



July 19, 2013

Mr. Peter B. McCauley
Environmental Services
ComEd - University Park
25000 Governors Highway
University Park, IL 60466

**Re: Annual Groundwater Monitoring Report – July 2013
Environmental Land Use Control Implementation
Midwest Generation Waukegan Generating Station**

Dear Pete:

URS Corporation (URS) is pleased to submit to Commonwealth Edison (ComEd) two copies of the annual groundwater monitoring report for the period ending July 2013. This report was prepared in accordance with Section Nine of the Environmental Land Use Control (ELUC) for the Midwest Generation Waukegan Generating Station. The following paragraphs describe the groundwater sampling and analytical results.

Groundwater Sampling

Groundwater sampling was conducted on Tuesday, June 25, 2012. Samples were collected from the five monitoring wells within the ELUC area, MW-10, MW-11, MW-12, MW-14, and MW-15. The locations of these wells are shown on **Figure 1**. URS notes that during the 2011 groundwater monitoring event, monitoring well MW-13 was found to have been destroyed, likely from grading operations within the active rail yard on-site. Monitoring well MW-13 has been abandoned because drilling operations to re-establish the well would have posed safety concerns for personnel involved due to hazards associated with the well's location in the active rail yard. URS also notes that as wells MW-10, MW-11, and MW-14 are upgradient of well MW-13, and as wells MW-12 and MW-15 are crossgradient, it is expected that contaminants of concern (COCs) at the facility will be sufficiently monitored from the existing wells.

Prior to sampling, water levels were measured, and each monitoring well was purged using a low flow peristaltic pump. During purging, water quality parameters (i.e., temperature, pH, conductivity, total dissolved solids [TDS], oxidation reduction potential [ORP], and turbidity) were recorded and allowed to stabilize.

Samples were collected from each well using a low flow peristaltic pump and placed in laboratory-provided non-preservative bottles. The groundwater samples were stored on ice and delivered to STAT Analysis Corporation (STAT) of Chicago, Illinois, a National Environmental Laboratory Accreditation Conference (NELAC) certified laboratory. Upon receipt of the samples, the samples were shaken and then the sub-samples were taken for TDS, which does not require preservative. The samples were allowed to settle in a refrigerator for 24 hours. The samples were then decanted into appropriate laboratory bottles with preservative for arsenic. Groundwater samples were analyzed for arsenic using EPA Method 6020, and TDS using EPA Method 160.1. As discussed in June 2007 Annual

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MWG13-15_5114

Comp. Ex. 39F

Groundwater Monitoring Report, samples were not analyzed for iron and manganese since previous sampling events revealed no significant increasing trends in concentrations of iron and manganese.

Sampling Results

Water level measurements and elevations for the onsite monitoring wells obtained on June 25, 2013 as well as measurements obtained during previous sampling events (December 17, 2003 through July 12, 2012) are summarized in **Table 1**. The analytical results for the groundwater samples collected on June 25, 2013, as well as the previous sampling events (December 17, 2003 through July 12, 2012) are summarized in **Table 2**. A copy of the laboratory analytical report is provided in **Attachment 1**.

Trend Analysis

A non-parametric trend analysis (Gilbert, 1987) was conducted on historical concentrations of arsenic and TDS from the ELUC area. Data were collected semiannually for the period December 17, 2003 through June 14, 2006. From June 6, 2007 through June 25, 2013, annual data were collected from onsite wells for arsenic and TDS, see **Table 2** for specific details. As previously stated, monitoring well MW-13 has not been sampled since the June 22, 2011 event, as the well was destroyed.

The data were evaluated for trends using the Mann-Kendall trend test. The Mann-Kendall Statistic (S) was calculated and compared to the critical statistic. The critical statistic is the value for S when the probability is equal (or slightly less than) the significance level (α) of 5%. These Mann-Kendall trend tests were calculated as one tailed test. Arsenic was tested for a null hypothesis of no trend against the alternative hypothesis of decreasing trend. TDS was tested for a null hypothesis of no trend against the alternative hypothesis of increasing trend. Results are presented in **Table 3** and also discussed below for each parameter.

Arsenic: There were no significant decreasing trends in arsenic in the site wells.

TDS: There were no significant increasing trends in TDS in the site wells.

Conclusion

In accordance with Section Nine of the ELUC, groundwater monitoring for arsenic will continue annually as there were no significant downward trends in arsenic. However for TDS, groundwater monitoring will change from annually to every five years since there were no significant increasing trends in TDS. The next groundwater monitoring event for arsenic will be in June 2014. Groundwater monitoring of TDS will occur during the next five-year sampling event which will take place in June 2017. Groundwater monitoring of iron and manganese will remain on the five-year schedule with the next groundwater monitoring event taking place in June 2017.



Mr. Peter B. McCauley
July 19, 2013
Page 3 of 3

References

Gilbert, R.O. 1987. Statistical Methods for Environmental Pollution Monitoring. Van Nostrand Reinhold, NY.

If you have any questions or comments regarding this report, please call me at (312) 577-7409.

Sincerely,
URS Corporation

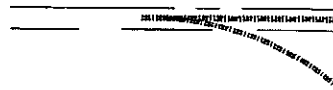
David Meiri

David Meiri, Ph.D., CGWP
Vice President



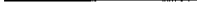












Attachments

cc: Maria L. Race, Midwest Generation EME (3 copies)
File 25366456.00790

PLOTTED July 19, 2013 BY: Harrison, Leslie CTR USER: RETEC-ctb PAPER SPACE TAB: ANSL_B1-CP_LAT: 27.7950 LONG: -88.3940
 DWG PATH: D:\Evelon_25366456_Tannery\Environmntal\REFDST\Remedat Action Completion\WUC ELUC\Calcdwg\FIGURE 1-072013.dwg



LEGEND

-  SECTION LINE
-  BOUNDARY LINE
-  EASEMENT LINE
-  EXISTING WETLAND LIMITS
-  EXISTING WOOD POST & CABLE FENCE LINE
-  EXISTING FENCE LINE
-  EXISTING LIGHT POLE
-  EXISTING POWER POLE
-  EXISTING RAILROAD TRACKS
-  SHALLOW MONITORING WELL LOCATION
-  DEEP MONITORING WELL LOCATION
-  DESTROYED SHALLOW MONITORING WELL LOCATION
-  ABANDONED SHALLOW MONITORING WELL LOCATION
-  ABANDONED DEEP MONITORING WELL LOCATION
-  MIDWEST GENERATION ELUC AREA

COMMONWEALTH EDISON
 CHICAGO, ILLINOIS

FIGURE 1
MONITORING WELL LOCATIONS
FORMER GRIESS-PFLEGER TANNERY
SITE WAUKEGAN, ILLINOIS

DATE: July 17, 2013
 JOB NO.: 25366456.00790
 DRAWN BY: BKR CHK'D BY: DM
 SCALE: AS SHOWN

URS

100 SOUTH WACKER DRIVE, SUITE 500
 CHICAGO, ILLINOIS 60606
 PHONE: (312) 939-1000
 FAX: (312) 939-4198

600

SOURCE: METCALF & EDDY, McCLURE ENGINEERING ASSOC., INC., 12/29/03

Table 1 Water Level Elevations for Midwest Generation ELUC Area

Well Number	Well Riser Elevation ft MSL	December 17, 2003		June 16, 2004		December 9, 2004	
		Depth to Water Below Riser ft	Water Level Elevation ft MSL	Depth to Water Below Riser ft	Water Level Elevation ft MSL	Depth to Water Below Riser ft	Water Level Elevation ft MSL
MW-10	587.94	4.33	583.61	2.58	585.36	3.55	584.39
MW-11	587.03	2.37	584.66	2.17	584.86	2.68	584.35
MW-12	587.25	3.71	583.54	2.60	584.65	2.93	584.32
MW-13	586.26	1.77	584.49	1.12	585.14	1.61	584.65
MW-14	586.69	1.61	585.08	0.50	586.19	1.97	584.72
MW-15	588.03	4.31	583.72	2.60	585.43	5.47	582.56

Well Number	Well Riser Elevation ft MSL	June 16, 2005		December 22, 2005		June 14, 2006	
		Depth to Water Below Riser ft	Water Level Elevation ft MSL	Depth to Water Below Riser ft	Water Level Elevation ft MSL	Depth to Water Below Riser ft	Water Level Elevation ft MSL
MW-10	587.94	3.99	583.95	5.55	582.39	3.77	584.17
MW-11	587.03	3.93	583.10	3.78	583.25	2.97	584.06
MW-12	587.25	3.24	584.01	4.95	582.30	3.33	583.92
MW-13	586.26	2.28	583.98	3.71	582.55	2.18	584.08
MW-14	586.69	2.39	584.30	3.90	582.79	2.08	584.61
MW-15	588.03	5.84	582.19	7.91	580.12	6.78	581.25

Well Number	Well Riser Elevation ft MSL	June 6, 2007		June 19, 2008		June 18, 2009	
		Depth to Water Below Riser ft	Water Level Elevation ft MSL	Depth to Water Below Riser ft	Water Level Elevation ft MSL	Depth to Water Below Riser ft	Water Level Elevation ft MSL
MW-10	587.94	3.38	584.56	3.29	584.65	3.48	584.46
MW-11	587.03	2.55	584.48	2.52	584.51	2.76	584.27
MW-12	587.25	2.92	584.33	3.10	584.15	3.20	584.05
MW-13	586.26	1.82	584.44	1.82	584.44	1.96	584.30
MW-14	586.69	1.53	585.16	1.20	585.49	1.46	585.23
MW-15	588.03	4.98	583.05	4.39	583.64	4.25	583.78

MWG13-15_5118

Table 1 Water Level Elevations for Midwest Generation ELUC Area (Cont'd)

Well Number	Well Riser Elevation ft MSL	July 9, 2010		June 22, 2011		July 12, 2012	
		Depth to Water Below Riser ft	Water Level Elevation ft MSL	Depth to Water Below Riser ft	Water Level Elevation ft MSL	Depth to Water Below Riser ft	Water Level Elevation ft MSL
MW-10	587.94	3.79	584.15	3.50	584.44	4.98	582.96
MW-11	587.03	2.89	584.14	2.92	584.11	3.61	583.42
MW-12	587.25	3.27	583.98	3.35	583.90	4.40	582.85
MW-13	586.26	2.32	583.94	NA	NA	NA	NA
MW-14	586.69	2.00	584.69	1.40	585.29	3.38	583.31
MW-15	588.03	5.17	582.86	4.20	583.83	6.74	581.29

Well Number	Well Riser Elevation ft MSL	June 25, 2013	
		Depth to Water Below Riser ft	Water Level Elevation ft MSL
MW-10	587.94	3.59	584.35
MW-11	587.03	2.53	584.50
MW-12	587.25	2.98	584.27
MW-13	586.26	NA	NA
MW-14	586.69	1.79	584.90
MW-15	588.03	4.64	583.39

Notes:

NA: Not available.

Table 2

Groundwater Analytical Results from Midwest Generation ELUC Area

Sample Name	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	DUP-01	
Sample Location	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-14	
Sample Date	12/17/2003	12/17/2003	12/17/2003	12/17/2003	12/17/2003	12/17/2003	12/17/2003	
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate	
Area	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	
Chemical	CAS No.							
METALS (mg/L)								
Arsenic	7440382	0.15	0.86	0.003	< 0.002	0.16	0.0022	0.18
Iron	15438310	1.4	2.9	0.296	0.296	0.83	1.3	0.95
Manganese	7439965	0.19	0.35	0.055	0.055	0.14	0.64	0.15
INORGANICS (mg/L)								
Solids, Total Dissolved (TDS)		560	600	0.02	0.02	560	740	360

Sample Name	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	DUP-01	
Sample Location	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-11	
Sample Date	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2004	
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate	
Area	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	
Chemical	CAS No.							
METALS (mg/L)								
Arsenic	7440382	0.22	0.7	0.0043	0.0021	0.11	0.0018 B	0.88
Iron	15438310	2.7	2.1	2.7	0.09	0.87	2.5	2.2
Manganese	7439965	0.12	0.41	0.17	0.0013 B	0.12	0.51	0.4
INORGANICS (mg/L)								
Solids, Total Dissolved (TDS)		560	1200	1300	220	680	1000	1200

Sample Name	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	DUP-01	
Sample Location	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-12	
Sample Date	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate	
Area	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	
Chemical	CAS No.							
METALS (mg/L)								
Arsenic	7440382	0.078	1.1	0.001 B	0.001 B	0.2	0.0024	0.0012 B
Iron	15438310	0.22	2.3	5.3	0.25	1.3	2	5.3
Manganese	7439965	0.0028 B	0.35	0.24	0.74	0.13	0.53	0.24
INORGANICS (mg/L)								
Solids, Total Dissolved (TDS)		430	1200	1300	280	600	940	890

Notes:

<: Less than; when appearing in the results column indicates the analyte was not detected at or above the reporting limit.

B: Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.

NA: Not available.

Table 2 Groundwater Analytical Results from Midwest Generation ELUC Area (Cont'd)

Sample Name	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	DUP-01	
Sample Location	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-11	
Sample Date	6/16/2005	6/16/2005	6/16/2005	6/16/2005	6/16/2005	6/16/2005	6/16/2005	
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate	
Area	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	
Chemical								
CAS No.								
METALS (mg/L)								
Arsenic	7440382	0.041	0.7	0.044	< 0.004	0.21	< 0.004	0.65
Iron	15438310	0.99	4.6	5.1	0.56	3.1	4.5	4.1
Manganese	7439965	0.0058	0.43	0.19	0.054	0.16	0.73	0.4
INORGANICS (mg/L)								
Solids, Total Dissolved (TDS)		400	1200	860	250	690	920	1200

Sample Name	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	DUP-01	
Sample Location	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-11	
Sample Date	12/22/2005	12/22/2005	12/22/2005	12/22/2005	12/22/2005	12/22/2005	12/22/2005	
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate	
Area	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	
Chemical								
CAS No.								
METALS (mg/L)								
Arsenic	7440382	0.43	1.3	< 0.004	< 0.004	0.19	< 0.004	1.4
Iron	15438310	7.8	3.9	4.3	0.4	1.9	0.97	3.9
Manganese	7439965	0.18 B	0.24	0.17	0.11	0.15	0.45	0.24
INORGANICS (mg/L)								
Solids, Total Dissolved (TDS)		900	1300	940	260	820	760	1200

Sample Name	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	DUP-01	
Sample Location	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-10	
Sample Date	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	6/14/2006	
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate	
Area	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	
Chemical								
CAS No.								
METALS (mg/L)								
Arsenic	7440382	0.05	1.2	< 0.004	0.0061	0.055	< 0.004	0.046
Iron	15438310	2.1	4.2	1.4	1.9	2.7	2.5	2
Manganese	7439965	0.037	0.34	0.039	0.23	0.26	0.45	0.039
INORGANICS (mg/L)								
Solids, Total Dissolved (TDS)		540	1400	1100	270	900	1000	570

Notes:

<: Less than; when appearing in the results column indicates the analyte was not detected at or above the reporting limit.

B: Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.

NA: Not available.

MW/G13-15_5121

Table 2

Groundwater Analytical Results from Midwest Generation ELUC Area (Cont'd)

Sample Name	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	DUP-01	
Sample Location	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-11	
Sample Date	6/6/2007	6/6/2007	6/6/2007	6/6/2007	6/6/2007	6/6/2007	6/6/2007	
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate	
Area	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	
Chemical	CAS No.							
METALS (mg/L)								
Arsenic	7440382	0.058	0.92	< 0.004	< 0.004	0.024	< 0.004	1.2
Iron	15438310	1.2	1.1	1.1	0.27	0.65	1.3	2.3
Manganese	7439965	0.17	0.32	0.047	0.011	0.11	0.66	0.34
INORGANICS (mg/L)								
Solids, Total Dissolved (TDS)		880	1400	1200	59	820	1200	1400

Sample Name	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-DUP061908	
Sample Location	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-15	
Sample Date	6/19/2008	6/19/2008	6/19/2008	6/19/2008	6/19/2008	6/19/2008	6/19/2008	
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate	
Area	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	
Chemical	CAS No.							
METALS (mg/L)								
Arsenic	7440382	0.13	1.4	< 0.014	0.0041	0.027	< 0.004	< 0.004
INORGANICS (mg/L)								
Solids, Total Dissolved (TDS)		710	1200	1100	200	920	1100	1100

Sample Name	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-DUP01-061809	
Sample Location	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-11	
Sample Date	6/18/2009	6/18/2009	6/18/2009	6/18/2009	6/18/2009	6/18/2009	6/18/2009	
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate	
Area	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	
Chemical	CAS No.							
METALS (mg/L)								
Arsenic	7440382	0.34	1.1	0.029	< 0.004	0.049	< 0.004	1.1
INORGANICS (mg/L)								
Solids, Total Dissolved (TDS)		710	1100	1500	220	970	1000	1100

Notes:

<: Less than; when appearing in the results column indicates the analyte was not detected at or above the reporting limit.

B: Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.

NA: Not available.

Table 2 Groundwater Analytical Results from Midwest Generation ELUC Area (Cont'd)

Sample Name Sample Location Sample Date Sample Type Area	MW-10 MW-10 7/9/2010 Investigation MWG ELUC	MW-11 MW-11 7/9/2010 Investigation MWG ELUC	MW-12 MW-12 7/9/2010 Investigation MWG ELUC	MW-13 MW-13 7/9/2010 Investigation MWG ELUC	MW-14 MW-14 7/9/2010 Investigation MWG ELUC	MW-15 MW-15 7/9/2010 Investigation MWG ELUC	MW-DUP01-0709201 MW-10 7/9/2010 Duplicate MWG ELUC
Chemical CAS No.							
METALS (mg/L)							
Arsenic 7440382	0.12	0.63	< 0.004	< 0.004	0.17	0.0041	0.12
INORGANICS (mg/L)							
Solids, Total Dissolved (TDS)	660	1100	580	180	980	920	680

Sample Name Sample Location Sample Date Sample Type Area	MW-10 MW-10 6/22/2011 Investigation MWG ELUC	MW-11 MW-11 6/22/2011 Investigation MWG ELUC	MW-12 MW-12 6/22/2011 Investigation MWG ELUC	MW-13 MW-13 6/22/2011 Investigation MWG ELUC	MW-14 MW-14 6/22/2011 Investigation MWG ELUC	MW-15 MW-15 6/22/2011 Investigation MWG ELUC	MW-DUP01-0622201 MW-15 6/22/2011 Duplicate MWG ELUC
Chemical CAS No.							
METALS (mg/L)							
Arsenic 7440382	0.39	0.83	0.046	NA	0.057	0.0072	< 0.004
INORGANICS (mg/L)							
Solids, Total Dissolved (TDS)	630	1000	1400	NA	740	830	820

Sample Name Sample Location Sample Date Sample Type Area	MW-10 MW-10 7/12/2012 Investigation MWG ELUC	MW-11 MW-11 7/12/2012 Investigation MWG ELUC	MW-12 MW-12 7/12/2012 Investigation MWG ELUC	MW-13 MW-13 Investigation MWG ELUC	MW-14 MW-14 7/12/2012 Investigation MWG ELUC	MW-15 MW-15 7/12/2012 Investigation MWG ELUC	DUP-01-07122012 MW-12 7/12/2012 Duplicate MWG ELUC
Chemical CAS No.							
METALS (mg/L)							
Arsenic 7440382	0.37	0.23	< 0.004	NA	0.084	< 0.004	< 0.004
Iron 15438310	3.8	1.5	1.2	NA	1	3.5	1.2
Manganese 7439965	0.22	0.19	0.19	NA	0.073	0.4	0.2
INORGANICS (mg/L)							
Solids, Total Dissolved (TDS)	660	870	1200	NA	650	900	1200

Notes:

<: Less than; when appearing in the results column indicates the analyte was not detected at or above the reporting limit.

B: Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.

NA: Not available.

MWG1-3-15_5123

Table 2

Groundwater Analytical Results from Midwest Generation ELUC Area (Cont'd)

Sample Name	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	DUP-01-062513
Sample Location	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-15
Sample Date	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate
Area	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC	MWG ELUC
Chemical	CAS No.						
METALS (mg/L)							
Arsenic	7440382	0.028	1.5	0.0081	NA	0.044	< 0.004
INORGANICS (mg/L)							
Solids, Total Dissolved (TDS)		860	960	770	NA	540	940
							1000

Notes:

- <: Less than; when appearing in the results column indicates the analyte was not detected at or above the reporting limit.
- B: Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.
- NA: Not available.

MWG13-15_5124

Table 3 Mann-Kendall Trend Test from Midwest Generation ELUC Area

Arsenic	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15
Mann-Kendall Trend Test						
Mann-Kendall Statistic (S)	4	1	12	NA	-24	19
Critical Statistic (at $\alpha=0.05$)	-28	-28	-28	NA	-28	-28
Significant decreasing trend?	No	No	No	NA	No	No

Total Dissolved Solids	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15
Mann-Kendall Trend Test						
Mann-Kendall Statistic (S)	19	-22	14	NA	21	1
Critical Statistic (at $\alpha=0.05$)	28	28	28	NA	28	28
Significant increasing trend?	No	No	No	NA	No	No

Notes:

NA: Not available.

Attachment 1
Laboratory Analytical Report

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202-

July 09, 2013

URS

100 S. Wacker Suite 500

Chicago, IL 60606

Telephone: (312) 939-1000

Fax: (312) 939-4198

RE: 25366456.00790, Tannery Annual GW Monitoring

STAT Project No 13060883

Dear Sarah Rolfes:


STAT Analysis received 6 samples for the referenced project on 6/25/2013 7:30:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / NELAC standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,



Craig Chawla

Project Manager

The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples tested. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory. This analytical report shall become property of the Customer upon payment in full. Otherwise, STAT will be under no obligation to support, defend or discuss the analytical report.

Client: URS
Project: 25366456.00790, Tannery Annual GW Monitoring
Lab Order: 13060883

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
13060883-001A	MW-11-06252013		6/25/2013 1:10:00 PM	6/25/2013
13060883-002A	MW-12-06252013		6/25/2013 5:00:00 PM	6/25/2013
13060883-003A	MW-10-06252013		6/25/2013 4:10:00 PM	6/25/2013
13060883-004A	MW-14-06252013		6/25/2013 2:50:00 PM	6/25/2013
13060883-005A	MW-15-06252013		6/25/2013 12:00:00 PM	6/25/2013
13060883-006A	DUP-01-06252013		6/25/2013	6/25/2013

CLIENT: URS
Project: 25366456.00790, Tannery Annual GW Monitoring
Lab Order: 13060883

CASE NARRATIVE

At the customer's request, arsenic analysis was conducted on water decanted from the sample containers after the sample had been allowed to stand for 24 hours.

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Date Reported: July 09, 2013

Date Printed: July 09, 2013

Client:	URS	
Project:	25366456.00790, Tannery Annual GW Monitoring	Lab Order: 13060883

Lab ID:	13060883-001	Collection Date 6/25/2013 1:10:00 PM
Client Sample ID:	MW-11-06252013	Matrix: Water

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020 (SW3005A)				Prep Date: 7/5/2013	Analyst: JG
Arsenic	1.5	0.004		mg/L	2	7/8/2013
Total Dissolved Solids	E160.1				Prep Date: 7/2/2013	Analyst: RW
Total Dissolved Solids	960	48		mg/L	1	7/3/2013

Lab ID:	13060883-002	Collection Date 6/25/2013 5:00:00 PM
Client Sample ID:	MW-12-06252013	Matrix: Water

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020 (SW3005A)				Prep Date: 7/5/2013	Analyst: JG
Arsenic	0.0081	0.004		mg/L	2	7/8/2013
Total Dissolved Solids	E160.1				Prep Date: 7/2/2013	Analyst: RW
Total Dissolved Solids	770	48		mg/L	1	7/3/2013

Lab ID:	13060883-003	Collection Date 6/25/2013 4:10:00 PM
Client Sample ID:	MW-10-06252013	Matrix: Water

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020 (SW3005A)				Prep Date: 7/5/2013	Analyst: JG
Arsenic	0.028	0.004		mg/L	2	7/8/2013
Total Dissolved Solids	E160.1				Prep Date: 7/2/2013	Analyst: RW
Total Dissolved Solids	860	48		mg/L	1	7/3/2013

Lab ID:	13060883-004	Collection Date 6/25/2013 2:50:00 PM
Client Sample ID:	MW-14-06252013	Matrix: Water

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020 (SW3005A)				Prep Date: 7/5/2013	Analyst: JG
Arsenic	0.044	0.004		mg/L	2	7/8/2013
Total Dissolved Solids	E160.1				Prep Date: 7/2/2013	Analyst: RW
Total Dissolved Solids	540	48		mg/L	1	7/3/2013

Qualifiers:

ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 HT - Sample received past holding time
 * - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range
 H - Holding time exceeded

MWG13-15_5130

STAT Analysis Corporation

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Date Reported: July 09, 2013

Date Printed: July 09, 2013

Client: URS
 Project: 25366456.00790, Tannery Annual GW Monitoring Lab Order: 13060883

Lab ID: 13060883-005 Collection Date 6/25/2013 12:00:00 PM
 Client Sample ID: MW-15-06252013 Matrix: Water

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020 (SW3005A)			Prep Date: 7/5/2013	Analyst: JG
Arsenic	ND	0.004		mg/L	2	7/8/2013
Total Dissolved Solids		E160.1			Prep Date: 7/2/2013	Analyst: RW
Total Dissolved Solids	940	48		mg/L	1	7/3/2013

Lab ID: 13060883-006 Collection Date 6/25/2013
 Client Sample ID: DUP-01-06252013 Matrix: Water

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020 (SW3005A)			Prep Date: 7/5/2013	Analyst: JG
Arsenic	ND	0.004		mg/L	2	7/8/2013
Total Dissolved Solids		E160.1			Prep Date: 7/2/2013	Analyst: RW
Total Dissolved Solids	1000	48		mg/L	1	7/3/2013

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 HT - Sample received past holding time
 * - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range
 H - Holding time exceeded

MWG13-15_5131

STAT Analysis Corporation

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 e-mail address: STATinfo@STATAnalysis.com AIHA, NVLAP and NELAP accredited

CHAIN OF CUSTODY RECORD

No: **850315**

Page: **1** of **1**

Company: URS								P.O. No.:	
Project Number: 25366456.00790				Client Tracking No.:				Quote No.:	
Project Name: Tannery Annual GW Monitoring								Turn Around: 5-Day Results Needed: 1 1 am/pm	
Project Location: Waukegan, IL									
Sampler(s): S. Splittgerber									
Report To: Sarah Rolfes				Phone: _____					
QC Level: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/>				e-mail: sarah.rolfes@URS.com				Fax: _____	
Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Remarks	
MW-11-06252013	6-25-13	1310	W	X	X	A	1	X	X
MW-12-06252013	↓	1700	↓	↓	↓	↓	↓	↓	↓
MW-10-06252013	↓	1610	↓	↓	↓	↓	↓	↓	↓
MW-14-06252013	↓	1450	↓	↓	↓	↓	↓	↓	↓
MW-15-06252013	↓	1200	↓	↓	↓	↓	↓	↓	↓
DUP-01-06252013	↓	—	↓	↓	↓	↓	↓	↓	↓
Relinquished by: (Signature) <i>[Signature]</i> Date/Time: 6-25-13 1930								Laboratory Work Order No.: 13060883 Received on: <input checked="" type="checkbox"/> <input type="checkbox"/> Temperature: 205	
Received by: (Signature) <i>[Signature]</i> Date/Time: 6/25/13 1930									
Relinquished by: (Signature) _____ Date/Time: _____									
Received by: (Signature) _____ Date/Time: _____									
Relinquished by: (Signature) _____ Date/Time: _____									
Received by: (Signature) _____ Date/Time: _____									
Preservation Code: A = None B = HNO ₃ C = NaOH D = H ₂ SO ₄ E = HCl F = 5035/EnCore G = Other									

Arsenic (6020)
 TDS (6011)

6 of 10

MW013-15_5132

Sample Receipt Checklist

Client Name URS
Work Order Number 13060883

Date and Time Received: 6/25/2013 7:30:00 PM
Received by: TJW

Checklist completed by: T. W. [Signature] Date 6/26/13

Reviewed by: [Initials] Date 6/28/13

Matrix: Carrier name Client Delivered

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels/containers? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Container or Temp Blank temperature in compliance? Yes No Temperature 2.5 °C
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - Samples pH checked? Yes No Checked by: _____
- Water - Samples properly preserved? Yes No pH Adjusted? _____

Any No response must be detailed in the comments section below.

Comments: _____

Client / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

STAT Analysis Corporation**PREP BATCH REPORT**

Prep Start Date: 7/5/2013 6:50:55 P

Prep End Date: 7/5/2013 8:50:00 P

Prep Factor Units:
mL / mL

Prep Batch 70352 Prep Code: M_W_PREP Technician: VA

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
IMBW2 7/5/13			50	0	0	50	1.000	7/5/2013	7/5/2013
ILCSW2 7/5/13			50	0	0	50	1.000	7/5/2013	7/5/2013
13060883-001A	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13060883-002A	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13060883-003A	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13060883-004A	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13060883-005A	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13060883-006A	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13061079-012A	Water		10	0	0	50	5.000	7/5/2013	7/5/2013
13061079-012AMS	Water		10	0	0	50	5.000	7/5/2013	7/5/2013
13061079-012AMSD	Water		10	0	0	50	5.000	7/5/2013	7/5/2013
13061079-013C	Water		10	0	0	50	5.000	7/5/2013	7/5/2013
13061079-014A	Water		10	0	0	50	5.000	7/5/2013	7/5/2013
13061079-015A	Water		10	0	0	50	5.000	7/5/2013	7/5/2013
13061059-001C	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13061059-002C	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13061059-003C	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13061059-004C	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13061059-005C	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13061059-006C	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13061059-007C	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13061059-008C	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13061059-009C	Water		50	0	0	50	1.000	7/5/2013	7/5/2013
13070020-001C	Waste Water		50	0	0	50	1.000	7/5/2013	7/5/2013

CLIENT: URS
Work Order: 13060883
Project: 25366456.00790, Tannery Annual GW Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 70352

Sample ID: IMBW2 7/5/13	SampType: MBLK	TestCode: M_ICPMS_W	Units: mg/L	Prep Date: 7/5/2013	Run ID: ICPMS_130707A						
Client ID: ZZZZ	Batch ID: 70352	TestNo: SW6020		Analysis Date: 7/7/2013	SeqNo: 2451162						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic ND 0.0040

Sample ID: ILCSW2 7/5/13	SampType: LCS	TestCode: M_ICPMS_W	Units: mg/L	Prep Date: 7/5/2013	Run ID: ICPMS_130707A						
Client ID: ZZZZ	Batch ID: 70352	TestNo: SW6020		Analysis Date: 7/7/2013	SeqNo: 2451163						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 0.4932 0.0040 0.5 0 98.6 80 120 0 0

Sample ID: 13061079-012AMS	SampType: MS	TestCode: M_ICPMS_W	Units: mg/L	Prep Date: 7/5/2013	Run ID: ICPMS_130708B						
Client ID: ZZZZ	Batch ID: 70352	TestNo: SW6020		Analysis Date: 7/8/2013	SeqNo: 2452286						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 2.955 0.10 2.5 0.4144 102 75 125 0 0

Sample ID: 13061079-012AMSD	SampType: MSD	TestCode: M_ICPMS_W	Units: mg/L	Prep Date: 7/5/2013	Run ID: ICPMS_130708B						
Client ID: ZZZZ	Batch ID: 70352	TestNo: SW6020		Analysis Date: 7/8/2013	SeqNo: 2452287						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 3.004 0.10 2.5 0.4144 104 75 125 2.955 1.66 20

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits	B - Analyte detected in the associated Method Blank
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits	E - Value above quantitation range
	* - Non Accredited Parameter	H/HT - Holding Time Exceeded	

CLIENT: URS
 Work Order: 13060883
 Project: 25366456.00790, Tannery Annual GW Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: R90701

Sample ID: TDSMBK 7/2/13	SampType: MBLK	TestCode: TDS_W	Units: mg/L	Prep Date: 7/2/2013	Run ID: BALANCE_130702C						
Client ID: ZZZZ	Batch ID: R90701	TestNo: E160.1		Analysis Date: 7/3/2013	SeqNo: 2447179						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids	ND	12
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Sample ID: TDSLCS 7/2/13	SampType: LCS	TestCode: TDS_W	Units: mg/L	Prep Date: 7/2/2013	Run ID: BALANCE_130702C						
Client ID: ZZZZ	Batch ID: R90701	TestNo: E160.1		Analysis Date: 7/3/2013	SeqNo: 2447180						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids	1004	12	1000	0	100	80	120	0	0
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Sample ID: 13060883-004ADUP	SampType: DUP	TestCode: TDS_W	Units: mg/L	Prep Date: 7/2/2013	Run ID: BALANCE_130702C						
Client ID: MW-14-06252013	Batch ID: R90701	TestNo: E160.1		Analysis Date: 7/3/2013	SeqNo: 2447182						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids	552	48	0	0	0	0	0	536	2.94	20
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Qualifiers: ND - Not Detected at the Reporting Limit J - Analyte detected below quantitation limits * - Non Accredited Parameter	S - Spike Recovery outside accepted recovery limits R - RPD outside accepted recovery limits H/HT - Holding Time Exceeded	B - Analyte detected in the associated Method Blank E - Value above quantitation range
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