

Douglas Bacon - Annual Report for Zone A Plant Operations and Acid Well Extraction (June 1, 2011 to May 31, 2012)

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Date: 7/31/2012 5:03 PM
Subject: Annual Report for Zone A Plant Operations and Acid Well Extraction (June 1, 2011 to May 31, 2012)
Attachments: Zone A Plant Letter Report 2012 PDF-State.pdf

All,

Attached please find the Annual Report for Zone A Plant operations and acid well extraction. The report is due in July each year and has been filed with the State.

Thank you!
Brian

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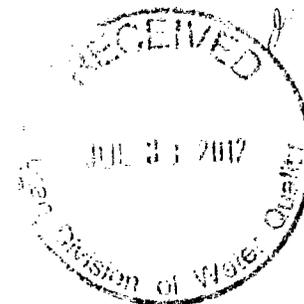
JUL 31 2012

Environmental Response &
Remediation

Kennecott Utah Copper
4700 Daybreak Parkway
South Jordan, Utah 84095
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Brian Vinton, P.G.
Principal Advisor, Water Quality

30 July 2012



Brad T. Johnson
State of Utah Trustee for Natural Resource Damage
Utah Department of Environmental Quality
195 North 1950 West
Salt Lake City, Utah 84116

**Subject: Annual Report on Zone A Plant Operations and Acid Plume Extraction
under NRD Consent Decree**

Dear Mr. Johnson:

Pursuant to Paragraph IX.C of the Agreement among the Trustee for Natural Resources for the State of Utah, Jordan Valley Water Conservancy District, and Kennecott Utah Copper Corporation, dated August 31, 2004 (Three-Party Agreement), Kennecott Utah Copper LLC (KUC) submits its sixth Annual Report on Zone A Plant Operations. KUC also operates the plant pursuant to the Project Agreement Between Kennecott Utah Copper Corporation and Jordan Valley Water Conservancy District (Project Agreement).

Additionally, KUC makes its annual reporting of water extracted from the core of the Zone A acid plume as required by Paragraph V.B of the August 1995 Consent Decree settling the State's Natural Resource Damage Claim against Kennecott Utah Copper Corporation (NRD Consent Decree).

The operating period for this report is June 1, 2011 to May 31, 2012.

Treatment Plant Operation

Table 1 reports monthly and annual operational metrics for the Zone A Plant during the reporting period. These data are discussed below.

Volume of Delivered Water

In the reporting period, KUC delivered 3,585 acre-feet to Jordan Valley Water Conservancy District (JVWCD; as measured by JVWCD at the Zone A Meter Station and reported to KUC.) Paragraph I.C.1 of the Three-Party Agreement requires the delivery of 3,500 acre-feet per year on a five-year rolling average. For the five year period ending May 31, 2012, the five-year rolling average is 3,510 acre-feet (Table 2 and Figure 1), in full compliance with the Three-Party Agreement.

Table 1 also presents total plant production (JVWCD meter), feed volumes, permeate production, and recovery statistics. The difference between the total plant production and the volume of water delivered reflects in-plant water use and inherent variability in metering flow. There are no specified performance criteria for these metrics and values are reported for information only.

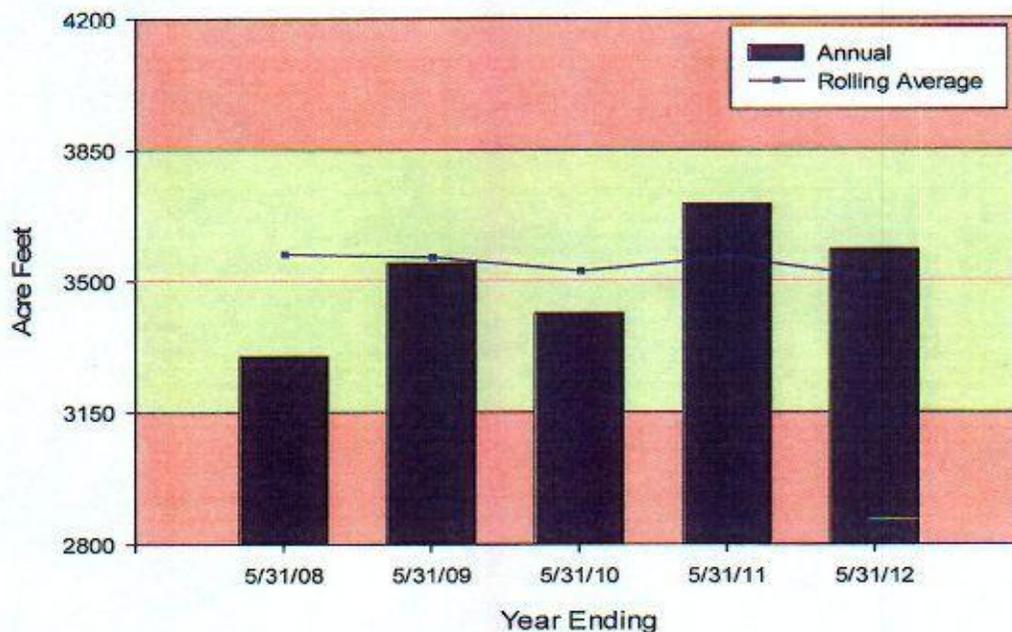
Table 1 Zone A Plant Operation Metrics

	Units	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Year
Drinking Water Production														
Delivered (JWCD Meter)	acre-feet	288.6	302.8	300.9	289.0	284.5	239.9	279.9	293.6	291.9	320.3	338.5	354.8	3,585
Total Plant (KUCC Meter)	acre-feet	283.5	298.6	297.6	285.6	281.7	230.5	279.3	291.0	288.5	316.3	333.1	345.4	3,531
Feed Water														
Rack 3 Feed	acre-feet	169.6	183.4	181.8	174.5	178.2	114.8	192.2	178.6	167.7	192.4	192.7	201.7	2,128
Rack 4 Feed	acre-feet	174.4	183.4	181.9	174.2	162.5	165.5	192.4	175.7	170.7	178.9	192.7	201.8	2,154
Blend Water Feed	acre-feet	29.4	31.0	30.8	29.1	29.4	21.7	33.4	30.1	30.2	33.7	35.8	37.9	372
Total Feed Water	acre-feet	373.4	397.8	394.5	377.8	370.1	302.0	418.0	384.4	368.6	405.0	421.2	441.4	4,654
Permeate Production														
Rack 3 Permeate	acre-feet	126.6	134.7	134.0	130.2	132.7	84.5	145.2	131.9	128.0	147.7	148.2	154.8	1,599
Rack 4 Permeate	acre-feet	129.0	134.4	134.3	128.7	120.2	123.7	144.5	129.7	130.1	137.5	148.5	155.0	1,616
Total Permeate	acre-feet	255.6	269.1	268.3	258.9	252.9	208.2	289.7	261.6	258.1	285.2	296.7	309.8	3,214
Recovery														
Permeate	%	74.3%	73.4%	73.8%	74.2%	74.2%	74.3%	75.3%	73.8%	76.3%	76.8%	77.0%	76.8%	75.1%
Plant (KUCC Meter/Feed)	%	75.9%	75.1%	75.4%	75.6%	76.1%	76.3%	66.8%	75.7%	78.3%	78.1%	79.1%	78.3%	75.9%
Overall (JWCD Meter/Feed)	%	77.3%	76.1%	76.3%	76.5%	76.9%	79.4%	67.0%	76.4%	79.2%	79.1%	80.4%	80.4%	77.0%
Availability														
Rack 3 Downtime	Hours	47.4	6.1	12.6	18.2	20.5	230.3	23.5	22.6	51	35	0.5	0	468
Rack 4 Downtime	Hours	26.8	6.1	12.2	19.1	90.5	35.6	23.3	34.1	37.3	85	0.5	0	371
Rack 3 Availability	%	93%	99%	98%	97%	97%	68%	97%	92%	92%	95%	100%	100%	95%
Rack 4 Availability	%	96%	99%	98%	97%	88%	95%	97%	95%	94%	89%	100%	100%	96%
Combined Availability	%	95%	99%	98%	97%	93%	82%	97%	96%	93%	92%	100%	100%	95%
Specific Conductance														
Feed Water	µS/cm	2640	2629	2638	2654	2612	2721	2625	2621	2569	2545	2524	2548	2611
Permeate	µS/cm	22	22	22	23	23	24	23	22	23	23	23	22	23
Product Water	µS/cm	378	375	374	375	374	374	375	375	368	369	370	373	373

Table 2 Annual Water Deliveries (JVWCD Meter)

Year Ending	Annual Delivery	Rolling Average
May 31, 2008	3,299	3,571
May 31, 2009	3,548	3,563
May 31, 2010	3,414	3,526
May 31, 2011	3,705	3,562
May 31, 2012	3,585	3,510

Figure 1 Zone A Plant Operation Production



Quality of Delivered Water

Paragraph 4.5 of the Project Agreement requires that KUC provide Treated Water, defined in Paragraph 1.39 as water with concentrations of sulfate less than 250 mg/l and total dissolved solids (TDS) less than 250 mg/l. Table 3 and Figure 2 present laboratory results of TDS in periodic grab samples during the reporting period. (It is chemically impossible for the sulfate concentration to exceed the TDS concentration; thus, compliance with the TDS criterion assures compliance with the sulfate criterion.)

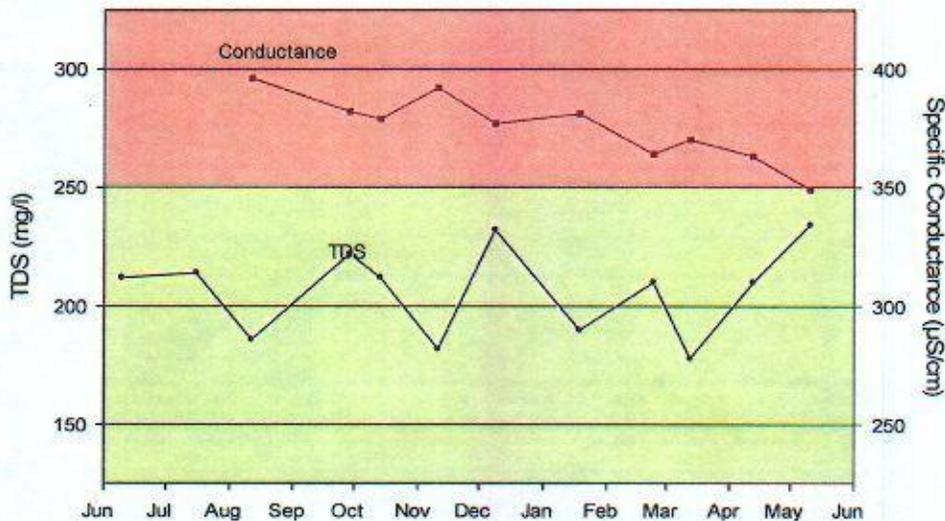
Grab sample results are below 250 mg/l TDS for all samples. Table 3 also reports laboratory specific conductance measurements corresponding to each TDS measurement. Table 3 reports average monthly specific conductance based on these readings. These monthly

averages vary little over the reporting period, indicating a consistent quality of water delivered to JWCD.

Table 3 Zone A Plant Product Water Quality

Sample Date	TDS (mg/l)	Specific Conductance (µS/cm)
6/9/2011	212	
7/15/2011	214	
8/11/2011	186	396
9/28/2011	222	382
10/13/2011	212	379
11/10/2011	182	392
12/8/2011	232	377
1/18/2012	190	381
2/23/2012	210	364
3/12/2012	178	370
4/12/2012	210	363
5/10/2012	234	349

Figure 2 TDS and Specific Conductance of Delivered Water



Period of Operation

The Zone A Plant operated at 95% availability during the reporting period. Availability was affected by the failure of well B2G1193 in October of 2011. This well was down for 14 days, during which time the Zone A Plant operated at only 50% capacity. Well LTG1147 was down for 8 months, June 2011 to February 2012, for repair and redevelopment. During this time the plant operated at a slightly decreased production rate.

KUC did not invoke *force majeure* at any time during the reporting period.

Division of Drinking Water Permit Compliance

KUC maintained full compliance with its permit issued by the Division of Drinking Water for the Zone A Plant.

Modifications and Repairs

No modifications were made to the plant in the reporting period. In September 2011 the sodium hypochlorite system piping and storage tank were replaced due to the storage tank having a leak and general pipe deterioration.

Jordan Valley Water Conservancy District Relations

KUC received no negative reports from JWCD regarding operation of the plant or water quality. KUC participated in quarterly Oversight Committee meetings with JWCD as prescribed in Paragraph 3 of the Project Agreement, during which plant operation results were presented and evaluated. The Zone A Plant management and operators have developed direct relationships with their counterparts at JWCD, allowing efficient communication of matters affecting day-to-day plant operations to JWCD.

Community and Media Relations

KUC received no negative reports, either directly or through JWCD, regarding quality or taste from JWCD customers receiving water from the plant. KUC did not receive any notice of potential third party impacts to water quality or quantity in Zone A or quality in Zone B and no matters were referred to the Informal Independent Review process.

KUC continued to provide tours of the plant during the reporting to outside groups as requested. KUC received no media inquiries about the plant during the reporting period.

Outlook for Next Reporting Year

KUC anticipates no constraint on continued delivery of high-quality water in the next reporting year. KUC has drilled a new source water well, BSG2828, and anticipates having it online in the fourth quarter of 2012. Along with the well, a new HDPE feed water pipeline is going to replace a portion of the old cast iron feed water pipeline and this will coincide with the completion of well BSG2828.

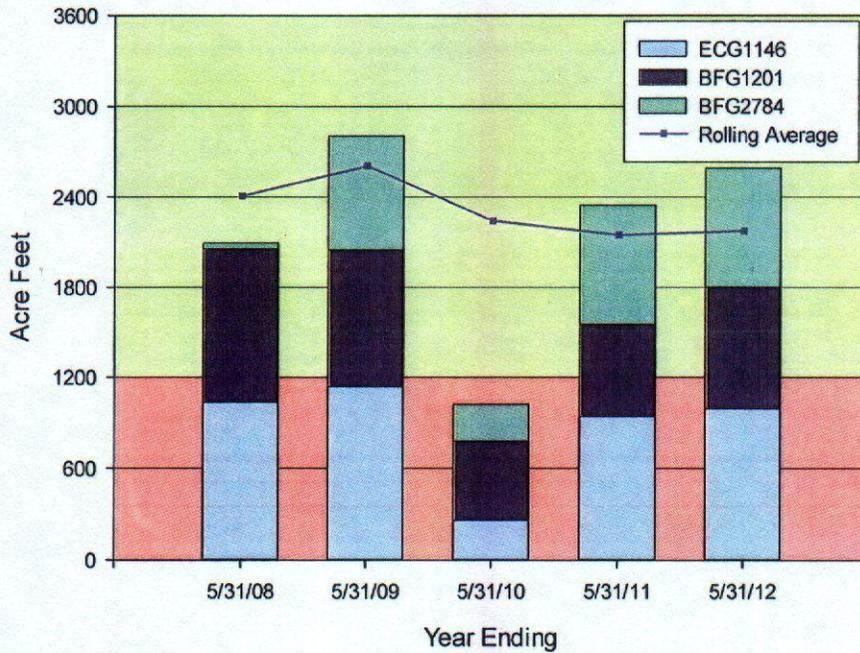
Acid Plume Core Extraction

Paragraph V.B of the NRD Consent Decree requires that KUC extract a minimum of 400 acre-ft per year on a five-year rolling average from the acid plume. The annual, cumulative, and 5-year rolling average acid plume extraction is reported in Table 4 and shown on Figure 3. KUC is in full compliance with extraction requirements of the NRD Consent Decree.

Table 4 Acid Plume Extraction (acre-feet)

Year Ending	Well ECG1146	Well BSG1201	Well BSG2784	Total Extracted	Cumulative Extracted	6-Year Rolling Average Extracted
5/31/2006	1,034	1,023	39	2,098	15,094	2,405
5/31/2009	1,138	912	756	2,806	17,901	2,603
5/31/2010	262	516	243	1,022	18,922	2,239
5/31/2011	940	617	791	2,347	21,269	2,146
5/31/2012	993	811	789	2,593	23,862	2,173

Figure 3 Acid Plume Extraction



If you should have any questions regarding the content of this report, do not hesitate to contact me at 569-7887.

Regards,

Brian Vinton, P.G.
 Principal Advisor, Water Quality

- cc: Alan Packard, JWCD (via email)
- Mark Atencio, JWCD (via email)
- Doug Bacon, DERR (via email)
- Rebecca Thomas, US EPA (via email)