57	ECM	
DIESEL RANGE ORGANICS BY EPA 3540/8015B								
Diesel-Range Organics	ND	mg/kg dry	12	1	10/29/12	10/31/12 18:05	CMK	
PERCENT SOLIDS								
Percent Solids	85	%		1	10/26/12	10/29/12 10:31	WB	



Sam Hamner, Laboratory Manager

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Analytical Results

Project: RF-64

Project Number: 05-056 RF-64
Project Manager: James Wolf

Reported:
11/08/12 17:21

MW-24 2-4'

2102608-03 (Soil)

Analyte	Result	Units	Reporting		Prepared	Analyzed	Analyst	Notes
			Limit	Dilution				
Total Organic Carbon performed at ALS inc								
Total Organic Carbon	<530	mg/kg	530	1		11/06/12 11:54	ALS	



Sam Hamner, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: RF-64

Project Number: 05-056 RF-64
Project Manager: James Wolf

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference



Sam Hamner, Laboratory Manager

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CHAIN-OF-CUSTODY RECORD

Maryland Spectral Services, Inc.
 1500 Caton Center Drive, Suite G
 Baltimore, MD 21227
 410-247-7600 • Fax 410-247-7602
 labman@mdspectral.com

Preservative/Remarks
 MSS Lab ID

- 2102608-01 A
- 2102608-02 A
- 2102608-03 A

Project Manager:
Stein

Project ID:
05-056 RRF64

P.O. Number:
RF64

Field Sample ID

MW-23	4-5'																			
MW-24	6-8'																			
MW-24	2-4'																			

No. of Containers

Water

Soil

Other

Parameters

VOCS 8250
DRO 8615
LEO 8615
Total Organic Carbon

Date/Time

Received by: (Signature)
 Received by: (Signature)

Date/Time
 Date/Time

Relinquished by: (Signature)
 Relinquished by: (Signature)

Received by: (Signature)
 Received by Laboratory: (Signature)

Date/Time
 Date/Time

Remarks

Company Name:
AEC

Project Name:
RF64

Sampler(s):
Stein/Woody

Relinquished by: (Signature)
Jeff Stein

Relinquished by: (Signature)

Date/Time
10-26-12

Received by: (Signature)
DAVE TRONZ

Date/Time
1345

9.20C

Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
VELAP ID 460040

Project: RF-64

Project Number: 05-056 RF-64

Project Manager: James Wolf

Report Issued: 12/04/12 16:20

Advantage Environmental Consultants, LLC

8610 Baltimore Washington Blvd, Suite 217

Jessup MD, 20794

CLIENT SAMPLE ID:	MW-23	MW-24
LAB SAMPLE ID:	2112913-01	2112913-02
SAMPLE DATE:	11/29/12	11/29/12
RECEIVED DATE:	11/29/12	11/29/12
MATRIX	Units	Water

VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (Water)

Compound	ug/L	MW-23	MW-24
Acetone	ug/L	<10.0	<40.0
tert-Amyl alcohol (TAA)	ug/L	104	<80.0
tert-Amyl methyl ether (TAME)	ug/L	<5.0	<20.0
Benzene	ug/L	<5.0	333
Bromobenzene	ug/L	<5.0	<20.0
Bromochloromethane	ug/L	<5.0	<20.0
Bromodichloromethane	ug/L	<5.0	<20.0
Bromoform	ug/L	<5.0	<20.0
Bromomethane	ug/L	<5.0	<20.0
tert-Butanol (TBA)	ug/L	34.7	313
2-Butanone (MEK)	ug/L	<10.0	<40.0
n-Butylbenzene	ug/L	<5.0	<20.0
sec-Butylbenzene	ug/L	<5.0	<20.0
tert-Butylbenzene	ug/L	<5.0	<20.0
Carbon disulfide	ug/L	<5.0	<20.0
Carbon tetrachloride	ug/L	<5.0	<20.0
Chlorobenzene	ug/L	<5.0	<20.0
Chloroethane	ug/L	<5.0	<20.0
Chloroform	ug/L	<5.0	<20.0
Chloromethane	ug/L	<5.0	<20.0
2-Chlorotoluene	ug/L	<5.0	<20.0
4-Chlorotoluene	ug/L	<5.0	<20.0
Dibromochloromethane	ug/L	<5.0	<20.0
1,2-Dibromo-3-chloropropane	ug/L	<5.0	<20.0
1,2-Dibromoethane (EDB)	ug/L	<5.0	<20.0
Dibromomethane	ug/L	<5.0	<20.0
1,2-Dichlorobenzene	ug/L	<5.0	<20.0
1,3-Dichlorobenzene	ug/L	<5.0	<20.0
1,4-Dichlorobenzene	ug/L	<5.0	<20.0
Dichlorodifluoromethane	ug/L	<5.0	<20.0
1,1-Dichloroethane	ug/L	<5.0	<20.0
1,2-Dichloroethane	ug/L	<5.0	<20.0
1,1-Dichloroethene	ug/L	<5.0	<20.0
cis-1,2-Dichloroethene	ug/L	<5.0	<20.0
trans-1,2-Dichloroethene	ug/L	<5.0	<20.0
Dichlorofluoromethane	ug/L	<5.0	<20.0

1 = Detected but below the reporting limit; therefore, result is an estimated concentration (CLP J-Flag).

Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
VELAP ID 460040

Project: RF-64

Project Number: 05-056 RF-64

Project Manager: James Wolf

Advantage Environmental Consultants, LLC

8610 Baltimore Washington Blvd, Suite 217

Report Issued: 12/04/12 16:20

Jessup MD, 20794

CLIENT SAMPLE ID:	MW-23	MW-24
LAB SAMPLE ID:	2112913-01	2112913-02
SAMPLE DATE:	11/29/12	11/29/12
RECEIVED DATE:	11/29/12	11/29/12
MATRIX	Units	Water

VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)

1,2-Dichloropropane	ug/L	<5.0	<20.0
1,3-Dichloropropane	ug/L	<5.0	<20.0
2,2-Dichloropropane	ug/L	<5.0	<20.0
1,1-Dichloropropene	ug/L	<5.0	<20.0
cis-1,3-Dichloropropene	ug/L	<5.0	<20.0
trans-1,3-Dichloropropene	ug/L	<5.0	<20.0
Diisopropyl ether (DIPE)	ug/L	13.0	45.5
Ethyl tert-butyl ether (ETBE)	ug/L	<5.0	<20.0
Ethylbenzene	ug/L	<5.0	20.4
Hexachlorobutadiene	ug/L	<5.0	<20.0
2-Hexanone	ug/L	<10.0	<40.0
Isopropylbenzene (Cumene)	ug/L	<5.0	<20.0
4-Isopropyltoluene	ug/L	<5.0	<20.0
Methyl tert-butyl ether (MTBE)	ug/L	10.5	122
4-Methyl-2-pentanone	ug/L	<10.0	<40.0
Methylene chloride	ug/L	<10.0	<40.0
Naphthalene	ug/L	<5.0	<20.0
n-Propylbenzene	ug/L	<5.0	<20.0
Styrene	ug/L	<5.0	<20.0
1,1,1,2-Tetrachloroethane	ug/L	<5.0	<20.0
1,1,2,2-Tetrachloroethane	ug/L	<5.0	<20.0
Tetrachloroethene	ug/L	<5.0	<20.0
Toluene	ug/L	<5.0	15.9 [1]
1,2,3-Trichlorobenzene	ug/L	<5.0	<20.0
1,2,4-Trichlorobenzene	ug/L	<5.0	<20.0
1,1,1-Trichloroethane	ug/L	<5.0	<20.0
1,1,2-Trichloroethane	ug/L	<5.0	<20.0
Trichloroethene	ug/L	<5.0	<20.0
Trichlorofluoromethane (Freon 11)	ug/L	<5.0	<20.0
1,2,3-Trichloropropane	ug/L	<5.0	125
1,2,4-Trimethylbenzene	ug/L	<5.0	<20.0
1,3,5-Trimethylbenzene	ug/L	<5.0	<20.0
Vinyl chloride	ug/L	<5.0	<20.0
o-Xylene	ug/L	<5.0	31.2
m- & p-Xylenes	ug/L	<5.0	<20.0

1 = Detected but below the reporting limit; therefore, result is an estimated concentration (CLP J-Flag).

Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
VELAP ID 460040

Project: RF-64

Project Number: 05-056 RF-64

Project Manager: James Wolf

Report Issued: 12/04/12 16:20

Advantage Environmental Consultants, LLC

8610 Baltimore Washington Blvd, Suite 217

Jessup MD, 20794

CLIENT SAMPLE ID:	MW-23	MW-24
LAB SAMPLE ID:	2112913-01	2112913-02
SAMPLE DATE:	11/29/12	11/29/12
RECEIVED DATE:	11/29/12	11/29/12
MATRIX	Units	Water

GASOLINE RANGE ORGANICS BY EPA 8015B (Water)

Gasoline-Range Organics	ug/L	<100	<u>831</u>
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DIESEL RANGE ORGANICS BY EPA 3510/8015B (Water)

Diesel-Range Organics	mg/L	<u>0.28</u>	<u>0.31</u>
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1 = Detected but below the reporting limit; therefore, result is an estimated concentration (CLP J-Flag).

CHAIN-OF-CUSTODY RECORD

Maryland Spectral Services, Inc.
 1500 Caton Center Drive, Suite G
 Baltimore, MD 21227
 410-247-7600 • Fax 410-247-7602
 labman@maspectral.com

Preservative/Remarks	MSS Lab ID
Hcl 11c	R112913-01
Hcl 11c	-02

Parameters

Vol's H/L 8260
 Vol's H/L 8015
 Vol's H/L 8015
 Vol's H/L 8015

No. of Containers

Company Name: AEC
Project Manager: J. Wolf
Project Name: RF-64
Project ID: 05-05605064
Sampler(s): Stein Wolf
P.O. Number: 05-05605064

Field Sample ID	Date	Time	Water	Soil	Other
MW-23	11-29-12	09:14	X		
MW-24	11-29-12	09:32	X		

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[Signature]	11-17	[Signature]		[Signature]		[Signature]	
[Signature]	11-29-12	[Signature]		[Signature]		[Signature]	
[Signature]		[Signature]		[Signature]		[Signature]	

Remarks: Results to J. Stein, J. Wolf

Need Results by Wednesday E.O.B. Page 1 of 1
 96cc