

# Rio Algom Mining LLC

August 25, 2014

CERTIFIED MAIL

Mr. David L. Mayerson  
New Mexico Environment Department  
1190 St Francis Dr.  
P.O. Box 5469  
Santa Fe, NM 87502

Re: **Discharge Plan - 169**  
**Semi-Annual Report, 1st Half 2014**

Dear Mr. Mayerson:

Attached is the Rio Algom Mining LLC's semi-annual groundwater monitoring report for the 1<sup>st</sup> half of 2014. This permit requires the monitoring and reporting of groundwater data from the alluvium in the vicinity of the tailings impoundment. An electronic copy of the report and analytical results will follow by e-mail (NMED copy only). If you have any questions or need additional information, please call me (520)208-1014 or Theresa Ballaine (209)753-7005.

Sincerely,



Anthony Baus  
Site Manager

Attachment: As stated

cc: NRC (MD) – License SUA-1473, Docket No. 40-8905  
D. Traub (DOE-GJO)  
T. Ballaine  
D. Murray

FSME20

RIO ALGOM MINING LLC – AMBROSIA LAKE FACILITY  
DISCHARGE PLAN – 169 (DP-169)  
SEMI-ANNUAL REPORT, 1st HALF 2014

**Review of Discharge Plan - 169**

This report presents the activities and results of the monitoring and sampling requirements associated with DP-169 for the 1st half of 2014. New Mexico Environment Department's (NMED) Discharge Permit DP-169 was approved on November 15, 1995 and establishes monitoring requirements for the alluvium that has been affected as a result of byproduct material disposal at the Ambrosia Lake site.

The Nuclear Regulatory Commission (NRC) program for the alluvium dated February 24, 2006 established Alternate Concentration Limits (ACLs) for the site. The ACLs addressed byproduct material seepage from the tailings impoundment area and includes but not limited to chloride, nitrate, sulfate, and, total dissolved solids (TDS). The alluvial ACLs were established through review and consultation between NRC, NMED and RAML.

As a result of NRC granting the ACLs, the interceptor trench located along the toe of tailings impoundment No.1 was discontinued and backfilled. The ACL modeling projected that closure of the trench would result in the residual seepage migrating into the down gradient alluvium. The seepage would then be observed within monitoring wells adjacent to the former interceptor trench.

Table 1 provided below presents the DP-169 groundwater monitoring data for the first half of 2014. No monitoring wells in the first half of 2014 exceeded the ACLs for chloride, nitrate, TDS, or sulfate.

Modeling predictions projected that groundwater in the alluvium will dissipate within 65 years. The first half of 2014 data indicate a continued water level decrease in 24 of the 32 wells still containing water. Comparing water level data between November 2012 and 2014 indicates an approximate decrease of 1.87 ft. in well 31-61 and a decrease of 4.94 ft. in well 05-08/05-08R. Respectively, these wells are considered a point of compliance well and a trend well in NRC Groundwater Stability Monitoring reporting.

In June 2014, Phase III reclamation was implemented in accordance with NRC license conditions. Reclamation activities during this phase include the following activities:

- The spot removal of contaminated soils from the former Section 4 evaporation ponds demolition of buildings and structures on the mill site;
- The removal of contaminated soils and replacement with clean fill; and
- The contouring and revegetation of the mill site.

Contaminated soils are disposed of in impoundment No. 2 and demolition materials are disposed of in disposal cell No. 1.

**Table 1**  
**DP-169 Sampling Results – 1<sup>st</sup> Half 2014**

Monitor Well	Date	Depth to Water (ft)	Total Depth (ft)	Specific Cond.	Temp (C)	pH	Cl (mg/l)	NO3/NO2 (mg/l)	SO4 (mg/l)	TDS (mg/l)
30-03A	3/19/2013	Plugged and abandoned during 2012/2013 Well Replacement Project								
30-04 R	2014/02/10	56.98	72.24	5030	12	7.23	620	7.78	2740	7340
30-46	2014/02/18	Dry	38.56							
30-47	2014/02/10	53.57	77.74	4720	12.4	6.12	1000	0.06 B	2410	5140
30-48	2014/02/10	56.87	73.21	3930	13.2	6.56	740	0.03 B	1990	4080
30-49	2014/02/10	65.21	67.51	Insufficient water for sampling						
30-53	2014/02/18	Dry	50.05							
30-68 R	2014/02/18	Dry	66.1							
31-05 R	2014/02/11	50.56	66.22	5470	11.8	7.06	610	4.98	3370	5970
31-61	2014/03/11	15.66	29.05	12040	11.5	6.51	2300	3.93	4330	13500
31-61	2014/06/03	15.91	29.05	14530	12.6	6.07	2410	3.51	6170	14400
31-63	7/17/2007	Removed from service when the interceptor trench was discontinued								
31-65	2014/03/11	12.86	41.41	12060	10.7	6.44	2500	<0.1 (PQL)	4310	12600
31-65	2014/06/03	13.1	41.41	14810	12.3	6.5	2480	<0.1 (PQL)	6350	15000
31-68 R	2014/02/11	42.34	81.13	6360	12.9	6.88	1250	61	2460	6430
31-71	2014/02/11	47.29	63.31	3700	12.6	7.39	570	0.04 B	2140	3890
32-01 R	2014/02/11	20.7	60.95	12480	12.7	6.29	2540	0.05 B	8290	12600
32-02 R	2014/02/10	51.54	70.36	3950	12.8	7.3	510	0.27	1920	3940
32-41	2014/02/10	41.18	60.09	3750	13.9	7.12	1010	<0.1 (PQL)	871	2790
32-42	2014/02/10	Dry	21.94							
32-43N	2014/02/11	25.63	76.33	8100	13.4	6.9	1590	3.63	4010	10400
32-50 TRB-R	2014/02/18	51.86	88.62	4690	13.3	7.2	550	2.38	2650	4970
32-51	2014/02/18	34.68	74.22	4380	13.2	7.67	370	9.3	2720	4990
32-52	2014/02/17	33.42	66.07	3090	13.6	9.16	240	0.05 B	1610	2730
32-56	2014/02/18	Dry	57.42							
32-57	2014/02/18	46.91	53.16	5500	13.2	6.73	220	2.95	3570	5730
32-58	2014/02/17	16.52	34.42	10270	13.9	6.71	3100	12.8	4330	11500
32-59	2014/03/11	19.31	28.17	4720	11.7	7.48	620	0.78	2200	2800
32-59	2014/06/02	25.22	28.17	5330	13.7	7.13	586	0.25	2230	4590
32-60	2014/02/17	14.96	27.73	7950	12.9	6.61	2060	7	4810	11200
32-69	2014/02/11	54.21	78.41	7680	12.7	6.77	1610	0.86	2640	7900
32-72	2014/02/17	20.74	39.99	5120	13.4	7.1	820	4.8	2460	5420
5-01	2014/02/18	28.28	44.08	3580	13.2	8.68	190	0.05 B	2510	3890
5-02	2014/02/18	26.64	38.31	4800	12.7	7.44	1700	0.2	909	3690
5-03 R	2014/03/10	24.12	55.96	4260	13.5	7.26	570	0.31	2020	4000
5-03 R	2014/06/02	24.64	55.88	4850	14.1	7.1	574	0.27	1970	4220
5-04	2014/03/10	22.36	62.36	4730	13.8	7.6	800	0.04 B	2350	4330
5-04	2014/06/02	22.65	62.52	5390	14.4	6.94	834	0.03 B	2390	4700
5-08 R	2014/03/10	35.45	76.51	3670	13.3	7.39	230	10.2	1650	3680
5-08 R	2014/06/02	35.76	76.51	4020	13.9	7.25	229	11.2	1940	3650
5-73 R	2014/03/10	18.9	35.64	6270	12.8	7.04	1570	1.65	1860	5400
5-73 R	2014/06/02	19.34	35.52	7180	13.3	6.76	1610	1.49	1790	5760
AW-1	2014/02/10	55.83	81.36	5740	13.2	7.01	670	10.3	3680	4170
AW-2	2014/02/17	35.19	85.97	4540	14.2	7.56	300	4.91	2780	4910
C-3	6/13/1995	Plugged and abandoned to facilitate site reclamation activities								
D-4	2/27/2006	Plugged and abandoned to facilitate site reclamation activities								
E-5	2/27/2006	Plugged and abandoned to facilitate site reclamation activities								
MW-24	3/10/2014	Dry	50.42							
MW-24	6/3/2014	Dry	50.40							
5-12	2014/02/17	14.31	27.45	9740	12.5	6.83	2900	<0.1 (PQL)	4510	12000
5-9	2014/02/17	11.37	24.64	8580	12.4	8.88	2410	<0.1 (PQL)	3840	9900

**Notes:**

Reported wells are in the alluvium formation.

"R" indicates wells were replaced in 2012/2013 during the Monitoring Well Replacement Project.

"ALL" are alluvial wells also reported to the U.S. NRC in accordance with the Alternative Concentration Limit (ACL) criteria.