

**Summary Report of Stormwater Management Activities  
Marjol Battery Site  
August 10 through August 14**

On Monday, August 10 and Wednesday August 12, 2009 accumulated stormwater overtopped the Containment Area (CA) berm and flowed into the South Swale leading into the sediment basin. Battery casings and sediment were visible on the top of the berm and along the slope of South Swale at several locations similarly to the July 31, 2009 occurrence. The following text outlines the approximate timeline of the events of the overflow occurrences.

Chronology of Events (August 10)

According to the on-site weather station a total of 0.62 inches was received on August 9, 2009. An intense rain event occurred on August 10, approximately between 1730 and 1800 at the Site and approximately 0.7" of rain was received. AGC field personnel inspected the CA for water capacity. Once reaching the area, the water had already begun to overflow the CA berm in one location as shown on the attached sketch. The pump in the CA was not operating at the time. AGC called SCE to come to the Site to start the pump and help raise the skimmer to prevent discharge. The water in the discharge channel was transparent based on visual observations. AGC performed a turbidity test on the discharge which was 72.5.

Actions:

SCE arrived on-site and immediately started the pump. The water level in the CA was quickly lowered as water was pumped to Area B. SCE reversed the float on the skimmer and raised it onto the baffle fence. Discharge from the outlet pipe was halted at this time; however water continued to flow through the discharge channel.

On Tuesday, AGC conducted additional turbidity tests in the basin in order to resume basin discharge. The tests were conducted on the western side of the baffle as this is the water that is discharged from the skimmer. All the results shown below were below the 250 NTU performance standard.

- 79.7 NTUs (surface)
- 81.0 NTUs (3-4" below surface)
- 86.9 NTUs (4" below surface)
- 86.7 NTUs (surface)
- 83.4 NTUs (surface)
- 93.1 NTUs (5" below surface)
- 108.5 NTUs (6" below surface)
- 96 NTUs (surface)
- 92.7 NTUs (2-3" below surface)
- 104.1 NTUs (6" below surface)

On Wednesday August 12, at the direction of AGC, SCE placed the skimmer back in the basin to continue discharge. SCE increased the basin berm another 1.5 to 2 feet around the western and southwestern berm to increase stormwater capacity in the CA. A rope was tied to the skimmer to allow easy access in order to stop discharge.

### Sampling

On August 12, discharge had occurred for approximately one half hour and AGC performed a turbidity reading and collected water samples for total and dissolved lead. The result of the turbidity reading was 16.2 NTUs. The water samples were sent to Test America-Pittsburgh for analysis. Results of the dissolved lead analysis are below and the laboratory data sheet is attached.

<u>Location</u>	<u>Total Lead (ug/L)</u>	<u>Dissolved Lead (ug/L)</u>
Discharge (DW)	2.2	0.26B

B: Below the reporting limit

### XRF Testing

On Tuesday August 11, 2009 AGC collected sediment samples from the CA berm where the overflow occurred, the South Swale where sediment was visible, the discharge pipe and the basin sediment at CD-15 and performed XRF analysis. All samples were collected and dried prior to testing. All but one reading was below the performance standard of 500 mg/kg. The reading above the performance standard was collected along the CA berm. During the drying and analysis time, SCE removed the battery chips from the top of the berm and placed them in the CA along with the upper most surface soil. Approximately one to two feet of borrow material was placed on the berm immediately following the removal and another sample was unable to be collected.

The reference point bend is a turning point along the CA berm shown on the sketch and was used to determine distances around the berm and swale.

### Chronology of Events (August 12)

On Wednesday, August 12, a rain event occurred at approximately 1930 which generated approximately one inch of rainfall. AGC was notified and arrived onsite to assess the situation. As the water in the sump pump accumulated the pump was activated and water was conveyed to Area B. As the CA was saturated, surface runoff increased and the elevation against the increased berm rose. AGC discontinued the discharge from the basin by removing the skimmer and notified SCE. Although the pump was operational, the sump area was clogged with sediment and battery chips and limited the flow into the sump. The pump was not able to convey enough water to keep the water level down below the berm. The water within the CA overflowed into the South Swale and the basin. No discharge was occurring at this time.

### Actions:

SCE arrived onsite and proceeded to get the pump line into the water in order to increase the pumping outflow. Overflow over the CA was stopped and additional berm height was

put in place with emergency grade work. SCE remained onsite to monitor the situation and ensure the pump operated for the duration. The skimmer remained out of the basin. As the emergency activities were conducted after daylight, no pictures of the event are available.

SCE placed an additional pump at the overflow area and connected a discharge pipe to Area B.

#### Turbidity Testing

On August 13, AGC conducted turbidity tests in the basin in order to resume basin discharge. The tests were conducted on the western side of the baffle. All the results shown below are below the 250 NTU performance standard.

- 82.7 NTUs (75' SW of outlet structure)
- 76.5 NTUs (50' SW of outlet structure)
- 85.9 NTUs (25' SW of outlet structure)
- 77.1 NTUs (at outlet structure)
- 73.8 NTUs (25' NE of outlet structure)
- 98.8 NTUs (50' NE of outlet structure)
- 107.8 NTUs (75' NE of outlet structure)
- 122.0 NTUs (100' NE of outlet structure)
- 122.0 NTUs (125' NE of outlet structure)
- 146.0 NTUs (150' NE of outlet structure)

#### XRF Testing

On August 13 and 14, 2009 AGC collected sediment samples from the sediment basin and South Swale as shown on the attached sketch. One sediment sample located in the South Swale at the overflow area was above the performance standard. AGC notified SCE to remove the sediment and a subsequent sample was shown to be below the performance standard (283 ppm). All other sample results were below the performance standard and are provided on the attached table.

#### Discharge

AGC requested and received approval from EPA to lower the skimmer and continue discharge of the basin. The skimmer was lowered that evening; turbidity, and total and dissolved lead samples were collected. The turbidity reading was 59.9 NTUs. Results of the dissolved lead analysis are below and the laboratory data sheet is attached.

<u>Location</u>	<u>Total Lead (ug/L)</u>	<u>Dissolved Lead (ug/L)</u>
Discharge (DW)	8.4	1.4

#### Conclusion

Although XRF analysis showed some contaminants did enter the South Swale, it did not affect the off-site discharge; the stormwater management system continued to function as designed. It is anticipated that the additional pump located at the overflow location will prevent additional overflows in the future.



Picture 1: Discharge Channel  
Following CA Overflow (08-10-09)



Picture 2: Water  
overflow along section  
of CA berm (08-10-09)



Picture 3: Overflow Area (08-10-09)



Picture 4: Off-site Discharge Water (08-10-09)



Picture 5: Basin Skimmer (08-10-09)



Picture 6: Additional Pump installed  
(08-15-09)

**XRF Testing Results  
Marjol Battery Site  
August 11, 2009**

<b>CA Berm</b>		
Sample ID	Result (mg/kg)	Distance from CA Berm Bend (ft)
1	BDL < 90	69
2	BDL < 100	62
3	389 +/- 116	49
4	219 +/- 72	49
5*	540 +/- 123	22
6	BDL < 120	22
7	BDL < 120	0
8	110 +/- 71	27

\*Note: Soil was removed and placed in CA with battery chips following sample collection. Prior to possible resampling, borrow material was placed to increase berm height.

<b>CA Berm Southern Bank</b>		
Sample ID	Result (mg/kg)	Distance from CA Berm Bend (ft)
9	BDL < 110	27
10	BDL < 130	22

<b>Sediment Samples Collected from South Swale</b>		
Sample ID	Result (mg/kg)	Distance from CA Berm Bend (ft)
11	BDL < 92	30
12	181 +/- 75	0
13	134 +/- 61	83
14	BDL < 110	287

<b>Top of Check Dam 15</b>	
Sample ID	Result (ppm)
15	BDL < 91

<b>Sediment at Base of CD-15</b>	
Sample ID	Result (ppm)
16	BDL < 90

<b>Discharge Pipe</b>	
Sample ID	Result (ppm)
17	BDL < 88

BDL - Below Detection Limit



# TESTAMERICA LABORATORIES, INC.

## PRELIMINARY DATA SUMMARY

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The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.  
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Lot #: C9H130118      **Advanced GeoServices Corporation**      PAGE 1  
AGC - Marjol Scranton, PA      Date Reported: 8/20/09

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
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Client Sample ID: DIS-081209

Sample #: 001      Date Sampled: 08/12/09 07:55      Date Received: 08/13/09      Matrix: WATER

ICP-MS (6020)					Reviewed
Lead	2.2	1.0	ug/L	SW846 6020	
Lead	Dissolved 0.26 B	1.0	ug/L	SW846 6020	

B Estimated result. Result is less than RL.

**XRF Testing Results  
Marjol Battery Site  
August 14, 2009**

<b>CA Berm</b>		
Sample ID	Result (mg/kg)	Distance from CA berm bend (ft)
8	140 +/- 85	58
14	143 +/- 93	19
15	BDL < 110	19
16	189 +/- 75	37

<b>Southern Bank of CA Berm</b>		
Sample ID	Result (mg/kg)	Distance from CA berm bend (ft)
9	BDL < 120	58
10	150 +/- 83	58
11	BDL < 110	37
12	BDL < 88	19
13	BDL < 95	19

<b>Sediment Samples Collected from South Swale</b>		
Sample ID	Result (mg/kg)	Distance from CA berm bend (ft)
1	BDL < 130	58
2*	548 +/- 105	19
3	BDL < 140	0
4	138 +/- 90	100
5	186 +/- 82	192
6	277 +/- 92	424
7	320 +/- 130	467

\* Following removal of the material, a second sample was collected. The result was 283 mg/kg

<b>Southern Bank of South Swale</b>		
Sample ID	Result (mg/kg)	Distance from CA berm bend (ft)
17	BDL < 100	9
18	BDL < 110	39

<b>Sediment Samples Collected from Sediment Basin (CD-15)</b>	
Sample ID	Result (mg/kg)
19	121 +/- 63
20	BDL < 82
21	278 +/- 81

<b>Sediment Samples Collected from Sediment Basin (CD-7)</b>	
Sample ID	Result (mg/kg)
22	BDL < 99
23	173 +/- 61

BDL - Below Detection Limit



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## PRELIMINARY DATA SUMMARY

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Lot #: C9H140111      **Advanced GeoServices Corporation**      PAGE 1  
AGC - Marjol Scranton, PA      Date Reported: 8/18/09

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL</u> <u>METHOD</u>
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Client Sample ID: DIS-081309

Sample #: 001      Date Sampled: 08/13/09 07:15      Date Received: 08/14/09      Matrix: WATER

ICP-MS (6020)					Reviewed
Lead	8.4	1.0	ug/L	SW846 6020	
Lead	Dissolved 1.4	1.0	ug/L	SW846 6020	