ENERGY AND ENVIRONMENT CABINET

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Governor

Department for Environmental Protection
Division of Waste Management
Maxey Flats Project
2597 Maxey Flat Rd.
Hillsboro, KY 41049
606-783-8680

Leonard K. Peters
Secretary

October 27, 2009

Ms. Pam Scully
SRPM, Kentucky/Tennessee Section
USEPA-Region IV
Sam Nunn Atlanta Federal Center Tower
61 Forsyth Street, SW
Atlanta, GA 30303-8960

Subject: Maxey Flats Disposal Site
2009 Semi-Annual Report

Dear Ms. Scully:

On August 24, 2009 the Commonwealth of Kentucky, Maxey Flats Project (MFP) submitted the 2009 Semi-Annual Report to fulfill requirement of Section 4.0 of the Performance Standard Verification Plan (PSVP). During the October 14, 2009 quarterly audit conducted by US DOE and de maximis clarifications and additional data requests were made concerning subsidence monitoring and sump data. To satisfy this request the MFP is resubmitting the 2009 Semi-Annual Report with Subsidence Monitoring and Table 3 clarification plus new Subsidence Data included in Table 4. Copies are being distributed, under this cover, as indicated below.

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

Sincerely,

Scott Wilburn

Scott Wilburn
Environmental Control Supervisor
Maxey Flats Project

e-c: Derek Matory, USEPA
Jon Richards, USEPA
Vijendra Kothari, USDOE
Michelle Miller, Stoller Corp.
Bennie Underwood, de maximis, inc.
Nicole Barkasi, de maximis, inc.
Shawn Cecil, EEC, Superfund Branch

MAXEY FLATS PROJECT

2009 SEMI-ANNUAL REPORT

AMMENDED DOCUMENT

October 27, 2009

Maxey Flats Project (MFP) Semi-annual Report

Reporting Period: January 2009 – June 2009

Monitoring Results

This section covers tasks performed during this reporting period to comply with the Interim Maintenance Period Work Plan (IMP) that includes the Performance Standard Verification Plan (PSVP) and the Operation and Maintenance Summary Requirement (O&M).

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 1,351 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-1A and 7. For this reporting period no location exceeded tritium analysis of 6 pCi/ml; this is compared to drinking water standard of 20 pCi/ml.

Monitoring Wells

USGS staff members completed USGS monitoring well measurements and sampling in January and April. Fifteen monitoring wells are measured quarterly with select wells sampled on a semi-annual basis. Table 2 contains a summary of the data obtained during this reporting period.

Trench Leachate Management (PSVP 2.3)

Trench sump liquid levels are obtained in accordance with the PSVP, Section 2.3 Sump Measurements and Tech Change III and the Second Five Year Review. First semiannual measurements were obtained in April. Table 3 contains the liquid level measurements from both events. The data indicates the levels overall are remaining constant excluding sump 7-4 and sump 46-2.

Sump 7-4 has exceeded 60% of freeboard. A leachate management engineering evaluation was submitted to EPA August 6, 2008. The leachate management engineering evaluation recommends monitoring Sump 7-4 on a quarterly basis to determine if it stabilizes near pre-pump level. 7-4 is currently within two feet of its pre-pump level.

Subsidence Monitoring (PSVP 2.2)

Presently only two small subsidences are being monitored, both are on trench 32. At this time neither have meet the IMP Work Plan Subsidence criteria.

The annual subsidence survey was completed by Curd, Newton and Associates during May. Comparing the 2009 control point elevation measurements to 2004 baseline measurements indicates variation ranged from +0.03" to -0.32". The IMP Work Plan does not prescribe Action Levels for subsidence monitoring. Six additional subsidence monitoring locations (29-34) were added in 2008 at the discretion of MFP to ensure monitoring of suspect areas. Table 4 contains subsidence monitoring results.

Erosion Monitoring (PSVP 2.1)

Table 5 contains data obtained from surveys performed by USGS staff. The monitoring continues to indicate no acute or significant erosion.

Inspections, Maintenance and Repair Activities Relative to the IRP

Inspections

Inspections were conducted in accordance with the Operations and Maintenance Requirements Summary (O&M), Appendix B. 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 geo-membrane liner, headwalls, drainage channels, diversion berms, interior anchor trenches, perimeter, and anchor trench, articulating block system, emergency spillway at the northeast corner, east detention basin, southeast cap and general site components.

The only items requiring attention were leaf removal from headwall inlets and weed control within the AB-mats.

Repairs

A total of 60 repairs were made to the geomembrane liner during this reporting period. Nine were detected by air lancing with the remainder being holes or tears detected by visual. 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 1,726 analyzed samples. The data supports that the Maxey Flats Project at present is causing a minimal impact to human health and the environment.

Table 1
Maxey Flats Project
Surface Water Data
2009

Location	Minimum Activity (pCi/ml)	Date	Maximum Activity (pCi/ml)	Date	Average Activity (pCi/ml)	Sampling Period
ISCO 122A	-0.24	2/14/09	0.70	1/16/09	0.07	1/1-6/30/09
ISCO 106	1.55	6/26/09	12.79	1/24/09	3.31	1/1-6/30/09
ISCO 122C	0.29	2/8/09	2.37	4/29/09	0.86	1/1-6/30/09
ISCO 102D	0.16	2/15/09	1.95	4/29/09	0.60	1/1-6/30/09
ISCO 103E	-0.08	1/13/09	1.06	1/8/09	0.42	1/1-6/30/09
ISCO EDB	0.04	4/5/09	1.75	6/3/09	0.90	1/1-6/30/09
ISCO 143	-0.16	1/2/09	1.11	3/16/09	0.09	1/1-6/30/09
ISCO 144	1.92	6/26/09	108.41	1/2/09	36.60	1/1-6/30/09
ISCO C107	0.89	1/28/09	13.91	5/29/09	6.76	1/1-6/30/09

Table 2
Maxey Flats Project
USGS Monitoring Well Data
2009

Well ID	Ground Level to Bottom (ft)	Ground Level to Liquid (ft) 1/21/09	Ground Level to Liquid (ft) 4/22/09	Tritium Activity April 2009 (pCi/ml)
ESI-1	22.13	14.55	5.53	*measurement only*
ESI-2	14.67	12.24	11.84	*measurement only*
ESI-4	24.48	12.80	12.26	*measurement only*
ESI-5	22.87	13.61	13.34	*measurement only*
ESI-12	38.92	18.87	19.17	*measurement only*
ESI-19	19.52	14.50	14.28	*measurement only*
ESI-20		101.74	101.77	*measurement only*
N2B	9.75	Dry	9.16	29,025 +/- 11
UE-2	15.60	14.63	14.37	359,785 +/- 39
UE-11	16.70	14.71	14.49	*measurement only*
UF-1	18.20	14.82	14.48	*measurement only*
UF-2	13.15	10.69	10.18	185,759 +/- 28
UF-5	17.50	6.70	4.66	*measurement only*
UF-10a		28.53	28.31	31,247 +/- 12
UF-37	21.90	12.65	13.35	*measurement only*
UF-45	18.90	14.75	14.27	*measurement only*
UK-1	12.60	11.07	10.60	97,191 +/- 20

Table 3

Maxey Flats Project Trench Sump Leachate Measurements 2008-2009

SUMP ID	Baseline ToC-ToL	Oct. 08 ToC-ToL	April 09 ToC-ToL
1-2	20.80	19.63	19.63
2-6	21.45	20.13	20.19
3-2	23.00	***22.85***	***23.08***
3-4	15.63	16.02	16.12
7-4	15.28	7.78	7.10
7-5	18.43	19.87	19.98
7-7	19.33	20.78	20.94
10-7	27.83	27.38	27.33
10-8	27.51	27.68	27.68
10-9	26.06	24.64	24.58
11S-5	20.92	20.97	21.13
11S-6	24.03	24.57	24.62
15-4	26.68	26.61	26.62
15-5	24.14	24.38	24.14
15-6	28.88	28.17	28.14
15-8	22.21	22.43	22.48
18-6	30.41	30.19	30.16
18-9	21.88	***21.96***	***21.96***
19-5	28.85	28.85	28.85
19-6	23.50	23.08	23.08
19-7	30.80	29.74	29.68
20W	26.50	28.14	28.17
20-7	29.85	29.77	29.69
20-9	30.06	29.98	29.98
20-11	24.21	24.04	24.04
23-5	31.20	30.78	30.78
23-6	31.17	30.52	30.49
23-9	24.55	***24.26***	***24.26***
24-5	23.37	23.31	23.31
24-6	26.45	26.41	26.42
25-5	22.91	23.41	23.44
25-7	25.05	24.76	24.76
25-9	22.59	22.47	22.50
26-2	28.11	27.38	27.34
26-3	26.90	26.38	26.35
26-4	21.70	22.08	22.17
27-9	28.08	26.42	26.42
27-11	25.80	***25.62***	***25.62***
28W	26.00	26.03	26.03
28-6	27.50	***27.14***	***27.14***
28-11	27.00	***26.95***	***26.95***

SUMP ID	Baseline ToC-ToL	Oct. 08 ToC-ToL	April 09 ToC-ToL
28-12	26.30	***26.34***	***26.34***
29W	24.95	27.02	25.79
29-5	27.95	***27.65***	***27.65***
29-6	25.33	***25.65***	***25.65***
30-4	23.25	***23.29***	***23.29***
30-8	29.10	***29.92***	***29.92***
30-10	29.06	***29.05***	***29.05***
31-2	25.05	25.18	25.19
31-5	23.23	23.04	23.08
31-7	24.78	24.69	24.63
31-9	24.95	25.85	25.85
32-E	29.13	28.93	28.94
32-9	28.89	28.94	28.94
35-2	27.04	28.04	28.22
35-6	27.65	27.30	27.31
36-3	20.73	20.74	20.76
36-6	24.00	23.96	23.98
36-7	22.70	22.22	22.21
37-3	22.97	22.62	22.62
37-4	23.37	***23.44***	***23.44***
38-4	21.80	21.38	21.38
38-5	21.45	21.03	21.04
39-4	19.02	***19.12***	***19.12***
40-15	21.40	***21.35***	***21.35***
40-17	28.75	28.42	28.38
40-19	30.30	29.62	29.62
40-22	32.53	31.84	31.84
42-11	28.60	28.46	28.51
42-19	27.70	27.88	27.91
42-20	35.35	***34.96***	***34.96***
43-7	35.95	36.33	36.38
43-9	34.15	34.57	34.61
43-13	30.35	30.59	30.61
44-5	41.45	***40.68***	***40.68***
44-14	34.30	34.26	34.26
44-20	38.50	38.36	38.34
44-22	39.90	40.04	39.98
45-1	29.50	29.29	29.29
46-1	25.90	21.93	21.90
46-2	22.15	20.34	20.36
46-3	18.50	18.62	19.85

Note: italicized measurements represent dry sumps

Table 4 Maxey Flats Project Subsidence Monitoring

Subsidence Control Point	2004 Elevation	2005 Elevation	Variation From 2004	2006 Elevation	Variation From 2004	2007 Elevation	Variation From 2004	2008 Elevation	Variation From 2004	2009 Elevation	Variation From 2004	Variation From 2005	Variation From 2006	Variation From 2007	Variation From 2008
1	1061.82'	1061.77'	-0.05'	1061.79'	-0.03'	1061.80'	-0.02'	1061.81'	-0.01'	1061.80'	-0.02'	+0.03'	+0.01'	0.00'	-0.01'
2	1064.53'	1064.52'	-0.01'	1064.47'	-0.06'	1064.46'	-0.07'	1064.45'	-0.08'	1064.41'	-0.12'	-0.11'	-0.06'	-0.05'	-0.04'
3	1064.72'	1064.70'	-0.02'	1064.63'	-0.09'	1064.64'	-0.08'	1064.6'	-0.12'	1064.54'	-0.18'	-0.16'	-0.09'	-0.10'	-0.06'
4	1063.90'	1063.85'	-0.05'	1063.77'	-0.13'	1063.76'	-0.14'	1063.73'	-0.17'	1063.60'	-0.30'	-0.25'	-0.17'	-0.16'	-0.13'
5	1058.81'	1058.75'	-0.06'	1058.68'	-0.13'	1058.64'	-0.17'	1058.59'	-0.22'	1058.53'	-0.28'	-0.22'	-0.15'	-0.11'	-0.06'
6	1063.65'	1063.60'	-0.05'	1063.52'	-0.13'	1063.51'	-0.14'	1063.49'	-0.16'	1063.44'	-0.21'	-0.16'	-0.08'	-0.07'	-0.05'
7	1061.72'	1061.66'	-0.06'	1061.61'	-0.11'	1061.60'	-0.12'	1061.59'	-0.13'	1061.53'	-0.19'	-0.13'	-0.08'	-0.07'	-0.06'
8	1059.75'	1059.69'	-0.06'	1059.66'	-0.09'	1059.64'	-0.11'	1059.62'	-0.13'	1059.54'	-0.21'	-0.15'	-0.12'	-0.10'	-0.08'
9	1060.73'	1060.71'	-0.02'	1060.71'	-0.02'	1060.70'	-0.03'	1060.76'	+0.03'	1060.64'	-0.09'	-0.07'	-0.07'	-0.06'	-0.12'
10	1057.06'	1057.03'	-0.03'	1056.99'	-0.07'	1056.96'	-0.10'	1056.93'	-0.13'	1056.9'	-0.16'	-0.13'	-0.09'	-0.06'	-0.03'
11	1060.61'	1060.58'	-0.03'	1060.54'	-0.07'	1060.55'	-0.06'	1060.53'	-0.08'	1060.52'	-0.09'	-0.06'	-0.02'	-0.03'	-0.01'
12	1062.31'	1062.28'	-0.03'	1062.26'	-0.05'	1062.25'	-0.06'	1062.23'	-0.08'	1062.21'	-0.10'	-0.07'	-0.05'	-0.04'	-0.02'
13	1063.64'	1063.63'	-0.01'	1063.60'	-0.04'	1063.60'	-0.04'	1063.61'	-0.03'	1063.6'	-0.04'	-0.03'	0.00'	0.00'	-0.01'
14	1063.55'	1063.54'	-0.01'	1063.51'	-0.04'	1063.50'	-0.05'	1063.51'	-0.04'	1063.46'	-0.09'	-0.08'	-0.05'	-0.04'	-0.05'
15	1060.65'	1060.60'	-0.05'	1060.54'	-0.11'	1060.53'	-0.12'	1060.51'	-0.14'	1060.47'	-0.18'	-0.13'	-0.07'	-0.06'	-0.04'
16	1058.84'	1058.85'	+0.01'	1058.80'	-0.04'	1058.81'	-0.03'	1058.82'	-0.02'	1058.79'	-0.05'	-0.06'	-0.01'	-0.02'	-0.03'
17	1054.77'	1054.75'	-0.02'	1054.71'	-0.06'	1054.71'	-0.06'	1054.70'	-0.07'	1054.68'	-0.09'	-0.07'	-0.03'	-0.03'	-0.02'
18	1050.90'	1050.86'	-0.04'	1050.82'	-0.08'	1050.83'	-0.07'	1050.82'	-0.08'	1050.81'	-0.09'	-0.05'	-0.01'	-0.02'	-0.01'
19	1047.40'	1047.36'	-0.04'	1047.30'	-0.10'	1047.31'	-0.09'	1047.26'	-0.14'	1047.24'	-0.16'	-0.12'	-0.06'	-0.07'	-0.02'
20	1045.59'	1045.55'	-0.04'	1045.42'	-0.17'	1045.41'	-0.18'	1045.31'	-0.28'	1045.27'	-0.32'	-0.28'	-0.15'	-0.14'	-0.04'
21	1042.68'	1042.67'	-0.01'	1042.63'	-0.05'	1042.66'	-0.02'	1042.67'	-0.01'	1042.68'	0.00'	-0.01'	+0.05'	+0.02'	+0.01'
22	1039.28'	1039.24'	-0.04'	1039.16'	-0.12'	1039.17'	-0.11'	1039.15'	-0.13'	1039.14'	-0.14'	-0.10'	-0.02'	-0.03'	-0.01'
23	1049.75'	1049.76'	+0.01'	1049.71'	-0.04'	1049.73'	-0.02'	1049.72'	-0.03'	1049.73'	-0.02'	-0.03'	+0.02'	0.00'	+0.01'
24	1053.08'	1053.06'	-0.02	1052.99'	-0.09'	1052.97'	-0.11'	1052.94'	-0.14'	1052.92'	-0.16'	-0.14'	-0.07'	-0.05'	-0.02'
25	1052.27'	1052.25'	-0.02'	1052.21'	-0.06'	1052.22'	-0.05'	1052.18'	-0.09'	1052.16'	-0.11'	-0.09'	-0.05'	-0.06'	-0.02'
26	1048.32'	1048.30'	-0.02'	1048.27'	-0.05'	1048.26'	-0.06'	1048.24'	-0.08'	1048.26'	-0.06'	-0.04'	-0.01'	0.00'	+0.02'
27	1045.39'	1045.35'	-0.04'	1045.29'	-0.10'	1045.28'	-0.11'	1045.27'	-0.13'	1045.25'	-0.14'	-0.10'	-0.04'	-0.03'	-0.01'
28	1059.72'	1059.75'	+0.03'	1059.68'	-0.04'	1059.66'	-0.07'	1059.63'	-0.09'	1059.66'	-0.06'	-0.09'	-0.02'	0.00'	+0.03'
29								1061.42'		1061.34'					-0.08'
30								1063.93'		1063.85'					-0.08'
31								1063.22'		1063.17'					-0.05'
32								1057.30'		1057.24'					-0.06'
33								1061.86'		1061.80'					-0.06'
34								1063.05'		1062.98'					-0.07'

Table 5
Maxey Flats Project
Erosion Monitoring – East Drain
2009

East Drain Cross Section #3.5

Elevation in Feet

Station	Date April-09
0	746.77
2	746.77
4	746.22
6	745.97
8	745.92
10	746.04
12	746.24
14	746.33
16	746.57
18	746.94
20	747.15
22	747.16
24	747.08
26	747.16
28	747.19
30	747.47
30.5	747.47

East Drain Cross Section #5.0

Elevation in Feet

Station	Date April-09
0	767.30
2	767.30
4	767.69
7	764.83
7.5	764.53
8	764.31
10	763.22
12	763.08
14	762.94
16	763.45
18	764.97
20	765.42
22	766.51
24	765.88
26	766.85
28	768.11
29.5	768.11

East Drain Cross Section #5.5

Elevation in Feet

Station	Date April-09
0	769.00
2	769.00
4	767.43
6	766.14
8	765.41
10	765.39
12	765.50
14	765.04
16	765.00
18	767.75
20	769.21
21	769.53
22.5	769.53

East Drain Cross Section #6.0

Elevation in Feet

Station	Date April-09
0	780.66
1	780.66
2	780.28
3	779.57
4	777.53
5	774.37
6	773.91
8	773.84
10	773.56
12	773.48
14	774.42
16	777.38
21	782.51

East Drain Cross Section #6.5

Elevation in Feet

Station	Date April-09
0	781.04
2	781.04
4	780.26
6	779.00
8	778.78
10	779.02
12	777.87
14	779.60
16	780.11
18	782.07
18.5	782.95

East Drain Cross Section #6.75

Elevation in Feet

Station	Date April-09
0	793.22
1	791.43
2	790.72
4	789.00
6	790.86
8	789.65
10	790.11
12	790.32
14	790.56
16	791.53
17	792.44
18	793.29

Table 5
Maxey Flats Project
Erosion Monitoring – East Drain
2009

East Drain Cross Section #8.0

Elevation in Feet

Station	Date April-09
0	925.12
2	925.12
4	925.69
6	922.62
8	922.59
10	922.25
12	923.42
14	923.27
16	924.22
18	926.00
20	926.32
22	925.55
24	926.37
26	926.14
28	926.27
28.7	926.27

East Drain Cross Section #12.0

Elevation in Feet

Station	Date April-09
0	984.93
6	984.93
8	985.05
10	984.83
12	984.55
14	983.98
16	983.85
18	981.97
20	981.93
22	983.89
24	984.31
26	983.61
28	983.93
30	983.17
32	984.49
34	984.83
36	985.13
38	984.56
40	984.69
42	985.46
44	986.00
45.7	986.00