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August 22, 2013

Leonard K. Peters
Secretary

Ms. Pam Scully
Region IV, USEPA
Sam Nunn Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-8960

Subject: Maxey Flats Project 2013 Semi-Annual Report

Dear Ms. Scully:

The Commonwealth of Kentucky hereby submits the Semi-Annual Report for 2013 to fulfill the requirements of Section 4.0 of the Performance Standard Verification Plan (PSVP). Copies are being distributed, under this cover, as indicated below.

If you have any questions, please contact me at (606)783-8680.

Sincerely,

A handwritten signature in blue ink that reads "Jeffery Webb".

Jeffery Webb
Environmental Technician
Maxey Flats Project

Enclosure/Compact Disc

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MAXEY FLATS PROJECT
2013 SEMI-ANNUAL REPORT

August 22, 2013

Kentucky Division of Waste Management
Superfund Branch
Maxey Flats Project

Maxey Flats Project (MFP) Semi-annual Report
Reporting Period: January 2013 – June 2013

Pursuant to the Consent Decree, this semi-annual report is submitted to the US EPA from the Commonwealth in accordance to requirements of the Statement of Work. Included in this report are narrations of monitoring results, inspections, repair and maintenance activities, along with inspection forms and any other documentation relevant to the IRP O&M Requirement Summary.

Monitoring Results

This section covers surface water, ground water and subsidence monitoring tasks performed during the January 2013 through June 2013 reporting period necessary to comply with the Interim Maintenance Period Work Plan (IMP) and appendices.

Surface Water (PSVP 3.1.2)

Surface water sampling for locations 102D, 103E, 106, C107, 122A, 122C, 143 and 144 is performed using automatic sequential samplers that collect a daily composite sample. The sampler located at the East Detention Basin (EDB) collects samples based on a 15 minute rain event with the intensity to produce a total rainfall in excess of 2.8 inches during a twenty-four period.

A total of 1,421 surface water samples have been collected and analyzed for tritium during this period with no anomalous data reported. Table 1 contains a summary of the data obtained during this reporting period.

Alluvial Wells (PSVP 3.1.2.2)

Alluvial well sampling includes annual samples from AW-6, 10 and 12 and quarterly sampling of AW-1 and 7. Alluvial well sampling is compared to the drinking water standard of 20 pCi/ml. For this reporting period, two rounds of quarterly sampling were collected from AW-1A and 7 with no location exceeding a tritium value of 6 pCi/ml. Samples were collected from alluvial well locations 6, 13 and 14 on February 7th. These samples were analyzed for tritium prior to release for arsenic/chemical analysis at the Frankfort Department for Environmental Protection Laboratory. The three additional samples have tritium values less than 1 pCi/ml. Alluvial wells 6, 10 and 12 are scheduled for routine sampling in the last quarter of 2013. Table 2 contains a summary of the data for 2012 and the first half of 2013.

Perimeter Wells

Two quarterly level measurements of 15 Perimeter Wells and one round of sampling of five Perimeter Wells were completed by the Maxey Flats staff in January and April 2013. Sampling is not required by the IMP; it is a requirement of the MFP Radioactive Material License. Table 3 contains a summary of the measurement data for July 2012 through April 2013. Table 4 summarizes the tritium results for the same period.

Trench Leachate Management (PSVP 2.3)

Trench sump liquid levels are obtained on a semi-annual basis in accordance with the PSVP, Section 2.3, Sump Measurements, Tech Change III, and the Second Five Year Review. The first semiannual measurements were obtained in April to satisfy the collection period requirement. Table 5 contains the liquid level measurements from October 2012 and April 2013. The data indicates the levels overall are stable with only three sumps exceeding 10% freeboard: Sump 7-4, Sump 46-1 and Sump 46-2.

Sump 7-4 continues to be monitored quarterly in accordance with the RML license and the results of the May 2011 Engineering Evaluation. As of June 30th the liquid level in Sump 7-4 was measured at an elevation of 1047.17 feet, which is 0.03 feet below the pre-pump elevation of 1047.20 feet. This continues a two year trend of stabilization that ranges from 0.17 feet below to 0.02 feet above pre-pump levels. Both Sumps 46-1 and 46-2 have exceeded 10% loss of freeboard but appear to be holding steady at 16.9% and 12.1% respectively. Both sumps remain several feet below pre-pump level.

Subsidence Monitoring (PSVP 2.2)

Mitch Estes Land Surveying, Morehead, KY completed the 2013 subsidence survey on May 17th. Comparing the 2013 control point elevation measurements to 2004 baseline measurements indicates variation ranges from -0.59" to 0.04". Six additional subsidence monitoring locations (29-34) were added in 2008 at the discretion of MFP to ensure monitoring of suspect areas. These points range in variation since 2008 from -0.35" to 0.17". Table 6 contains subsidence monitoring results. The IMP Work Plan does not prescribe Action Levels for subsidence monitoring.

Erosion Monitoring (PSVP 2.1)

As detailed in the PSVP, Section 2.0 – Monitoring of Physical Conditions, erosion monitoring of the East Drain is required semi-annually. Upon Certification of Completion, MFP utilized USGS to perform this semi-annual erosion monitoring using the monuments as described in PSVP, Appendix E PSVP-03; this is known as the USGS Erosion Monitoring methodology. In 2010 the responsibility of performing the USGS Erosion Monitoring was transferred to the staff at MFP and an independent survey company, Estes Land Survey was contracted to collect semi-annual erosion data as described in PSVP, Appendix E PSVP-04 (a.k.a. Shaw Methodology). Data collected by this contractor utilizes the advancements in land survey technology, Global Position System, and computer graphics resulting in a more precise, reproducible methodology. As of 2012 it was determined the Shaw Methodology is more compliant with the requirements in the PSVP, Section 2.0 and the data collected by MFP staff using the USGS Methodology will be used for Spring erosion screening of the East Main Drainage Channel.

The information in Table 7 is an analysis of the data collected this year in the East Drainage Channel by MFP staff using the USGS methodology. The only cross section identified to have significant erosion impact during the Spring 2013 monitoring is USGS Cross-section 6.0. Cross-section 6 as first observed in the Fall of 2011 continues to receive slumping from the south hill side. This slumping has shortened the cross section measurement length by a total of 1.65 feet since the spring of 2011. An inspection of the slump indicates that it is not occurring as a result of IRP cap runoff but is likely the result of natural erosion forces on a steep shale slope. No other acute erosion was observed or measured in the East Drain.

Inspections, Maintenance and Repair Activities Relative to the IRP

Inspections

Inspections were conducted in accordance with the Operations and Maintenance Requirements Summary (O&M) and are contained in electronic format within Appendix A. This includes: (26) Weekly/Daily Inspections, (12) Twice-a-Month Inspections, (6) Monthly Inspections, (2) Quarterly Inspections, (1) Semi-annual Inspection and (1) Annual Inspection.

Maintenance

This section covers the maintenance of the geomembrane liner, headwalls, drainage channels, diversion berms, interior anchor trenches, perimeter, anchor trenches, articulating block system, the emergency spillway at the northeast corner, east detention basin, southeast cap, and general site components.

The only items requiring attention, excluding defect repairs (discussed below) and 7 occurrences of water found during the annual inspection, were leaf removal from headwall inlets and weed control within the AB-mats. The defects and water occurrences will be addressed within the scope of the annual inspection.

Repairs

Based on the visual inspection and air lance evaluation from the annual inspection, a total of 46 repairs were made to the geomembrane liner during this reporting period. A quality control check was performed on each of the repaired sections.

Reporting

All validated sampling data acquired on site has been forwarded to United States Environmental Protection Agency (USEPA), Project Coordinator for the Steering Committee, United States Department of Energy (USDOE), and the Commonwealth.

Conclusion

There was no anomalous data reported during this period from 1,842 analyzed samples. The data supports the conclusion that the Maxey Flats Project, at present, is causing minimal impact to human health and the environment.

Table 1
Maxey Flats Project
Surface Water Data Summary
January – June 2013

| Location | Minimum Activity (pCi/ml) | Date | Maximum Activity (pCi/ml) | Date | Average Activity (pCi/ml) | Sampling Period |
|-----------------|----------------------------------|-------------|----------------------------------|-------------|----------------------------------|------------------------|
| ISCO 122A | -0.24 | 5/5/13 | 0.47 | 1/9/13 | 0.04 | 1/1-6/30/13 |
| ISCO 106 | 1.62 | 1/4/13 | 9.59 | 6/2/13 | 3.92 | 1/1-6/30/13 |
| ISCO 122C | 0.37 | 1/31/13 | 2.74 | 5/24/13 | 1.11 | 1/1-6/30/13 |
| ISCO 102D | -0.20 | 1/31/13 | 2.23 | 6/7/13 | 0.79 | 1/1-6/30/13 |
| ISCO 103E | -0.07 | 3/18/13 | 1.29 | 2/28/13 | 0.61 | 1/1-6/30/13 |
| ISCO EDB | 0.06 | 1/13/13 | 1.99 | 4/17/13 | 0.74 | 1/1-6/30/13 |
| ISCO 143 | -0.24 | 4/30/13 | 0.81 | 2/2/13 | 0.04 | 1/1-6/30/13 |
| ISCO 144 | 2.82 | 6/29/13 | 146.16 | 5/18/13 | 59.69 | 1/1-6/30/13 |
| ISCO C107 | 2.23 | 1/13/13 | 24.14 | 4/29/13 | 12.73 | 1/1-6/30/13 |

Note: Samples collected by Maxey Flats Project staff

Table 2
Maxey Flats Project
Alluvial Monitoring Well Data
January 2012 – May 2013

| Well ID | Sample Date | Tritium Activity (pCi/ml) | Error +/- | Specific Conductivity (µmho) | pH | Temperature [F] |
|---------|-------------|---------------------------|-----------|------------------------------|------|-----------------|
| ALT-1 | 9/6/12 | 0.26 | 0.11 | 135 | 5.81 | 60.4 |
| AW-1 | 01/19/12 | 4.06 | 0.17 | 250 | 6.75 | 58.5 |
| AW-1 | 04/05/12 | 4.78 | 0.18 | 250 | 6.63 | 55.3 |
| AW-1 | 07/12/12 | 1.32 | 0.13 | 262 | 6.82 | 56.3 |
| AW-1 | 09/05/12 | 1.08 | 0.13 | 292 | 7.12 | 60.3 |
| AW-1 | 02/07/13 | 2.39 | 0.15 | 287 | 6.46 | 55.9 |
| AW-1 | 05/30/13 | 3.27 | 0.16 | 232 | 6.81 | 60.1 |
| AW-3 | 09/05/12 | 0.29 | 0.11 | 302 | 7.17 | 63.2 |
| AW-4 | 09/05/12 | -0.05 | 0.11 | 201 | 4.99 | 65.0 |
| AW-5 | 09/05/12 | -0.15 | 0.10 | 125 | 7.65 | 64.6 |
| AW-6 | 09/05/12 | -0.07 | 0.10 | 359 | 6.56 | 61.8 |
| AW-6 | 02/07/13 | 0.07 | 0.11 | 344 | 5.82 | 54.0 |
| AW-7 | 01/19/12 | 4.83 | 0.18 | 160 | 6.07 | 57.3 |
| AW-7 | 04/05/12 | 5.26 | 0.19 | 160 | 5.84 | 55.0 |
| AW-7 | 07/12/12 | 4.71 | 0.18 | 147 | 6.07 | 46.7 |
| AW-7 | 09/06/12 | 5.70 | 0.19 | 157 | 6.47 | 60.4 |
| AW-7 | 02/07/13 | 5.74 | 0.19 | 161 | 6.60 | 54.8 |
| AW-7 | 05/30/13 | 5.74 | 0.19 | 135 | 5.90 | 59.1 |
| AW-8 | 09/06/12 | 1.13 | 0.13 | 317 | 4.28 | 61.3 |
| AW-9 | 09/05/12 | 0.21 | 0.11 | 254 | 6.48 | 68.4 |
| AW-10 | 09/05/12 | 0.13 | 0.11 | 95 | 5.30 | 62.6 |
| AW-12 | 09/05/12 | 0.02 | 0.11 | 443 | 6.84 | 59.1 |
| AW-13 | 09/05/12 | 0.25 | 0.11 | 297 | 4.59 | 66.3 |
| AW-13 | 02/07/13 | 0.13 | 0.11 | 302 | 4.67 | 52.5 |
| AW-14 | 09/06/12 | -0.05 | 0.11 | 800 | 7.10 | 59.2 |
| AW-14 | 02/07/13 | 0.08 | 0.11 | 666 | 7.78 | 54.6 |
| AW-15 | 09/06/12 | 0.56 | 0.12 | 820 | 7.29 | 58.3 |

Note: Measurements conducted by Maxey Flats Project staff
September 2012 sample data requested as part of the 5-year review (2007-2012)

Table 3
Maxey Flats Project
Perimeter Monitoring Well Elevation Data
July 2012 - April 2013

| Monitoring Well | LS Elevation* (ft) | Water Elev 7/16/12 (ft) | Water Elev 10/25/12 (ft) | Water Elev 1/29/13 (ft) | Water Elev 4/16/13 (ft) |
|------------------------|---------------------------|--------------------------------|---------------------------------|--------------------------------|--------------------------------|
| ESI-1 | 1050.70 | 1035.90 | 1037.76 | 1036.52 | 1036.28 |
| ESI-2 | 1047.50 | 1035.62 | 1038.91 | 1038.83 | 1038.77 |
| ESI-4 | 1048.00 | 1035.56 | 1038.34 | 1038.22 | 1038.17 |
| ESI-5 | 1045.10 | 1031.80 | 1037.32 | 1037.23 | 1037.28 |
| ESI-12 | 1049.60 | 1029.99 | 1031.60 | 1032.02 | 1031.67 |
| ESI-19 | 1050.00 | 1035.83 | 1036.63 | 1036.47 | 1036.44 |
| N2B | 1044.50 | 1035.43 | 1041.70 | 1041.50 | 1041.43 |
| UE-2 | 1050.20 | 1035.87 | 1036.50 | 1036.37 | 1036.30 |
| UE-11 | 1051.30 | 1036.85 | 1036.42 | 1039.74 | 1036.39 |
| UF-1 | 1050.10 | 1035.51 | 1036.04 | 1038.23 | 1037.91 |
| UF-2 | 1046.00 | 1035.73 | 1040.53 | 1040.36 | 1040.27 |
| UF-5 | 1048.90 | 1044.69 | 1041.97 | 1047.69 | 1047.05 |
| UF-10a | 1057.74 | 1029.32 | 1022.42 | 1022.38 | 1022.83 |
| UF-37 | 1048.20 | 1035.10 | 1038.84 | 1037.73 | 1036.91 |
| UF-45 | 1054.20 | 1040.09 | 1036.05 | 1036.10 | 1036.17 |
| UK-1 | 1046.10 | 1035.51 | 1040.07 | 1040.08 | 1040.06 |

* Elevations from IMP Workplan, As-Built Table AB-12

Table 4
Maxey Flats Project
Perimeter Monitoring Well Tritium Data
April 2012 - April 2013

| Well ID | Tritium Activity 4/12/12 | | Tritium Activity 10/25/12 | | Tritium Activity 4/22/13 | |
|---------------|-----------------------------|--------------|------------------------------|--------------|-----------------------------|--------------|
| | Activity (pCi/ml) | Error +/- | Activity (pCi/ml) | Error +/- | Activity (pCi/ml) | Error +/- |
| N2B | 3,023 | 4 | 85,387 | 20 | 1,260 | 2 |
| UE-2 | 181,068 | 29 | 170,048 | 28 | 166,435 | 28 |
| UF-2 | 113,963 | 23 | 134,639 | 25 | 119,771 | 24 |
| UF-10a | 29,946 | 12 | 28,673 | 11 | 27,837 | 11 |
| UK-1 | 102,435 | 22 | 206,131 | 30 | 144,542 | 26 |

* From IMP Workplan, As-Built Table AB-12

Table 5
Maxey Flats Project
Trench Sump Leachate Measurements
October 2012 and April 2013

| Trench Sump ID | Baseline ToC-ToL | Oct 2012 ToC-ToL | Apr 2013 ToC-ToL |
|----------------|------------------|------------------|------------------|
| 1-2 | 20.80 | 19.90 | 20.19 |
| 2-6 | 21.45 | 20.00 | 20.10 |
| 3-2 | 23.00 | 23.08 | 23.20 |
| 3-4 | 15.63 | 16.12 | 16.14 |
| 7-4 | 15.28 | 5.39 | 5.25 |
| 7-5 | 18.43 | 20.26 | 20.39 |
| 7-7 | 19.33 | 21.38 | 21.49 |
| 10-7 | 27.83 | 27.14 | 27.12 |
| 10-8 | 27.51 | 27.64 | 27.62 |
| 10-9 | 26.06 | 24.00 | 23.93 |
| 11-5 | 20.92 | 21.01 | 21.11 |
| 11-6 | 24.03 | 24.78 | 24.82 |
| 15-4 | 26.68 | 26.60 | 26.59 |
| 15-5 | 24.14 | 23.04 | 22.86 |
| 15-6 | 28.88 | 27.88 | 27.84 |
| 15-8 | 22.21 | 22.65 | 22.71 |
| 18-6 | 30.41 | 30.02 | 30.01 |
| 18-9 | 22.00 | <i>21.93</i> | 21.95 |
| 19-5 | 28.85 | 28.61 | 28.58 |
| 19-6 | 23.50 | 22.91 | 22.91 |
| 19-7 | 30.80 | 29.44 | 29.42 |
| 20W | 26.50 | 28.20 | 28.23 |
| 20-7 | 29.85 | 29.91 | 29.95 |
| 20-9 | 30.06 | 29.94 | 29.94 |
| 20-11 | 24.21 | 23.91 | 23.91 |
| 23-5 | 31.20 | 30.60 | 30.55 |
| 23-6 | 31.17 | 30.19 | 30.18 |
| 23-9 | 24.55 | <i>24.25</i> | 24.23 |
| 24-5 | 23.37 | 23.30 | 23.29 |
| 24-6 | 26.45 | 26.31 | 26.35 |
| 25-5 | 22.91 | 23.55 | 23.50 |
| 25-7 | 25.05 | 24.58 | 24.58 |
| 25-9 | 22.59 | 22.38 | 22.45 |
| 26-2 | 28.11 | 27.11 | 27.09 |
| 26-3 | 26.90 | 26.10 | 26.08 |
| 26-4 | 21.70 | 22.18 | 22.29 |
| 27-9 | 28.08 | 27.04 | 26.06 |
| 27-11 | 25.80 | <i>25.56</i> | <i>25.58</i> |
| 28W | 26.00 | 26.04 | 26.06 |
| 28-6 | 27.50 | <i>26.96</i> | <i>27.00</i> |
| 28-11 | 27.00 | <i>26.92</i> | <i>26.92</i> |

| Trench Sump ID | Baseline ToC-ToL | Oct 2012 ToC-ToL | Apr 2013 ToC-ToL |
|----------------|------------------|------------------|------------------|
| 28-12 | 26.40 | <i>26.33</i> | <i>26.38</i> |
| 29W | 24.95 | 25.72 | 26.03 |
| 29-5 | 28.10 | <i>27.61</i> | <i>27.63</i> |
| 29-6 | 25.33 | <i>25.71</i> | <i>25.73</i> |
| 30-4 | 23.40 | <i>23.33</i> | <i>23.29</i> |
| 30-8 | 29.10 | <i>29.93</i> | <i>29.91</i> |
| 30-10 | 29.20 | <i>29.13</i> | <i>29.10</i> |
| 31-2 | 25.05 | 25.21 | 25.21 |
| 31-5 | 23.23 | 23.05 | 23.07 |
| 31-7 | 24.78 | 24.84 | 24.84 |
| 31-9 | 24.95 | 26.19 | 26.13 |
| 32E | 29.13 | 28.89 | 28.89 |
| 32-9 | 28.89 | 28.97 | 28.97 |
| 35-2 | 27.04 | 28.18 | 28.34 |
| 35-6 | 27.65 | 27.25 | 27.27 |
| 36-3 | 20.73 | 20.74 | 20.76 |
| 36-6 | 24.00 | 23.96 | 23.97 |
| 36-7 | 22.70 | 22.16 | 22.17 |
| 37-3 | 22.97 | 22.47 | 22.49 |
| 37-4 | 23.37 | 23.30 | 23.43 |
| 38-4 | 21.80 | 21.23 | 21.23 |
| 38-5 | 21.45 | 20.88 | 20.90 |
| 39-4 | 19.02 | <i>19.15</i> | <i>19.11</i> |
| 40-15 | 21.50 | <i>21.38</i> | <i>21.32</i> |
| 40-17 | 28.75 | 28.00 | 27.95 |
| 40-19 | 30.30 | 29.58 | 29.58 |
| 40-22 | 32.53 | 31.81 | 31.81 |
| 42-11 | 28.60 | 28.49 | 28.49 |
| 42-19 | 27.70 | 27.92 | 27.96 |
| 42-20 | 35.35 | <i>34.98</i> | <i>34.96</i> |
| 43-7 | 35.95 | <i>36.60</i> | 36.61 |
| 43-9 | 34.15 | 34.81 | 34.82 |
| 43-13 | 30.35 | 30.73 | 30.71 |
| 44-5 | 41.45 | <i>40.39</i> | <i>40.36</i> |
| 44-14 | 34.30 | 34.24 | 34.24 |
| 44-20 | 38.50 | 38.29 | 38.28 |
| 44-22 | 39.90 | 39.74 | 39.65 |
| 45-1 | 29.50 | 29.20 | 29.16 |
| 46-1 | 25.90 | 21.81 | 21.99 |
| 46-2 | 22.15 | 19.64 | 19.82 |
| 46-3 | 18.50 | 18.70 | 20.06 |

Note: Italicized measurements represent dry sumps

Table 6
Maxey Flats Project
2013 Remedial Cap Subsidence Monitoring Control Point Survey

| Subsidence Control Point | 2004 Elevation | 2005 Elevation | 2006 Elevation | 2007 Elevation | 2008 Elevation | 2009 Elevation | 2010 Elevation | FALL 2010 Elevation | 2011 Elevation | 2012 Elevation | 2013 Elevation | Variation From 1st measurement | Variation From 2012 |
|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------------|----------------|----------------|----------------|--------------------------------|---------------------|
| 1 | 1061.82' | 1061.77' | 1061.79' | 1061.80' | 1061.81' | 1061.80' | 1061.79' | n/a | 1061.80' | 1061.87' | 1061.78' | -0.04' | -0.09 |
| 2 | 1064.53' | 1064.52' | 1064.47' | 1064.46' | 1064.45' | 1064.41' | 1064.40' | n/a | 1064.37' | 1064.48' | 1064.35' | -0.18' | -0.13 |
| 3 | 1064.72' | 1064.70' | 1064.63' | 1064.64' | 1064.6' | 1064.54' | 1064.54' | n/a | 1064.57' | 1064.63' | 1064.47' | -0.25' | -0.16 |
| 4 | 1063.90' | 1063.85' | 1063.77' | 1063.76' | 1063.73' | 1063.60' | 1063.65' | n/a | 1063.57' | 1063.73' | 1063.57' | -0.33' | -0.16 |
| 5 | 1058.81' | 1058.75' | 1058.68' | 1058.64' | 1058.59' | 1058.53' | 1058.49' | n/a | 1058.44' | 1058.55' | 1058.35' | -0.46' | -0.20 |
| 6 | 1063.65' | 1063.60' | 1063.52' | 1063.51' | 1063.49' | 1063.44' | 1063.43' | n/a | 1063.44' | 1063.53' | 1063.27' | -0.38' | -0.26 |
| 7 | 1061.72' | 1061.66' | 1061.61' | 1061.60' | 1061.59' | 1061.53' | 1061.57' | n/a | 1061.49' | 1061.65' | 1061.44' | -0.28' | -0.21 |
| 8 | 1059.75' | 1059.69' | 1059.66' | 1059.64' | 1059.62' | 1059.54' | 1059.51' | n/a | 1059.47' | 1059.59' | 1059.36' | -0.39' | -0.23 |
| 9 | 1060.73' | 1060.71' | 1060.71' | 1060.70' | 1060.76' | 1060.64' | 1060.70' | n/a | 1060.64' | 1060.81' | 1060.67' | -0.06' | -0.14 |
| 10 | 1057.06' | 1057.03' | 1056.99' | 1056.96' | 1056.93' | 1056.9' | 1056.90' | n/a | 1057.03' | 1056.91' | 1056.82' | -0.24' | -0.09 |
| 11 | 1060.61' | 1060.58' | 1060.54' | 1060.55' | 1060.53' | 1060.52' | 1060.51' | n/a | 1060.66' | 1060.48' | 1060.44' | -0.17' | -0.04 |
| 12 | 1062.31' | 1062.28' | 1062.26' | 1062.25' | 1062.23' | 1062.21' | 1062.21' | n/a | 1062.39' | 1062.22' | 1062.18' | -0.13' | -0.04 |
| 13 | 1063.64' | 1063.63' | 1063.60' | 1063.60' | 1063.61' | 1063.6' | 1063.61' | n/a | 1063.80' | 1063.58' | 1063.58' | -0.06' | 0.00 |
| 14 | 1063.55' | 1063.54' | 1063.51' | 1063.50' | 1063.51' | 1063.46' | 1063.47' | n/a | 1063.76' | 1063.56' | 1063.43' | -0.12' | -0.13 |
| 15 | 1060.65' | 1060.60' | 1060.54' | 1060.53' | 1060.51' | 1060.47' | 1060.46' | n/a | 1060.46' | 1060.38' | 1060.39' | -0.26' | 0.01 |
| 16 | 1058.84' | 1058.85' | 1058.80' | 1058.81' | 1058.82' | 1058.79' | 1058.80' | n/a | 1058.84' | 1058.70' | 1058.81' | -0.03' | 0.11 |
| 17 | 1054.77' | 1054.75' | 1054.71' | 1054.71' | 1054.70' | 1054.68' | 1054.66' | n/a | 1054.71' | 1054.67' | 1054.62' | -0.15' | -0.05 |
| 18 | 1050.90' | 1050.86' | 1050.82' | 1050.83' | 1050.82' | 1050.81' | 1050.81' | n/a | 1050.92' | 1050.85' | 1050.81' | -0.09' | -0.04 |
| 19 | 1047.40' | 1047.36' | 1047.30' | 1047.31' | 1047.26' | 1047.24' | 1047.19' | n/a | 1047.21' | 1047.13' | 1047.06' | -0.34' | -0.07 |
| 20 | 1045.59' | 1045.55' | 1045.42' | 1045.41' | 1045.31' | 1045.27' | 1045.18' | n/a | 1045.19' | 1045.11' | 1045.00' | -0.59' | -0.11 |
| 21 | 1042.68' | 1042.67' | 1042.63' | 1042.66' | 1042.67' | 1042.68' | 1042.64' | n/a | 1042.72' | 1042.57' | 1042.60' | -0.08' | 0.03 |
| 22 | 1039.28' | 1039.24' | 1039.16' | 1039.17' | 1039.15' | 1039.14' | 1039.09' | n/a | 1039.13' | 1039.03' | 1039.06' | -0.22' | 0.03 |
| 23 | 1049.75' | 1049.76' | 1049.71' | 1049.73' | 1049.72' | 1049.73' | 1049.72' | n/a | 1049.73' | 1049.70' | 1049.63' | -0.12' | -0.07 |
| 24 | 1053.08' | 1053.06' | 1052.99' | 1052.97' | 1052.94' | 1052.92' | 1052.90' | n/a | 1052.90' | 1052.81' | 1052.91' | -0.17' | 0.10 |
| 25 | 1052.27' | 1052.25' | 1052.21' | 1052.22' | 1052.18' | 1052.16' | 1052.13' | n/a | 1052.16' | 1051.97' | 1052.13' | -0.14' | 0.16 |
| 26 | 1048.32' | 1048.30' | 1048.27' | 1048.26' | 1048.24' | 1048.26' | 1048.22' | n/a | 1048.24' | 1048.21' | 1048.24' | -0.08' | 0.03 |
| 27 | 1045.39' | 1045.35' | 1045.29' | 1045.28' | 1045.27' | 1045.25' | 1045.23' | n/a | 1045.22' | 1045.21' | 1045.19' | -0.20' | -0.02 |
| 28 | 1059.72' | 1059.75' | 1059.68' | 1059.66' | 1059.63' | 1059.66' | 1059.70' | n/a | 1059.73' | 1059.61' | 1059.76' | 0.04' | 0.15 |
| 29 | n/a | n/a | n/a | n/a | 1061.42' | 1061.34' | 1061.30' | n/a | 1061.24' | 1061.39' | 1061.07' | -0.35' | -0.32 |
| 30 | n/a | n/a | n/a | n/a | 1063.93' | 1063.85' | 1063.85' | n/a | 1063.80' | 1063.91' | 1063.77' | -0.16' | -0.14 |
| 31 | n/a | n/a | n/a | n/a | 1063.22' | 1063.17' | 1063.13' | n/a | 1063.26' | 1063.17' | 1063.01' | -0.21' | -0.16 |
| 32 | n/a | n/a | n/a | n/a | 1057.30' | 1057.24' | 1057.20' | n/a | 1057.22' | 1057.19' | 1057.12' | -0.18' | -0.07 |
| 33 | n/a | n/a | n/a | n/a | 1061.86' | 1061.80' | 1061.79' | 1062.19' | 1062.12' | 1061.83' | 1062.03' | 0.17' | 0.20 |
| 34 | n/a | n/a | n/a | n/a | 1063.05' | 1062.98' | 1062.96' | n/a | 1062.93' | 1063.01' | 1062.84' | -0.21' | -0.17 |

NOTE: POINTS 29-34 WERE ADDED BY THE COMMONWEALTH OF KENTUCKY IN 2008.

NOTE: POINT 33 WAS REPAIRED AND REMEASURED IN THE FALL OF 2010

**Table 7
Maxey Flats Project
2013 Erosion Monitoring – East Drain**

**Cross
Section 3.5**

4/9/2013

| Reference/ Measurement Monument | Reference Monument Elevation | Rod Reading | Measurement Monument Elevation | Description |
|---------------------------------------|------------------------------------|-------------|--------------------------------------|----------------|
| RP S9B | Damaged | 9.9 | 747.85 | Brass Monument |
| Reset of 3.5A | | 9.85 | 747.9 | Lag in Pole |
| S9A | 747.28 | 10.47 | 747.28 | Brass Monument |
| | | | 747.88 | Average |

Level Elev = 757.75

Tag Line Elev = 747.88

X-Section 3.5 only cross section measured from Right to Left looking up drain

| Measurement Station | Width | Rod Reading@ Tag line | Area | Elevation |
|------------------------|-------|--------------------------|--------------|-----------|
| 0 | 3 | 0.97 | 2.91 | 747.00 |
| 6 | 4 | 0.97 | 3.88 | 747.00 |
| 8 | 2 | 1.03 | 2.06 | 746.94 |
| 10 | 2 | 1.17 | 2.34 | 746.80 |
| 12 | 2 | 1.33 | 2.66 | 746.64 |
| 14 | 2 | 1.60 | 3.20 | 746.37 |
| 16 | 2 | 1.87 | 3.74 | 746.10 |
| 18 | 2 | 2.05 | 4.10 | 745.92 |
| 20 | 2 | 2.10 | 4.20 | 745.87 |
| 22 | 2 | 2.19 | 4.38 | 745.78 |
| 24 | 2 | 1.89 | 3.78 | 746.08 |
| 26 | 2 | 1.63 | 3.26 | 746.34 |
| 28 | 2 | 1.05 | 2.10 | 746.92 |
| 30 | 2 | 1.16 | 2.32 | 746.81 |
| 32 | 1 | 1.23 | 1.23 | 746.74 |
| | | | 46.16 | |

Measurements by MFP staff

**Table 7 (continued)
Maxey Flats Project
2013 Erosion Monitoring – East Drain**

**Cross
Section 5.0**

4/9/2013

| Reference/ Measurement Monument | Reference Monument Elevation | Rod Reading | Measurement Monument Elevation | Description |
|---------------------------------------|------------------------------------|-------------|--------------------------------------|-------------|
| S7 B | 770.71 | 3.13 | | Brass |
| M5 A | | 4.84 | 769 | Rebar |
| M5 B | | 4.82 | 769.02 | Rebar |
| | | | 769.01 | Average |

Level Elev = 773.84

Tag Line Elev = 769.01

| Measurement Station | Width | Rod Reading @ Tag Line | Area | Elevation |
|------------------------|-------|---------------------------|---------------|-----------|
| 0 | 1 | 1.01 | 1.01 | 768.00 |
| 2 | 2.5 | 2.25 | 5.63 | 766.76 |
| 5 | 2 | 3.20 | 6.40 | 765.78 |
| 6 | 1 | 3.76 | 3.76 | 765.22 |
| 7 | 1 | 4.47 | 4.47 | 764.51 |
| 8 | 1.5 | 6.39 | 9.59 | 762.59 |
| 10 | 2 | 6.99 | 13.98 | 761.99 |
| 12 | 2 | 6.45 | 12.90 | 762.53 |
| 14 | 2 | 6.40 | 12.80 | 762.58 |
| 16 | 1.5 | 5.87 | 8.81 | 763.11 |
| 17 | 1 | 5.15 | 5.15 | 763.83 |
| 18 | 1.5 | 4.29 | 6.44 | 764.69 |
| 20 | 3 | 3.89 | 11.67 | 765.09 |
| 24 | 3 | 3.12 | 9.36 | 765.86 |
| 26 | 2 | 2.25 | 4.50 | 766.73 |
| 28 | 1.75 | 0.86 | 1.51 | 768.12 |
| 29.5 | 0.75 | 0.99 | 0.74 | 767.99 |
| | | | 118.70 | |

Measurements by MFP staff

**Table 7 (continued)
Maxey Flats Project
2013 Erosion Monitoring – East Drain**

**Cross
Section 5.5**

4/9/2013

| Reference / Measurement Monument | Reference Monument Elevation | Rod Reading | Measurement Monument Elevation | Description |
|--|------------------------------------|-------------|--------------------------------------|-------------|
| S7 B | 770.71 | 3.13 | | Brass |
| M 5.5 S | | 1.85 | 771.99 | Rebar |
| M 5.5 N | | 1.85 | 771.99 | Rebar |
| | | | 771.99 | Average |

Level Elev = 773.84

Tag Line Elev = 771.99

| Measurement Station | Width | Rod Reading @ Tag Line | Area | Elevation |
|------------------------|-------|---------------------------|---------------|-----------|
| 0 | 1 | 0.74 | 0.74 | 771.25 |
| 2 | 2 | 2.92 | 5.84 | 769.07 |
| 4 | 2 | 4.49 | 8.98 | 767.50 |
| 6 | 2 | 5.71 | 11.42 | 766.28 |
| 8 | 2 | 6.64 | 13.28 | 765.35 |
| 10 | 2 | 6.81 | 13.62 | 765.18 |
| 12 | 2 | 6.96 | 13.92 | 765.03 |
| 14 | 2 | 7.07 | 14.14 | 764.92 |
| 16 | 2 | 7.20 | 14.40 | 764.79 |
| 18 | 2 | 6.40 | 12.80 | 765.59 |
| 20 | 1.5 | 2.95 | 4.43 | 769.04 |
| 21 | 1 | 2.59 | 2.59 | 769.40 |
| 22 | 0.5 | 0.75 | 0.38 | 771.24 |
| | | | 116.53 | |

Measurements by MFP staff

**Table 7 (continued)
Maxey Flats Project
2013 Erosion Monitoring – East Drain**

**Cross
Section 6.0**

4/10/2013

| Reference / Measurement Monument | Reference Monument Elevation | Rod Reading | Measurement Monument Elevation | Description |
|--|------------------------------------|-------------|--------------------------------------|-------------|
| S7B | 770.71 | 14.82 | | Brass |
| RP6A | | 3.39 | 782.14 | lag in tree |
| Yellow | | 3.28 | 782.25 | Rebar |
| | | | 782.20 | Average |

Level Elev = 785.53
Tag Line Elev = 782.20

| Measurement Station | Width | Rod Reading @ Tag Line | Area | Elevation |
|------------------------|-------|---------------------------|---------------|-----------|
| 0 | 0.5 | 0.75 | 0.38 | 781.89 |
| 1 | 1 | 2.54 | 2.54 | 780.10 |
| 2 | 1 | 2.98 | 2.98 | 779.66 |
| 3 | 1 | 6.01 | 6.01 | 776.63 |
| 4 | 1 | 7.54 | 7.54 | 775.10 |
| 5 | 1 | 8.82 | 8.82 | 773.82 |
| 6 | 1.5 | 8.76 | 13.14 | 773.88 |
| 8 | 2 | 9.06 | 18.12 | 773.58 |
| 10 | 1.75 | 9.11 | 15.94 | 773.53 |
| 11.5 | 1.5 | 8.34 | 12.51 | 774.30 |
| 13 | 1.5 | 6.58 | 9.87 | 776.06 |
| 14.5 | 1.5 | 5.39 | 8.09 | 777.25 |
| 16 | 1.75 | 2.84 | 4.97 | 779.80 |
| 18 | 2.1 | 0.01 | 0.02 | 782.63 |
| 18.1 | 0.06 | 0.01 | 0.00 | 782.63 |
| | | | 110.92 | |

Measurements by MFP staff

Table 7 (continued)
Maxey Flats Project
2013 Erosion Monitoring – East Drain

**Cross
Section 6.5**

4/10/2013

| Reference / Measurement Monument | Reference Monument Elevation | Rod Reading | Measurement Monument Elevation | Description |
|----------------------------------|------------------------------|-------------|--------------------------------|-------------|
| S7B | 770.71 | 14.82 | | Brass |
| M6.5S | | 2.56 | 782.97 | Rebar |
| M6.5N | | 2.7 | 782.83 | Rebar Reset |
| | | | 782.90 | Average |

Level Elev = 785.53

Tag Line Elev = 782.90

| Measurement Station | Width | Rod Reading @ Tag Line | Area | Elevation |
|---------------------|-------|------------------------|--------------|-----------|
| 0 | 1 | 0.93 | 0.93 | 782.40 |
| 2 | 2 | 1.96 | 3.92 | 781.37 |
| 4 | 2 | 2.85 | 5.70 | 780.48 |
| 6 | 2 | 4.06 | 8.12 | 779.27 |
| 8 | 2 | 5.35 | 10.70 | 777.98 |
| 10 | 2 | 5.41 | 10.82 | 777.92 |
| 12 | 2 | 5.02 | 10.04 | 778.31 |
| 14 | 2 | 5.14 | 10.28 | 778.19 |
| 16 | 2 | 3.65 | 7.30 | 779.68 |
| 18 | 1.25 | 1.19 | 1.49 | 782.14 |
| 18.5 | 0.25 | 0.07 | 0.02 | 783.26 |
| | | | 69.32 | |

Measurements by MFP staff

Table 7 (continued)
Maxey Flats Project
2013 Erosion Monitoring – East Drain

**Cross
Section 6.75**

4/10/2013

| Reference/ Measurement Monument | Reference Monument Elevation | Rod Reading | Measurement Monument Elevation | Description |
|---------------------------------------|------------------------------------|-------------|--------------------------------------|------------------|
| M6.5S | 782.97 | 15.76 | | Brass |
| M6.75S | | 4.35 | 794.38 | Rebar/reset >1ft |
| M6.75N | | 4.30 | 794.43 | Rebar/reset >1ft |
| | | | 794.41 | Average |

Level Elev = 798.73

Tag Line Elev = 794.41

| Measurement Station | Width | Rod Reading @ Tag Line | Area | Elevation |
|------------------------|-------|---------------------------|--------------|-----------|
| 0 | 1 | 1.14 | 1.14 | 792.94 |
| 2 | 2 | 3.02 | 6.04 | 791.06 |
| 4 | 2 | 5.27 | 10.54 | 788.81 |
| 6 | 2 | 4.90 | 9.80 | 789.18 |
| 8 | 2 | 5.20 | 10.40 | 788.88 |
| 10 | 2 | 4.86 | 9.72 | 789.22 |
| 12 | 2 | 4.84 | 9.68 | 789.24 |
| 14 | 2 | 4.22 | 8.44 | 789.86 |
| 16 | 2 | 2.98 | 5.96 | 791.10 |
| 18 | 1.75 | 1.34 | 2.35 | 792.74 |
| 19.5 | 0.75 | 0.84 | 0.63 | 793.24 |
| | | | 74.70 | |

Measurements by MFP staff

**Table 7 (continued)
Maxey Flats Project
2013 Erosion Monitoring – East Drain**

**Cross
Section 8.0**

3/13/2012

| Reference/ Measurement Monument | Reference Monument Elevation | Rod Reading | Measurement Monument Elevation | Description |
|---------------------------------------|------------------------------------|-------------|--------------------------------------|-------------|
| MS A | | 7.44 | 929.34 | Rebar |
| MS B | | 7.56 | 929.22 | Rebar |
| | | | 929.28 | Average |

Level Elev = 936.78

Tag Line Elev = 929.28

| Measurement Station | Width | Rod Reading @ Tag Line | Area | Elevation |
|------------------------|-------|---------------------------|---------------|-----------|
| 0 | 1 | 2.97 | 2.97 | 926.31 |
| 2 | 2 | 2.92 | 5.84 | 926.36 |
| 4 | 2 | 3.81 | 7.62 | 925.47 |
| 6 | 2 | 7.27 | 14.54 | 922.01 |
| 8 | 2 | 7.47 | 14.94 | 921.81 |
| 10 | 2 | 6.70 | 13.40 | 922.58 |
| 12 | 2 | 5.59 | 11.18 | 923.69 |
| 14 | 2 | 6.11 | 12.22 | 923.17 |
| 16 | 2 | 5.07 | 10.14 | 924.21 |
| 18 | 2 | 2.78 | 5.56 | 926.50 |
| 20 | 2 | 3.02 | 6.04 | 926.26 |
| 22 | 2 | 3.76 | 7.52 | 925.52 |
| 24 | 2 | 2.58 | 5.16 | 926.70 |
| 26 | 2 | 2.75 | 5.50 | 926.53 |
| 28 | 1.4 | 2.68 | 3.62 | 926.60 |
| 28.7 | 0.4 | 2.02 | 0.71 | 927.26 |
| | | | 126.96 | |

Measurements by MFP staff

Table 7 (continued)
Maxey Flats Project
2013 Erosion Monitoring – East Drain

**Cross
Section 12**

4/15/2013

| Reference/ Measurement Monument | Reference Monument Elevation | Rod Reading | Measurement Monument Elevation | Description |
|---------------------------------------|------------------------------------|-------------|--------------------------------------|-------------|
| S2A | 988.82 | 7.96 | | Brass |
| S2B | | 8.68 | 988.10 | Brass |
| M12A | | 8.68 | 988.10 | Brass |
| | | | 988.10 | Average |

Level Elev = 996.78

Tag Line Elev = 988.10

| Measurement Station | Width | Rod Reading @ Tag Line | Area | Elevation |
|------------------------|-------|---------------------------|---------------|-----------|
| 0 | 3 | 2.44 | 7.32 | 985.66 |
| 6 | 4 | 3.20 | 12.80 | 984.90 |
| 8 | 2 | 3.26 | 6.52 | 984.84 |
| 10 | 2 | 3.52 | 7.04 | 984.58 |
| 12 | 2 | 3.95 | 7.90 | 984.15 |
| 14 | 2 | 4.42 | 8.84 | 983.68 |
| 16 | 2 | 6.32 | 12.64 | 981.78 |
| 18 | 2 | 6.36 | 12.72 | 981.74 |
| 20 | 2 | 6.51 | 13.02 | 981.59 |
| 22 | 2 | 4.40 | 8.80 | 983.70 |
| 24 | 2 | 4.08 | 8.16 | 984.02 |
| 26 | 2 | 4.75 | 9.50 | 983.35 |
| 28 | 2 | 4.36 | 8.72 | 983.74 |
| 30 | 2 | 5.14 | 10.28 | 982.96 |
| 32 | 2 | 3.72 | 7.44 | 984.38 |
| 34 | 2 | 3.34 | 6.68 | 984.76 |
| 36 | 2 | 3.01 | 6.02 | 985.09 |
| 38 | 2 | 3.32 | 6.64 | 984.78 |
| 40 | 2 | 3.28 | 6.56 | 984.82 |
| 42 | 2 | 2.62 | 5.24 | 985.48 |
| 44 | 1.6 | 1.86 | 2.98 | 986.24 |
| 45.2 | 0.6 | 1.78 | 1.07 | 986.32 |
| | | | 176.88 | |

Measurements by MFP staff