

APPENDIX A

2010 Monthly Reports

Atlantic Richfield Company

Anthony R. Brown
Environmental Business Manager

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February 10, 2010

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for January 2010

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of January 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

ACTIVITIES FOR JANUARY

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of January. A winter access visit occurred on January 14, 2010 to conduct routine O&M and influent and effluent sampling. Influent and effluent water quality data for the January 14, 2010 sampling event are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3.
- Pursuant to Amendment #2 to the 2009 Removal Action Work Plan (RAWP), monitoring of the pilot scale sludge drying bed test continued during the month of January. Samples were not collected this month due to the frozen condition of the sludge.

CUD and DS

- The HDS Treatment Plant and CUD and DS capture equipment remained winterized during the month of January.
- Development of the Operations and Maintenance Manual for the HDS Treatment Plant continued. Plant engineers will continue to document the procedures for operation, maintenance and repairs in the O&M Manual.



Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- On January 19, 2010, a conference call was conducted with EPA to provide a general progress update.
- Continued drafting the 2009 Annual Report (due April 10, 2010).
- Continued drafting the 2010 Removal Action Work Plan (due March 1, 2010), which will describe activities to be performed at the Site during 2010.

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct monitoring as outlined in the 2009 RAWP.

CUD and DS

- Continue development of the Operations and Maintenance Manual for the HDS Treatment Plant.

Site-wide

- Continue to provide project progress updates to EPA via conference call. The next conference call is currently scheduled for February 16, 2010.
- Continue drafting the 2009 Annual Report (due April 10, 2010).
- Continue drafting the 2010 Removal Action Work Plan (due March 1, 2010)
- Continue drafting of the 2009 SEP Annual Report (due April 1, 2010).

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE MCCARTHY FOR

Tony Brown
Environmental Business Manager

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Chein Kao, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.

Gary Riley and Kevin Mayer – USEPA Region 9

February 10, 2010

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Adam Cohen, Esq. Davis Graham & Stubbs LLP

Dave McCarthy, Copper Environmental Consulting LLC

Joe Niland, AMEC-Geomatrix Consultants, Inc.

Sandy Riese, EnSci, Inc.

Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR MONTHLY INFLUENT AND EFFLUENT SAMPLES
JANUARY 2010 MONTHLY SUMMARY

Draft -- Provisional Data.

Parameter	Basis	January 14 2010 101ASPINF344 Influent mg/L	January 14 2010 101ASPEFF345 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	2.85	6.45	6.0 - 9.0 ²	--
Al	Dissolved	35	<0.080	4	2
As	Dissolved	<0.00090	<0.00090	0.34	0.15
Cd	Dissolved	0.0013	0.00023 J	0.009	0.004
Ca	Dissolved	280	280	--	--
Cr	Dissolved	0.0021	<0.00090	0.97	0.31
Cu	Dissolved	0.50	0.0039	0.026	0.016
Hardness	Dissolved	990	990	--	--
Fe	Dissolved	100	10	2	1
Pb	Dissolved	0.00037 J	0.00035 J	0.136	0.005
Mg	Dissolved	70	72	--	--
Ni	Dissolved	0.37	0.12	0.84	0.094
Zn	Dissolved	0.50	0.019 J	0.21	0.21
Se	Total	0.0024	0.0016 J	NP	0.005
Acidity	Total	500	8.0	--	--
Alkalinity (Total)	Total	<2.0	74	--	--
Alkalinity (Bicarbonate)	Total	<2.4	90	--	--
Alkalinity (Carbonate)	Total	<1.2	<1.2	--	--
Alkalinity (Hydroxide)	Total	<0.70	<0.70	--	--
Sulfate	Lab Filtered	1600	1300	--	--

Notes

1. pH value was collected in field; pH is in standard units.

2. Discharge criteria for average pH based on 24-hour (single day) average discharge.

NP = Not Promulgated

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit.

The user of this data should be aware that this data is of limited reliability.

< = Analyte NOT DETECTED at or above the or method detection limit.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
JANUARY 2010
ASPEN SEEP FLOW SUMMARY
 Provisional Data

Date	Aspen Seep Recorded Flow ¹
	gpm
1/1/2010	NA
1/2/2010	NA
1/3/2010	NA
1/4/2010	NA
1/5/2010	NA
1/6/2010	NA
1/7/2010	NA
1/8/2010	NA
1/9/2010	NA
1/10/2010	NA
1/11/2010	NA
1/12/2010	NA
1/13/2010	NA
1/14/2010	NA
1/15/2010	NA
1/16/2010	NA
1/17/2010	NA
1/18/2010	NA
1/19/2010	NA
1/20/2010	NA
1/21/2010	NA
1/22/2010	NA
1/23/2010	NA
1/24/2010	NA
1/25/2010	NA
1/26/2010	NA
1/27/2010	NA
1/28/2010	NA
1/29/2010	NA
1/30/2010	NA
1/31/2010	NA
Average Flow Rate	NA

Notes

1. Aspen Seep flow data is provided by USGS.

Abbreviations

USGS = United States Geological Survey.

NA = Not available

TABLE 3
ASPEN SEEP BIOREACTOR RECENT pH and ORP FIELD MEASUREMENTS
JANUARY 2010 MONTHLY SUMMARY

Draft -- Provisional Data.

Date	Aspen Influent			Manhole 1		Manhole 5		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.00	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.20	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.50	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.75	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.90	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.00	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.00	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.50	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.75	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.00	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.00	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.50	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.25	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.00	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.00	3.1	455.4	7.4	-47.5	7.09	-251.2	7.7	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.50	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.25	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.00	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.75	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.25	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.75	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0

Date	Aspen Influent			Manhole 1		Manhole 5		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
10/27/2008	5.75	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.50	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.25	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.25	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0
2/19/2009	5.25	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1
3/10/2009	5.00	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.00	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.50	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.50	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.50	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1
7/1/2009	6.00	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.75	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.00	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.50	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.10	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.25	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.00	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.50	2.93	496.6	6.57	-121.4	7.63	-301	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.90	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143	7.24	-162.8	7.94	2.8
11/11/2009	5.00	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.00	2.9	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.80	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4

Notes:

* Effluent readings collected from Pond 4 because water was not being discharged to the aeration channel.

** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.

- : not measured or not recorded.

Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.

Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.

Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.

Atlantic Richfield Company

Anthony R. Brown
Environmental Business Manager

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RE: Leviathan Monthly Report for February 2010

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ACTIVITIES FOR FEBRUARY

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of February. A winter access visit occurred on February 2, 2010 to conduct routine O&M and influent and effluent sampling. Influent and effluent water quality data for the February 2, 2010 sampling event are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3.
- Pursuant to Amendment #2 to the 2009 Removal Action Work Plan (RAWP), monitoring of the pilot scale sludge drying bed test continued during the month of February. Samples of sludge were not collected in February due to the frozen condition of the sludge.

CUD and DS

- The HDS Treatment Plant and CUD and DS capture equipment remained winterized during the month of February.
- Development of the Operations and Maintenance Manual for the HDS Treatment Plant continued. Plant engineers will continue to document the procedures for operation, maintenance and repairs in the O&M Manual.



Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- On February 23, 2010, a conference call was conducted with EPA to provide a general progress update.
- Continued drafting the 2009 Annual Report (due April 10, 2010).
- On February 26, 2010, the 2010 Removal Action Work Plan was submitted to EPA, describing activities to be performed at the Site during 2010.
- Continued drafting the 2009 SEP Annual Report (due April 1, 2010).

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct monitoring as outlined in the 2010 RAWP.

CUD and DS

- Continue development of the Operations and Maintenance Manual for the HDS Treatment Plant.

Site-wide

- Continue to provide project progress updates to EPA via conference call. The next conference call is currently scheduled for March 18, 2010.
- Continue drafting the 2009 Annual Report (due April 10, 2010).
- Continue drafting of the 2009 SEP Annual Report (due April 1, 2010).
- Continue drafting the 2010 Annual Operating Plan for submittal to the United States Department of Agriculture (USDA) Forest Service (Forest Service) in accordance with the requirements of the Road Use Permit which was issued to Atlantic Richfield by the Forest Service on April 28, 2008 (Due April 1, 2010).

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE MCCARTHY FOR

Tony Brown
Environmental Business Manager

Gary Riley and Kevin Mayer – USEPA Region 9

March 10, 2010

Page 3 of 3

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
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FEBRUARY 2010 MONTHLY SUMMARY

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Al	Dissolved	35	<0.080	4	2
As	Dissolved	<0.00090	0.0012	0.34	0.15
Cd	Dissolved	0.00087 J	<0.00010	0.009	0.004
Ca	Dissolved	278	254	--	--
Cr	Dissolved	0.0019 J	<0.00090	0.97	0.31
Cu	Dissolved	0.48	0.0013 J	0.026	0.016
Hardness	Dissolved	980	890	--	--
Fe	Dissolved	102	1.04	2	1
Pb	Dissolved	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	69	63	--	--
Ni	Dissolved	0.32	0.056	0.84	0.094
Zn	Dissolved	0.45	<0.0050	0.21	0.21
Se	Total	0.0015 J	0.0012 J	NP	0.005
Acidity	Total	510	<2.0	--	--
Alkalinity (Total)	Total	<2.00	100	--	--
Alkalinity (Bicarbonate)	Total	<2.40	122	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1600	1300	--	--

Notes

1. pH value was collected in field; pH is in standard units.

2. Discharge criteria for average pH based on 24-hour (single day) average discharge.

NP = Not Promulgated

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. The user of this data should be aware that this data is of limited reliability.

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Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
FEBRUARY 2010
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 Provisional Data

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	gpm
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2/9/2010	NA
2/10/2010	NA
2/11/2010	NA
2/12/2010	NA
2/13/2010	NA
2/14/2010	NA
2/15/2010	NA
2/16/2010	NA
2/17/2010	NA
2/18/2010	NA
2/19/2010	NA
2/20/2010	NA
2/21/2010	NA
2/22/2010	NA
2/23/2010	NA
2/24/2010	NA
2/25/2010	NA
2/26/2010	NA
2/27/2010	NA
2/28/2010	NA
Average Flow Rate	NA

Notes

1. Aspen Seep flow data is provided by USGS.

Abbreviations

USGS = United States Geological Survey.

NA = Not available

TABLE 3
ASPEN SEEP BIOREACTOR RECENT pH and ORP FIELD MEASUREMENTS
FEBRUARY 2010 MONTHLY SUMMARY

Draft -- Provisional Data.

Date	Aspen Influent			Manhole 1		Manhole 5		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.u.)	ORP (mV)	B.R.#1 Influent pH (s.u.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.u.)	ORP (mV)	NaOH dosing pH (s.u.)	ORP (mV)	B.R. #2 Eff pH (s.u.)	ORP (mV)	pH (s.u.)	ORP (mV)
9/21/2007	6.00	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.20	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.50	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.75	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.90	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.00	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.00	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.50	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.75	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.00	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.00	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.50	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.25	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.00	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.00	3.1	455.4	7.4	-47.5	7.09	-251.2	7.7	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.50	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.25	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.00	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.75	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.25	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.75	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0

Date	Aspen Influent			Manhole 1		Manhole 5		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.u.)	ORP (mV)	B.R.#1 Influent pH (s.u.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.u.)	ORP (mV)	NaOH dosing pH (s.u.)	ORP (mV)	B.R. #2 Eff pH (s.u.)	ORP (mV)	pH (s.u.)	ORP (mV)
10/27/2008	5.75	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.50	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.25	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.25	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0
2/19/2009	5.25	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1
3/10/2009	5.00	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.00	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.50	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.50	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.50	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1
7/1/2009	6.00	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.75	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.00	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.50	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.10	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.25	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.00	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.50	2.93	496.6	6.57	-121.4	7.63	-301	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.90	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143	7.24	-162.8	7.94	2.8
11/11/2009	5.00	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.00	2.9	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.80	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.70	2.94	484	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1

Notes:

* Effluent readings collected from Pond 4 because water was not being discharged to the aeration channel.

** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.

- : not measured or not recorded.

Influent flow measured with a graduated bucket and stop watch.

Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.

Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.

Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.

Atlantic Richfield Company

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April 12, 2010

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for March 2010 and Quarterly RI/FS Progress Report

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of March 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

Atlantic Richfield is also submitting this letter in satisfaction of the quarterly progress reporting requirement set forth in Paragraph 63 of the Administrative Order for Remedial Investigation and Feasibility Study (U.S. EPA Region IX, CERCLA Docket No. 2008-18, June 23, 2008) (UAO). The quarterly summary of RI/FS activities is provided at the end of this letter.

ACTIVITIES FOR MARCH

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of March. A winter access visit occurred on March 9, 2010 to conduct routine O&M and influent and effluent sampling. Influent and effluent water quality data for the March 9, 2010 sampling event are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3.
- Pursuant to Amendment #2 to the 2009 Removal Action Work Plan (RAWP), monitoring of the pilot scale sludge drying bed test continued during the month of March. Samples of sludge were not collected in March due to the frozen condition of the sludge.

CUD and DS

- The HDS Treatment Plant and CUD and DS capture equipment remained winterized during the month of March.



- Development of the Operations and Maintenance Manual for the HDS Treatment Plant continued. Plant engineers will continue to document the procedures for operation, maintenance and repairs in the O&M Manual.

Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- On March 17, 2010, the 2009 SEP Annual Report was submitted to EPA.
- On March 18, 2010, Atlantic Richfield submitted a letter to EPA requesting authorization to perform water treatment activities at the Leviathan Mine Site during the winter/spring portion of the 2010 Limited Access Season. EPA granted the request by letter dated April 2, 2010.
- On March 18, 2010, a conference call was conducted with EPA to provide a general progress update.
- On March 29, 2010, Atlantic Richfield submitted financial assurance information to EPA as required under Paragraph 142 of the AOC.
- On March 31, 2010, the 2010 Annual Operating Plan was submitted to the United States Department of Agriculture Forest Service, with copy to EPA, in accordance with the Road Use Permit which was issued to Atlantic Richfield by the Forest Service on April 28, 2008.
- Continued drafting the 2009 Annual Report (due April 10, 2010).

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct monitoring as outlined in the 2010 RAWP.

CUD and DS

- Continue development of the Operations and Maintenance Manual for the HDS Treatment Plant.
- Perform road maintenance and snow removal activities as necessary for the winter/spring portion of the 2010 Limited Access Season.
- Begin site setup activities in the Pond 4 area for the winter/spring portion of the 2010 Limited Access Season operations, weather and safe access conditions permitting.

Site-wide

- Continue to provide project progress updates to EPA via conference call. The next conference call is currently scheduled for April 20, 2010.
- Submit the 2009 Annual Report (due April 10, 2010).

* * * *

QUARTERLY RI/FS PROGRESS REPORT

As required by Paragraph 63 of the UAO, the following Quarterly Progress Report for Remedial Investigation and Feasibility Study (RI/FS) activities describes: (a) the actions taken to comply with the UAO during the prior quarter, (b) the work planned for the next quarter, and (c) any problems encountered or anticipated including any actual or anticipated delays in schedules.

Actions Taken to Comply with the UAO

- Atlantic Richfield submitted the Quarterly Progress Report for fourth quarter 2009 on January 10, 2010.
- Atlantic Richfield received stakeholder comments on the RI/FS Program Work Plan (PWP) from EPA on February 18, 2010.
- Atlantic Richfield received a letter from EPA titled Schedule for EPA comments on 2009 Draft Program Work Plan and Addendum for Remedial Investigation and Feasibility Study on February 26, 2010.
- Atlantic Richfield received copies of draft DQO Step 1 (Problem Definition), Step 2 (Study Goal) from EPA on March 19 2010.
- Atlantic Richfield met with EPA in San Francisco on March 22, 2010 to discuss the content of the February 26, 2010 letter, a better process for communication and collaboration on preparing RI/FS documents and a plan for completing the PWP and future Focused Remedial Investigation (FRI) Work Plans. On April 1, 2010, Atlantic Richfield submitted a letter to EPA summarizing the discussions during the March 22, 2010 meeting.

Work Planned for the Next Quarter

- Atlantic Richfield participated in a conference call with EPA and its oversight contractors on April 1, 2010 to discuss key concerns regarding the Draft Step 1 and 2 Programmatic DQOs.
- Atlantic Richfield plans on working with EPA to finish programmatic DQOs for the PWP by mid-April 2010. A conference call to discuss comments to Steps 1 through 3 of the Draft Programmatic DQOs is planned for April 13, 2010.
- Atlantic Richfield anticipates that upon completion of the programmatic DQOs in mid-April, EPA will formally approve the PWP and direct Atlantic Richfield to proceed with the RI/FS process. Atlantic Richfield anticipates that EPA will provide other final comments on the PWP, including a synthesis of comments received from interested stakeholders, as appropriate.
- Atlantic Richfield will acknowledge receipt and incorporation of the DQOs into the PWP. Atlantic Richfield may submit other appropriate responses to the EPA comments.
- An initial meeting with EPA's technical oversight contractors is tentatively scheduled for April 20, 2010 in Sacramento to develop a standard format for DQOs to be used in subsequent FRI work plans.
- Atlantic Richfield anticipates that EPA will designate a technical work group for the On-Property FRI Work Plan by the end of April 2010, and a technical work group meeting is tentatively scheduled for May 11, 2010 in Sacramento or the Carson City area. This meeting will focus on work plan specifics for on-property RI activities.

- Atlantic Richfield and EPA will plan to discuss the results of the technical work group meeting during a telephone conference on May 13, 2010.
- Atlantic Richfield expects to submit a final draft On-Property FRI Work Plan for EPA review approximately 30 days after the second technical work group meeting.
- Atlantic Richfield and EPA's technical oversight contractor will meet on May 19, 2010 to develop DQOs to be used in preparing and implementing the FRI work plan for identification and characterization of appropriate reference areas.
- By May 28, 2010, Atlantic Richfield will provide EPA with draft DQOs for the reference area FRI work plan.
- Atlantic Richfield anticipates that EPA will designate a reference area technical work group by early June 2010 and that the technical work group will meet June 15, 2010 in Sacramento or the Carson City area to discuss the draft DQOs and the scope for the reference area work plan.
- Atlantic Richfield plans on beginning to implement remaining portions of the Well and Mapping FRI work plans in the next quarter.

Problems Encountered or Anticipated

- No problems were encountered in the prior quarter or are anticipated in the next quarter relating to the work required under the UAO.

* * * *

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE MCCARTHY FOR

Tony Brown
Project Manager

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Chein Kao, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.
Adam Cohen, Esq. Davis Graham & Stubbs LLP
Dave McCarthy, Copper Environmental Consulting LLC
Joe Niland, AMEC-Geomatrix Consultants, Inc.
Sandy Riese, EnSci, Inc.
Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR MONTHLY INFLUENT AND EFFLUENT SAMPLES
MARCH 2010 MONTHLY SUMMARY

Draft -- Provisional Data.

Parameter	Basis	March 9 2010 104ASPINF349 Influent mg/L	March 9 2010 104ASPEFF351 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	2.74	7.75	6.0 - 9.0 ²	--
Al	Dissolved	37	0.11	4	2
As	Dissolved	0.00090 J	0.0017	0.34	0.15
Cd	Dissolved	0.0012	<0.00010	0.009	0.004
Ca	Dissolved	286	233	--	--
Cr	Dissolved	0.0015 J	<0.00090	0.97	0.31
Cu	Dissolved	0.47	0.0046	0.026	0.016
Hardness	Dissolved	1000	820	--	--
Fe	Dissolved	107	<0.0150	2	1
Pb	Dissolved	0.00023 J	<0.00020	0.136	0.005
Mg	Dissolved	74	59	--	--
Ni	Dissolved	0.36	0.022	0.84	0.094
Zn	Dissolved	0.47	<0.0050	0.21	0.21
Se	Total	0.0024	0.0012 J	NP	0.005
Acidity	Total	510	<2.0	--	--
Alkalinity (Total)	Total	<2.00	120	--	--
Alkalinity (Bicarbonate)	Total	<2.40	146	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1670	1340	--	--

Notes

1. pH value was collected in field; pH is in standard units.

2. Discharge criteria for average pH based on 24-hour (single day) average discharge.

NP = Not Promulgated

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit.

The user of this data should be aware that this data is of limited reliability.

< = Analyte NOT DETECTED at or above the or method detection limit.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
NOVEMBER 2009 - MARCH 2010
ASPEN SEEP FLOW SUMMARY

Provisional Data

Date	Aspen Seep Recorded Flow ¹								
	gpm								
11/1/2009	5.4	12/1/2009	5.3	1/1/2010	5	2/1/2010	5.1	3/1/2010	5.2
11/2/2009	5.3	12/2/2009	5.2	1/2/2010	4.9	2/2/2010	5.2	3/2/2010	5.2
11/3/2009	5.3	12/3/2009	5.2	1/3/2010	4.9	2/3/2010	5.1	3/3/2010	5.1
11/4/2009	5.3	12/4/2009	5.3	1/4/2010	4.9	2/4/2010	5.1	3/4/2010	5
11/5/2009	5.2	12/5/2009	5.1	1/5/2010	4.9	2/5/2010	5.1	3/5/2010	5
11/6/2009	5.2	12/6/2009	5.2	1/6/2010	5	2/6/2010	5.1	3/6/2010	5
11/7/2009	5.1	12/7/2009	5.3	1/7/2010	5.1	2/7/2010	5.1	3/7/2010	5.1
11/8/2009	5.1	12/8/2009	5.2	1/8/2010	5.1	2/8/2010	5.1	3/8/2010	4.9
11/9/2009	5.1	12/9/2009	5	1/9/2010	5.2	2/9/2010	5	3/9/2010	4.9
11/10/2009	5.3	12/10/2009	5	1/10/2010	5.2	2/10/2010	5	3/10/2010	4.8
11/11/2009	5.3	12/11/2009	5	1/11/2010	5.3	2/11/2010	5.2	3/11/2010	5
11/12/2009	5.3	12/12/2009	5.2	1/12/2010	5.4	2/12/2010	5.2	3/12/2010	5.1
11/13/2009	5.2	12/13/2009	5.3	1/13/2010	5.2	2/13/2010	5.2	3/13/2010	5
11/14/2009	5.1	12/14/2009	5.3	1/14/2010	5	2/14/2010	5.1	3/14/2010	4.9
11/15/2009	5	12/15/2009	5.2	1/15/2010	5.1	2/15/2010	5.3	3/15/2010	5
11/16/2009	5.2	12/16/2009	5.2	1/16/2010	5	2/16/2010	5.3	3/16/2010	5.3
11/17/2009	5.3	12/17/2009	5.2	1/17/2010	4.9	2/17/2010	5.4	3/17/2010	5.7
11/18/2009	5.1	12/18/2009	5.1	1/18/2010	5	2/18/2010	5.3	3/18/2010	5.7
11/19/2009	5	12/19/2009	5.1	1/19/2010	5.3	2/19/2010	5.2	3/19/2010	5.7
11/20/2009	5.2	12/20/2009	5.3	1/20/2010	5.2	2/20/2010	5.1	3/20/2010	5.7
11/21/2009	5.3	12/21/2009	5.3	1/21/2010	5.1	2/21/2010	5	3/21/2010	5.7
11/22/2009	5.2	12/22/2009	5.1	1/22/2010	5	2/22/2010	4.9	3/22/2010	6
11/23/2009	5	12/23/2009	5	1/23/2010	4.9	2/23/2010	4.9	3/23/2010	ND
11/24/2009	4.9	12/24/2009	5	1/24/2010	5	2/24/2010	5.1	3/24/2010	ND
11/25/2009	4.9	12/25/2009	4.9	1/25/2010	5.3	2/25/2010	5	3/25/2010	ND
11/26/2009	5	12/26/2009	4.9	1/26/2010	5.4	2/26/2010	5.3	3/26/2010	ND
11/27/2009	5.2	12/27/2009	5	1/27/2010	5.3	2/27/2010	5.3	3/27/2010	ND
11/28/2009	5.3	12/28/2009	4.9	1/28/2010	5.2	2/28/2010	5.1	3/28/2010	ND
11/29/2009	5.3	12/29/2009	5	1/29/2010	5.2	---	---	3/29/2010	ND
11/30/2009	5.3	12/30/2009	4.9	1/30/2010	5.2	---	---	3/30/2010	ND
---	---	12/31/2009	5	1/31/2010	5.1	---	---	---	---
Average Flow Rate	5.2	Average Flow Rate	5.1	Average Flow Rate	5.1	Average Flow Rate	5.1	Average Flow Rate	5.2

Notes

1. Aspen Seep flow data is provided by USGS.

Abbreviations

USGS = United States Geological Survey.

TABLE 3
ASPEN SEEP BIOREACTOR RECENT pH and ORP FIELD MEASUREMENTS
MARCH 2010 MONTHLY SUMMARY

Draft -- Provisional Data.

Date	Aspen Influent			Manhole 1		Manhole 5		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.00	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.20	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.50	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.75	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.90	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.00	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.00	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.50	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.75	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.00	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.00	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.50	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.25	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.00	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.00	3.1	455.4	7.4	-47.5	7.09	-251.2	7.7	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.50	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.25	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.00	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.75	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.25	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.75	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0
10/27/2008	5.75	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.50	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1

Date	Aspen Influent			Manhole 1		Manhole 5		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
12/3/2008	5.25	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.25	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0
2/19/2009	5.25	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1
3/10/2009	5.00	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.00	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.50	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.50	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.50	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1
7/1/2009	6.00	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.75	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.00	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.50	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.10	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.25	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.00	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.50	2.93	496.6	6.57	-121.4	7.63	-301	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.90	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143	7.24	-162.8	7.94	2.8
11/11/2009	5.00	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.00	2.9	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.80	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.70	2.94	484	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1
3/9/2010	4.75	2.74	474.7	8.27	-78.3	7.95	-204.2	8.74	-208.9	8.1	-220.8	7.75	-5.9

Notes:

* Effluent readings collected from Pond 4 because water was not being discharged to the aeration channel.

** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.

- : not measured or not recorded.

Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.

Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.

Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.

Aspen Seep Flow measurements are field measurements completed with a graduated bucket and stop watch.

Atlantic Richfield Company

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Project Manager, Mining

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May 10, 2010

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for April 2010

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of April 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

ACTIVITIES FOR APRIL

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of April. Routine O&M and influent and effluent sampling occurred on April 26, 2010. The currently available influent and effluent water quality data for the April 26, 2010 sampling event are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3.
- Pursuant to Amendment #2 to the 2009 Removal Action Work Plan (RAWP), monitoring of the pilot scale sludge drying bed test continued during the month of April. Samples of sludge were collected on April 26, 2010.

CUD and DS

- Road maintenance and snow removal activities on the Nevada side of the Leviathan Mine Road began on April 7, 2010 for the winter/spring portion of the 2010 Limited Access Season. Notice of planned road maintenance activities was provided to EPA and Ken Maas with the US Forest Service on April 1, 2010.
- Site setup activities were initiated on April 12, 2010 in the Pond 4 area for the winter/spring portion of the 2010 Limited Access Season operations. Site setup activities were periodically delayed in April due to inclement weather. Activities have included the following: de-winterization of the HDS



Plant, inspection of CUD and DS conveyance pipelines, installation of CUD and DS capture pumps, servicing of plant motors and gearboxes, maintenance and startup of site generators, installation of site communications equipment, and delivery of site trailers.

- Development of the Operations and Maintenance Manual for the HDS Treatment Plant continued. Plant engineers will continue to document the procedures for operation, maintenance and repairs in the O&M Manual.
- A pre-season sample of the water within Pond 4 was collected on April 14, 2010. The results of the pre-season sampling are included in Table 4.
- On April 28, 2010, Atlantic Richfield provided an e-mail update to EPA regarding the Limited Access Season schedule of activities.
- The HDS Treatment System began treating Pond 4 water on May 3, 2010. Capture of the CUD and DS was initiated on May 6, 2010. Since capture, treatment, and discharge did not begin in April, no influent or effluent samples were collected during the month of April.

Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- On March 18, 2010, Atlantic Richfield submitted a letter to EPA requesting authorization to perform water treatment activities at the Leviathan Mine Site during the winter/spring portion of the 2010 Limited Access Season. EPA granted the request by letter dated April 2, 2010.
- The 2009 Annual Completion Report was submitted to EPA on April 9, 2010.
- On April 12, 2010, EPA provided a letter approving (with comments) and directing Atlantic Richfield to implement the 2010 Removal Action Work Plan (RAWP).
- On April 15, 2010, Atlantic Richfield provided updated certificates of insurance for Atlantic Richfield and its contractors demonstrating compliance with the requirements in Paragraph 140 of the AOC.
- On April 20, 2010, a conference call was conducted with EPA to provide a general progress update.

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct monitoring as outlined in the 2010 RAWP.

CUD and DS

- Continue development of the Operations and Maintenance Manual for the HDS Treatment Plant.
- Continue site setup activities in the Pond 4 area for the winter/spring portion of the 2010 Limited Access Season operations, weather and safe access conditions permitting.
- Continue with the startup, optimization, operation, and maintenance of the HDS Treatment System.

- Initiate capture and treatment of the CUD and DS.

Site-wide

- Continue to provide project progress updates to EPA via conference call. The next conference call is currently scheduled for May 18, 2010.
- Submit responses to EPA comments provided in the April 12, 2010 letter approving and directing Atlantic Richfield to implement the 2010 RAWP.

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE MCCARTHY FOR

Tony Brown
Project Manager

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Chein Kao, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.
Adam Cohen, Esq., Davis Graham & Stubbs LLP
Dave McCarthy, Copper Environmental Consulting LLC
Joe Niland, AMEC-Geomatrix Consultants, Inc.
Sandy Riese, EnSci, Inc.
Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR MONTHLY INFLUENT AND EFFLUENT SAMPLES
APRIL 2010 MONTHLY SUMMARY

Draft -- Provisional Data.

Parameter	Basis	April 26 2010 106ASPINF354 Influent mg/L	April 26 2010 106ASPEFF355 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	2.9	6.2	6.0 - 9.0 ²	--
Al	Dissolved	NA	NA	4	2
As	Dissolved	NA	NA	0.34	0.15
Cd	Dissolved	NA	NA	0.009	0.004
Ca	Dissolved	NA	NA	--	--
Cr	Dissolved	NA	NA	0.97	0.31
Cu	Dissolved	NA	NA	0.026	0.016
Hardness	Dissolved	NA	NA	--	--
Fe	Dissolved	NA	NA	2	1
Pb	Dissolved	NA	NA	0.136	0.005
Mg	Dissolved	NA	NA	--	--
Ni	Dissolved	NA	NA	0.84	0.094
Zn	Dissolved	NA	NA	0.21	0.21
Se	Total	NA	NA	NP	0.005
Acidity	Total	NA	NA	--	--
Alkalinity (Total)	Total	NA	NA	--	--
Alkalinity (Bicarbonate)	Total	NA	NA	--	--
Alkalinity (Carbonate)	Total	NA	NA	--	--
Alkalinity (Hydroxide)	Total	NA	NA	--	--
Sulfate	Lab Filtered	NA	NA	--	--

Notes

1. pH value was collected in field; pH is in standard units.
 2. Discharge criteria for average pH based on 24-hour (single day) average discharge.
- NA = Data not yet available from laboratory
NP = Not Promulgated
J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit.
The user of this data should be aware that this data is of limited reliability.
< = Analyte NOT DETECTED at or above the or method detection limit.
Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
APRIL 2010
ASPEN SEEP FLOW SUMMARY
 Provisional Data

Date	Aspen Seep Recorded Flow¹
	gpm
4/1/2010	NA
4/2/2010	NA
4/3/2010	NA
4/4/2010	NA
4/5/2010	NA
4/6/2010	NA
4/7/2010	NA
4/8/2010	NA
4/9/2010	NA
4/10/2010	NA
4/11/2010	NA
4/12/2010	NA
4/13/2010	NA
4/14/2010	NA
4/15/2010	NA
4/16/2010	NA
4/17/2010	NA
4/18/2010	NA
4/19/2010	NA
4/20/2010	NA
4/21/2010	NA
4/22/2010	NA
4/23/2010	NA
4/24/2010	NA
4/25/2010	NA
4/26/2010	NA
4/27/2010	NA
4/28/2010	NA
4/29/2010	NA
4/30/2010	NA
---	---
Average Flow Rate	NA

Notes

1. Aspen Seep flow data is provided by USGS.

Abbreviations

USGS = United States Geological Survey.

TABLE 3
ASPEN SEEP BIOREACTOR RECENT pH and ORP FIELD MEASUREMENTS
APRIL 2010 MONTHLY SUMMARY
Draft -- Provisional Data.

Date	Aspen Influent			Manhole 1		Manhole 5		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.00	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.20	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.50	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.75	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.90	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.00	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.00	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.50	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.75	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.00	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.00	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.50	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.25	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.00	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.00	3.1	455.4	7.4	-47.5	7.09	-251.2	7.7	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.50	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.25	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.00	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.75	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.25	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.75	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0
10/27/2008	5.75	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.50	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.25	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.25	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0
2/19/2009	5.25	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1
3/10/2009	5.00	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.00	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.50	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.50	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.50	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1

TABLE 3
ASPEN SEEP BIOREACTOR RECENT pH and ORP FIELD MEASUREMENTS
APRIL 2010 MONTHLY SUMMARY

Draft -- Provisional Data.

Date	Aspen Influent			Manhole 1		Manhole 5		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
7/1/2009	6.00	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.75	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.00	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.50	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.10	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.25	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.00	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.50	2.93	496.6	6.57	-121.4	7.63	-301	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.90	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143	7.24	-162.8	7.94	2.8
11/11/2009	5.00	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.00	2.9	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.80	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.70	2.94	484	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1
3/9/2010	4.75	2.74	474.7	8.27	-78.3	7.95	-204.2	8.74	-208.9	8.1	-220.8	7.75	-5.9
4/26/2010	12	2.85	479.5	5.14	135.1	5.61	-19	5.04	109.2	5.6	-29.6	6.15	35.9

Notes:

- * Effluent readings collected from Pond 4 because water was not being discharged to the aeration channel.
- ** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.
- : not measured or not recorded.
- Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.
- Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.
- Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.
- Aspen Seep Flow measurements are field measurements completed with a graduated bucket and stop watch.

TABLE 4
POND 4 PRE-SEASON SAMPLE - APRIL 2010
 Draft - Provisional Data

Parameter	Basis	14-Apr 2010 121PREDIS300 Pond 4 Pre-Season mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	4.0	--	6-9 ²
Al	Dissolved	22	4	2
As	Dissolved	<0.00090	0.34	0.15
Cd	Dissolved	0.0020	0.009	0.004
Ca	Dissolved	175	--	--
Cr	Dissolved	0.023	0.97	0.31
Cu	Dissolved	0.41	0.026	0.016
Hardness	Dissolved	610	--	--
Fe	Dissolved	5.51	2.0	1.0
Pb	Dissolved	0.00031 J	0.136	0.005
Mg	Dissolved	42	--	--
Ni	Dissolved	0.23	0.84	0.094
Zn	Dissolved	0.21	0.21	0.21
Se	Total	0.0041	NP	0.005
Acidity	Total	160	--	--
Alkalinity (Total)	Total	<2.00	--	--
Alkalinity (Bicarbonate)	Total	<2.40	--	--
Alkalinity (Carbonate)	Total	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	--	--
Sulfate	Lab Filtered	758	--	--

Notes:

1. pH value was collected in field. pH is in standard units. pH of "predischage" sample is average of 4 composited Pond 4 samples (P1,P2,P3,&P4 locations).
 2. Discharge criteria pH based on 24-hour (single day) average discharge.
- < = Value is below the method detection limit, detection limit is listed.
 J = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).
 NP = Not Promulgated

Atlantic Richfield Company

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June 10, 2010

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for May 2010

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of May 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

ACTIVITIES FOR MAY

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of May. Routine O&M and influent and effluent sampling occurred on May 17, 2010. The currently available influent and effluent water quality data for the April 26 and May 17, 2010 sampling events are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3.
- Pursuant to Amendment #2 to the 2009 Removal Action Work Plan (RAWP), monitoring of the pilot scale sludge drying bed test continued during the month of May. Samples of sludge were collected on May 13 and 25, 2010.
- Flow reversal in Biocell 2 was conducted on May 17, 2010, as described in the 2010 RAWP. Additional field parameter monitoring was conducted following the flow reversal. ORP and pH data are presented in Table 3.

CUD and DS

- Site setup activities were completed in the Pond 4 area for the winter/spring portion of the 2010 Limited Access Season operations. Site setup activities were periodically delayed in May due to inclement weather. Activities have included the following: cleaning of CUD and DS conveyance



pipelines, installation of CUD and DS capture pumps, installation of site communications equipment, and delivery and installation of sludge bins.

- The process of bringing Pond 4 water into the HDS Treatment System began on April 28, 2010. The system was operated in recycle mode on May 1, 2010. The HDS Treatment System began discharging treated Pond 4 water on May 3, 2010 once discharge criteria were achieved and stable operations were established. Capture of the CUD and DS was initiated on May 6, 2010. The HDS Treatment Plant effluent was sampled for laboratory analytical parameters on May 3, 12, 18, and 25, 2010. The analytical results associated with the May 3, 12, and 18, 2010 sampling events are presented in Table 4. The analytical results associated with the May 25, 2010 sampling event have not been received from the laboratory and will be reported next month. HDS Treatment Plant effluent samples were collected weekly during startup phase monitoring as described in the 2010 RAWP. An HDS influent sample was collected on May 12, 2010 as part of the monthly compliance sampling, and the results are included in Table 4.
- Updates were provided to EPA via email on May 4, 2010 and May 10, 2010 regarding the status of HDS Plant startup operations.
- On May 21, 2010, Atlantic Richfield requested approval from EPA for supplemental sampling and analysis associated with scale buildup in the CUD conveyance pipelines. The buildup of scale was reducing the rate of flow through the conveyance lines. As a result, Atlantic Richfield installed a third conveyance line for the CUD to be used temporarily until the existing lines could be cleaned. Samples were collected on May 26, 2010 for analysis upon EPA approval. EPA approved the supplemental sampling and analysis in an email dated May 28, 2010.
- On May 28, 2010, Atlantic Richfield provided verbal notification to EPA regarding a brief capture interruption at the CUD. Atlantic Richfield provided written notification to EPA via email on June 1, 2010. Details of the interruption, which resulted from a loss of power to the CUD collection pump, were as described in the June 1, 2010 email. The interruption lasted approximately 2 minutes. No change in the pH of Leviathan Creek could be discerned outside of normal diurnal fluctuations.
- Development of the Operations and Maintenance Manual for the HDS Treatment Plant continued. Plant engineers will continue to document the procedures for operation, maintenance and repairs in the O&M Manual.

Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- On April 12, 2010, EPA provided a letter approving (with comments) and directing Atlantic Richfield to implement the 2010 Removal Action Work Plan (RAWP). Atlantic Richfield submitted a response to the EPA comments on May 11, 2010, including change pages for the 2010 RAWP.
- On May 12, 2010, Atlantic Richfield provided to the United States Forest Service (USFS) an update describing road maintenance activities being performed, or scheduled to be performed, by Atlantic Richfield on Leviathan Mine Road. Dust measurement data collected along Leviathan Mine Road in the vicinity of the residences was also provided to the USFS on the same date.
- On May 18, 2010, a conference call was conducted with EPA to provide a general progress update.

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct monitoring as outlined in the 2010 RAWP.
- Flow is anticipated to be reversed in Biocell 1 as described in the 2010 RAWP.

CUD and DS

- Continue development of the Operations and Maintenance Manual for the HDS Treatment Plant.
- Continue with the optimization, operation, and maintenance of the HDS Treatment System, including capture of the CUD and DS.

Site-wide

- Continue to provide project progress updates to EPA via conference call. The next conference call is currently scheduled for June 15, 2010.

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE McCARTHY ON BEHALF OF

Tony Brown
Project Manager

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Chein Kao, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.
Adam Cohen, Esq., Davis Graham & Stubbs LLP
Dave McCarthy, Copper Environmental Consulting LLC
Joe Niland, AMEC-Geomatrix Consultants, Inc.
Sandy Riese, EnSci, Inc.
Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR MONTHLY INFLUENT AND EFFLUENT SAMPLES
MAY 2010 MONTHLY SUMMARY

Draft -- Provisional Data.

Parameter	Basis	April 26	April 26	May 17	May 17	Maximum Discharge Criteria	Average Discharge Criteria
		2010 106ASPINF354 Influent mg/L	2010 106ASPEFF355 Effluent mg/L	2010 112ASPINF364 Influent mg/L	2010 112ASPEFF365 Effluent mg/L		
pH ¹	Field	2.9	6.2	3.0	7.8	---	6.0 - 9.0 ²
Al	Dissolved	39	0.65	42	<0.040	4	2
As	Dissolved	<0.00090	<0.00090	<0.00090	0.0020	0.34	0.15
Cd	Dissolved	<0.00010	<0.00010	0.0013	<0.00010	0.009	0.004
Ca	Dissolved	288	233	297	259	--	--
Cr	Dissolved	<0.00090	<0.00090	0.0028	<0.00090	0.97	0.31
Cu	Dissolved	0.0023	0.0023	0.61	0.0032	0.026	0.016
Hardness	Dissolved	1000	820	1100	900	--	--
Fe	Dissolved	104	12.6	115	0.210	2	1
Pb	Dissolved	0.00024 J	<0.00020	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	73	59	76	63	--	--
Ni	Dissolved	0.0080	0.0039	0.35	0.055	0.84	0.094
Zn	Dissolved	0.12	0.42	0.51	0.0079 J	0.21	0.21
Se	Total	0.0028	0.0014 J	0.0025	0.0013 J	NP	0.005
Acidity	Total	520	<2.0	560	<2.0	--	--
Alkalinity (Total)	Total	<2.00	32.0	<2.00	80.0	--	--
Alkalinity (Bicarbonate)	Total	<2.40	39.0	<2.40	97.5	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1560	1170	1810	1560	--	--

Notes

1. pH value was collected in field; pH is in standard units.

2. Discharge criteria for average pH based on 24-hour (single day) average discharge.

NA = Data not yet available from laboratory

NP = Not Promulgated

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. The user of this data should be aware that this data is of limited reliability.

< = Analyte NOT DETECTED at or above the or method detection limit.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
MARCH - MAY 2010
ASPEN SEEP, CUD, DS, and HDS PLANT FLOW SUMMARY
 Provisional Data

Date	Aspen Seep Recorded Flow ¹	Date	Aspen Seep Recorded Flow ¹	Date	Aspen Seep Recorded Flow ¹	Date	Delta Seep Recorded Flow ²		Channel Underdrain Recorded Flow ²		Treated Water Discharge from HDS Plant Recorded Flow ²	
	gpm		gpm		gpm		gpm	gpm	Gallons	gpm ²	Gallons ²	gpm
3/1/2010	5.2	4/1/2010	6.5	5/1/2010	11.4	5/1/2010	0.00	0	0.00	0	0.00	0
3/2/2010	5.2	4/2/2010	6.6	5/2/2010	11.5	5/2/2010	0.00	0	0.00	0	0.00	0
3/3/2010	5.1	4/3/2010	6.3	5/3/2010	11.9	5/3/2010	0.00	0	0.00	0	20.10	28,905
3/4/2010	5.0	4/4/2010	6.1	5/4/2010	na	5/4/2010	0.00	0	0.00	0	53.30	76,708
3/5/2010	5.0	4/5/2010	6.2	5/5/2010	na	5/5/2010	0.00	0	0.00	0	79.60	114,620
3/6/2010	5.0	4/6/2010	6.2	5/6/2010	na	5/6/2010	14.59	21,016	13.5	19,440	74.89	107,848
3/7/2010	5.1	4/7/2010	6.5	5/7/2010	na	5/7/2010	20.93	30,145	34	48,960	50.03	72,041
3/8/2010	4.9	4/8/2010	6.9	5/8/2010	na	5/8/2010	20.38	29,347	34	48,960	54.99	79,186
3/9/2010	4.9	4/9/2010	7.5	5/9/2010	na	5/9/2010	19.97	28,754	34	48,960	54.99	79,186
3/10/2010	4.9	4/10/2010	7.5	5/10/2010	na	5/10/2010	19.90	28,656	34	48,960	28.35	40,824
3/11/2010	5.0	4/11/2010	7.6	5/11/2010	na	5/11/2010	19.84	28,565	34	48,960	40.05	57,666
3/12/2010	5.1	4/12/2010	7.8	5/12/2010	na	5/12/2010	19.22	27,673	34	48,960	47.38	68,231
3/13/2010	5.0	4/13/2010	7.4	5/13/2010	na	5/13/2010	19.05	27,435	34.26	49,337	55.76	80,301
3/14/2010	4.9	4/14/2010	7.6	5/14/2010	na	5/14/2010	18.68	26,898	34.23	49,291	54.33	78,241
3/15/2010	5.0	4/15/2010	8.7	5/15/2010	na	5/15/2010	18.30	26,337	34.40	49,488	40.00	57,599
3/16/2010	5.3	4/16/2010	11.2	5/16/2010	na	5/16/2010	18.00	25,955	34.50	49,673	40.00	57,598
3/17/2010	5.8	4/17/2010	10.3	5/17/2010	na	5/17/2010	17.79	25,623	34.76	50,059	63.56	91,533
3/18/2010	5.7	4/18/2010	10.8	5/18/2010	na	5/18/2010	17.41	25,067	34.73	50,006	69.82	100,546
3/19/2010	5.7	4/19/2010	11.3	5/19/2010	na	5/19/2010	16.95	24,405	34.75	50,046	62.89	90,567
3/20/2010	5.8	4/20/2010	12.2	5/20/2010	na	5/20/2010	16.74	24,109	35.02	50,428	51.93	74,784
3/21/2010	5.8	4/21/2010	11.6	5/21/2010	na	5/21/2010	16.75	24,113	35.12	50,576	46.63	67,148
3/22/2010	6.0	4/22/2010	11.5	5/22/2010	na	5/22/2010	16.56	23,840	35.26	50,775	40.05	57,678
3/23/2010	6.0	4/23/2010	22.4	5/23/2010	na	5/23/2010	16.40	23,622	35.42	51,010	40.05	57,678
3/24/2010	6.2	4/24/2010	10.6	5/24/2010	na	5/24/2010	16.16	23,264	35.64	51,319	37.37	53,811
3/25/2010	5.9	4/25/2010	10.6	5/25/2010	na	5/25/2010	15.81	22,770	35.42	51,006	44.41	63,953
3/26/2010	5.8	4/26/2010	11.0	5/26/2010	na	5/26/2010	15.52	22,355	35.63	51,314	52.19	75,161
3/27/2010	5.9	4/27/2010	13.0	5/27/2010	na	5/27/2010	15.50	22,323	35.57	51,217	52.16	75,117
3/28/2010	6.5	4/28/2010	13.0	5/28/2010	na	5/28/2010	15.36	22,118	35.19	50,669	51.44	74,074
3/29/2010	7.2	4/29/2010	12.3	5/29/2010	na	5/29/2010	15.10	21,738	35.55	51,197	51.96	74,822
3/30/2010	7.5	4/30/2010	11.5	5/30/2010	na	5/30/2010	14.98	21,572	35.72	51,442	51.96	74,822
3/31/2010	7.1	---	---	5/31/2010	---	5/31/2010	14.69	21,156	35.62	51,296	51.92	74,764
Average Flow Rate	5.6	Average Flow Rate	9.6	Average Flow Rate	11.6	Average Flow Rate or Total Discharged	14.5	648,854	28.5	1,273,347	47.2	2,105,410

Notes

- Aspen Seep flow data is provided by USGS.
- DS, CUD, and Treated Water Discharge from Pond 4 flow rates are calculated from volume measured by flow totalizers.
- CUD flow between 5/6/10 and 5/12/10 was estimated from field measurements.

Abbreviations

USGS = United States Geological Survey.
 gpm = gallons per minute

TABLE 3
ASPEN SEEP BIOREACTOR RECENT pH and ORP FIELD MEASUREMENTS
MAY 2010 MONTHLY SUMMARY

Draft -- Provisional Data.

Date	Aspen Influent			Manhole 1		Manhole 5		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.00	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.20	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.50	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.75	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.90	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.00	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.00	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.50	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.75	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.00	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.00	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.50	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.25	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.00	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.00	3.1	455.4	7.4	-47.5	7.09	-251.2	7.7	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.50	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.25	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.00	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.75	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.25	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.75	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0
10/27/2008	5.75	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.50	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.25	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.25	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0
2/19/2009	5.25	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1

TABLE 3
ASPEN SEEP BIOREACTOR RECENT pH and ORP FIELD MEASUREMENTS
MAY 2010 MONTHLY SUMMARY

Draft -- Provisional Data.

Date	Aspen Influent			Manhole 1		Manhole 5		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
3/10/2009	5.00	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.00	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.50	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.50	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.50	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1
7/1/2009	6.00	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.75	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.00	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.50	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.10	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.25	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.00	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.50	2.93	496.6	6.57	-121.4	7.63	-301	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.90	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143	7.24	-162.8	7.94	2.8
11/11/2009	5.00	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.00	2.9	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.80	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.70	2.94	484	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1
3/9/2010	4.75	2.74	474.7	8.27	-78.3	7.95	-204.2	8.74	-208.9	8.1	-220.8	7.75	-5.9
4/26/2010	12	2.85	479.5	5.14	135.1	5.61	-19	5.04	109.2	5.6	-29.6	6.15	35.9
5/17/2010	11	2.97	436.9	6.26	196.9	7.04	-283.9	7.79	-235.1	7.08	285.4	7.76	-73.8
5/24/2010	10.1	3.16	418.0	7.43	-156.1	7.00	-259.9	7.27	-171.4	6.89	-282.6	7.11	-78.6
5/27/2010	9.6 ^a	3.18	423.1	5.52	-225.1	7.58	-316.7	8.86	-318.2	6.74	-296.8	7.07	-98.7

Notes:

* Effluent readings collected from Pond 4 because water was not being discharged to the aeration channel.

** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.

- : not measured or not recorded.

Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.

Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.

Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.

Aspen Seep Flow measurements are field measurements completed with a graduated bucket and stop watch.

a. flow measurement from effluent flow meter rather than at the Aspen Seep Weir

TABLE 4
POND 4 HDS ANALYTICAL SAMPLES - MAY 2010
Draft - Provisional Data

		May 3 2010 122HDSEFF301 Effluent mg/L	May 12 2010 123HDSINF306 Influent mg/L	May 12 2010 123HDSEFF307 Effluent mg/L	May 18 2010 124HDSEFF311 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	8.4	3.8	8.2	8.3	--	6-9 ²
Al	Dissolved	0.76	41	0.55	0.53	4	2
As	Dissolved	<0.00090	0.096	0.0016	<0.00090	0.34	0.15
Cd	Dissolved	<0.00010	0.0020	<0.00010	<0.00010	0.009	0.004
Ca	Dissolved	297	294	518	570	--	--
Cr	Dissolved	<0.00090	0.0093	<0.00090	<0.00090	0.97	0.31
Cu	Dissolved	0.0065	0.17	0.0080	0.0058	0.026	0.016
Hardness	Dissolved	900	1100	1600	1700	--	--
Fe	Dissolved	0.121	191	0.592	0.17	2.0	1.0
Pb	Dissolved	<0.00020	<0.00020	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	38	80	70	80	--	--
Ni	Dissolved	0.032	1.2	0.036	0.041	0.84	0.094
Zn	Dissolved	0.0053 J	0.33	0.0063 J	0.0078 J	0.21	0.21
Se	Total	0.0046	0.0035	0.0035	0.0031	NP	0.005
Acidity	Total	8.0	660	<2.0	10	--	--
Alkalinity (Total)	Total	16.0	<2.00	29.0	17	--	--
Alkalinity (Bicarbonate)	Total	19.5	<2.40	35.4	21	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	<0.700	<0.70	--	--
Sulfate	Lab Filtered	967	1830	1750	2000	--	--

Notes:

- pH value was collected in field and is the average of 3 grab samples comprising the HDS Effluent sample or one grab sample for the HDS Influent sample. pH is in standard units.
 - Discharge criteria pH based on 24-hour (single day) average discharge.
- < = Value is below the method detection limit, detection limit is listed.
- J = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).
- NP = Not Promulgated
- Values in bold are concentrations greater than the maximum or average discharge criteria.

Atlantic Richfield Company

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July 12, 2010

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for June 2010

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of June 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

Atlantic Richfield is also submitting this letter in satisfaction of the quarterly progress reporting requirement set forth in Paragraph 63 of the Administrative Order for Remedial Investigation and Feasibility Study (U.S. EPA Region IX, CERCLA Docket No. 2008-18, June 23, 2008) (UAO). The quarterly summary of RI/FS activities is provided at the end of this letter.

ACTIVITIES FOR JUNE

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of June. Routine O&M and influent and effluent sampling occurred on June 1 and 14, 2010. The currently available influent and effluent water quality data for the June 1 and 14, 2010 sampling events are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3.
- Pursuant to Amendment #2 to the 2009 Removal Action Work Plan (RAWP), monitoring of the pilot scale sludge drying bed test continued during the month of June. Samples of sludge were collected on June 8, 22 and 29, 2010. Data collected during the pilot scale sludge drying bed test is included in Table 6 and Table 7. Atlantic Richfield is currently developing plans for the next phase of sludge drying bed testing, which we expect to submit to EPA in July in the form of an amendment to the 2010 RAWP.
- Flow reversal in Biocell 1 was conducted during the week of June 14, 2010, as described in the 2010 RAWP. Additional field parameter monitoring was conducted following the flow reversal. ORP and pH data are presented in Table 3.



CUD and DS

- Operation of the HDS Treatment Plant and the associated capture of the CUD and DS continued during the month of June. The HDS Treatment Plant effluent was sampled for laboratory analytical parameters on June 8, 2010. The analytical results associated with the May 25 and June 8, 2010 sampling events are presented in Table 4. An HDS influent sample was collected on June 8, 2010 as part of the monthly compliance sampling, and the results are included in Table 4. Flow rates recorded for the Delta Seep, Channel Underdrain, and treated water discharge from the HDS Treatment Plant are included in Table 2.
- Development of the Operations and Maintenance Manual for the HDS Treatment Plant continued. Plant engineers will continue to document the procedures for operation, maintenance and repairs in the O&M Manual.
- On June 18, 2010, Atlantic Richfield notified EPA of proposed maintenance work for the Delta Seep Cut-off Wall. The work is intended to promote safe and reliable operations. On June 30, 2010, EPA approved the proposed maintenance work, and Atlantic Richfield provided an email update to EPA of the anticipated schedule for implementation of the maintenance activities.

Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- On June 15, 2010, a conference call was conducted with EPA to provide a general progress update.
- Observed spring benthic macroinvertebrate sampling performed by EPA on June 1-2, 2010, in Leviathan Creek, Mountaineer Creek, and Aspen Creek.
- Work continued on an evaluation of various dust control alternatives for Leviathan Mine Road near Highway 395. The evaluation is anticipated to be submitted to the USDA Forest Service in July.

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct monitoring as outlined in the 2010 RAWP.
- Disassemble and remove the pilot scale sludge drying bed test from the site, and submit an RAWP amendment describing the design and plans for construction and implementation of the next phase of sludge drying bed testing.

CUD and DS

- Continue development of the Operations and Maintenance Manual for the HDS Treatment Plant.
- Continue with the optimization, operation, and maintenance of the HDS Treatment System, including capture of the CUD and DS.

- Perform maintenance work on the Delta Seep cutoff wall.

Site-wide

- Continue to provide project progress updates to EPA via conference call. The next conference call is currently scheduled for July 27, 2010.

* * * *

QUARTERLY RI/FS PROGRESS REPORT

As required by Paragraph 63 of the UAO, the following Quarterly Progress Report for Remedial Investigation and Feasibility Study (RI/FS) activities describes: (a) the actions taken to comply with the UAO during the prior quarter, (b) the work planned for the next quarter, and (c) any problems encountered or anticipated including any actual or anticipated delays in schedules.

Actions Taken to Comply with the UAO

- Atlantic Richfield submitted the Quarterly Progress Report for the first quarter 2010 on April 10, 2010.
- Atlantic Richfield provided comments to draft Programmatic RI/FS DQOs prepared by EPA on April 16 and April 20, 2010.
- Atlantic Richfield met with the EPA to review the Programmatic RI/FS DQOs and to discuss the structure for the On-property FRI DQOs on April 23, 2010.
- On April 27, 2010 Atlantic Richfield provided an outline for a stakeholder Technical Work Group (TWG) conference call to discuss the On-property FRI DQOs planned for May 13, 2010.
- Between April 28, 2010 and May 7, 2010 Atlantic Richfield worked with EPA to finalize the Programmatic RI/FS DQOs.
- On April 30, 2010 Atlantic Richfield provided the first three draft On-property FRI DQOs to EPA for review.
- On May 11, 2010, Atlantic Richfield provided draft handouts for the TWG planned for May 13, 2010 to discuss the On-property FRI DQOs.
- On May 13, 2010 Atlantic Richfield conducted a TWG web based conference call to discuss the On-property FRI DQOs.
- On May 13, 2010, Atlantic Richfield received approval with comments and direction to implement the 2009 Draft RI/FS Program Work Plan.
- On May 14, 2010 Atlantic Richfield sent the remaining On-property FRI DQOs to EPA for review.
- On May 26, 2010, Atlantic Richfield provided an On-property FRI draft sample collection matrix and sample location maps to EPA for review.
- On June 3, 2010 Atlantic Richfield met with the EPA to discuss the sample collection program planned to meet the DQOs for the On-property FRI.
- On June 14, 2010, Atlantic Richfield submitted a memo titled *Proposed RI/FS Initial Analyte List* to EPA for review.

- Atlantic Richfield submitted a draft outline for initial reference area activities to EPA on June 16, 2010.
- Atlantic Richfield submitted a response to initial EPA comments received on the Draft Human Health Risk Assessment Work Plan on June 16, 2010.
- EPA approved the outline for initial reference area investigation on June 29, 2010.
- EPA provided comments on the memo titled Proposed RI/FS Initial Analyte List on June 29, 2010 and directed Atlantic Richfield to submit the revised document.
- Atlantic Richfield began to implement remaining portions of the Well and Mapping FRI work plans in the second quarter.

Work Planned for the Next Quarter

- Atlantic Richfield plans on submitting the On-property FRI Work plan to EPA in July 2010.
- Atlantic Richfield will complete the remaining field work under the Mapping and Well FRI Work Plans in the third quarter 2010.
- Atlantic Richfield plans on conducting a TWG meeting to discuss the initial reference study activities in July 2010.
- Atlantic Richfield plans on submitting a work plan to EPA presenting the initial reference study activities in August 2010.
- Atlantic Richfield plans on implementing initial reference study activities in third quarter 2010.
- Atlantic Richfield plans on responding to comments on the On-property FRI Work Plan in third quarter 2010.
- Atlantic Richfield plans on responding to comments on the draft HHRA Work Plan in third quarter 2010.

Problems Encountered or Anticipated

- No problems were encountered in the prior quarter or are anticipated in the next quarter relating to the work required under the UAO.

* * * *

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE MCCARTHY FOR

Tony Brown
Project Manager

Gary Riley and Kevin Mayer – USEPA Region 9

July 12, 2010

Page 5 of 5

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Chein Kao, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.
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Dave McCarthy, Copper Environmental Consulting LLC
Joe Niland, AMEC-Geomatrix Consultants, Inc.
Sandy Riese, EnSci, Inc.
Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR MONTHLY INFLUENT AND EFFLUENT SAMPLES
JUNE 2010 MONTHLY SUMMARY
Draft -- Provisional Data.

Parameter	Basis	June 1	June 1	June 14	June 14	Maximum Discharge Criteria	Average Discharge Criteria
		2010 116ASPINF369 Influent mg/L	2010 116ASPEFF375 Effluent mg/L	2010 119ASPINF379 Influent mg/L	2010 119ASPEFF380 Effluent mg/L		
pH ¹	Field	3.1	7.0	3.0	7.5	---	6.0 - 9.0 ²
Al	Dissolved	41	<0.080	40	<0.040	4	2
As	Dissolved	<0.00090	<0.00090	<0.00090	0.0014	0.34	0.15
Cd	Dissolved	0.0014	<0.00010	0.0013	<0.00010	0.009	0.004
Ca	Dissolved	312	156	296	297	--	--
Cr	Dissolved	0.0032	0.0010 J	0.0026	<0.00090	0.97	0.31
Cu	Dissolved	0.65	0.0079	0.54	0.0088	0.026	0.016
Hardness	Dissolved	1100	540	1100	1000	--	--
Fe	Dissolved	114	0.114	116	0.280	2	1
Pb	Dissolved	0.00029 J	<0.00020	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	79	37	76	73	--	--
Ni	Dissolved	0.40	0.038	0.33	0.016	0.84	0.094
Zn	Dissolved	0.54	<0.0050	0.45	0.0088 J	0.21	0.21
Se	Total	0.0027	0.00094 J	0.0024	0.0011 J	NP	0.005
Acidity	Total	630	<2.0	580	<2.0	--	--
Alkalinity (Total)	Total	<2.00	126	<2.00	190	--	--
Alkalinity (Bicarbonate)	Total	<2.40	154	<2.40	232	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1920	1610	1850	1620	--	--

Notes

1. pH value was collected in field; pH is in standard units.
 2. Discharge criteria for average pH based on 24-hour (single day) average discharge.
- NA = Data not yet available from laboratory
NP = Not Promulgated
J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit.
< = Analyte NOT DETECTED at or above the or method detection limit.
Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
MAY - JUNE 2010
ASPEN SEEP, CUD, DS and HDS PLANT FLOW SUMMARY
 Provisional Data

Date	Aspen Seep Recorded Flow ¹	Date	Aspen Seep Recorded Flow ¹	Date	Delta Seep Recorded Flow ²		Channel Underdrain Recorded Flow ²		Treated Water Discharge from HDS Plant Recorded Flow ²	
	gpm		gpm		gpm	Gallons	gpm	Gallons	gpm	Gallons
5/1/2010	11.4	6/1/2010	10.6	6/1/2010	14.58	20,992	35.71	51,422	34.74	50,024
5/2/2010	11.5	6/2/2010	10.5	6/2/2010	14.35	20,657	35.66	51,355	52.25	75,245
5/3/2010	11.9	6/3/2010	10.5	6/3/2010	14.35	20,668	35.66	51,356	52.17	75,121
5/4/2010	12.7	6/4/2010	10.4	6/4/2010	14.02	20,193	35.94	51,750	51.89	74,728
5/5/2010	12.7	6/5/2010	10.3	6/5/2010	13.91	20,025	35.89	51,680	52.03	74,919
5/6/2010	12.3	6/6/2010	10.2	6/6/2010	13.89	19,998	35.82	51,587	52.03	74,919
5/7/2010	11.8	6/7/2010	10.2	6/7/2010	13.89	20,004	35.96	51,788	51.74	74,502
5/8/2010	11.4	6/8/2010	N/A	6/8/2010	13.67	19,682	35.13	50,583	51.95	74,802
5/9/2010	11.4	6/9/2010	N/A	6/9/2010	13.60	19,578	35.94	51,753	51.94	74,801
5/10/2010	11.6	6/10/2010	N/A	6/10/2010	13.47	19,392	36.13	52,024	51.64	74,356
5/11/2010	12	6/11/2010	N/A	6/11/2010	13.47	19,392	36.17	52,088	49.73	71,615
5/12/2010	11	6/12/2010	N/A	6/12/2010	13.27	19,109	36.13	52,033	47.94	69,034
5/13/2010	10.7	6/13/2010	N/A	6/13/2010	13.20	19,010	35.94	51,756	32.31	46,533
5/14/2010	10.5	6/14/2010	N/A	6/14/2010	12.99	18,702	35.91	51,710	35.79	51,536
5/15/2010	10.5	6/15/2010	N/A	6/15/2010	13.30	19,155	35.98	51,817	50.19	72,267
5/16/2010	10.5	6/16/2010	N/A	6/16/2010	12.92	18,603	36.05	51,907	51.94	74,793
5/17/2010	10.7	6/17/2010	N/A	6/17/2010	12.90	18,574	36.06	51,919	51.93	74,775
5/18/2010	10.4	6/18/2010	N/A	6/18/2010	12.84	18,495	36.13	52,022	51.93	74,779
5/19/2010	10.4	6/19/2010	N/A	6/19/2010	12.65	18,212	36.14	52,035	51.98	74,848
5/20/2010	10.4	6/20/2010	N/A	6/20/2010	12.47	17,958	36.19	52,111	52.05	74,957
5/21/2010	10.4	6/21/2010	N/A	6/21/2010	12.73	18,324	36.09	51,963	52.06	74,966
5/22/2010	10.5	6/22/2010	N/A	6/22/2010	12.44	17,919	35.97	51,793	52.07	74,974
5/23/2010	10.6	6/23/2010	N/A	6/23/2010	12.38	17,822	36.06	51,920	51.94	74,790
5/24/2010	10.4	6/24/2010	N/A	6/24/2010	12.48	17,971	36.22	52,164	50.22	72,322
5/25/2010	10.4	6/25/2010	N/A	6/25/2010	12.62	18,168	35.97	51,799	48.09	69,251
5/26/2010	10.4	6/26/2010	N/A	6/26/2010	12.24	17,624	35.98	51,813	48.13	69,305
5/27/2010	10.5	6/27/2010	N/A	6/27/2010	12.23	17,611	35.99	51,831	48.13	69,305
5/28/2010	10.5	6/28/2010	N/A	6/28/2010	12.07	17,375	36.02	51,873	47.99	69,101
5/29/2010	10.3	6/29/2010	N/A	6/29/2010	12.01	17,289	35.92	51,730	48.08	69,229
5/30/2010	10.3	6/30/2010	N/A	6/30/2010	12.22	17,594	36.01	51,852	43.40	62,489
5/31/2010	10.5	---	N/A	---	---	---	---	---	---	---
Average Flow Rate	11.0	---	10.4	Average Flow Rate or Total Discharged	12.68	566,098	34.80	1,553,435	47.36	2,114,286

Notes

1. Aspen Seep flow data is provided by USGS.
2. Flow rates for DS, CUD, and Treated Water Discharged from the HDS Treatment Plant are calculated from the volume measured by flow totalizers.

Abbreviations

USGS = United States Geological Survey. CUD = Channel Underdrain DS = Delta Seep gpm = gallons per minute

TABLE 3
ASPEN SEEP BIOREACTOR RECENT pH and ORP FIELD MEASUREMENTS
JUNE 2010 MONTHLY SUMMARY
Draft -- Provisional Data.

Date	Aspen Influent			Manhole 1 or 2 B.R.#1 Influent		Manhole 5 or 4 B.R.#1 Eff/B.R.#2 Inf		Manhole 6 NaOH dosing		Manhole 7 B.R. #2 Eff		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.00	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.20	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.50	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.75	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.90	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.00	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.00	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.50	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.75	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.00	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.00	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.50	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.25	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.00	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.00	3.1	455.4	7.4	-47.5	7.09	-251.2	7.7	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.50	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.25	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.00	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.75	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.25	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.75	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0
10/27/2008	5.75	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.50	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.25	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.25	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0

TABLE 3
ASPEN SEEP BIOREACTOR RECENT pH and ORP FIELD MEASUREMENTS
JUNE 2010 MONTHLY SUMMARY
 Draft -- Provisional Data.

Date	Aspen Influent			Manhole 1 or 2 B.R.#1 Influent		Manhole 5 or 4 B.R.#1 Eff/B.R.#2 Inf		Manhole 6 NaOH dosing		Manhole 7 B.R. #2 Eff		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
2/19/2009	5.25	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1
3/10/2009	5.00	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.00	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.50	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.50	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.50	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1
7/1/2009	6.00	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.75	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.00	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.50	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.10	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.25	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.00	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.50	2.93	496.6	6.57	-121.4	7.63	-301	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.90	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143	7.24	-162.8	7.94	2.8
11/11/2009	5.00	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.00	2.9	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.80	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.70	2.94	484	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1
3/9/2010	4.75	2.74	474.7	8.27	-78.3	7.95	-204.2	8.74	-208.9	8.1	-220.8	7.75	-5.9
4/26/2010	12	2.85	479.5	5.14	135.1	5.61	-19	5.04	109.2	5.6	-29.6	6.15	35.9
5/17/2010	9.7	2.97	436.9	6.26	196.9	7.04	-283.9	7.79	-235.1	7.08	285.4	7.76	-73.8
5/24/2010	9.36	3.16	418.0	7.43	-156.1	7.00	-259.9	7.27	-171.4	6.89	-282.6	7.11	-78.6
5/27/2010	9.6	3.18	423.1	5.52	-225.1	7.58	-316.7	8.86	-318.2	6.74	-296.8	7.07	-98.7
6/1/2010	10.5	3.11	444.0	8.47	-32.20	7.72	-292.6	9.00	-	6.74	-300.9	7.01	-31.5
6/14/2010	10	2.99	427.7	7.40	-81.7	6.85	-272.5	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/15/2010	-	-	-	8.04	-221.6	6.89	-347.7	-	-	6.17	-355.9	-	-
6/16/2010	-	2.99	427.7	7.40	-81.7	6.85	-272.6	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/18/2010	9.1	-	-	7.72	-211.7	6.79	-335.6	-	-	6.69	-336.7	-	-
6/21/2010	9	3.21	409.4	7.99	-242.7	6.96	-364.10	7.86	-303.4	6.78	-349.5	7.70	-142.3

Notes:

- * Effluent readings collected from Pond 4 because water was not being discharged to the aeration channel.
- ** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.
- : not measured or not recorded.
- Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.
- Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.
- Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.
- Aspen Seep Flow measurements are field measurements completed with a graduated bucket and stop watch.

TABLE 4
POND 4 HDS SAMPLES - MAY-JUNE 2010
 Draft - Provisional Data

		May 25 2010 125HDSEFF312 Effluent mg/L	June 8 2010 128HDSINF341 Influent mg/L	June 8 2010 128HDSEFF340 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	8.4	3.0	8.3	--	6.0-9.0 ²
Al	Dissolved	0.81	47	0.50	4	2
As	Dissolved	<0.00090	0.12	<0.00090	0.34	0.15
Cd	Dissolved	<0.00010	0.0014	<0.00010	0.009	0.004
Ca	Dissolved	642	286	567	--	--
Cr	Dissolved	<0.00090	0.013	<0.00090	0.97	0.31
Cu	Dissolved	0.0069	0.078	0.0052	0.026	0.016
Hardness	Dissolved	1900	1000	1800	--	--
Fe	Dissolved	0.636	171	<0.0750	2.0	1.0
Pb	Dissolved	<0.00020	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	84	76	81	--	--
Ni	Dissolved	0.026	1.4	0.020	0.84	0.094
Zn	Dissolved	0.0083 J	0.25	<0.0050	0.21	0.21
Se	Total	0.0027	0.0027	0.0022	NP	0.005
Acidity	Total	<2.0	820	<2.0	--	--
Alkalinity (Total)	Total	26.0	<2.00	30.0	--	--
Alkalinity (Bicarbonate)	Total	31.7	<2.40	36.6	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	<0.700	--	--
Sulfate	Lab Filtered	2010	2020	1980	--	--

Notes:

1. pH value was collected in field and is the average of 3 grab samples comprising the HDS Effluent sample or one grab sample for the HDS Influent sample. pH is in standard units.

2. Discharge criteria pH based on 24-hour (single day) average discharge.

< = Value is below the method detection limit, detection limit is listed.

J = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).

NP = Not Promulgated

TABLE 5
HIGH DENSITY SLUDGE TREATMENT SYSTEM
JUNE 2010
OPERATIONAL DATA MONTHLY SUMMARY

Time Period	Treated Water Discharged (gal)	Lime Consumed (kg)	Diesel Fuel Consumed (gal)	Flocculant Consumed (kg)	Sludge Wasted (gal)	Freshwater Consumed (gal)
June 1 - June 30, 2010	2,114,286	5,486	1,771	31	1,500	3,000

TABLE 6
ASPEN SEEP BIOREACTOR SLUDGE DRYING BED PHASE 1
SLUDGE CHARACTERIZATION RESULTS

Draft -- Provisional Data

Parameter	Date	Average Sludge Depth (in)	% Solids (weight basis)	% Moisture Content (weight basis)	Density (g/cm ³ wet basis)	Density (g/cm ³ dried basis)	% Volatile Solids (dry weight basis)	TOC (mg/kg)	TOC (as %)	Paste pH	Depth of Water Above Sludge (inches)	pH of Water Above Sludge
Bulk Sludge ^a	10/26/2009	---	5.5	94.5	1.04	1.18	17.1	62000	6.2	7.91	---	---
Trial 1	10/26/09 ^b	13.4	5.4	94.6	1.04	1.26	17.8	69000	6.9	7.93	0	---
	11/2/2009	6.6	9.3	90.7	1.06	1.34	21.5	---	---	---	0	---
	11/11/2009	5	17.9	82.1	1.08	1.17	16	---	---	---	0	---
	11/17 & 19/09 ^c	5	20.8	79.2	1.21	1.23	---	---	---	7.89	0	---
	4/26/2010	2.7	29	71	1.21	1.17	---	100000	10	6.75	0	---
	5/13/2010	1.2	47	53	1.19	1.05	---	44000	4.4	7.17	0	---
	5/25/2010	1.4	32	68	1.26	0.99	---	49000	4.9	6.92	0	---
	6/8/2010	1.3	NA	NA	NA	NA	NA	NA	NA	NA	0	---
Trial 2	10/26/09 ^b	13.5	5.6	94.4	1.04	1.27	17.9	74000	7.4	7.87	0	---
	11/2/2009	12.3	5.8	94.2	1.05	1.28	16.4	---	---	---	0	---
	11/11/2009	10.8	5.8	94.2	1.06	1.32	11.8	---	---	---	0.5	---
	11/17 & 19/09 ^c	10.9	7.2	92.8	1.07	1.28	---	---	---	8.01	1	---
	4/26/2010	4.6	13	87	1.13	1.35	---	93000	9.3	7.78	6.5	7.8
	5/13/2010	5.3	14	86	1.08	1.28	---	58000	5.8	7.95	4.6	---
	5/25/2010	5.3	13	87	1.09	1.24	---	44000	4.4	6.80	2.3	---
	6/8/2010	4.7	NA	NA	NA	NA	NA	NA	NA	NA	0	---

Notes

TOC = Total Organic Carbon analysis

NA = Not available

a = Bulk sludge sampled during installation

b = Laboratory data differs in the 11-9-09 memo due to a misinterpretation of the sample labels. Data presented here is corrected for each Trial.

c = Photos and depths collected on November 17, sludge samples for laboratory analysis collected on November 19, 2009

TABLE 7
ASPEN SEEP BIOREACTOR SLUDGE DRYING BED PHASE 1
TRIAL 1 FILTRATE SAMPLES
 Draft -- Provisional Data

Parameter	Basis	October 28	November 2	November 11	November 19	February 2	March 9	April 26	May 13	May 25	June 8	ASB Discharge Criteria	
		2009 089ASPSUMP320 Sump mg/L	2009 091ASPSUMP323 Sump mg/L	2009 092ASPSUMP324 Sump mg/L	2009 097ASPSUMP338 Sump mg/L	2010 103ASPSUMP348 Sump mg/L	2010 105ASPSUMP353 Sump mg/L	2010 107ASPSUMP356 Sump mg/L	2010 111ASPSUMP363 Sump mg/L	2010 113ASPSUMP366 Sump mg/L	2010 117ASPSUMP376 Sump mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	8.2	8.4	8.6	8.5	3.9	3.7	2.8	3.7	3.0	2.8	--	6.0 - 9.0 ²
Al	Dissolved	<0.08	<0.04	<0.04	<0.04	22	27	9.8	17	19	NA	4	2
As	Dissolved	0.0017	0.0012	0.0012	<0.0045	<0.0045	<0.018	<0.0009	<0.009	0.0033	NA	0.34	0.15
Cd	Dissolved	<0.0001	<0.0001	<0.0001	<0.0005	0.0063	0.0091J	<0.0001	0.0029J	0.0029	NA	0.009	0.004
Ca	Dissolved	154	107	102	109	370	320	217	321	353	NA	--	--
Cr	Dissolved	0.0017J	0.00096J	0.0014J	<0.0045	0.025	<0.018	<0.0009	<0.009	0.012	NA	0.97	0.31
Cu	Dissolved	0.0040	0.0036	0.005	0.0033J	0.14	0.23	0.0021	0.17	0.14	NA	0.026	0.016
Hardness	Dissolved	750	700	810	800	2600	2600	1200	1700	1800	NA	--	--
Fe	Dissolved	<0.03	<0.015	<0.015	0.0259J	12.9	13.0	8.56	5.8	15.5	NA	2	1
Pb	Dissolved	<0.0002	<0.0002	<0.0002	<0.001	0.0064	0.0067J	0.00022J	0.0043J	0.0042	NA	0.136	0.005
Mg	Dissolved	88	110	130	130	420	430	150	210	230	NA	--	--
Ni	Dissolved	0.013	0.01	0.01	0.011	0.71	0.87	0.0036	0.28	0.31	NA	0.84	0.094
Se	Dissolved	0.0021	0.0015J	0.0018J	0.0035J	0.0042J	<0.010	--	--	--	NA	--	--
Zn	Dissolved	<0.005	<0.005	<0.005	<0.025	0.69	0.97	0.21	0.32	0.62	NA	0.21	0.21
Al	Total	<0.08	<0.04	<0.04	--	--	27	9.5	20	20	NA	--	--
As	Total	0.0029	<0.0009	<0.0009	--	--	<0.018	0.0029	<0.009	0.0034	NA	--	--
Cd	Total	0.00011J	<0.0001	<0.0001	--	--	0.0088J	0.0019	0.0031J	0.0027	NA	--	--
Ca	Total	154	100	98.3	--	--	320	207	348	364	NA	--	--
Cr	Total	0.0013J	<0.0009	0.0017J	--	--	<0.018	0.0064	0.010J	0.011	NA	--	--
Cu	Total	0.0041	0.0038	0.007	--	--	0.24	0.16	0.19	0.16	NA	--	--
Fe	Total	0.119	0.0359J	0.0539	--	--	13.7	7.36	6.68	16.3	NA	--	--
Pb	Total	<0.0002	<0.0002	0.00023J	--	--	0.0073J	0.0022	0.0065J	0.0045	NA	--	--
Mg	Total	87	97	130	--	--	430	150	240	230	NA	--	--
Ni	Total	0.013	0.0099	0.01	--	--	0.88	0.14	0.30	0.32	NA	--	--
Se	Total	0.0016J	0.0012J	0.002	0.0031J	0.0062	<0.010	0.0021	0.0082J	0.0031	NA	NP	0.005
Zn	Total	0.010J	0.017J	0.0063J	--	--	0.99	0.22	0.33	0.64	NA	--	--
% Solids	Total	0.10%	0.10%	0.10%	0.20%	--	0.50%	0.20%	0.33%	0.40%	NA	--	--
Cl	Total	--	--	--	14	7	6.6	0.88J	1.6	1.3	NA	--	--
TSS	Total	--	--	--	4.0	18	17.0	10	10	8J	NA	--	--
TDS	Total	--	--	--	1930	5020	4920	1940	2880	3210	NA	--	--
Acidity	Total	--	--	--	<2	1400	1400	220	700	800	NA	--	--
Alkalinity (Total)	Total	--	--	--	284	<2.0	<2.0	2.0	2.0	<2.0	NA	--	--
Alkalinity (Bicarbonate)	Total	--	--	--	346	<2.4	<2.4	2.4	2.4	<2.40	NA	--	--
Alkalinity (Carbonate)	Total	--	--	--	<1.2	<1.2	<1.2	1.2	1.2	<1.20	NA	--	--
Alkalinity (Hydroxide)	Total	--	--	--	<0.7	<0.7	<0.7	0.70	0.70	<0.70	NA	--	--
Sulfate	Lab Filtered	--	--	--	964	2890	2870	1310	1960	2140	NA	--	--
ORP (mV)	Field	116	73	6.3	6.3	344	447	438	157	298	394	--	--
DO (mg/L)	Field	7.1	--	5.3	5.3	--	3.6	2.4	11.9	12.2	9.4	--	--
Temp (C)	Field	4.8	18.4	7.5	7.5	5.3	4.5	14.4	12.2	12.4	16.4	--	--
SpC (uS/cm)	Field	1284	1018	1522	1522	4909	2823	1738	1977	1870	2925	--	--
Appearance of Solids	Field	none observed	--	--									

Notes

pH value was collected in field; pH is in standard units.
 < = Analyte NOT DETECTED at or above the method detection limit.

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. The user of this data should be aware that this data is of limited reliability.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

Filtrate water was not generated during the initial Trial 1 set up; no water was available for sampling on 10/26/09.

Abbreviations

ORP (mV) = oxidation reduction potential in millivolts
 DO (mg/L) = dissolved oxygen in milligrams per liter
 NP = Not Promulgated

Temp (C) = temperature in Celsius
 SpC (uS/cm) = specific conductance in microSiemens per centimeter
 NA = Not Available

Atlantic Richfield Company

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August 10, 2010

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for July 2010

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of July 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

ACTIVITIES FOR JULY

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of July. Routine O&M and influent and effluent sampling occurred on July 1 and 13, 2010. The currently available influent and effluent water quality data for the July 1 and 13, 2010 sampling events are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3. ASB Pond 3 and Pond 4 sludge samples were collected on July 14, 2010 for percent solids analysis; the results are attached in Table 4.
- In accordance with the 2010 RAWP, enhanced sampling for optimization of the ASB occurred on June 1 and July 13, 2010. The water quality data for the June 1 and July 13, 2010 sampling events are presented in Table 5.
- Pursuant to Amendment #2 to the 2009 Removal Action Work Plan (RAWP), monitoring of the pilot scale sludge drying bed test continued during the month of July. Duplicate sludge drying bed samples were collected on July 20, 2010 to verify results. All data collected during the sludge drying bed pilot scale test are provided in Tables 6, 7, 8 and 9. The Phase I sludge drying bed pilot test was decommissioned in July. Dried sludge and waste material associated with the Phase I Sludge Drying Bed Pilot Test was removed for off-site disposal on July 29, 2010.
- On July 27, 2010, Atlantic Richfield provided verbal notification to EPA during the monthly progress conference call that additional sludge drying bed pilot testing would not occur in 2010 due to the need for additional geotechnical evaluation. In addition, Atlantic Richfield provided verbal notification to



EPA that a mobile centrifuge would be utilized again this year for sludge dewatering and that a work plan amendment for the sludge dewatering activities is being prepared for submittal to EPA.

- Flushing of Biocell 2 occurred during the week of July 5, 2010. Flushing of the Pre-Treatment Pond was conducted during the week of July 19, 2010.
- Miscellaneous waste material was removed from the ASB area on July 22, 2010.

CUD and DS

- Operation of the HDS Treatment Plant and the associated capture of the CUD and DS continued during the month of July. The HDS Treatment Plant influent and effluent were sampled for laboratory analytical parameters on July 15, 2010. The analytical results associated with the July 15, 2010 sampling event is presented in Table 10. Additional sampling of the HDS Effluent for HDS Systems operations optimization occurred on July 13, 14 and 15, 2010. Results of the optimization sampling are presented in Table 11. Flow rates recorded for the Delta Seep, Channel Underdrain, and treated water discharge from the HDS Treatment Plant are included in Table 2.
- Development of the Operations and Maintenance Manual for the HDS Treatment Plant continued. Plant engineers will continue to document the procedures for operation, maintenance and repairs in the O&M Manual.
- Work began on Delta Seep Capture Wall Maintenance, including the removal of riprap and the strip drain, installation of forms and rebar, pouring of concrete, and removal of concrete forms.
- Additional safety improvements occurred during the month including the installation of additional road signage.
- On July 14, 2010, Atlantic Richfield provided an email to EPA describing two recent temporary interruptions of treated water discharge from the HDS Treatment Plant to Leviathan Creek and a temporary change in the operations of the HDS Treatment Plant. The interruption of discharge was related to a mechanical breakdown of lime feed equipment on July 6, and July 10, 2010. Intermittent plant operations continued from July 13 to July 22, 2010, after which normal 24-hour plant operations resumed. Capture of CUD and DS was maintained throughout this period.
- On August 2, 2010, Atlantic Richfield provided an email to EPA describing an interruption to the treated water discharge from the HDS Treatment Plant to Leviathan Creek that occurred on July 30, 2010. The temporary interruption of treated water discharge occurred due to malfunctioning of the Uninterruptible Power Supply (UPS) located in the Local Control Panel in the HDS building. The UPS was replaced, and normal plant operations and discharge to Leviathan Creek were resumed on August 3, 2010. Capture of CUD and DS was maintained throughout this period.

Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- On July 16, 2010, Atlantic Richfield submitted to the United States Forest Service (USFS) the 2010 Dust Suppression Evaluation describing the various alternatives for control of dust on Leviathan Mine Road near Highway 395.
- On July 27, 2010, a conference call was conducted with EPA to provide a general progress update.

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct monitoring as outlined in the 2010 RAWP.
- Submit an RAWP supplement or letter describing the plans for centrifuge sludge dewatering.

CUD and DS

- Continue development of the Operations and Maintenance Manual for the HDS Treatment Plant.
- Continue with the optimization, operation, and maintenance of the HDS Treatment System, including capture of the CUD and DS.
- Complete maintenance work on the Delta Seep cutoff wall.

Site-wide

- Continue to provide project progress updates to EPA via conference call. The next conference call is currently scheduled for August 17, 2010.

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE MCCARTHY ON BEHALF OF

Tony Brown
Project Manager

Attachments:

- Table 1 – Aspen Seep Bioreactor Monthly Influent and Effluent Sample Results
- Table 2 – Aspen Seep, CUD, DS and HDS Flow Summary
- Table 3 – Aspen Seep Bioreactor, Recent pH and ORP Field Measurements
- Table 4 – Aspen Seep Bioreactor, Pond Sludge Sample Results
- Table 5 – Aspen Seep Bioreactor, Enhanced Sampling Results
- Table 6 – Aspen Seep Bioreactor, Phase I Sludge Drying Bed Pilot Test, Trial 1 Filtrate Samples
- Table 7 – Aspen Seep Bioreactor, Phase I Sludge Drying Bed Pilot Test, Sludge Characterization Results
- Table 8 – Aspen Seep Bioreactor, Phase I Sludge Drying Bed Pilot Test, Meteoric Water Leaching Extraction Procedure – Barrel Roll Method
- Table 9 – Aspen Seep Bioreactor, Phase I Sludge Drying Bed Pilot Test, Acid Base Accounting of Dewatered Sludge
- Table 10 – High Density Sludge Treatment Plant Sampling Results
- Table 11 – High Density Sludge Treatment Plant – Effluent Optimization Sampling Results

Gary Riley and Kevin Mayer – USEPA Region 9

August 10, 2010

Page 4 of 4

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Chein Kao, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.
Adam Cohen, Esq., Davis Graham & Stubbs LLP
Dave McCarthy, Copper Environmental Consulting LLC
Joe Niland, AMEC-Geomatrix Consultants, Inc.
Sandy Riese, EnSci, Inc.
Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR - MONTHLY INFLUENT AND EFFLUENT SAMPLE RESULTS
JULY 2010 MONTHLY SUMMARY
 Draft - Provisional Data.

Parameter	Basis	July 1	July 1	July 13	July 13	Maximum Discharge Criteria	Average Discharge Criteria
		2010 124ASPINF390 Influent mg/L	2010 124ASPEFF388 Effluent mg/L	2010 125ASPINF396 Influent mg/L	2010 125ASPEFF392 Effluent mg/L		
pH ¹	Field	2.8	7.9	2.6	7.8	---	6.0 - 9.0 ²
Al	Dissolved	41	0.072	41	<0.040	4	2
As	Dissolved	<0.00090	0.0029	<0.00090	0.0012	0.34	0.15
Cd	Dissolved	0.0014	<0.00010	0.0013	<0.00010	0.009	0.004
Ca	Dissolved	300	270	311	293	--	--
Cr	Dissolved	0.0027	<0.00090	0.0026	<0.00090	0.97	0.31
Cu	Dissolved	0.50	0.0047	0.59	0.0031	0.026	0.016
Hardness	Dissolved	1100	980	1100	1000	--	--
Fe	Dissolved	117	0.0773	118	0.184	2	1
Pb	Dissolved	<0.00020	<0.00020	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	79	72	79	73	--	--
Ni	Dissolved	0.31	0.0073	0.39	0.0028	0.84	0.094
Zn	Dissolved	0.44	<0.0025	0.49	<0.0040	0.21	0.21
Se	Total	0.0026	0.0017 J	0.0022	0.0019 J	NP	0.005
Acidity	Total	720	<2.0	550	<2.0	--	--
Alkalinity (Total)	Total	<2.00	380	<2.00	232	--	--
Alkalinity (Bicarbonate)	Total	<2.40	463	<2.40	283	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1590	1190	1530	1350	--	--

Notes

1. pH value was collected in field; pH is in standard units.
 2. Discharge criteria for average pH based on 24-hour (single day) average discharge.
- NA = Data not yet available from laboratory
 NP = Not Promulgated
 J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit.
 < = Analyte NOT DETECTED at or above the or method detection limit.
 Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
ASPEN SEEP BIOREACTOR, CUD, DS and HDS - FLOW RATES
JULY 2010 MONTHLY SUMMARY
 Draft - Provisional Data

Date	Aspen Seep Recorded Flow ¹	Date	Aspen Seep Recorded Flow ¹	Date	Delta Seep Recorded Flow ²		Channel Underdrain Recorded Flow ²		HDS Treatment Plant Discharge Recorded Flow ²	
	gpm		gpm		gpm	Gallons	gpm	Gallons	gpm	Gallons
6/1/2010	10.6	7/1/2010	9.74	7/1/2010	12.5	18,039	36.0	51,912	48.0	69,120
6/2/2010	10.5	7/2/2010	9.79	7/2/2010	12.8	18,467	36.0	51,779	39.9	57,456
6/3/2010	10.5	7/3/2010	9.79	7/3/2010	12.8	18,434	35.9	51,727	40.0	57,600
6/4/2010	10.4	7/4/2010	9.65	7/4/2010	12.4	17,877	35.9	51,747	40.0	57,600
6/5/2010	10.3	7/5/2010	9.70	7/5/2010	12.5	18,041	35.9	51,628	40.0	57,600
6/6/2010	10.2	7/6/2010	9.74	7/6/2010	13.0	18,685	35.8	51,616	35.5	51,120
6/7/2010	10.2	7/7/2010	NA	7/7/2010	13.6	19,614	35.8	51,620	0.0	0
6/8/2010	10.3	7/8/2010	NA	7/8/2010	13.5	19,432	35.8	51,559	0.0	0
6/9/2010	10.2	7/9/2010	NA	7/9/2010	13.5	19,448	35.8	51,516	30.6	44,064
6/10/2010	10.4	7/10/2010	NA	7/10/2010	13.4	19,254	35.6	51,304	22.3	32,112
6/11/2010	10.4	7/11/2010	NA	7/11/2010	13.5	19,416	35.6	51,221	0.0	0
6/12/2010	10.4	7/12/2010	NA	7/12/2010	13.2	18,946	35.6	51,224	0.0	0
6/13/2010	10.2	7/13/2010	NA	7/13/2010	13.3	19,143	35.6	51,285	32.9	47,376
6/14/2010	10.1	7/14/2010	NA	7/14/2010	13.3	19,081	35.6	51,193	35.6	51,264
6/15/2010	10.1	7/15/2010	NA	7/15/2010	13.0	18,717	35.5	51,048	35.1	50,544
6/16/2010	10.1	7/16/2010	NA	7/16/2010	13.3	19,086	35.4	50,928	33.1	47,664
6/17/2010	10.0	7/17/2010	NA	7/17/2010	12.9	18,642	35.2	50,648	31.4	45,216
6/18/2010	10.1	7/18/2010	NA	7/18/2010	12.9	18,522	35.2	50,662	29.4	42,336
6/19/2010	10.0	7/19/2010	NA	7/19/2010	12.9	18,534	35.1	50,600	31.5	45,360
6/20/2010	10.0	7/20/2010	NA	7/20/2010	12.8	18,401	35.0	50,465	24.7	35,568
6/21/2010	10.0	7/21/2010	NA	7/21/2010	12.7	18,335	35.1	50,565	39.0	56,160
6/22/2010	9.9	7/22/2010	NA	7/22/2010	12.8	18,392	35.2	50,623	33.9	48,816
6/23/2010	10.0	7/23/2010	NA	7/23/2010	12.7	18,291	34.7	50,028	74.2	106,848
6/24/2010	10.0	7/24/2010	NA	7/24/2010	12.6	18,151	34.6	49,877	75.4	108,576
6/25/2010	10.2	7/25/2010	NA	7/25/2010	12.9	18,567	34.4	49,604	75.1	108,144
6/26/2010	9.9	7/26/2010	NA	7/26/2010	12.9	18,540	34.3	49,455	74.9	107,856
6/27/2010	9.8	7/27/2010	NA	7/27/2010	12.3	17,693	31.3	45,084	74.8	107,712
6/28/2010	9.8	7/28/2010	NA	7/28/2010	12.1	17,488	28.7	41,329	74.6	107,424
6/29/2010	9.7	7/29/2010	NA	7/29/2010	12.1	17,456	28.8	41,424	74.6	107,424
6/30/2010	9.8	7/30/2010	NA	7/30/2010	12.1	17,393	28.6	41,128	22.9	32,976
---	N/A	7/31/2010	NA	7/31/2010	12.0	17,222	28.4	40,856	0.0	0
Average Flow Rate	10.1	Average Flow Rate	9.7	Rate or Total Discharged	12.8	573,307	34.4	1,535,655	37.7	1,683,936

Notes

1. Aspen Seep flow data is provided by USGS.
2. Flow rates for DS, CUD, and Treated Water Discharged from the HDS Treatment Plant are calculated from the volume measured by flow totalizers.

Abbreviations

USGS = United States Geological Survey.

CUD = Channel Underdrain

DS = Delta Seep

gpm = gallons per minute

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
JULY 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Aspen Influent			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.00	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.20	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.50	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.75	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.90	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.00	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.00	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.50	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.75	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.00	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.00	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.50	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.25	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.00	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.00	3.1	455.4	7.4	-47.5	7.09	-251.2	7.7	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.50	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.25	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.00	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.75	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.25	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.75	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0
10/27/2008	5.75	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.50	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.25	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.25	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
JULY 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Aspen Influent			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
2/19/2009	5.25	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1
3/10/2009	5.00	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.00	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.50	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.50	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.50	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1
7/1/2009	6.00	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.75	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.00	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.50	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.10	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.25	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.00	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.50	2.93	496.6	6.57	-121.4	7.63	-301	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.90	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143	7.24	-162.8	7.94	2.8
11/11/2009	5.00	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.00	2.9	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.80	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.70	2.94	484	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1
3/9/2010	4.75	2.74	474.7	8.27	-78.3	7.95	-204.2	8.74	-208.9	8.1	-220.8	7.75	-5.9
4/26/2010	12	2.85	479.5	5.14	135.1	5.61	-19	5.04	109.2	5.6	-29.6	6.15	35.9
5/17/2010	9.7	2.97	436.9	6.26	196.9	7.04	-283.9	7.79	-235.1	7.08	285.4	7.76	-73.8
5/24/2010	9.36	3.16	418.0	7.43	-156.1	7.00	-259.9	7.27	-171.4	6.89	-282.6	7.11	-78.6
5/27/2010	9.6	3.18	423.1	5.52	-225.1	7.58	-316.7	8.86	-318.2	6.74	-296.8	7.07	-98.7
6/1/2010	10.5	3.11	444.0	8.47	-32.20	7.72	-292.6	9.00	-	6.74	-300.9	7.01	-31.5
6/14/2010	10	2.99	427.7	7.40	-81.7	6.85	-272.5	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/15/2010	-	-	-	8.04	-221.6	6.89	-347.7	-	-	6.17	-355.9	-	-
6/16/2010	-	2.99	427.7	7.40	-81.7	6.85	-272.6	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/18/2010	9.1	-	-	7.72	-211.7	6.79	-335.6	-	-	6.69	-336.7	-	-
6/21/2010	9	3.21	409.4	7.99	-242.7	6.96	-364.10	7.86	-303.4	6.78	-349.5	7.70	-142.3
6/30/2010	10	2.59	451.5	8.73	-216.2	8.73	-216.20	-	-	6.78	-337.9	7.96	-164.5
7/1/2010	-	2.82	422.4	-	-	-	-	-	-	-	-	7.94	-241.9
7/13/2010	10	2.62	479.5	7.52	-112.1	6.90	-279.50	8.02	-255.2	6.9	-294	7.76	-65.8
7/21/2010	10	2.93	475.1	7.90	-70.5	7.15	-301.50	7.8	-212.4	7.27	-315.3	8.09	-95.7
7/29/2010	10	2.9	465.3	7.73	-168.6	7.25	-318.10	7.08	-192.5	7.15	-318.5	7.06	-45.6

Notes:

- * Effluent readings collected from Pond 4 because water was not being discharged to the aeration channel.
 - ** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.
 - : not measured or not recorded or bioreactor operation did not currently include manhole on the specified date.
- Aspen Seep Flow measurements are field measurements completed with a graduated bucket and stop watch.
Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.
Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.
Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.

TABLE 4
ASPEN SEEP BIOREACTOR - POND SLUDGE SAMPLE RESULTS
JULY 2010 MONTHLY SUMMARY
 Draft - Provisional Data.

Pond 3	% Solids	Pond 4	% Solids	Comment
Upper layer	0.3	Upper layer	0.3	Water near top of the pond
Middle layer	1.0	Middle layer	1.9	Sludge water interface, visible suspended solids
Lower layer	3.4	Lower layer	6.0	Sludge layer

All Samples collected on July 14, 2010

TABLE 5
ASPEN SEEP BIOREACTOR - ENHANCED SAMPLING RESULTS
JULY 2010 MONTHLY SUMMARY

Draft - Provisional Data

Parameter	Basis	Units	June 1 2010 116ASPINF369 Influent mg/L	June 1 2010 116MH2ASP370 Manhole 2 mg/L	June 1 2010 116MH4ASP372 Manhole 4 µg/L	June 1 2010 116MH7ASP373 Manhole 7 mg/L	June 1 2010 116ASPEFF375 Effluent mg/L	July 13 2010 125ASPINF396 Influent mg/L	July 13 2010 125MH2ASP395 Manhole 2 mg/L	July 13 2010 125MH4ASP394 Manhole 4 mg/L	July 13 2010 125MH7ASP393 Manhole 7 mg/L	July 13 2010 125ASPEFF392 Effluent mg/L
Ethanol	Total	mg/L	<0.10	140	100	73	45	<0.10	<100	<14	<0.23	<0.10
Acetate	Total	mg/L	<0.41	160	210	240	140	39	130	190	180	140
Se	Total	mg/L	0.0027	0.0017J	0.0011J	0.0012J	0.00094J	0.0022	---	---	---	0.0019
Al	Dissolved	mg/L	41	0.55	<0.080	<0.080	<0.080	41	0.14	<0.040	<0.040	<0.040
As	Dissolved	mg/L	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	0.0012
Cd	Dissolved	mg/L	0.0014	<0.0001	<0.0001	<0.0001	<0.0001	0.0013	<0.0001	<0.0001	<0.0001	<0.0001
Ca	Dissolved	mg/L	312	283	278	276	311	311	301	298	284	293
Cr	Dissolved	mg/L	0.0032	<0.0009	<0.0009	0.001J	0.001J	0.0026	<0.0009	<0.0009	0.0012 J	<0.0009
Cu	Dissolved	mg/L	0.65	0.0068	0.0053	0.0063	0.0079	0.59	0.0038	0.0030	0.0027	0.0031
Hardness	Dissolved	mg/L	1100	970	960	950	1100	1100	1000	1000	1000	1000
Fe	Dissolved	mg/L	114	0.271	0.0527J	0.0320J	0.114	118	1.47	0.0414	0.067	0.184
P	Dissolved	mg/L	0.00029J	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mg	Dissolved	mg/L	79	64	64	65	37	79	73	73	70	73
Ph	Dissolved	mg/L	0.045J	<0.040	<0.040	<0.040	<0.040	<0.040	<0.020	<0.020	<0.020	<0.020
Ni	Dissolved	mg/L	0.40	0.014	0.0035	0.0045	0.038	0.39	0.025	0.0012 J	0.00077 J	0.0028
Zn	Dissolved	mg/L	0.54	0.0054J	<0.0050	<0.0050	<0.0050	0.49	<0.004	<0.004	<0.004	<0.004
Cl	Total	mg/L	3.5	---	---	---	2.7	3.5	---	---	---	3.5
TSS	Total	mg/L	27	---	---	---	12	---	---	---	---	6 J
TDS	Total	mg/L	2660	---	---	---	2350	2690	---	---	---	2450
Acidity	Total	mg/L	630	---	---	---	<2.00	550	---	---	---	<2.00
Alkalinity (Total)	Total	mg/L	<2.00	160	176	212	126	<2.00	216	272	304	232
Alkalinity (Bicarbonate)	Total	mg/L	<2.40	195	215	258	154	<2.40	263	332	371	283
Alkalinity (Carbonate)	Total	mg/L	<1.20	<1.20	<1.20	<1.20	<1.20	<1.20	<1.20	<1.20	<1.20	<1.20
Alkalinity (Hydroxide)	Total	mg/L	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
Sulfate	Lab Filtered	mg/L	1920	<0.70	1680	1510	1610	1530	1360	1340	1370	1350
Sulfide	Dissolved	mg/L	---	<0.020	19	47	---	---	<0.02	0.46	0.24	<0.02
Ammonia-N	Dissolved	mg/L	0.37J	0.19J	0.23J	<0.10	<0.10	0.43 J	0.15 J	<0.10	<0.10	<0.10
Dissolved Organic Carbon	Dissolved	mg/L	0.73J	190	180	160	98	0.89 J	94	78	68	52
Nitrate/Nitrite-N	Dissolved	mg/L	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52
Nitrate-N	Dissolved	mg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	0.21 J	<0.12
Nitrite-N	Dissolved	mg/L	0.21J	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
pH	Field	su	3.11	8.47	7.72	6.74	7.01	2.62	7.52	6.9	6.9	7.76
ORP	Field	mV	444	-32.2	-292.6	-300.9	-31.5	479.5	-112.1	-279.5	-294	-65.8
Temperature	Field	C	14.02	13.51	10.5	9.22	17.03	16.5	18.05	14.62	14.72	19.33
Conductivity	Field	uS/cm	2096	2286	2082	2032	2435	2164	2464	2255	2280	2557

Notes

< = Analyte NOT DETECTED at or above the method detection limit.

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. The user of this data should be aware that this data is of limited reliability.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 6
ASPEN SEEP BIOREACTOR - PHASE I SLUDGE DRYING BED PILOT TEST
TRIAL 1 FILTRATE SAMPLES
 Draft - Provisional Data

Parameter	Basis	October 28 2009 089ASPSUMP320 Sump mg/L	November 2 2009 091ASPSUMP323 Sump mg/L	November 11 2009 092ASPSUMP324 Sump mg/L	November 19 2009 097ASPSUMP338 Sump mg/L	February 2 2010 103ASPSUMP348 Sump mg/L	March 9 2010 105ASPSUMP353 Sump mg/L	April 26 2010 107ASPSUMP356 Sump mg/L	May 13 2010 111ASPSUMP363 Sump mg/L	May 25 2010 113ASPSUMP366 Sump mg/L	June 8 2010 117ASPSUMP376 Sump mg/L	June 22 2010 120ASPSUMP381 Sump mg/L	ASB Discharge Criteria	
													Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	8.2	8.4	8.6	8.5	3.9	3.7	2.8	3.7	3.0	2.8	2.6	--	6.0 - 9.0 ²
Al	Dissolved	<0.08	<0.04	<0.04	<0.04	22	27	9.8	17	19	18	19	4	2
As	Dissolved	0.0017	0.0012	0.0012	<0.0045	<0.0045	<0.018	<0.0009	<0.009	0.0033	0.0045	0.010	0.34	0.15
Cd	Dissolved	<0.0001	<0.0001	<0.0001	<0.0005	0.0063	0.0091J	<0.0001	0.0029J	0.0029	0.0031	0.0031	0.009	0.004
Ca	Dissolved	154	107	102	109	370	320	217	321	353	327	370	--	--
Cr	Dissolved	0.0017J	0.00096J	0.0014J	<0.0045	0.025	<0.018	<0.0009	<0.009	0.012	0.011	0.016	0.97	0.31
Cu	Dissolved	0.0040	0.0036	0.005	0.0033J	0.14	0.23	0.0021	0.17	0.14	0.12	0.11	0.026	0.016
Hardness	Dissolved	750	700	810	800	2600	2600	1200	1700	1800	1700	1900	--	--
Fe	Dissolved	<0.03	<0.015	<0.015	0.0259J	12.9	13.0	8.56	5.8	15.5	19.3	27	2	1
Pb	Dissolved	<0.0002	<0.0002	<0.0002	<0.001	0.0064	0.0067J	0.00022J	0.0043J	0.0042	0.0042	0.0084	0.136	0.005
Mg	Dissolved	88	110	130	130	420	430	210	150	230	240	240	--	--
Ni	Dissolved	0.013	0.01	0.01	0.011	0.71	0.87	0.0036	0.28	0.31	0.31	0.32	0.84	0.094
Se	Dissolved	0.0021	0.0015J	0.0018J	0.0035J	0.0042J	<0.010	--	--	--	--	--	--	--
Zn	Dissolved	<0.005	<0.005	<0.005	<0.025	0.69	0.97	0.21	0.32	0.62	0.63	0.70	0.21	0.21
Al	Total	<0.08	<0.04	<0.04	--	--	27	9.5	20	20	19	20	--	--
As	Total	0.0029	<0.0009	<0.0009	--	--	<0.018	0.0029	<0.009	0.0034	0.0051	0.0095	--	--
Cd	Total	0.00011J	<0.0001	<0.0001	--	--	0.0088J	0.0019	0.0031J	0.0027	0.003	0.0028	--	--
Ca	Total	154	100	98.3	--	--	320	207	348	364	359	352	--	--
Cr	Total	0.0013J	<0.0009	0.0017J	--	--	<0.018	0.0064	0.010J	0.011	0.011	0.014	--	--
Cu	Total	0.0041	0.0038	0.007	--	--	0.24	0.16	0.19	0.16	0.13	0.11	--	--
Fe	Total	0.119	0.0359J	0.0539	--	--	13.7	7.36	6.68	16.3	21	25.5	--	--
Pb	Total	<0.0002	<0.0002	0.00023J	--	--	0.0073J	0.0022	0.0065J	0.0045	0.0042	0.0068	--	--
Mg	Total	87	97	130	--	--	430	150	240	230	230	240	--	--
Ni	Total	0.013	0.0099	0.01	--	--	0.88	0.14	0.30	0.32	0.29	0.29	--	--
Se	Total	0.0016J	0.0012J	0.002	0.0031J	0.0062	<0.010	0.0021	0.0082J	0.0031	0.0032	0.0024	NP	0.005
Zn	Total	0.010J	0.017J	0.0063J	--	--	0.99	0.22	0.33	0.64	0.67	0.63	--	--
% Solids	Total	0.10%	0.10%	0.10%	0.20%	--	0.50%	0.20%	0.33%	0.40%	0.35%	0.36%	--	--
Cl	Total	--	--	--	14	7	6.6	0.88J	1.6	1.3	0.91J	3	--	--
TSS	Total	--	--	--	4.0	18	17.0	10	8J	9J	12	12	--	--
TDS	Total	--	--	--	1930	5020	4920	1940	2880	3210	3220	3480	--	--
Acidity	Total	--	--	--	<2	1400	1400	220	700	800	820	590	--	--
Alkalinity (Total)	Total	--	--	--	284	<2.0	<2.0	2.0	2.0	<2.0	<2.0	<2.0	--	--
Alkalinity (Bicarbonate)	Total	--	--	--	346	<2.4	<2.4	2.4	2.4	<2.40	<2.40	<2.40	--	--
Alkalinity (Carbonate)	Total	--	--	--	<1.2	<1.2	<1.2	1.2	1.2	<1.20	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	--	--	--	<0.7	<0.7	<0.7	0.70	<0.70	<0.70	<0.70	<0.70	--	--
Sulfate	Lab Filtered	--	--	--	964	2890	2870	1310	1960	2140	2070	2460	--	--
ORP (mV)	Field	116	73	6.3	6.3	344	447	438	157	298	394	289	--	--
DO (mg/L)	Field	7.1	--	5.3	5.3	--	3.6	2.4	11.9	12.2	9.4	10.16	--	--
Temp (C)	Field	4.8	18.4	7.5	7.5	5.3	4.5	14.4	12.2	12.4	16.4	15.0	--	--
SpC (uS/cm)	Field	1284	1018	1522	1522	4909	2823	1738	1977	1870	2925	2051	--	--
Appearance of Solids	Field	none observed	none observed	none observed	none observed	none observed	none observed	none observed	none observed	none observed	none observed	none observed	--	--

Notes

pH value was collected in field; pH is in standard units.

< = Analyte NOT DETECTED at or above the method detection limit.

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. The user of this data should be aware that this data is of limited reliability.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

Filtrate water was not generated during the initial Trial 1 set up; no water was available for sampling on 10/26/09.

Abbreviations

ORP (mV) = oxidation reduction potential in millivolts

DO (mg/L) = dissolved oxygen in milligrams per liter

NP = Not Promulgated

Temp (C) = temperature in Celsius

SpC (uS/cm) = specific conductance in microSiemens per centimeter

NA = Not Available

TABLE 7
ASPEN SEEP BIOREACTOR - PHASE 1 SLUDGE DRYING BED PILOT TEST
SLUDGE CHARACTERIZATION RESULTS
 Draft - Provisional Data

Parameter	Date	Average Sludge Depth (in)	% Solids (weight basis)	% Moisture Content (weight basis)	Density (g/cm ³ wet basis)	Density (g/cm ³ dried basis)	% Volatile Solids (dry weight basis)	TOC (mg/kg)	TOC (as %)	Paste pH	Depth of Water Above Sludge (inches)	pH of Water Above Sludge
Bulk Sludge ^a	10/26/2009	---	5.5	94.5	1.04	1.18	17.1	62000	6.2	7.9	---	---
Trial 1	10/26/09 ^b	13.4	5.4	94.6	1.04	1.26	17.8	69000	6.9	7.9	0	---
	11/2/2009	6.6	9.3	90.7	1.06	1.34	21.5	---	---	---	0	---
	11/11/2009	5	17.9	82.1	1.08	1.17	16	---	---	---	0	---
	11/17 & 19/09 ^c	5	20.8	79.2	1.21	1.23	---	---	---	7.9	0	---
	4/26/2010	2.7	29	71	1.21	1.17	---	100000	10	6.8	0	---
	5/13/2010	1.2	47	53	1.19	1.05	---	44000	4.4	7.2	0	---
	5/25/2010	1.4	32	68	1.26	0.99	---	49000	4.9	6.9	0	---
	6/8/2010	1.3	35	65	1.2	1.13	---	33000	3.3	6.7	0	---
6/22/2010	1.5	32	68	1.17	1.32	---	80000	8	6.6	0	---	
Trial 2	10/26/09 ^b	13.5	5.6	94.4	1.04	1.27	17.9	74000	7.4	7.9	0	---
	11/2/2009	12.3	5.8	94.2	1.05	1.28	16.4	---	---	---	0	---
	11/11/2009	10.8	5.8	94.2	1.06	1.32	11.8	---	---	---	0.5	---
	11/17 & 19/09 ^c	10.9	7.2	92.8	1.07	1.28	---	---	---	8.0	1	---
	4/26/2010	4.6	13	87	1.13	1.35	---	93000	9.3	7.8	6.5	7.8
	5/13/2010	5.3	14	86	1.08	1.28	---	58000	5.8	8.0	4.6	---
	5/25/2010	5.3	13	87	1.09	1.24	---	44000	4.4	6.8	2.3	---
	6/8/2010	4.7	26	74	1.16	1.32	---	56000	5.6	7.8	0	---
	6/22/2010	3.9	51	49	1.09	1.32	---	89000	8.9	7.7	0	---
	7/20/2010	---	97.3	2.7	1.39	1.32	---	100000	10	7.1	0	---
7/20/2010-duplicate	---	97.9	2.1	1.23	1.3	---	95000	9.5	7.2	0	---	

Notes

TOC = Total Organic Carbon analysis

NA = Not available

a = Bulk sludge sampled during installation

b = Laboratory data differs in the 11-9-09 memo due to a misinterpretation of the sample labels. Data presented here is corrected for each Trial.

c = Photos and depths collected on November 17, sludge samples for laboratory analysis collected on November 19, 2009

TABLE 8
ASPEN SEEP BIOREACTOR - PHASE I SLUDGE DRYING BED PILOT TEST
METEORIC WATER LEACHING EXTRACTION RESULTS - BARREL ROLL
METHOD

Draft - Provisional Data

Parameter	Method	June 29 2010	June 29 2010
		123TRIAL1BIN386 Bulk Sludge mg/L	123TRIAL2BIN387 Bulk Sludge mg/L
Aluminum ¹	M6010B ICP	0.04 J	0.15 J
Antimony ¹	M6010B ICP-MS	<0.0004	<0.0004
Arsenic ¹	M6010B ICP-MS	0.002 J	0.0024
Barium ¹	M6010B ICP	0.084	0.181
Beryllium ¹	M6010B ICP	0.002 J	0.003 J
Cadmium ¹	M6010B ICP-MS	0.0035	0.0037
Chromium ¹	M6010B ICP	<0.01	<0.01
Cobalt ¹	M6010B ICP	0.11	0.04 J
Copper ¹	M6010B ICP	0.29	1.02
Iron ¹	M6010B ICP	<0.02	0.15
Lead ¹	M6010B ICP-MS	0.0002 J	0.0008
Mercury ¹	M7470 CVAA	<0.0002	<0.001
Molybdenum ¹	M6010B ICP	0.01 J	0.01 J
Nickel ¹	M6010B ICP	0.19	0.09
Selenium ¹	M6010B ICP-MS	0.0071	0.0099
Silver ¹	M6010B ICP-MS	<0.00005	<0.00005
Thallium ¹	M6010B ICP-MS	0.0003 J	0.0003 J
Vanadium ¹	M6010B ICP	0.01 J	0.012 J
Zinc ¹	M6010B ICP	0.05 J	0.03 J

Notes

¹ MWMT

< = Analyte NOT DETECTED at or above the method detection limit.

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. The user of this data should be aware that this data is of limited reliability.

TABLE 9
ASPEN SEEP BIOREACTOR - PHASE I SLUDGE DRYING BED PILOT TEST
ACID BASE ACCOUNTING OF DEWATERED SLUDGE
 Draft - Provisional Data

Parameter	Method	Units	June 22	June 22
			2010	2010
			122TRIAL1BIN384	122TRIAL2BIN385
			Trial 1	Trial 2
Acid Generation Potential ¹	M600/2-78-054 1.3	t CaCO ₃ /Kt	400	422
Acid Neutralization Potential ²	M600/2-78-054 1.3	t CaCO ₃ /Kt	182	117
Acid-Base Potential ³	M600/2-78-054 1.3	t CaCO ₃ /Kt	-218	-305
Neutralization Potential as CaCO ₃	M600/2-78-054 3.2.3	%	18.2	11.7
Sulfur HCl Residue	M600/2-78-054 3.2.4-MOD	%	7.84	8.23
Sulfur HNO ₃ Residue	M600/2-78-054 3.2.4-MOD	%	1.33	2.33
Sulfur Organic Residual Mod	M600/2-78-054 3.2.4-MOD	%	1.33	2.33
Sulfur Pyritic Sulfide	M600/2-78-054 3.2.4-MOD	%	6.51	5.9
Sulfur Sulfate	M600/2-78-054 3.2.4-MOD	%	4.92	5.27
Sulfur Total	M600/2-78-054 3.2.4-MOD	%	12.8	13.5
Total Sulfur minus Sulfate	M600/2-78-054 3.2.4-MOD	%	7.84	8.23

Notes

¹ Calculation on sulfur total

² Calculation

³ Calculation on total sulfur

TABLE 10
HIGH DENSITY SLUDGE TREATMENT PLANT - SAMPLE RESULTS
JULY 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Basis	July 15	July 15	Maximum Discharge Criteria	Average Discharge Criteria
		2010 132HDSINF348 Influent mg/L	2010 132HDSEFF347 Effluent mg/L		
pH ¹	Field	2.8	8.2	--	6.0-9.0 ²
Al	Dissolved	39	0.45	4	2
As	Dissolved	0.11	<0.00090	0.34	0.15
Cd	Dissolved	0.00086 J	<0.00010	0.009	0.004
Ca	Dissolved	331	644	--	--
Cr	Dissolved	0.014	<0.00090	0.97	0.31
Cu	Dissolved	0.046	0.0049	0.026	0.016
Hardness	Dissolved	1200	1900	--	--
Fe	Dissolved	151	0.245	2.0	1.0
Pb	Dissolved	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	82	61	--	--
Ni	Dissolved	1.3	0.035	0.84	0.094
Zn	Dissolved	0.28	0.0026 J	0.21	0.21
Se	Total	0.0026	0.0016 J	NP	0.005
Acidity	Total	700	<2.0	--	--
Alkalinity (Total)	Total	<2.00	23.0	--	--
Alkalinity (Bicarbonate)	Total	<2.40	28	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1790	1760	--	--

Notes:

1. pH value was collected in field and is the average of 3 grab samples comprising the HDS Effluent sample or one grab sample for the HDS Influent sample. pH is in standard units.
 2. Discharge criteria pH based on 24-hour (single day) average discharge.
- < = Value is below the method detection limit, detection limit is listed.
- J = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).
- NP = Not Promulgated

TABLE 11
HIGH DENSITY SLUDGE TREATMENT PLANT - EFFLUENT
OPTIMIZATION SAMPLING RESULTS
JULY 2010 MONTHLY SUMMARY
 Draft - Provisional Data.

DateSampled	7/13/2010	7/14/2010	7/15/2010
SampleID	130TSS16FAU345	131TSS09FAU346	133TSS30FAU353
TSS (mg/l)	13	17	26
Field Turbidity (FAU)	16	9	30

Notes

TSS = Total Suspended Solids
 FAU = Formazin Attenuation Units

Atlantic Richfield Company

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September 10, 2010

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for August 2010

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of August 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

ACTIVITIES FOR AUGUST

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of August. Routine O&M and influent and effluent sampling occurred on August 3 and 17, 2010. The currently available influent and effluent water quality data for the August 3 and 17, 2010 sampling events are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3.
- In accordance with the 2010 RAWP, enhanced sampling for optimization of the ASB occurred on August 17, 2010. The water quality data for the August 17, 2010 sampling events are presented in Table 4.
- Pursuant to Amendment #2 to the 2009 Removal Action Work Plan (RAWP), monitoring of the pilot scale sludge drying bed test continued in July and just prior to decommissioning of the test. Samples of sludge were collected on July 20, 2010. The July 20, 2010 sludge sampling results are presented in Table 5.
- Pursuant to Amendment #2 to the 2009 RAWP, preparation of the Phase I Sludge Drying Bed Pilot Test Report began in August.
- On the afternoon of August 5, 2010 the Aspen Seep influent line between the United States Geological Survey (USGS) weir box and ASB Manhole 6 became clogged with precipitate and flow was temporarily diverted to the pretreatment pond. On August 6, 2010 a temporary bypass was



installed between the weir box and ASB Manhole 6 and normal bioreactor operations resumed. Replacement of the influent pipeline began in August 2010.

- On August 18, 2010, Atlantic Richfield submitted Amendment #1 to the 2010 Removal Action Work Plan (RAWP), notifying EPA of modified plans for dewatering of treatment generated sludge from the ASB using a mobile centrifuge, and summarizing the results of a preliminary geotechnical investigation evaluating ground stability in the area of the completed Phase I Sludge Drying Bed (SDB) Pilot Test. On August 26, 2010, EPA provided an email confirming verbal approval of Amendment #1. Site preparatory work for the sludge dewatering operations began on August 27, 2010.

CUD and DS

- Operation of the HDS Treatment Plant and the associated capture of the CUD and DS continued during the month of August. A summary of the HDS Plant operational data for August 2010 is presented in Table 9. The HDS Treatment Plant influent and effluent were sampled for laboratory analytical parameters on August 10, 2010. The analytical results associated with the August 10, 2010 sampling event are presented in Table 6. Additional sampling of the HDS Effluent for HDS Treatment Plant operational optimization occurred on August 4, 5, 11, 12, and 14, 2010. Results of the optimization sampling are presented in Table 7. Additional sampling of the HDS sludge for enhanced characterization occurred on August 5 and 10, 2010. Results of the sludge sampling are presented in Table 8. Flow rates recorded for the Delta Seep, Channel Underdrain, and treated water discharge from the HDS Treatment Plant are included in Table 2.
- Development of the Operations and Maintenance Manual for the HDS Treatment Plant continued. Plant engineers will continue to document the procedures for operation, maintenance and repairs in the O&M Manual.
- Work continued on Delta Seep Capture Wall Maintenance, including the application of a protective wall coating.
- On August 2, 2010, Atlantic Richfield provided an email to EPA describing an interruption to the treated water discharge from the HDS Treatment Plant to Leviathan Creek that occurred on July 30, 2010. The temporary interruption of treated water discharge occurred due to malfunctioning of the Uninterruptible Power Supply (UPS) located in the Local Control Panel in the HDS building. The UPS was replaced, and normal plant operations and discharge to Leviathan Creek were resumed on August 3, 2010. Capture of CUD and DS was maintained throughout this period.
- On August 16, 2010, Atlantic Richfield provided an email to EPA describing three recent temporary interruptions of treated water discharge from the HDS Treatment Plant to Leviathan Creek. None of these interruptions resulted in a loss of capture or any discharge of untreated water to Leviathan Creek. The interruptions of discharge were related to temporary elevated turbidity conditions and a clogged sludge recycle pipeline.

Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.

- On August 5 and 26, 2010, Atlantic Richfield notified EPA of upcoming off-site shipments of waste materials consisting of treatment solids and used piping. The respective shipments occurred on August 17 and September 2, 2010.
- On August 5, 2010, Atlantic Richfield submitted to the United States Forest Service (USFS) a revised 2010 Dust Suppression Evaluation describing the various alternatives for control of dust on Leviathan Mine Road near Highway 395. In an August 12, 2010 email, the USFS confirmed its agreement with Atlantic Richfield's recommendation for the preferred dust control alternative. On August 18, 2010, Atlantic Richfield submitted to the USFS copies of the cover letters to property owners transmitting the 2010 Dust Suppression Evaluation and providing notice of a forthcoming conference call. On August 25, 2010 a conference call was held with property owners to discuss the 2010 Dust Suppression Evaluation.
- On August 6, 2010, Atlantic Richfield changed the lock combinations on the gates leading into the site to ensure continued site security. EPA, the Lahontan Regional Water Quality Control Board, and their respective contractors were notified of the change.
- On August 17, 2010, a conference call was conducted with EPA to provide a general progress update.

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct monitoring as outlined in the 2010 RAWP.
- Mobilize a centrifuge to the site and begin implementation of sludge dewatering activities according to Amendment #1 to the 2010 RAWP.

CUD and DS

- Continue development of the Operations and Maintenance Manual for the HDS Treatment Plant.
- Continue with the optimization, operation, and maintenance of the HDS Treatment System, including capture of the CUD and DS.
- Complete maintenance work on the Delta Seep cutoff wall.

Site-wide

- Continue to provide project progress updates to EPA via conference call. The next conference call is currently scheduled for September 21, 2010.

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE MCCARTHY ON BEHALF OF

Tony Brown
Project Manager

Attachments:

- Table 1 – Aspen Seep Bioreactor Monthly Influent and Effluent Sample Results
- Table 2 – Aspen Seep, CUD, DS and HDS Flow Summary
- Table 3 – Aspen Seep Bioreactor, Recent pH and ORP Field Measurements
- Table 4 – Aspen Seep Bioreactor, Enhanced Sampling Results
- Table 5 – Aspen Seep Bioreactor, Phase I Sludge Drying Bed Pilot Test, DI WET Testing Results
- Table 6 – High Density Sludge Treatment Plant Sampling Results
- Table 7 – High Density Sludge Treatment Plant – Effluent Optimization Sampling Results
- Table 8 – High Density Sludge Treatment Plant – Sludge Sampling Results
- Table 9 – High Density Sludge Treatment Plant Operational Data - August Monthly Summary

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.
Adam Cohen, Esq., Davis Graham & Stubbs LLP
Dave McCarthy, Copper Environmental Consulting
Joe Niland, AMEC-Geomatrix Consultants, Inc.
Sandy Riese, EnSci, Inc.
Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR - MONTHLY INFLUENT AND EFFLUENT SAMPLE RESULTS
AUGUST 2010 MONTHLY SUMMARY

Draft - Provisional Data

Parameter	Basis	August 3	August 3	August 17	August 17	Maximum Discharge Criteria	Average Discharge Criteria
		2010 128ASPINF408 Influent mg/L	2010 128ASPEFF407 Effluent mg/L	2010 129ASPINF411 Influent mg/L	2010 129ASPEFF415 Effluent mg/L		
pH ¹	Field	2.9	7.4	2.6	7.9	---	6.0 - 9.0 ²
Al	Dissolved	41	<0.040	40	0.11	4	2
As	Dissolved	<0.00090	<0.00090	<0.00090	<0.00090	0.34	0.15
Cd	Dissolved	0.0015	<0.00010	0.0014	<0.00010	0.009	0.004
Ca	Dissolved	308	292	292	275	--	--
Cr	Dissolved	0.0028	<0.00090	0.0033	<0.00090	0.97	0.31
Cu	Dissolved	0.65	0.0031	0.58	0.0058	0.026	0.016
Hardness	Dissolved	1100	1000	1000	1000	--	--
Fe	Dissolved	120	0.575	107	0.0771	2	1
Pb	Dissolved	<0.00020	<0.00020	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	78	74	76	77	--	--
Ni	Dissolved	0.40	0.0079	0.37	0.010	0.84	0.094
Zn	Dissolved	0.58	<0.0040	0.48	<0.0040	0.21	0.21
Se	Total	0.0028	0.0016 J	0.0019 J	0.00097 J	NP	0.005
Acidity	Total	530	<2.0	680	<2.0	--	--
Alkalinity (Total)	Total	<2.00	232	<2.00	292	--	--
Alkalinity (Bicarbonate)	Total	<2.40	283	<2.40	356	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1670	1490	1670	1380	--	--

Notes

1. pH value was collected in field; pH is in standard units.

2. Discharge criteria for average pH based on 24-hour (single day) average discharge.

NA = Data not yet available from laboratory

NP = Not Promulgated

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit.

< = Analyte NOT DETECTED at or above the or method detection limit.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
ASPEN SEEP BIOREACTOR, CUD, DS and HDS - FLOW RATES
AUGUST 2010 MONTHLY SUMMARY

Draft - Provisional Data

Date	Aspen Seep Recorded Flow ¹	Date	Delta Seep Recorded Flow ²		Channel Underdrain Recorded Flow ²		HDS Treatment Plant Discharge Recorded Flow ²	
	gpm		gpm	Gallons	gpm	Gallons	gpm	Gallons
8/1/2010	NA	8/1/2010	11.73	16,898	28.01	40,335	0.00	0
8/2/2010	NA	8/2/2010	11.61	16,714	27.96	40,267	0.00	0
8/3/2010	NA	8/3/2010	11.63	16,746	27.78	39,996	28.08	40,430
8/4/2010	NA	8/4/2010	11.64	16,768	27.62	39,770	74.97	107,960
8/5/2010	NA	8/5/2010	11.64	16,766	27.50	39,602	74.93	107,899
8/6/2010	NA	8/6/2010	11.58	16,680	27.37	39,410	74.76	107,650
8/7/2010	NA	8/7/2010	11.61	16,713	27.26	39,248	40.09	57,729
8/8/2010	NA	8/8/2010	11.58	16,671	27.14	39,076	40.00	57,598
8/9/2010	NA	8/9/2010	11.42	16,439	27.01	38,888	39.97	57,563
8/10/2010	NA	8/10/2010	11.36	16,354	26.88	38,712	31.17	44,888
8/11/2010	NA	8/11/2010	11.39	16,406	26.78	38,566	44.95	64,733
8/12/2010	NA	8/12/2010	11.35	16,343	26.64	38,360	36.37	52,378
8/13/2010	NA	8/13/2010	11.26	16,208	26.54	38,220	17.50	25,200
8/14/2010	NA	8/14/2010	11.17	16,083	26.42	38,049	45.00	64,798
8/15/2010	NA	8/15/2010	11.07	15,943	26.30	37,869	45.00	64,797
8/16/2010	NA	8/16/2010	11.01	15,855	26.17	37,687	45.00	64,802
8/17/2010	NA	8/17/2010	10.92	15,720	26.05	37,517	44.99	64,783
8/18/2010	NA	8/18/2010	10.89	15,683	25.94	37,350	45.00	64,793
8/19/2010	NA	8/19/2010	10.88	15,673	25.80	37,155	45.00	64,797
8/20/2010	NA	8/20/2010	10.87	15,658	25.69	36,989	44.99	64,781
8/21/2010	NA	8/21/2010	10.86	15,633	25.56	36,810	45.00	64,798
8/22/2010	NA	8/22/2010	10.79	15,537	25.41	36,589	45.00	64,796
8/23/2010	NA	8/23/2010	10.68	15,373	25.25	36,363	42.37	61,008
8/24/2010	NA	8/24/2010	10.63	15,305	25.12	36,180	40.00	57,600
8/25/2010	NA	8/25/2010	10.56	15,210	25.01	36,013	40.00	57,599
8/26/2010	NA	8/26/2010	10.55	15,192	24.99	35,988	39.69	57,149
8/27/2010	NA	8/27/2010	10.67	15,363	24.95	35,924	39.97	57,560
8/28/2010	NA	8/28/2010	10.77	15,509	24.93	35,898	39.98	57,578
8/29/2010	NA	8/29/2010	11.35	16,340	24.89	35,836	40.00	57,600
8/30/2010	NA	8/30/2010	10.85	15,618	24.77	35,675	37.34	53,763
8/31/2010	NA	8/31/2010	10.68	15,377	24.65	35,496	34.98	50,378
Average Flow Rate	NA	Average Flow Rate or Total Discharged	11.13	496,779	26.21	1,169,835	40.71	1,817,408

Notes

- Aspen Seep flow data is provided by USGS.
- Flow rates for DS, CUD, and Treated Water Discharged from the HDS Treatment Plant are calculated from the volume measured by flow totalizers.

Abbreviations

CUD: Channel Underdrain DS: Delta Seep gpm: gallons per minute NA: not available
USGS: United States Geological Survey.

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
AUGUST 2010 MONTHLY SUMMARY
 Draft - Provisional Data

Date	Aspen Influent			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.00	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.20	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.50	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.75	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.90	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.00	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.00	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.50	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.75	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.00	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.00	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.50	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.25	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.00	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.00	3.10	455.4	7.40	-47.5	7.09	-251.2	7.70	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.50	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.25	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.00	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.75	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.25	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.75	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0
10/27/2008	5.75	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.50	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.25	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.25	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0
2/19/2009	5.25	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1
3/10/2009	5.00	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.00	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.50	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.50	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.50	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
AUGUST 2010 MONTHLY SUMMARY
 Draft - Provisional Data

Date	Aspen Influent			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
7/1/2009	6.00	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.75	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.00	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.50	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.10	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.25	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.00	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.50	2.93	496.6	6.57	-121.4	7.63	-301.0	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.90	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143.0	7.24	-162.8	7.94	2.8
11/11/2009	5.00	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.00	2.90	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.80	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.70	2.94	484.0	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1
3/9/2010	4.75	2.74	474.7	8.27	-78.3	7.95	-204.2	8.74	-208.9	8.10	-220.8	7.75	-5.9
4/26/2010	12	2.85	479.5	5.14	135.1	5.61	-19.0	5.04	109.2	5.60	-29.6	6.15	35.9
5/17/2010	9.7	2.97	436.9	6.26	196.9	7.04	-283.9	7.79	-235.1	7.08	285.4	7.76	-73.8
5/24/2010	9.36	3.16	418.0	7.43	-156.1	7.00	-259.9	7.27	-171.4	6.89	-282.6	7.11	-78.6
5/27/2010	9.6	3.18	423.1	5.52	-225.1	7.58	-316.7	8.86	-318.2	6.74	-296.8	7.07	-98.7
6/1/2010	10.5	3.11	444.0	8.47	-32.2	7.72	-292.6	9.00	-	6.74	-300.9	7.01	-31.5
6/14/2010	10	2.99	427.7	7.40	-81.7	6.85	-272.5	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/15/2010	-	-	-	8.04	-221.6	6.89	-347.7	-	-	6.17	-355.9	-	-
6/16/2010	-	2.99	427.7	7.40	-81.7	6.85	-272.6	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/18/2010	9.1	-	-	7.72	-211.7	6.79	-335.6	-	-	6.69	-336.7	-	-
6/21/2010	9	3.21	409.4	7.99	-242.7	6.96	-364.1	7.86	-303.4	6.78	-349.5	7.70	-142.3
6/30/2010	10	2.59	451.5	8.73	-216.2	8.73	-216.2	-	-	6.78	-337.9	7.96	-164.5
7/1/2010	-	2.82	422.4	-	-	-	-	-	-	-	-	7.94	-241.9
7/13/2010	10	2.62	479.5	7.52	-112.1	6.90	-279.5	8.02	-255.2	6.90	-294.0	7.76	-65.8
7/21/2010	10	2.93	475.1	7.90	-70.5	7.15	-301.5	7.80	-212.4	7.27	-315.3	8.09	-95.7
7/29/2010	10	2.90	465.3	7.73	-168.6	7.25	-318.1	7.08	-192.5	7.15	-318.5	7.06	-45.6
8/3/2010	9	2.94	458.6	7.69	-193.3	7.16	-311.4	7.16	-311.4	7.17	-324.5	7.39	-66.3
8/12/2010	9	2.85	476.3	7.98	-255.3	7.07	-299.3	7.50	-235.2	7.06	-307.0	7.55	-26.2
8/17/2010	9.5	2.64	470.9	8.09	-47.2	7.54	-306.0	8.47	-206.8	7.37	-320.0	7.86	-74.0
8/24/2010	9.2	3.04	250.0	7.81	-129.9	7.21	-151.9	7.20	-202.9	7.09	-147.9	7.81	2.9

Notes

* Effluent readings collected from Pond 4 because water was not being discharged to the aeration channel.

** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.

- : not measured or not recorded or bioreactor operation did not currently include manhole on the specified date.

Aspen Seep Flow measurements are field measurements completed with a graduated bucket and stop watch.

Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.

Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.

Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.

TABLE 4
ASPEN SEEP BIOREACTOR - ENHANCED SAMPLING RESULTS
AUGUST 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Basis	Units	August 17 2010 129ASPINF411 Influent mg/L	August 17 2010 129MH2ASP412 Manhole 2 mg/L	August 17 2010 129MH4ASP413 Manhole 4 mg/L	August 17 2010 129MH7ASP414 Manhole 7 mg/L	August 17 2010 129ASPEFF415 Effluent mg/L
Ethanol	Total	mg/L	<0.10	210	<0.10	<0.10	0.59
Acetate	Total	mg/L	-	-	-	-	-
Se	Total	mg/L	0.0019 J	-	-	-	0.00097 J
Al	Dissolved	mg/L	40	-	-	-	0.11
As	Dissolved	mg/L	<0.00090	-	-	-	<0.00090
Cd	Dissolved	mg/L	0.0014	-	-	-	<0.00010
Ca	Dissolved	mg/L	292	-	-	-	275.00
Cr	Dissolved	mg/L	0.0033	-	-	-	<0.00090
Cu	Dissolved	mg/L	0.58	-	-	-	0.0058
Hardness	Dissolved	mg/L	1000	-	-	-	1000
Fe	Dissolved	mg/L	107	-	-	-	0.077
P	Dissolved	mg/L	<0.020	-	-	-	<0.020
Mg	Dissolved	mg/L	76	-	-	-	77.00
Pb	Dissolved	mg/L	<0.00020	-	-	-	<0.00020
Ni	Dissolved	mg/L	0.37	-	-	-	0.0100
Zn	Dissolved	mg/L	0.48	-	-	-	<0.0040
Cl	Total	mg/L	3.5	2.6	2.8	2.8	1.8
TSS	Total	mg/L	30	-	-	-	3.0 J
TDS	Total	mg/L	2630	2300	2230	2250	2350
Acidity	Total	mg/L	680	-	-	-	<2.0
Alkalinity (Total)	Total	mg/L	<2.00	-	-	-	292
Alkalinity (Bicarbonate)	Total	mg/L	<2.40	-	-	-	356
Alkalinity (Carbonate)	Total	mg/L	<1.20	-	-	-	<1.20
Alkalinity (Hydroxide)	Total	mg/L	<0.700	-	-	-	<0.700
Sulfate	Lab Filtered	mg/L	1670	1340	1230	1180	1380
Sulfide	Dissolved	mg/L	-	<0.020	4.2	21	-
Ammonia-N	Dissolved	mg/L	0.34 J	0.16 J	0.17 J	<0.10	<0.10
Dissolved Organic Carbon	Dissolved	mg/L	<0.50	160	31	27	45
Nitrate/Nitrite-N	Dissolved	mg/L	<1.3	<0.52	<0.52	<0.52	<0.52
Nitrate-N	Dissolved	mg/L	<0.30	<0.12	<0.12	<0.12	<0.12
Nitrite-N	Dissolved	mg/L	<0.45	<0.18	<0.18	<0.18	<0.18
pH	Field	su	2.64	8.09	7.54	7.37	7.86
ORP	Field	mV	470.9	-47.2	-306	-320	-74
Temperature	Field	C	16.24	17.98	13.53	13.89	21.35
Conductivity	Field	uS/cm	2,684	2,834	2,831	2,763	2,925

Notes

< = Analyte NOT DETECTED at or above the method detection limit.

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. The user of this data should be aware that this data is of limited reliability.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

- : not measured, not currently reported, not recorded or bioreactor operation did not currently include manhole on the specified date.

TABLE 5
ASPEN SEEP BIOREACTOR - PHASE I SLUDGE DRYING BED PILOT TEST
DI-WET TESTING
Draft - Provisional Data

Parameter	Method	July 20 2010 127TRIAL1BIN403 Trial 1 mg/L	July 20 2010 127TRIAL2BIN404 Trial 2 mg/L
		Aluminum	EPA 6010B
Antimony	EPA 6020	<0.0020	<0.0020
Arsenic	EPA 6020	0.0016	<0.0010
Barium	EPA 6020	0.041	0.058
Beryllium	EPA 6020	<0.00050	<0.00050
Cadmium	EPA 6020	0.0020	<0.0010
Chromium	EPA 6020	<0.0020	<0.0020
Cobalt	EPA 6020	0.12	0.023
Copper	EPA 6020	0.18	0.16
Iron	EPA 6010B	<0.0400	<0.0400
Lead	EPA 6020	<0.0010	<0.0010
Mercury	7470-DI WET	0.00022	<0.00020
Molybdenum	EPA 6020	<0.0020	<0.0020
Nickel	EPA 6020	0.14	0.029
Selenium	EPA 6020	0.0025	0.0029
Silver	EPA 6020	<0.0010	<0.0010
Thallium	EPA 6020	<0.0010	<0.0010
Vanadium	EPA 6020	<0.0010	<0.0010
Zinc	EPA 6020	0.043	0.021

Notes

< = Analyte NOT DETECTED at or above the method detection limit.

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. The user of this data should be aware that this data is of limited reliability.

TABLE 6
HIGH DENSITY SLUDGE TREATMENT PLANT - SAMPLE RESULTS
AUGUST 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Basis	August 5 2010 137HDSINF358 Influent mg/L	August 5 2010 137HDSEFF357 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	2.5	8.4	--	6.0-9.0 ²
Al	Dissolved	38	0.61	4	2
As	Dissolved	0.11	<0.00090	0.34	0.15
Cd	Dissolved	0.00065 J	<0.00010	0.009	0.004
Ca	Dissolved	313	590	--	--
Cr	Dissolved	0.014	<0.00090	0.97	0.31
Cu	Dissolved	0.042	0.0063	0.026	0.016
Hardness	Dissolved	1100	1800	--	--
Fe	Dissolved	152	0.191	2.0	1.0
Pb	Dissolved	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	80	80	--	--
Ni	Dissolved	1.2	0.0090	0.84	0.094
Zn	Dissolved	0.24	<0.0040	0.21	0.21
Se	Total	0.0024	0.0014 J	NP	0.005
Acidity	Total	770	26	--	--
Alkalinity (Total)	Total	<2.00	22.0	--	--
Alkalinity (Bicarbonate)	Total	<2.40	26.8	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1,940	1,980	--	--

Notes

1. pH value was collected in field and is the average of 3 grab samples comprising the HDS Effluent sample or one grab sample for the HDS Influent sample. pH is in standard units.
 2. Discharge criteria pH based on 24-hour (single day) average discharge.
- < = Value is below the method detection limit, detection limit is listed.
- J = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).
- NP = Not Promulgated

TABLE 7
HIGH DENSITY SLUDGE TREATMENT PLANT - EFFLUENT
OPTIMIZATION SAMPLING RESULTS
AUGUST 2010 MONTHLY SUMMARY
 Draft - Provisional Data

Date	SampleID	TSS (mg/l)	Field Turbidity (FAU)
7/13/2010	130TSS16FAU345	13	16
7/14/2010	131TSS09FAU346	17	9
7/15/2010	133TSS30FAU353	26	30
7/26/2010	134TSS78FAU354	59	78
7/27/2010	135TSS62FAU355	65	62
8/4/2010	136TSS63FAU356	92	63
8/5/2010	138TSS31FAU363	27	31
8/11/2010	141TSS51FAU368	40	51
8/12/2010	142TSS87FAU369	64	87
8/14/2010	143TSS41FAU370	37	41

Notes

TSS = Total Suspended Solids

FAU = Formazin Attenuation Units

-- : not measured or not recorded

TABLE 8
HIGH DENSITY SLUDGE TREATMENT PLANT - SLUDGE SAMPLE RESULTS
AUGUST 2010
Draft - Provisional Data

Parameter	Type	Method	August 5	August 5	August 10	August 10	August 10	August 10
			2010 139SDS364 Clarifier Sludge Slurry mg/kg	2010 139SDS364 Clarifier Sludge Slurry (Dried Solids) mg/kg	2010 140SLURRY365 Clarifier Sludge Slurry mg/kg	2010 140SLURRY365 Clarifier Sludge Slurry (Dried Solids) mg/kg	2010 140HDSINF366 Influent mg/L	2010 140CO367 Clarifier Overflow mg/L
Acidity	Total	SM2310B	--	--	200	200	600	14
Alkalinity (Total)	Total	SM2320B	--	--	35,000	50,000	2	28
Alkalinity (Bicarbonate)	Total	SM2320B	--	--	42,700	61,000	2.4	34.1
Alkalinity (Carbonate)	Total	SM2320B	--	--	1.2	1.2	1.2	1.2
Alkalinity (Hydroxide)	Total	SM2320B	--	--	0.7	0.7	0.7	0.7
Al	Total	EPA 6010B	--	--	20,000	60,000	38	2.4
Al	Dissolved	EPA 6010B-D	--	--	--	--	35	0.64
As	Total	EPA 6020	--	--	68	200	0.13	0.0055
As	Dissolved	EPA 6020-D	--	--	--	--	0.087	0.0009
Cd	Total	EPA 6020	--	--	0.65	2.0 J	0.00068 J	0.0001
Cd	Dissolved	EPA 6020-D	--	--	--	--	0.00072 J	0.0001
Ca	Total	EPA 6010B	--	--	12,100	35,800	346	517
Ca	Dissolved	EPA 6010B-D	--	--	--	--	315	514
Cl	Total	EPA 300.0	--	--	7.7	9.9	27	1.9
Cr	Total	EPA 6020	--	--	8.3	24	0.011	0.0010 J
Cr	Dissolved	EPA 6020-D	--	--	--	--	0.011	0.0009
Cu	Total	EPA 6020	--	--	47	150	0.042	0.011
Cu	Dissolved	EPA 6020-D	--	--	--	--	0.043	0.0052
Hardness	Dissolved	SM2340B	--	--	--	--	1,100	1,700
Fe	Total	EPA 6010B	--	--	83,100	233,000	191	9.3
Fe	Dissolved	EPA 6010B-D	--	--	--	--	170	1.9
Pb	Total	EPA 6020	--	--	0.61	1.6 J	0.0002	0.0002
Pb	Dissolved	EPA 6020-D	--	--	--	--	0.0002	0.0002
Mg	Total	EPA 6010B	--	--	4,000	12,000	90	95
Mg	Dissolved	EPA 6010B-D	--	--	--	--	83	98
Ni	Total	EPA 6020	--	--	630	1,800	1.2	0.09
Ni	Dissolved	EPA 6020-D	--	--	--	--	1.2	0.015
Se	Total	EPA 6020	--	--	0.87 J	2.7 J	0.0024	0.0012 J
Sulfate	Total	EPA 300.0	--	--	3,160	11,600	1,670	1,830
Total Dissolved Solids (mg/L)	Total	SM2540C	--	--	5,850	--	2,690	2,750
Total Organic Carbon	Total	EPA 9060A	--	--	1,700	2900 J	--	0.5
Total Suspended Solids	Total	SM 2540D	--	--	250,000	--	420	9.0 J
Turbidity (NTU)	Total	EPA 180.1	--	--	--	--	1,100	2.9
Zn	Total	EPA 6020	--	--	140	470	0.27	0.018 J
Zn	Dissolved	EPA 6020-D	--	--	--	--	0.27	0.004
Percent Solids (%)	Total	SM2540B MO	17	--	25	98	--	--
Specific Gravity	Total	SM2710-F	1.14	1.90	1.2	2.43	--	--

Notes

J = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).

TABLE 9
HIGH DENSITY SLUDGE TREATMENT SYSTEM
OPERATIONAL DATA SUMMARY
AUGUST 2010 MONTHLY SUMMARY
 Draft - Provisional Data

Time Period	Treated Water Discharged (gal)	Lime Consumed (kg)	Diesel Fuel Consumed (gal)	Flocculant Consumed (kg)	Sludge Wasted (gal)	Freshwater Consumed (gal)
July 1 - July 31, 2010	1,683,936	4,873	1,702	14	4,000	1,939
August 1 - August 31, 2010	1,817,408	4,125	1,701	14	6,000	7,344

Atlantic Richfield Company

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October 11, 2010

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for September 2010 and Quarterly RI/FS Progress Report

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of September 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

Atlantic Richfield is also submitting this letter in satisfaction of the quarterly progress reporting requirement set forth in Paragraph 63 of the Administrative Order for Remedial Investigation and Feasibility Study (U.S. EPA Region IX, CERCLA Docket No. 2008-18, June 23, 2008) (UAO). The quarterly summary of RI/FS activities is provided at the end of this letter.

ACTIVITIES FOR SEPTEMBER

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of September. Routine O&M and influent and effluent sampling occurred on September 2 and 16, 2010. The currently available influent and effluent water quality data for the September 2 and 16, 2010 sampling events are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3.
- Pursuant to Amendment #2 to the 2009 RAWP, preparation of the Phase I Sludge Drying Bed Pilot Test Report continued.
- On the afternoon of August 5, 2010 the Aspen Seep influent line between the United States Geological Survey (USGS) weir box and ASB Manhole 6 became clogged with precipitate and flow was temporarily diverted to the pretreatment pond. The influent line was replaced in September.
- Sludge dewatering operations continued during the month according to Amendment #1 to the 2010 Removal Action Work Plan (RAWP). Sampling of the centrifuge filtrate was conducted according to



Amendment #1 to the 2010 RAWP. The analytical results from this sampling have not been received from the laboratory and will be provided to EPA in next month's report.

CUD and DS

- Operation of the HDS Treatment Plant and the associated capture of the CUD and DS continued during the month of September. The HDS Treatment Plant influent and effluent were sampled for laboratory analytical parameters on September 8, 2010. The analytical results associated with the September 8, 2010 sampling event are presented in Table 4. A summary of the HDS Plant operational data for September 2010 is presented in Table 5. Sampling of the fresh water used for HDS Plant polymer occurred on September 14, 2010. Results of the fresh water sampling are presented in Table 6. Flow rates recorded for the Delta Seep, Channel Underdrain, and treated water discharge from the HDS Treatment Plant are included in Table 2.
- The Delta Seep Capture Wall Maintenance was completed.
- On September 20, 2010, Atlantic Richfield submitted a letter to EPA requesting approval of Fall 2010 Limited Access Season (LAS) Operations and the 2010 Year-End Decommissioning and Winterization Plan. On September 29, 2010, EPA provided verbal intent to approve the Fall 2010 LAS Operations. EPA provided written approval of the Fall 2010 LAS Operations on October 1, 2010.
- On September 22, 2010, the HDS Treatment Plant was manually placed in recycle mode for approximately 6 hours due to a high pH condition. Once system water quality parameters stabilized, an effluent sample was collected, compliance with discharge criteria was confirmed, the system was returned to normal operation, and discharge resumed.

Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- On September 8, 2010, Atlantic Richfield submitted to the Forest Service a copy of the cover letters transmitting the meeting notes from the Leviathan Mine Road Public Participation Teleconference hosted by AMEC Geomatrix Consultants, Inc. (AMEC), on behalf of Atlantic Richfield, and the Forest Service on August 25, 2010 along with a copy of the meeting notes.
- On September 13, 2010, Atlantic Richfield submitted to the Forest Service a memorandum further documenting the maintenance activities planned for the Leviathan Mine Road along an approximate 1.6 mile stretch of roadway commencing from approximately 0.2 miles from its intersection with Highway 395 to the turnoff toward River Ranch Road.
- On September 13, 2010 Atlantic Richfield initiated road maintenance activities on Leviathan Mine Road near Highway 395 including cleaning out drainage ditches, unclogging existing culverts, crowning the roadway to improve surface drainage, spotting appropriate locations for drivable dips, and application of the dust palliative Envirotac II.
- On September 20, 2010 Atlantic Richfield submitted to the Forest Service a proposed supplemental maintenance plan for the California portion of Leviathan Mine Road. Comments on the supplemental maintenance plan were received from the Forest Service via email on September 22, 2010.

- On September 21, 2010, a conference call was conducted with EPA to provide a general progress update.

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct monitoring as outlined in the 2010 RAWP.
- Complete sludge dewatering activities and begin demobilization activities according to Amendment #1 to the 2010 RAWP.

CUD and DS

- Continue with the optimization, operation, and maintenance of the HDS Treatment System, including capture of the CUD and DS.
- Transition to LAS Operations (as defined in the AOC) in accordance with the 2010 Removal Action Work Plan and as stated in Atlantic Richfield's September 20, 2010 letter to EPA. Seasonal decommissioning and winterization of the HDS Treatment System and CUD and DS collection and conveyance equipment will likely commence at the end of October or in early November, depending on the severity of weather conditions.

Site-wide

- Continue to provide project progress updates to EPA via conference call. The next conference call is currently scheduled for October 19, 2010.

* * * *

QUARTERLY RI/FS PROGRESS REPORT

As required by Paragraph 63 of the UAO, the following Quarterly Progress Report for Remedial Investigation and Feasibility Study (RI/FS) activities describes: (a) the actions taken to comply with the UAO during the prior quarter, (b) the work planned for the next quarter, and (c) any problems encountered or anticipated including any actual or anticipated delays in schedules.

Actions Taken to Comply with the UAO

- Atlantic Richfield submitted the Quarterly Progress Report for the second quarter on July 10, 2010.
- Atlantic Richfield conducted a Technical Work Group call on July 23, 2010 to discuss the scope of the initial reference Focused Remedial Investigation activities with the stakeholders.
- Atlantic Richfield conducted development, installed protection and collected samples from existing monitoring wells per the Well FRI Work Plan in the third quarter.

- Atlantic Richfield conducted sediment mapping under the Mapping FRI Work Plan during the third quarter 2010. Prior written notification of sediment mapping activities along Bryant Creek, including portions of Bryant Creek crossing through some of the Washoe tribal member allotments, was provided to Athena Brown, Superintendent, United States Department of the Interior, Bureau of Indian Affairs, on September 15, 2010.
- On July 26, 2010, Atlantic Richfield submitted a letter titled *Proposed RI/FS Initial Analyte List* to EPA for review.
- The On-Property FRI Work Plan was submitted to EPA on August 11, 2010.
- Atlantic Richfield conducted geologic mapping under the Mapping FRI Work Plan during the third quarter 2010.
- Atlantic Richfield conducted a conference call with EPA on September 9, 2010 to discuss comments to the draft Human Health Risk Assessment Work Plan.
- On September 15, 2010 Atlantic Richfield submitted a plan to EPA for collecting initial reference FRI information.
- On September 23, 2010 Atlantic Richfield received comments from EPA on the sample decision unit rationale for mine waste sample collection presented in the draft On-Property FRI Work Plan.

Work Planned for the Next Quarter

- Atlantic Richfield plans on submitting revisions to the On-Property FRI Work plan based on comments received from EPA.
- Atlantic Richfield plans on submitting revisions to the HHRA work plan based on comments received from EPA.
- Atlantic Richfield plans on completing the initial reference FRI study activities.
- Atlantic Richfield plans on completing the report documenting the results of the Well FRI.
- Atlantic Richfield plans on completing the report documenting the results of the Mapping FRI.
- Atlantic Richfield plans on beginning the Reference FRI DQOs.

Problems Encountered or Anticipated

- No problems were encountered in the prior quarter or are anticipated in the next quarter relating to the work required under the UAO.

* * * *

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE MCCARTHY ON BEHALF OF

Tony Brown
Project Manager

Attachments:

Table 1 – Aspen Seep Bioreactor Monthly Influent and Effluent Sample Results

Table 2 – Aspen Seep, CUD, DS and HDS Flow Summary

Table 3 – Aspen Seep Bioreactor, Recent pH and ORP Field Measurements

Table 4 – High Density Sludge Treatment Plant Sampling Results

Table 5 – High Density Sludge Treatment Plant Operational Data - September Monthly Summary

Table 6 – High Density Sludge Treatment Plant – Fresh Water Sampling Results

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.
Adam Cohen, Esq., Davis Graham & Stubbs LLP
Dave McCarthy, Copper Environmental Consulting
Joe Niland, AMEC-Geomatrix Consultants, Inc.
Sandy Riese, EnSci, Inc.
Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR - SAMPLE RESULTS
SEPTEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Basis	September 2 2010 130ASPINF417 Influent mg/L	September 2 2010 130ASPEFF416 Effluent mg/L	September 16 2010 131ASPINF418 Influent mg/L	September 16 2010 131ASPEFF419 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	2.84	7.97	3.21	7.76	---	6.0 - 9.0 ²
Al	Dissolved	41	0.17	41	1.9	4	2
As	Dissolved	<0.00090	<0.00090	<0.00090	<0.00090	0.34	0.15
Cd	Dissolved	0.0015	<0.00010	0.0019	0.00010 J	0.009	0.004
Ca	Dissolved	300	270	312	308	--	--
Cr	Dissolved	0.0034	<0.00090	0.0022	<0.00090	0.97	0.31
Cu	Dissolved	0.56	<0.00050	0.69	0.014	0.026	0.016
Hardness	Dissolved	1100	1000	1100	1200	--	--
Fe	Dissolved	100	<0.015	127	5.04	2	1
Pb	Dissolved	<0.00020	<0.00020	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	77	79	80	93	--	--
Ni	Dissolved	0.36	0.0011	0.45	0.072	0.84	0.094
Zn	Dissolved	0.49	<0.0040	0.65	0.057	0.21	0.21
Se	Total	0.0018 J	0.00097 J	0.00094 J	0.00055 J	NP	0.005
Acidity	Total	670	<2.0	580	<2.0	--	--
Alkalinity (Total)	Total	<2.0	300	<2.00	272	--	--
Alkalinity (Bicarbonate)	Total	<2.4	360	<2.40	332	--	--
Alkalinity (Carbonate)	Total	<1.2	<1.2	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.70	<0.70	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1800	1400	1770	1510	--	--

Notes

1. pH value was collected in field; pH is in standard units.

2. Discharge criteria for average pH based on 24-hour (single day) average discharge.

NA = Data not yet available from laboratory

NP = Not Promulgated

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit.

< = Analyte NOT DETECTED at or above the or method detection limit.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
ASPEN SEEP BIOREACTOR, CUD, DS and HIGH DENSITY SLUDGE TREATMENT
PLANT - FLOW RATES¹
SEPTEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Delta Seep Recorded Flow ²		Channel Underdrain Recorded Flow ²		Treated Water Discharge from HDS Plant Recorded Flow ²	
	gpm	Gallons	gpm	Gallons	gpm	Gallons
9/1/2010	10.54	15,181	24.56	35,368	35.00	50,396
9/2/2010	10.28	14,799	23.21	33,425	35.00	50,398
9/3/2010	10.23	14,736	23.49	33,828	35.00	50,402
9/4/2010	10.22	14,719	23.37	33,653	35.00	50,398
9/5/2010	10.23	14,732	23.27	33,505	35.00	50,399
9/6/2010	10.26	14,768	23.13	33,304	35.00	50,400
9/7/2010	10.22	14,720	23.04	33,174	34.99	50,388
9/8/2010	10.33	14,873	22.96	33,056	35.00	50,404
9/9/2010	10.30	14,839	22.88	32,943	32.17	46,330
9/10/2010	10.07	14,504	22.69	32,672	28.08	40,434
9/11/2010	10.01	14,409	22.58	32,510	30.00	43,201
9/12/2010	9.93	14,300	22.47	32,351	30.00	43,197
9/13/2010	9.89	14,242	22.37	32,208	30.00	43,200
9/14/2010	9.93	14,296	22.25	32,040	29.98	43,168
9/15/2010	9.89	14,235	22.15	31,890	30.00	43,201
9/16/2010	9.99	14,389	22.04	31,731	26.16	37,673
9/17/2010	10.03	14,445	21.94	31,591	34.05	49,026
9/18/2010	9.79	14,094	21.83	31,440	30.00	43,197
9/19/2010	10.08	14,510	21.73	31,287	30.00	43,200
9/20/2010	9.83	14,162	21.62	31,136	47.08	67,799
9/21/2010	9.95	14,325	21.54	31,014	49.97	71,957
9/22/2010	9.90	14,254	21.43	30,865	29.97	43,161
9/23/2010	10.41	14,985	21.30	30,678	29.98	43,172
9/24/2010	9.64	13,883	21.18	30,506	29.95	43,131
9/25/2010	9.50	13,687	21.08	30,357	30.00	43,198
9/26/2010	9.60	13,822	20.98	30,207	30.00	43,199
9/27/2010	9.50	13,683	20.87	30,059	29.98	43,174
9/28/2010	9.50	13,685	20.83	29,992	30.00	43,194
9/29/2010	9.52	13,712	20.72	29,844	30.00	43,202
9/30/2010	9.60	13,826	20.61	29,675	30.00	43,201
Average Flow Rate or Total Discharged	9.97	430,814	22.14	956,310	32.58	1,407,398

Notes

1. Aspen Seep Bioreactor flow data is provided by USGS. New data is not currently available.
2. Flow rates for DS, CUD, and Treated Water Discharged from the HDS Treatment Plant are calculated from the volume measured by flow totalizers.

Abbreviations

CUD: Channel Underdrain	DS: Delta Seep	HDS: High Density Sludge
gpm: gallons per minute	NA: not available	USGS: United States Geological Survey.

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
SEPTEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Aspen Influent			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.0	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.2	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.5	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.8	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.9	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.0	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.0	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.5	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.8	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.0	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.0	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.5	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.3	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.0	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.0	3.10	455.4	7.40	-47.5	7.09	-251.2	7.70	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.5	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.3	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.0	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.8	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.3	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.8	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0
10/27/2008	5.8	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.5	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.3	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.3	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0
2/19/2009	5.3	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1
3/10/2009	5.0	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.0	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.5	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.5	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.5	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1
7/1/2009	6.0	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.8	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.0	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
SEPTEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Aspen Influent			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
8/5/2009	5.5	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.1	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.3	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.0	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.5	2.93	496.6	6.57	-121.4	7.63	-301.0	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.9	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143.0	7.24	-162.8	7.94	2.8
11/11/2009	5.0	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.0	2.90	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.8	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.7	2.94	484.0	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1
3/9/2010	4.8	2.74	474.7	8.27	-78.3	7.95	-204.2	8.74	-208.9	8.10	-220.8	7.75	-5.9
4/16/2010	12.0	2.85	479.5	5.14	135.1	5.61	-19.0	5.04	109.2	5.60	-29.6	6.15	35.9
5/17/2010	9.7	2.97	436.9	6.26	196.9	7.04	-283.9	7.79	-235.1	7.08	285.4	7.76	-73.8
5/24/2010	9.4	3.16	418.0	7.43	-156.1	7.00	-259.9	7.27	-171.4	6.89	-282.6	7.11	-78.6
5/27/2010	9.6	3.18	423.1	5.52	-225.1	7.58	-316.7	8.86	-318.2	6.74	-296.8	7.07	-98.7
6/1/2010	10.5	3.11	444.0	8.47	-32.2	7.72	-292.6	9.00	-	6.74	-300.9	7.01	-31.5
6/14/2010	10.0	2.99	427.7	7.40	-81.7	6.85	-272.5	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/15/2010	-	-	-	8.04	-221.6	6.89	-347.7	-	-	6.17	-355.9	-	-
6/16/2010	-	2.99	427.7	7.40	-81.7	6.85	-272.6	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/18/2010	9.1	-	-	7.72	-211.7	6.79	-335.6	-	-	6.69	-336.7	-	-
6/21/2010	9.0	3.21	409.4	7.99	-242.7	6.96	-364.1	7.86	-303.4	6.78	-349.5	7.70	-142.3
6/30/2010	10.0	2.59	451.5	8.73	-216.2	8.73	-216.2	-	-	6.78	-337.9	7.96	-164.5
7/1/2010	-	2.82	422.4	-	-	-	-	-	-	-	-	7.94	-241.9
7/13/2010	10.0	2.62	479.5	7.52	-112.1	6.90	-279.5	8.02	-255.2	6.90	-294.0	7.76	-65.8
7/21/2010	10.0	2.93	475.1	7.90	-70.5	7.15	-301.5	7.80	-212.4	7.27	-315.3	8.09	-95.7
7/29/2010	10.0	2.90	465.3	7.73	-168.6	7.25	-318.1	7.08	-192.5	7.15	-318.5	7.06	-45.6
8/3/2010	9.0	2.94	458.6	7.69	-193.3	7.16	-311.4	7.16	-311.4	7.17	-324.5	7.39	-66.3
8/12/2010	9.0	2.85	476.3	7.98	-255.3	7.07	-299.3	7.50	-235.2	7.06	-307.0	7.55	-26.2
8/17/2010	9.5	2.64	470.9	8.09	-47.2	7.54	-306.0	8.47	-206.8	7.37	-320.0	7.86	-74.0
8/24/2010	9.2	3.04	250.0	7.81	-129.9	7.21	-151.9	7.20	-202.9	7.09	-147.9	7.81	2.9
9/2/2010	9.2	2.84	503.9	7.70	-208.4	--	--	8.15	-227.0	7.32	-267.2	7.97	-20.2
9/16/2010	8.0	3.21	455.8	8.40	-219.9	7.29	-209.3	8.66	-197.0	7.32	-279.7	7.76	-76.4
9/22/2010	8.0	3.06	476.5	8.50	-151.0	7.25	-276.9	8.30	-257.8	7.39	-279.9	7.9 ***	-112.0 ***
9/30/2010	7.6	3.16	503.3	8.49	-263.9	7.32	-265.4	8.53	-221.9	7.26	-267.8	8.6 ***	94.1 ***

Notes

- * Effluent readings collected from Pond 4 because water was not being discharged to the aeration channel.
 - ** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.
 - *** Effluent readings were collected from the centrifuge discharge point on these dates due to sludge dewatering. Water was not being discharged from Pond 4.
 - : not measured or not recorded or bioreactor operation did not currently include manhole on the specified date.
- Aspen Seep Flow measurements are field measurements completed with a graduated bucket and stop watch.
Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.
Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.
Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.

TABLE 4
HIGH DENSITY SLUDGE TREATMENT PLANT - SAMPLE RESULTS
SEPTEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Basis	September 8 2010 145HDSINF373 Influent mg/L	September 8 2010 145HDSEFF372 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	2.63	8.08	--	6.0-9.0 ²
Al	Dissolved	31	0.38	4	2
As	Dissolved	0.088	0.00093 J	0.34	0.15
Cd	Dissolved	0.00046 J	<0.00010	0.009	0.004
Ca	Dissolved	303	580	--	--
Cr	Dissolved	0.0094	<0.00090	0.97	0.31
Cu	Dissolved	0.030	0.0044	0.026	0.016
Hardness	Dissolved	1100	1800	--	--
Fe	Dissolved	164	0.178	2.0	1.0
Pb	Dissolved	0.00053 J	<0.00020	0.136	0.005
Mg	Dissolved	83	82	--	--
Ni	Dissolved	1.0	0.0250	0.84	0.094
Zn	Dissolved	0.24	0.041	0.21	0.21
Se	Total	0.0014 J	0.0010 J	NP	0.005
Acidity	Total	650	6.0	--	--
Alkalinity (Total)	Total	<2.00	27.0	--	--
Alkalinity (Bicarbonate)	Total	<2.40	32.9	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1,730	1,760	--	--

Notes

1. pH value was collected in field and is the average of 3 grab samples comprising the HDS Effluent sample or one grab sample for the HDS Influent sample. pH is in standard units.

2. Discharge criteria pH based on 24-hour (single day) average discharge.

< = Value is below the method detection limit, detection limit is listed.

J = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).

NP = Not Promulgated

TABLE 5
HIGH DENSITY SLUDGE TREATMENT PLANT - OPERATIONAL DATA SUMMARY
SEPTEMBER 2010 MONTHLY SUMMARY

Draft - Provisional Data

Time Period	Treated Water Discharged (gal)	Lime Consumed (kg)	Diesel Fuel Consumed (gal)	Flocculant Consumed (kg)	Sludge Wasted (gal)	Freshwater Consumed (gal)
June 1 - June 30, 2010	2,114,286	5,486	1,771	31	1,500	3,000
July 1 - July 31, 2010	1,683,936	4,873	1,702	14	4,000	1,939
August 1 - August 31, 2010	1,817,408	4,125	1,701	14	6,000	7,344
September 1 - September 30, 2010	1,407,398	2,377	1,709	13	1,800	2,820

TABLE 6
HIGH DENSITY SLUDGE TREATMENT PLANT
FRESH WATER SAMPLING RESULTS
SEPTEMBER 2010 MONTHLY SUMMARY

Draft - Provisional Data

Parameter	Type	Method	September 14 2010 147HDSFRESHWATER379 Fresh Water Tank Outlet mg/L
Alkalinity (Bicarbonate)	Total	SM2320B	190
Alkalinity (Carbonate)	Total	SM2320B	<2.0
Alkalinity (Hydroxide)	Total	SM2320B	<2.0
Ca	Total	EPA 200.7	45
Cl	Total	EPA 300.0	9.1
Cu	Total	EPA 200.7	<0.0030
Fe	Total	EPA 200.7	1.6
K	Total	EPA 200.7	3.3
Mg	Total	EPA 200.7	15
Mn	Total	EPA 200.7	0.029
Na	Total	EPA 200.7	25
Zn	Total	EPA 200.7	0.022
Hardness	Total	SM2340B/200.7	170
Nitrate	Total	EPA 300.0	0.39
pH (pH Units)	Total	SM4500-H,B	8.2
Specific Conductance (umhos/cm at 25 °C)	Total	SM2510B	460
Sulfate	Total	EPA 300.0	36
Surfactants (MBAS)	Total	SM5540-C	<0.050
Total Dissolved Solids	Total	SM2540C	180

Notes

< = Analyte NOT DETECTED at or above the method detection limit.

Atlantic Richfield Company

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November 10, 2010

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for October 2010

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of October 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

ACTIVITIES FOR OCTOBER

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of October. Routine O&M and influent, effluent, and the final round of enhanced sampling occurred on October 19, 2010. The currently available influent and effluent water quality data for the October 19, 2010 sampling events are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3. The currently available enhanced sampling event water quality data are presented in Table 4.
- Sludge dewatering operations were completed in October according to Amendment #1 to the 2010 Removal Action Work Plan (RAWP). Sampling of the centrifuge filter cake and influent sludge was conducted according to Amendment #1 to the 2010 RAWP; the available analytical results are presented in Table 5.
- On October 1, 2010, Atlantic Richfield submitted to EPA a Waste Material Off-Site Shipment Notification Letter for Aspen Bioreactor Treatment solids. Approximately 160 cubic yards of waste material were shipped off site on October 11 and 13, 2010
- On October 19, 2010, Atlantic Richfield submitted a letter to EPA summarizing the results of Phase I of the Aspen Seep Bioreactor Sludge Drying Bed Pilot Test. The Pilot Test was conducted in accordance with Amendment #2 – Pilot-Scale Sludge Drying Bed Test, Aspen Seep Bioreactor (dated September 16, 2009; approved by EPA on September 21, 2009) to Atlantic Richfield's 2009 Removal



Action Work Plan (RAWP) (dated March 1, 2009). The Pilot Test was operated from October 26, 2009 through July 20, 2010.

CUD and DS

- Operation of the HDS Treatment Plant and the associated capture of the CUD and DS continued during the month of October. Flow rates recorded for the Delta Seep, Channel Underdrain, and treated water discharge from the HDS Treatment Plant are included in Table 2. The HDS Treatment Plant influent and effluent were sampled for laboratory analytical parameters on October 7, 2010. The analytical results associated with the October 7, 2010 sampling event are presented in Table 6. A summary of the HDS Plant operational data is presented in Table 7; and effluent optimization sampling results are presented in Table 8. Results from sampling of the HDS Treatment Plant sludge are presented in Table 9.
- On September 20, 2010, Atlantic Richfield submitted a letter to EPA requesting approval of Fall 2010 Limited Access Season (LAS) Operations and the 2010 Year-End Decommissioning and Winterization Plan. On September 29, 2010, EPA provided verbal intent to approve the Fall 2010 LAS Operations. EPA provided written approval of the Fall 2010 LAS Operations on October 1, 2010.
- A temporary interruption of treated water discharge from the HDS Treatment Plant occurred from approximately 6:03 PM on October 12, 2010 until 8:49 AM on October 13, 2010. The interruption resulted from a discharge pH alarm condition triggered by an effluent pH reading of 7.8. Operators replaced the reactor tank pH probe and returned the system to normal operation. This interruption did not result in any discharge of untreated water to Leviathan Creek.
- On October 26, 2010, Atlantic Richfield submitted to EPA a Waste Material Off-Site Shipment Notification Letter for the HDS Treatment System solids. Approximately 34 cubic yards of HDS Treatment System solids were shipped off site on October 27, 2010.

Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- On September 13, 2010 Atlantic Richfield initiated road maintenance activities on Leviathan Mine Road near Highway 395 including cleaning out drainage ditches, unclogging existing culverts, crowning the roadway to improve surface drainage, spotting appropriate locations for drivable dips, and application of the dust palliative Envirotac II. This work was completed in October.
- On September 20, 2010 Atlantic Richfield submitted to the Forest Service a proposed supplemental maintenance plan for the California portion of Leviathan Mine Road. Comments on the supplemental maintenance plan were received from the Forest Service via email on September 22, 2010. A revised plan was submitted to the Forest Service on September 28, 2010. Approximately one-half of the proposed maintenance work was completed in October prior to work being suspended due to weather related conditions. The remaining work may be completed in November if weather conditions allow or delayed until next year.
- On October 14, 2010, Atlantic Richfield submitted to the Forest Service a Road Stability Monitoring Plan to evaluate the stability of an approximate 400 foot long stretch of Leviathan Mine Road (Forest Service [FS] Road 10052) north of the Leviathan Mine Site. The Forest Service provided verbal

comments to the plan, and a revised plan was submitted to the Forest Service on October 22, 2010. The Forest Service provided approval to proceed via email on October 22, 2010.

- On October 29, 2010, Atlantic Richfield provided an email to EPA with an update of Atlantic Richfield's anticipated Limited Access Season (LAS) operating and winterization schedule.
- On November 2, 2010, a conference call was conducted with EPA to provide a general progress update.

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct monitoring as outlined in the 2010 RAWP.
- Implement winter preparation activities, including receipt of deliveries of sodium hydroxide, ethanol, and propane.
- Install a year-round emergency shower system.
- Implement upgrades to the chemical feed systems including the following tasks: a) replace the existing sodium hydroxide and ethanol pumps with more reliable pumps; b) install tank level sensors in the sodium hydroxide and ethanol tanks; and c) upgrade the SCADA system programmable logic controller.

CUD and DS

- Seasonal decommissioning and winterization of the HDS Treatment System and CUD and DS collection and conveyance equipment will be completed in November, and Atlantic Richfield will demobilize from the site.

Site-wide

- A Technical Advisory Committee meeting is scheduled for December 2, 2010 in Carson City, Nevada. Atlantic Richfield will provide a summary of 2010 response actions at the meeting. The next EPA progress update conference call is scheduled for January 18, 2011.
- Monitoring monuments are anticipated to be installed on the Leviathan Mine Road according to the October 22, 2010 Road Stability Monitoring Plan.

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE McCARTHY FOR

Tony Brown
Project Manager

Attachments:

- Table 1 – Aspen Seep Bioreactor Monthly Influent and Effluent Sample Results
- Table 2 – Aspen Seep, CUD, DS and HDS Flow Summary
- Table 3 – Aspen Seep Bioreactor, Recent pH and ORP Field Measurements
- Table 4 – Aspen Seep Bioreactor Enhanced Sampling Results
- Table 5 – Aspen Seep Bioreactor Sludge Dewatering Analytical Results
- Table 6 – High Density Sludge Treatment Plant Sampling Results
- Table 7 – High Density Sludge Treatment Plant Operational Data - October Monthly Summary
- Table 8 – High Density Sludge Treatment Plant Effluent Optimization Sampling Results
- Table 9 – High Density Sludge Treatment Plant Sludge Analytical Results

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.
Adam Cohen, Esq., Davis Graham & Stubbs LLP
Dave McCarthy, Copper Environmental Consulting
Joe Niland, AMEC-Geomatrix Consultants, Inc.
Sandy Riese, EnSci, Inc.
Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR - SAMPLE RESULTS
OCTOBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Basis	September 22 2010 132ASPINF420 Influent mg/L	September 22 2010 132ASPEFF422 Centrifuge Filtrate ³ mg/L	September 30 2010 133ASPINF424 Influent mg/L	September 30 2010 133ASPEFF425 Centrifuge Filtrate ³ mg/L	October 19 2010 135ASPINF430 Influent mg/L	October 19 2010 135ASPEFF434 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	3.06	7.93	3.16	8.61	2.89	8.15	---	6.0 - 9.0 ²
Al	Dissolved	41	0.39	39	4.0	41	0.42	4	2
As	Dissolved	<0.00090	<0.00090	<0.00090	0.0021	<0.00090	0.0011	0.34	0.15
Cd	Dissolved	0.0020	<0.00010	0.0020	0.00029 J	0.0013	<0.00010	0.009	0.004
Ca	Dissolved	291	303	297	127	265	228	--	--
Cr	Dissolved	0.0035	<0.00090	0.0030	0.0013 J	0.0018 J	0.0039	0.97	0.31
Cu	Dissolved	0.67	0.00099 J	0.63	0.079	0.54	0.0057	0.026	0.016
Hardness	Dissolved	1100	1200	1100	910	950	930	--	--
Fe	Dissolved	118	0.652	104	9.39	103	0.972	2	1
Pb	Dissolved	<0.00020	<0.00020	<0.00020	0.00035 J	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	80	100	75	140	71	87	--	--
Ni	Dissolved	0.44	0.036	0.40	0.033	0.37	0.015	0.84	0.094
Zn	Dissolved	0.63	<0.0040	0.55	0.057	0.47	0.0079 J	0.21	0.21
Se	Total	0.0020 J	0.0016 J	0.0019 J	0.0029 J	0.0015 J	0.0011 J	NP	0.005
Acidity	Total	620	<2.0	660	<2.0	600	<2.0	--	--
Alkalinity (Total)	Total	<2.00	288	<2.00	492	<2.0	312	--	--
Alkalinity (Bicarbonate)	Total	<2.40	351	<2.40	600	<2.40	380	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	<1.20	<1.20	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1750	1770	1620	1070	1630	1150	--	--
Chloride	Total	3.1	29	4.4	210	3.7	29	--	--
TDS	Total	2520	2490	2650	2260	2720	2300	--	--
TSS	Total	14	29	7.0 J	210	15	120	--	--

Notes

- pH value was collected in field; pH is in standard units.
- Discharge criteria for average pH based on 24-hour (single day) average discharge.
- Effluent samples were collected from the centrifuge discharge point on these dates due to sludge dewatering. Water was not being discharged from Pond 4.

NA = Data not yet available from laboratory

NP = Not Promulgated

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit.

< = Analyte NOT DETECTED at or above the or method detection limit.

-- = Discharge criteria not established.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
ASPEN SEEP BIOREACTOR, CUD, DS and HIGH DENSITY SLUDGE TREATMENT PLANT - FLOW RATES
OCTOBER 2010 MONTHLY SUMMARY
 Draft - Provisional Data

Date	Aspen Seep Recorded Flow ¹	Date	Aspen Seep Recorded Flow ¹	Date	Aspen Seep Recorded Flow ¹	Date	Delta Seep Recorded Flow ²		Channel Underdrain Recorded Flow ²		Treated Water Discharge from HDS Treatment Plant Recorded Flow ²	
	gpm		gpm		gpm		gpm	Gallons	gpm	Gallons	gpm	Gallons
7/1/2010	9.74	8/1/2010	7.99	9/1/2010	8.35	10/1/2010	9.68	13,937	20.48	29,495	16.41	23,633
7/2/2010	9.78	8/2/2010	7.94	9/2/2010	8.26	10/2/2010	9.70	13,962	20.38	29,350	0.00	0
7/3/2010	9.78	8/3/2010	7.90	9/3/2010	8.17	10/3/2010	9.75	14,040	20.28	29,204	0.00	0
7/4/2010	9.65	8/4/2010	7.90	9/4/2010	8.17	10/4/2010	11.50	16,555	20.20	29,084	0.00	0
7/5/2010	9.69	8/5/2010	7.94	9/5/2010	8.26	10/5/2010	15.05	21,666	20.11	28,953	0.00	0
7/6/2010	9.74	8/6/2010	8.03	9/6/2010	8.21	10/6/2010	10.56	15,200	19.94	28,715	33.23	47,856
7/7/2010	9.74	8/7/2010	8.21	9/7/2010	8.39	10/7/2010	10.10	14,549	19.76	28,449	64.68	93,134
7/8/2010	9.34	8/8/2010	8.26	9/8/2010	8.62	10/8/2010	9.93	14,299	19.63	28,261	38.81	55,884
7/9/2010	8.66	8/9/2010	8.12	9/9/2010	8.62	10/9/2010	9.81	14,125	19.48	28,055	0.00	0
7/10/2010	8.48	8/10/2010	7.99	9/10/2010	8.84	10/10/2010	9.92	14,282	19.36	27,875	0.00	0
7/11/2010	8.44	8/11/2010	8.03	9/11/2010	8.93	10/11/2010	9.91	14,267	19.24	27,699	36.16	52,075
7/12/2010	8.30	8/12/2010	7.99	9/12/2010	9.11	10/12/2010	9.83	14,161	19.10	27,505	47.04	67,738
7/13/2010	8.30	8/13/2010	7.90	9/13/2010	8.84	10/13/2010	9.68	13,940	18.81	27,088	40.79	58,738
7/14/2010	8.30	8/14/2010	7.90	9/14/2010	8.30	10/14/2010	9.57	13,778	18.83	27,113	64.34	92,643
7/15/2010	8.30	8/15/2010	7.85	9/15/2010	8.26	10/15/2010	9.73	14,014	18.70	26,931	31.71	45,666
7/16/2010	8.44	8/16/2010	7.85	9/16/2010	8.26	10/16/2010	9.70	13,968	18.60	26,783	0.00	0
7/17/2010	8.21	8/17/2010	7.81	9/17/2010	8.26	10/17/2010	9.95	14,332	18.50	26,642	0.00	0
7/18/2010	8.08	8/18/2010	7.85	9/18/2010	8.26	10/18/2010	9.80	14,114	18.38	26,468	32.37	46,609
7/19/2010	8.12	8/19/2010	7.94	9/19/2010	8.39	10/19/2010	9.77	14,076	18.25	26,276	65.72	94,630
7/20/2010	8.12	8/20/2010	7.99	9/20/2010	8.62	10/20/2010	9.62	13,854	18.17	26,162	65.53	94,369
7/21/2010	8.12	8/21/2010	7.99	9/21/2010	8.71	10/21/2010	9.60	13,823	18.08	26,029	56.92	81,966
7/22/2010	8.12	8/22/2010	8.03	9/22/2010	8.62	10/22/2010	9.64	13,875	17.99	25,904	10.53	15,170
7/23/2010	8.12	8/23/2010	7.94	9/23/2010	8.12	10/23/2010	9.57	13,776	17.91	25,784	0.00	0
7/24/2010	8.21	8/24/2010	7.85	9/24/2010	8.35	10/24/2010	11.17	16,092	17.87	25,728	0.00	0
7/25/2010	61.49	8/25/2010	7.85	9/25/2010	8.44	10/25/2010	10.37	14,932	17.78	25,599	0.00	0
7/26/2010	8.44	8/26/2010	7.72	9/26/2010	8.44	10/26/2010	9.93	14,300	17.74	25,545	35.51	51,138
7/27/2010	8.17	8/27/2010	7.76	9/27/2010	8.39	10/27/2010	9.88	14,221	17.68	25,465	59.93	86,295
7/28/2010	7.99	8/28/2010	7.94	9/28/2010	8.71	10/28/2010	9.78	14,077	17.63	25,385	64.68	93,145
7/29/2010	7.99	8/29/2010	8.98	9/29/2010	8.75	10/29/2010	9.75	14,042	17.59	25,329	64.29	92,571
7/30/2010	7.99	8/30/2010	7.99	9/30/2010	8.57	10/30/2010	9.75	14,046	17.56	25,285	11.27	16,234
7/31/2010	7.99	8/31/2010	8.03	--	--	10/31/2010	9.59	13,813	17.51	25,214	0.00	0
Average Flow Rate or Total Discharged	10.32	--	7.98	--	8.47	--	10.08	450,116	18.76	837,374	27.09	1,209,494

Notes

1. Aspen Seep Bioreactor flow data is provided by USGS.
2. Flow rates for DS, CUD, and Treated Water Discharged from the HDS Treatment Plant are calculated from the volume measured by flow totalizers.

Abbreviations

CUD: Channel Underdrain DS: Delta Seep gpm: gallons per minute

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
OCTOBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Aspen Influent			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.0	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.2	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.5	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.8	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.9	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.0	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.0	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.5	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.8	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.0	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.0	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.5	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.3	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.0	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.0	3.10	455.4	7.40	-47.5	7.09	-251.2	7.70	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.5	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.3	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.0	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.8	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.3	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.8	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0
10/27/2008	5.8	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.5	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.3	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.3	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0
2/19/2009	5.3	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1
3/10/2009	5.0	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.0	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.5	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.5	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.5	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1
7/1/2009	6.0	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.8	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.0	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.5	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.1	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.3	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.0	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
OCTOBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Aspen Influent			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
10/15/2009	5.5	2.93	496.6	6.57	-121.4	7.63	-301.0	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.9	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143.0	7.24	-162.8	7.94	2.8
11/11/2009	5.0	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.0	2.90	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.8	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.7	2.94	484.0	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1
3/9/2010	4.8	2.74	474.7	8.27	-78.3	7.95	-204.2	8.74	-208.9	8.10	-220.8	7.75	-5.9
4/16/2010	12.0	2.85	479.5	5.14	135.1	5.61	-19.0	5.04	109.2	5.60	-29.6	6.15	35.9
5/17/2010	9.7	2.97	436.9	6.26	196.9	7.04	-283.9	7.79	-235.1	7.08	285.4	7.76	-73.8
5/24/2010	9.4	3.16	418.0	7.43	-156.1	7.00	-259.9	7.27	-171.4	6.89	-282.6	7.11	-78.6
5/27/2010	9.6	3.18	423.1	5.52	-225.1	7.58	-316.7	8.86	-318.2	6.74	-296.8	7.07	-98.7
6/1/2010	10.5	3.11	444.0	8.47	-32.2	7.72	-292.6	9.00	-	6.74	-300.9	7.01	-31.5
6/14/2010	10.0	2.99	427.7	7.40	-81.7	6.85	-272.5	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/15/2010	-	-	-	8.04	-221.6	6.89	-347.7	-	-	6.17	-355.9	-	-
6/16/2010	-	2.99	427.7	7.40	-81.7	6.85	-272.6	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/18/2010	9.1	-	-	7.72	-211.7	6.79	-335.6	-	-	6.69	-336.7	-	-
6/21/2010	9.0	3.21	409.4	7.99	-242.7	6.96	-364.1	7.86	-303.4	6.78	-349.5	7.70	-142.3
6/30/2010	10.0	2.59	451.5	8.73	-216.2	8.73	-216.2	-	-	6.78	-337.9	7.96	-164.5
7/1/2010	-	2.82	422.4	-	-	-	-	-	-	-	-	7.94	-241.9
7/13/2010	10.0	2.62	479.5	7.52	-112.1	6.90	-279.5	8.02	-255.2	6.90	-294.0	7.76	-65.8
7/21/2010	10.0	2.93	475.1	7.90	-70.5	7.15	-301.5	7.80	-212.4	7.27	-315.3	8.09	-95.7
7/29/2010	10.0	2.90	465.3	7.73	-168.6	7.25	-318.1	7.08	-192.5	7.15	-318.5	7.06	-45.6
8/3/2010	9.0	2.94	458.6	7.69	-193.3	7.16	-311.4	7.16	-311.4	7.17	-324.5	7.39	-66.3
8/12/2010	9.0	2.85	476.3	7.98	-255.3	7.07	-299.3	7.50	-235.2	7.06	-307.0	7.55	-26.2
8/17/2010	9.5	2.64	470.9	8.09	-47.2	7.54	-306.0	8.47	-206.8	7.37	-320.0	7.86	-74.0
8/24/2010	9.2	3.04	250.0	7.81	-129.9	7.21	-151.9	7.20	-202.9	7.09	-147.9	7.81	2.9
9/2/2010	9.2	2.84	503.9	7.70	-208.4	--	--	8.15	-227.0	7.32	-267.2	7.97	-20.2
9/16/2010	8.0	3.21	455.8	8.40	-219.9	7.29	-209.3	8.66	-197.0	7.32	-279.7	7.76	-76.4
9/22/2010	8.0	3.06	476.5	8.50	-151.0	7.25	-276.9	8.30	-257.8	7.39	-279.9	7.9 ***	-112.0 ***
9/30/2010	7.6	3.16	503.3	8.49	-263.9	7.32	-265.4	8.53	-221.9	7.26	-267.8	8.6 ***	94.1 ***
10/6/2010	9.0	3.28	479.3	7.83	-287.5	7.39	-305.8	8.25	-246.7	7.62	-305.1	8.2 *	-235.5 *
10/11/2010	8.0	3.20	479.3	7.52	-190.4	7.00	-284.4	8.28	-227.4	7.15	-290.4	7.85	26.4
10/19/2010	8.0	2.89	447.3	8.75	-157.3	7.43	-310.4	8.52	-203.0	7.22	-310.6	8.15	130.4
10/28/2010	8.0	2.95	579.0	7.23	-282.8	6.98	-368.9	8.50	-384.7	7.12	-402.6	7.73	-30.7
11/2/2010	8.0	2.69	366.7	7.89	-285.1	7.14	-385.2	8.46	-307.5	7.00	-385.7	7.62	-31.5

Notes

- * Effluent readings collected from Pond 4 because water was not being discharged to the aeration channel.
 - ** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.
 - *** Effluent readings were collected from the centrifuge discharge point on these dates due to sludge dewatering. Water was not being discharged from Pond 4.
 - : not measured, not recorded, or bioreactor operation did not have flow at given location on the specified date.
- Aspen Seep Flow measurements are field measurements completed with a graduated bucket and stop watch.
Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.
Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.
Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.

TABLE 4
ASPEN SEEP BIOREACTOR - ENHANCED SAMPLING RESULTS
OCTOBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Basis	Units	October 19	October 19	October 19	October 19	October 19
			2010 135ASPINF430 Influent mg/L	2010 135MH2ASP431 Manhole 2 mg/L	2010 135MH4ASP432 Manhole 4 mg/L	2010 135MH7ASP433 Manhole 7 mg/L	2010 135ASPEFF434 Effluent mg/L
Se	Total	mg/L	0.0015 J	--	--	--	0.0011 J
Al	Dissolved	mg/L	41	--	--	--	0.42
As	Dissolved	mg/L	<0.00090	--	--	--	0.0011
Cd	Dissolved	mg/L	0.0013	--	--	--	<0.00010
Ca	Dissolved	mg/L	265	--	--	--	228
Cr	Dissolved	mg/L	0.0018 J	--	--	--	0.0039
Cu	Dissolved	mg/L	0.54	--	--	--	0.0057
Hardness	Dissolved	mg/L	950	--	--	--	930
Fe	Dissolved	mg/L	103	--	--	--	0.972
P	Dissolved	mg/L	0.025 J	0.049	0.047	0.046	0.047
Mg	Dissolved	mg/L	71	--	--	--	87
Pb	Dissolved	mg/L	<0.00020	--	--	--	<0.00020
Ni	Dissolved	mg/L	0.37	--	--	--	0.015
Zn	Dissolved	mg/L	0.47	--	--	--	0.0079 J
Cl	Total	mg/L	3.7	--	--	--	29
TSS	Total	mg/L	15	--	--	--	120
TDS	Total	mg/L	2,720	--	--	--	2,300
Acidity	Total	mg/L	600	--	--	--	<2.0
Alkalinity (Total)	Total	mg/L	<2.00	296	364	432	312
Alkalinity (Bicarbonate)	Total	mg/L	<2.40	341	444	527	380
Alkalinity (Carbonate)	Total	mg/L	<1.20	9.59	<1.20	<1.20	<1.20
Alkalinity (Hydroxide)	Total	mg/L	<0.700	<0.700	<0.700	<0.700	<0.700
Total Kjeldahl Nitrogen	Total	mg/L	0.36 J	0.26 J	<0.15	<0.15	2.5
TDS	Total	mg/L	2720	--	--	--	2,300
TSS	Total	mg/L	15	--	--	--	120
Sulfate	Lab Filtered	mg/L	1,630	1,190	1,070	975	1,150
Sulfide	Dissolved	mg/L	--	0.14	29	45	--
Ammonia-N	Dissolved	mg/L	0.35 J	0.15 J	<0.10	<0.10	0.69
Ethanol	Total	mg/L	0.54	250	46.0	9.80	3.50
Dissolved Organic Carbon	Dissolved	mg/L	2.0	270	170	150	100
Nitrate/Nitrite-N	Dissolved	mg/L	<0.26	<0.26	<0.26	<0.26	<0.26
Nitrate-N	Dissolved	mg/L	<0.060	<0.060	<0.060	<0.060	<0.060
Nitrite-N	Dissolved	mg/L	<0.090	<0.090	<0.090	<0.090	<0.090
pH	Field	su	2.89	8.75	7.43	7.22	8.15
ORP	Field	mV	447.3	-157.3	-310.4	-310.6	130.4
Temperature	Field	C	6.88	7.05	5.29	5.68	6.59
Conductivity	Field	uS/cm	2602	2683	2697	2688	2718

Abbreviations

mg/L = milligrams per liter

-- = not measured or not recorded

su = standard units

mV = millivolts

C = Celsius

uS/cm = microSiemens per centimeter

TABLE 5
ASPEN SEEP BIOREACTOR - SLUDGE DEWATERING ANALYTICAL RESULTS
OCTOBER 2010 MONTHLY SUMMARY
 Draft - Provisional Data

Parameter	Method	Units	September 30 2010 133ASPSLG426 Sludge Disposal Bin	September 30 2010 133ASPSLG427 Sludge Disposal Bin	September 30 2010 133ASPSLG428 Sludge Disposal Bin	October 1 2010 134ASPSCG429 Centrifuge Influent Sludge
% Solids	EPA 160.2	%	14.5	17.1	17.2	4.1
Density	ASTM	g/cm ³	1.10	1.14	1.12	1.05
Moisture Content	SM 2540 G	%	85.5	82.9	82.8	--

Abbreviations

g/cm³ = grams per cubic centimeter

-- = not measured or not recorded

TABLE 6
HIGH DENSITY SLUDGE TREATMENT PLANT - SAMPLE RESULTS
OCTOBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Basis	October 7	October 7	Maximum	Average
		2010	2010	Discharge	Discharge
		148HDSINF381	148HDSEFF380	Criteria	Criteria
		Influent	Effluent		
		mg/L	mg/L	mg/L	mg/L
pH ¹	Field	2.24	8.37	--	6.0-9.0 ²
Al	Dissolved	21	0.39	4	2
As	Dissolved	0.073	<0.00090	0.34	0.15
Cd	Dissolved	0.00060 J	<0.00010	0.009	0.004
Ca	Dissolved	257	397	--	--
Cr	Dissolved	0.0088	<0.00090	0.97	0.31
Cu	Dissolved	0.024	0.0028	0.026	0.016
Hardness	Dissolved	930	1300	--	--
Fe	Dissolved	101	<0.0150	2.0	1.0
Pb	Dissolved	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	69	71	--	--
Ni	Dissolved	0.81	0.011	0.84	0.094
Zn	Dissolved	0.20	<0.0040	0.21	0.21
Se	Total	0.00072 J	0.00057 J	NP	0.005
Acidity	Total	510	<2.0	--	--
Alkalinity (Total)	Total	<2.00	22.0	--	--
Alkalinity (Bicarbonate)	Total	<2.40	26.8	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1,410	1,520	--	--
Chloride	Total	2.5	2.1	--	--
TDS	Total	2360	2140	--	--
TSS	Total	64	18	--	--

Notes

1. pH value was collected in field and is the average of 3 grab samples comprising the HDS Effluent sample or one grab sample for the HDS Influent sample. pH is in standard units.

2. Discharge criteria pH based on 24-hour (single day) average discharge.

< = Value is below the method detection limit, detection limit is listed.

J = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).

NP = Not Promulgated

Values in bold are concentrations greater than the maximum or average discharge criteria.

TABLE 7
HIGH DENSITY SLUDGE TREATMENT SYSTEM
OPERATIONAL DATA SUMMARY
OCTOBER 2010 MONTHLY SUMMARY

Draft - Provisional Data

Time Period	Treated Water Discharged (gal)	Lime Consumed (kg)	Diesel Fuel Consumed (gal)	Flocculant Consumed (kg)	Sludge Wasted (gal)	Freshwater Consumed (gal)
June 1 - June 30, 2010	2,114,286	5,486	1,771	31	1,500	3,000
July 1 - July 31, 2010	1,683,936	4,873	1,702	14	4,000	1,939
August 1 - August 31, 2010	1,817,408	4,125	1,701	14	6,000	7,344
September 1 - September 30, 2010	1,407,398	2,377	1,709	13	1,800	2,820
October 1 - October 31, 2010	1,209,494	1,593	2,662	20	5,900	2,585

TABLE 8
HIGH DENSITY SLUDGE TREATMENT PLANT
EFFLUENT OPTIMIZATION SAMPLING RESULTS
OCTOBER 2010 MONTHLY SUMMARY

Draft - Provisional Data

Date	SampleID	TSS (mg/l)
10/13/2010	149TSS10FAU384	5 J
10/14/2010	150TSS04FAU385	<1.0

Abbreviations

TSS = Total Suspended Solids

mg/l = milligrams per liter

TABLE 9
HIGH DENSITY SLUDGE TREATMENT PLANT - SLUDGE ANALYTICAL RESULTS
OCTOBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Analytical Results					Regulatory Threshold		
	Total Metals (mg/kg)	STLC DI-WET (mg/L)	TCLP (mg/L)	SPLP (mg/L)	STLC (mg/L)	TTLC ^C (Regulatory Limits for Total Metals) (mg/kg)	STLC ^C (Regulatory Limits) (mg/L)	TCLP (Regulatory Limits) (mg/L)
	Sample Date: 19 October 2010 Sample ID: 151HDSLUDGE386							
Aluminum	23,000	0.095	<1.0	<1.0	980	NA	NA	NA
Antimony	<51	<0.0020	<0.20	<0.20	0.25	500	15	NA
Arsenic	77	<0.0010	<0.20	<0.10	0.35	500	5.0	5.0
Barium	11	0.0056	0.20	0.27	<0.20	10,000	100	100
Beryllium	3.8	<0.00050	<0.080	<0.080	0.22	75	0.75	NA
Cadmium	<2.5	<0.0010	<0.10	<0.10	<0.10	100	1.0	1.0
Chromium	9.5	<0.0020	<0.10	<0.10	0.29	500 ^a	5 (560) ^b	5.0
Cobalt	380	0.0030	0.85	<0.20	20	8,000	80	NA
Copper	37	<0.0020	<0.20	<0.20	1.9	2,500	25	NA
Iron	91,000	0.054	<0.80	<0.80	2,400	NA	NA	NA
Lead	<10	<0.0010	<0.10	<0.10	<0.10	1,000	5.0	5.0
Mercury	<0.020	<0.00020	<0.0020	<0.0020	<0.0020	20	0.2	0.2
Molybdenum	<10	<0.0020	<0.40	<0.40	<0.40	3,500	350	NA
Nickel	840	0.0041	2.0	<0.20	48	2,000	20	NA
Selenium	<10	<0.0020	<0.10	<0.10	<0.20	100	1.0	1.0
Silver	<5.1	<0.0010	<0.20	<0.20	<0.20	500	5.0	5.0
Thallium	<51	0.0060	<0.10	<0.10	<0.20	700	7.0	NA
Vanadium	<5.1	<0.0010	<0.20	<0.20	<0.20	2,400	24	NA
Zinc	180	<0.020	<0.40	<0.40	2	5,000	250	NA
pH (standard units)	8.13					Corrosivity criteria for pH = ≤ 2.0 or ≥ 12.5 ^c		
Soil Moisture (% by weight)	61							

Notes

^a Concentration limit for total chromium and/or chromium (III) is 2,500 mg/L and limit for chromium (VI) is 500 mg/L.

^b The federal hazardous waste level for soluble chromium is 5mg/L. California has a Waste Extraction Test (WET) soluble level for chromium (III) (560 mg/L) and chromium (VI) (5 mg/L). To use the 560 mg/L regulatory threshold, it must be demonstrated first that the waste is not a Resource Conservation Recovery Act (RCRA) waste.

^c Title 22 California Code of Regulations, Section 66261.24 (a)(2): Samples were tested for waste extraction test, solubility, and total concentrations.

Abbreviations

"<" = Constituent not detected at or above the reporting

mg/L = milligrams per liter

mg/kg = milligrams per kilograms

TTLC = California Total Threshold Limit Concentration; based on wet weight concentration

NA = Not applicable

SPLP = Synthetic precipitation leaching procedure

STLC = Soluble threshold limit concentration

Atlantic Richfield Company

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December 10, 2010

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for November 2010

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of November 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

ACTIVITIES FOR NOVEMBER

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of November. Routine O&M, influent sampling, and effluent sampling occurred on November 2, 2010. The currently available influent and effluent water quality data for the November 2, 2010 sampling event are presented in Table 1. The currently available influent flow rate data from the USGS are presented in Table 2. Recent pH and ORP field data are summarized in Table 3.
- On November 29, 2010, an unplanned interruption in the operation of the ASB Treatment System occurred, resulting in the loss of power, and thus, the shutdown of the sodium hydroxide, ethanol, and recirculation pumps. Preliminary remote troubleshooting indicates that the potential cause of the interruption is within the instrumentation and control system. On-site troubleshooting occurred on December 7, 2010. Additional troubleshooting and repairs are scheduled to occur on December 11, 2010, weather permitting.
- System upgrades were completed in November, including the completion of chemical feed system upgrades and installation of a year-round emergency shower system.
- Preparation of the site for winter operations was completed in November, including receipt of deliveries of propane, sodium hydroxide, and ethanol.



CUD and DS

- Capture of the CUD and DS continued until November 2, 2010, at which time winterization of the capture and conveyance equipment commenced. The final day of HDS Treatment Plant operation was November 11, 2010, at which time plant winterization activities commenced. As of November 11, 2010, Pond 4 had been pumped down to the minimum feasible depth to provide for maximum storage capacity during the winter/spring seasons. Winterization of all components of the HDS Treatment Plant was completed on November 18, 2010.
- A summary of the average daily flow rate and total daily discharge from the HDS Treatment Plant is presented in Table 2. The HDS Treatment Plant influent and effluent were sampled for laboratory analytical parameters on November 1, 2010; the analytical results for these samples are presented in Table 4. A summary of the HDS Plant operational data is presented in Table 5, and results from sampling of the HDS Treatment Plant sludge are presented in Table 6.
- On November 16, 2010, Atlantic Richfield submitted to EPA a Waste Material Off-Site Shipment Notification Letter for treatment system solids resulting from the operation of the HDS Treatment Plant. Approximately 34 cubic yards of waste material were shipped off site on November 17, 2010.

Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- On September 20, 2010 Atlantic Richfield submitted to the Forest Service a proposed supplemental maintenance plan for the California portion of Leviathan Mine Road. Comments on the supplemental maintenance plan were received from the Forest Service via email on September 22, 2010. A revised plan was submitted to the Forest Service on September 28, 2010. The majority of the proposed maintenance work was completed in October and November prior to work being suspended due to weather related conditions. The remaining work will be completed in 2011 when weather conditions allow.
- On October 14, 2010, Atlantic Richfield submitted to the Forest Service a Road Stability Monitoring Plan to evaluate the stability of an approximate 400 foot long stretch of Leviathan Mine Road (Forest Service [FS] Road 10052) north of the Leviathan Mine Site. The Forest Service provided verbal comments to the plan, and a revised plan was submitted to the Forest Service on October 22, 2010. The Forest Service provided approval to proceed via email on October 22, 2010. Approximately six of ten monitoring points were installed in November prior to work being suspended due to weather related conditions. The remaining monitoring points will be installed and monitoring will be initiated in 2011 when weather conditions allow.
- On November 2, 2010, a conference call was conducted with EPA to provide a general progress update.
- On November 8, 2010, Atlantic Richfield submitted to EPA a Waste Material Off-Site Shipment Notification Letter for miscellaneous waste materials (waste) resulting from various site operations. Approximately 1.8 cubic yards of waste material were shipped off site on November 10, 2010.
- Atlantic Richfield provided assistance to National Renewable Energy Laboratory (NREL) personnel in getting meteorological sampling instrumentation installed at the Site.
- A Technical Advisory Committee (TAC) meeting was held on December 2, 2010 in Carson City, Nevada. Atlantic Richfield provided a summary of 2010 response actions at the meeting.

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct winter access monitoring and maintenance as outlined in the 2010 RAWP.
- Conduct on-site troubleshooting and repair of the November 29, 2010 interruption in Aspen Bioreactor operation.

CUD and DS

- Data from the 2010 HDS Treatment Plant operations will be compiled for inclusion in the 2010 Annual Report.

Site-wide

- Due to the Leviathan TAC meeting on December 2, 2010, the regularly scheduled EPA progress update conference call for December was cancelled. The next update is anticipated to be provided to EPA via conference call on January 18, 2011.
- Begin compiling information for the 2010 Annual Report (due April 10, 2011).
- Begin work on the 2011 Removal Action Work Plan (due March 1, 2011), which will describe activities to be performed at the Site during 2011.

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

ORIGINAL SIGNED BY DAVE McCARTHY FOR

Tony Brown
Project Manager

Attachments:

- Table 1 – Aspen Seep Bioreactor Monthly Influent and Effluent Sample Results
- Table 2 – Aspen Seep, CUD, DS and HDS Flow Summary
- Table 3 – Aspen Seep Bioreactor, Recent pH and ORP Field Measurements
- Table 4 – High Density Sludge Treatment Plant Sampling Results
- Table 5 – High Density Sludge Treatment Plant Operational Data - October Monthly Summary
- Table 6 – High Density Sludge Treatment Plant Sludge Analytical Results

Gary Riley and Kevin Mayer – USEPA Region 9

December 10, 2010

Page 4 of 4

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.
Adam Cohen, Esq., Davis Graham & Stubbs LLP
Dave McCarthy, Copper Environmental Consulting
Joe Niland, AMEC-Geomatrix Consultants, Inc.
Sandy Riese, EnSci, Inc.
Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR - SAMPLE RESULTS
NOVEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Basis	November 2 2010 136ASPINF435 Influent mg/L	November 2 2010 136ASPEFF437 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	2.69	7.62	---	6.0 - 9.0 ²
Al	Dissolved	41	0.066	4	2
As	Dissolved	<0.00090	<0.00090	0.34	0.15
Cd	Dissolved	0.0018	<0.00010	0.009	0.004
Ca	Dissolved	300	250	--	--
Cr	Dissolved	0.0035	<0.00090	0.97	0.31
Cu	Dissolved	0.64	0.0029	0.026	0.016
Hardness	Dissolved	1100	930	--	--
Fe	Dissolved	120	0.10	2	1
Pb	Dissolved	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	80	78	--	--
Ni	Dissolved	0.43	0.044	0.84	0.094
Zn	Dissolved	0.64	0.0052 J	0.21	0.21
Se	Total	0.00065 J	0.00066 J	NP	0.005
Acidity	Total	580	<2.0	--	--
Alkalinity (Total)	Total	<2.0	220	--	--
Alkalinity (Bicarbonate)	Total	<2.4	270	--	--
Alkalinity (Carbonate)	Total	<1.2	<1.2	--	--
Alkalinity (Hydroxide)	Total	<0.70	<0.70	--	--
Sulfate	Lab Filtered	1600	1200	--	--
Chloride	Total	2.6	10	--	--
TDS	Total	2400	2200	--	--
TSS	Total	13	5.0 J	--	--

Notes

1. pH value was collected in field; pH is in standard units.

2. Discharge criteria for average pH based on 24-hour (single day) average discharge.

NA = Data not yet available from laboratory

NP = Not Promulgated

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the

< = Analyte NOT DETECTED at or above the or method detection limit.

-- = Discharge criteria not established.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
ASPEN SEEP BIOREACTOR, CUD, DS and HDS - FLOW RATES¹
NOVEMBER 2010 MONTHLY SUMMARY

Draft - Provisional Data

Date	Delta Seep Recorded Flow ²		Channel Underdrain Recorded Flow ²		HDS Treatment Plant Discharge Recorded Flow ²	
	gpm	Gallons	gpm	Gallons	gpm	Gallons
11/1/2010	9.59	7,044	17.47	13,351	75.84	56,758
11/2/2010	NR ³	NR ³	NR ⁴	NR ⁴	74.09	106,634
11/3/2010	NR ³	NR ³	NR ⁴	NR ⁴	64.42	92,765
11/4/2010	NR ³	NR ³	NR ⁴	NR ⁴	75.54	49,624
11/5/2010	NR ³	NR ³	17.26	10,030	0.00	0
11/6/2010	NR ³	NR ³	17.20	24,761	0.00	0
11/7/2010	NR ³	NR ³	17.13	24,667	0.00	0
11/8/2010	NR ³	NR ³	17.05	24,547	0.00	0
11/9/2010	NR ³	NR ³	17.03	9,767	75.15	48,016
11/10/2010	NR ³	NR ³	NR ⁴	NR ⁴	73.25	97,864
11/11/2010	NR ³	NR ³	NR ⁴	NR ⁴	68.59	5,321
11/12/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/13/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/14/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/15/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/16/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/17/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/18/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/19/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/20/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/21/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/22/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/23/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/24/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/25/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/26/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/27/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/28/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/29/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
11/30/2010	NR ³	NR ³	NR ⁴	NR ⁴	0.00	0
Average Flow Rate or Total Discharged	9.59	7,044	17.19	107,123	72.41	456,982

Notes

1. Aspen Seep flow data is not available for the current reporting period.
2. Flow rates for DS, CUD, and Treated Water Discharged from the HDS Treatment Plant are calculated from the volume measured by flow totalizers.
3. DS capture was shutdown for the season on 11/1/2010. DS flow is not recorded by the HDS Treatment Plant after this date.
4. CUD capture was shutdown on 11/1/2010, restarted on 11/5/10, and shutdown for the season on 11/9/10. CUD flow is not recorded by the HDS Treatment Plant after this date.

Abbreviations

CUD: Channel Underdrain	DS: Delta Seep	gpm: gallons per minute
USGS: United States Geological Survey.		NA: not available
HDS: High Density Sludge		NR: not recorded by HDS Treatment Plant

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
NOVEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Aspen Influent ¹			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.0	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.2	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.5	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.8	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.9	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.0	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.0	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.5	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.8	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.0	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.0	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.5	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.3	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.0	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.0	3.10	455.4	7.40	-47.5	7.09	-251.2	7.70	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.5	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.3	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.0	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.8	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.3	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.8	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0
10/27/2008	5.8	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.5	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.3	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.3	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
NOVEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Aspen Influent ¹			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
2/19/2009	5.3	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1
3/10/2009	5.0	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.0	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.5	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.5	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.5	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1
7/1/2009	6.0	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.8	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.0	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.5	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.1	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.3	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.0	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.5	2.93	496.6	6.57	-121.4	7.63	-301.0	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.9	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143.0	7.24	-162.8	7.94	2.8
11/11/2009	5.0	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.0	2.90	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.8	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.7	2.94	484.0	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1
3/9/2010	4.8	2.74	474.7	8.27	-78.3	7.95	-204.2	8.74	-208.9	8.10	-220.8	7.75	-5.9
4/16/2010	12.0	2.85	479.5	5.14	135.1	5.61	-19.0	5.04	109.2	5.60	-29.6	6.15	35.9
5/17/2010	9.7	2.97	436.9	6.26	196.9	7.04	-283.9	7.79	-235.1	7.08	285.4	7.76	-73.8
5/24/2010	9.4	3.16	418.0	7.43	-156.1	7.00	-259.9	7.27	-171.4	6.89	-282.6	7.11	-78.6
5/27/2010	9.6	3.18	423.1	5.52	-225.1	7.58	-316.7	8.86	-318.2	6.74	-296.8	7.07	-98.7
6/1/2010	10.5	3.11	444.0	8.47	-32.2	7.72	-292.6	9.00	-	6.74	-300.9	7.01	-31.5
6/14/2010	10.0	2.99	427.7	7.40	-81.7	6.85	-272.5	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/15/2010	-	-	-	8.04	-221.6	6.89	-347.7	-	-	6.17	-355.9	-	-
6/16/2010	-	2.99	427.7	7.40	-81.7	6.85	-272.6	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/18/2010	9.1	-	-	7.72	-211.7	6.79	-335.6	-	-	6.69	-336.7	-	-
6/21/2010	9.0	3.21	409.4	7.99	-242.7	6.96	-364.1	7.86	-303.4	6.78	-349.5	7.70	-142.3
6/30/2010	10.0	2.59	451.5	8.73	-216.2	8.73	-216.2	-	-	6.78	-337.9	7.96	-164.5
7/1/2010	-	2.82	422.4	-	-	-	-	-	-	-	-	7.94	-241.9
7/13/2010	10.0	2.62	479.5	7.52	-112.1	6.90	-279.5	8.02	-255.2	6.90	-294.0	7.76	-65.8
7/21/2010	10.0	2.93	475.1	7.90	-70.5	7.15	-301.5	7.80	-212.4	7.27	-315.3	8.09	-95.7
7/29/2010	10.0	2.90	465.3	7.73	-168.6	7.25	-318.1	7.08	-192.5	7.15	-318.5	7.06	-45.6

TABLE 3
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
NOVEMBER 2010 MONTHLY SUMMARY
 Draft - Provisional Data

Date	Aspen Influent ¹			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
8/3/2010	9.0	2.94	458.6	7.69	-193.3	7.16	-311.4	7.16	-311.4	7.17	-324.5	7.39	-66.3
8/12/2010	9.0	2.85	476.3	7.98	-255.3	7.07	-299.3	7.50	-235.2	7.06	-307.0	7.55	-26.2
8/17/2010	9.5	2.64	470.9	8.09	-47.2	7.54	-306.0	8.47	-206.8	7.37	-320.0	7.86	-74.0
8/24/2010	9.2	3.04	250.0	7.81	-129.9	7.21	-151.9	7.20	-202.9	7.09	-147.9	7.81	2.9
9/2/2010	9.2	2.84	503.9	7.70	-208.4	--	--	8.15	-227.0	7.32	-267.2	7.97	-20.2
9/16/2010	8.0	3.21	455.8	8.40	-219.9	7.29	-209.3	8.66	-197.0	7.32	-279.7	7.76	-76.4
9/22/2010	8.0	3.06	476.5	8.50	-151.0	7.25	-276.9	8.30	-257.8	7.39	-279.9	7.9 ***	-112.0 ***
9/30/2010	7.6	3.16	503.3	8.49	-263.9	7.32	-265.4	8.53	-221.9	7.26	-267.8	8.6 ***	94.1 ***
10/6/2010	9.0	3.28	479.3	7.83	-287.5	7.39	-305.8	8.25	-246.7	7.62	-305.1	8.2 *	-235.5 *
10/11/2010	8.0	3.20	479.3	7.52	-190.4	7.00	-284.4	8.28	-227.4	7.15	-290.4	7.85	26.4
10/19/2010	8.0	2.89	447.3	8.75	-157.3	7.43	-310.4	8.52	-203.0	7.22	-310.6	8.15	130.4
10/28/2010	8.0	2.95	579.0	7.23	-282.8	6.98	-368.9	8.50	-384.7	7.12	-402.6	7.73	-30.7
11/2/2010	8.0	2.69	366.7	7.89	-285.1	7.14	-385.2	8.46	-307.5	7.00	-385.7	7.62	-31.5
11/15/2010	8.5	2.94	361.7	7.79	-273.2	7.08	-381.9	8.04	-269.3	6.89	-384.5	7.64	-2.2

Notes

1. Aspen Seep Influent Flow measurements are field measurements completed with a graduated bucket and stop watch.

** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.

*** Effluent readings were collected from the centrifuge discharge point on these dates due to sludge dewatering. Water was not being discharged from Pond 4.

- : not measured, not recorded, or bioreactor operation did not have flow at given location on the specified date.

Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.

Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.

Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.

TABLE 4
HIGH DENSITY SLUDGE TREATMENT PLANT - SAMPLE RESULTS
NOVEMBER 2010 MONTHLY SUMMARY

Draft - Provisional Data

Parameter	Basis	November 1 2010 153HDSINF396 Influent mg/L	November 1 2010 153HDSEFF395 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	2.46	8.12	--	6.0-9.0 ²
Al	Dissolved	21	0.29	4	2
As	Dissolved	0.048	<0.00090	0.34	0.15
Cd	Dissolved	0.00063 J	<0.00010	0.009	0.004
Ca	Dissolved	304	460	--	--
Cr	Dissolved	0.0078	<0.00090	0.97	0.31
Cu	Dissolved	0.026	0.0036	0.026	0.016
Hardness	Dissolved	1100	1500	--	--
Fe	Dissolved	113	0.156	2.0	1.0
Pb	Dissolved	<0.00020	<0.00020	0.136	0.005
Mg	Dissolved	81	83	--	--
Ni	Dissolved	0.89	0.036	0.84	0.094
Zn	Dissolved	0.21	<0.0040	0.21	0.21
Se	Total	0.00075 J	0.00053 J	NP	0.005
Acidity	Total	460	2.0	--	--
Alkalinity (Total)	Total	<2.00	21.0	--	--
Alkalinity (Bicarbonate)	Total	<2.40	25.6	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1550	1450	--	--
Chloride	Total	2.8	4.7	--	--
TDS	Total	2440	2280	--	--
TSS	Total	53	36	--	--

Notes

1. pH value was collected in field and is the average of 3 grab samples comprising the HDS Effluent sample or

2. Discharge criteria pH based on 24-hour (single day) average discharge.

< = Value is below the method detection limit, detection limit is listed.

J = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to

NP = Not Promulgated

TABLE 5
HIGH DENSITY SLUDGE TREATMENT SYSTEM
OPERATIONAL DATA SUMMARY
NOVEMBER 2010 MONTHLY SUMMARY

Draft - Provisional Data

Time Period	Treated Water Discharged (gal)	Lime Consumed (kg)	Diesel Fuel Consumed (gal)	Flocculant Consumed (kg)	Sludge Wasted (gal)	Freshwater Consumed (gal)
June 1 - June 30, 2010	2,114,286	5,486	1,771	31	1,500	3,000
July 1 - July 31, 2010	1,683,936	4,873	1,702	14	4,000	1,939
August 1 - August 31, 2010	1,817,408	4,125	1,701	14	6,000	7,344
September 1 - September 30, 2010	1,407,398	2,377	1,709	13	1,800	2,820
October 1 - October 31, 2010	1,209,494	1,593	2,662	20	5,900	2,585
November 1 - November 30, 2010	456,982	600	1,458	7	6,600	10,873

TABLE 6
HIGH DENSITY SLUDGE TREATMENT PLANT - SLUDGE ANALYTICAL RESULTS
NOVEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Analytical Results ^a									TTLIC Regulatory Limits for Total Metals (mg/kg)	STLC Regulatory Limits (mg/L)
	Sample Date: 26 Oct 2010 Sample ID: 152CSLUDGE387	Sample Date: 26 Oct 2010 Sample ID: 152PH9SLUDGE388	Sample Date: 26 Oct 2010 Sample ID: 152PH10SLUDGE389	Sample Date: 26 Oct 2010 Sample ID: 152PH11SLUDGE390	Sample Date: 26 Oct 2010 Sample ID: 152PH12SLUDGE391	Sample Date: 26 Oct 2010 Sample ID: 152TMT10SLUDGE392	Sample Date: 26 Oct 2010 Sample ID: 152TMT13SLUDGE393	Sample Date: 26 Oct 2010 Sample ID: 152TMT16SLUDGE394	Sample Date: 26 Oct 2010 Sample ID: 152TMT16SLUDGE394		
	Total Metals (mg/kg)	STLC (mg/L)	STLC (mg/L)	STLC (mg/L)	STLC (mg/L)	STLC (mg/L)	STLC (mg/L)	STLC (mg/L)	STLC (mg/L)		
Aluminum	19,000	970	1,000	970	950	800	950	1,000	980	NA	NA
Antimony	<98	0.27	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500	15
Arsenic	65	0.48	0.30	0.35	0.32	0.27	0.35	0.36	0.39	500	5.0
Barium	10	0.70	0.68	0.59	0.55	0.49	0.77	0.53	0.56	10,000	100
Beryllium	<4.9	0.23	0.24	0.23	0.22	0.18	0.23	0.24	0.23	75	0.75
Cadmium	<4.9	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	100	1.0
Chromium	<9.8	0.30	0.30	0.28	0.28	0.25	0.30	0.30	0.29	500 ^a	5 (560) ^b
Cobalt	350	21	22	21	19	17	20	20	19	8,000	80
Copper	30	1.8	1.9	1.8	1.7	1.4	0.54	0.27	0.25	2,500	25
Iron	89,000	2,600	2,400	2,400	2,100	2,200	2,500	2,400	2,500	NA	NA
Lead	<20	<0.10	0.12	0.13	0.13	<0.10	0.11	0.12	0.13	1,000	5.0
Mercury	<0.020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	20	0.2
Molybdenum	<20	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	3,500	350
Nickel	790	50	52	51	48	39	50	53	50	2,000	20
Selenium	<20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	100	1.0
Silver	<9.8	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500	5.0
Thallium	<98	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	700	7.0
Vanadium	<9.8	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2,400	24
Zinc	160	3.3	3.0	2.7	2.1	3.0	3.4	2.9	3.4	5,000	250
% Solids	34		37	34	37	26	34	36	35	--	--
pH	8.57		9.0	10.0	11.0	11.95	8.92	9.05	9.07	Corrosivity criteria for pH = ≤ 2.0 or ≥ 12.5 ^c	

Notes

^a Concentration limit for total chromium and/or chromium (III) is 2,500 mg/L and limit for chromium (VI) is 500 mg/L.

^b The federal hazardous waste level for soluble chromium is 5mg/L. California has a Waste Extraction Test (WET) soluble level for chromium (III) (560 mg/L) and chromium (VI) (5 mg/L). To use the 560 mg/L regulatory threshold, it must be demonstrated first that the waste is not a Resource Conservation Recovery Act (RCRA) waste.

^c Title 22 California Code of Regulations, Section 66261.24 (a)(2): Samples were tested for waste extraction test, solubility, and total concentrations. If the results of the STLC or TTLIC equal or exceed their respective regulatory thresholds, the waste is a hazardous waste.

Abbreviations

STLC = Soluble threshold limit concentration

mg/kg = milligrams per kilograms

"<" = Constituent not detected at or above the reporting limit or the method

TTLIC = California Total Threshold Limit Concentration; based on wet weight mg/L = milligrams per liter

-- = not applicable

Atlantic Richfield Company

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January 10, 2011

Mr. Gary Riley
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Kevin Mayer
US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Leviathan Monthly Report for December 2010 and Quarterly RI/FS Progress Report

Dear Mr. Riley and Mr. Mayer:

The following text describes activities conducted during the month of December 2010 at the Leviathan Mine Site and activities anticipated to occur during the upcoming month. These activities are organized by work area [Aspen Seep, Channel Underdrain (CUD) and Delta Seep (DS)], and site-wide tasks. This progress report is being submitted in accordance with Paragraph 62 of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) (effective January 21, 2009).

Atlantic Richfield is also submitting this letter in satisfaction of the quarterly progress reporting requirement set forth in Paragraph 63 of the Administrative Order for Remedial Investigation and Feasibility Study (U.S. EPA Region IX, CERCLA Docket No. 2008-18, June 23, 2008) (UAO). The quarterly summary of RI/FS activities is provided at the end of this letter.

ACTIVITIES FOR DECEMBER

Aspen Seep

- Operated the Aspen Seep Bioreactor (ASB) in recirculation mode during the month of December. Routine O&M, influent sampling, and effluent sampling occurred on December 7, 2010. The currently available influent and effluent water quality data for the December 7, 2010 sampling event are presented in Table 1. Recent pH and ORP field data are summarized in Table 2. We have not received any new influent flow rate data from the USGS since September 2010. Any new flow data received will be included in subsequent monthly reports.
- On November 29, 2010, an unplanned interruption in the operation of the ASB Treatment System occurred, resulting in the loss of power, and thus, the shutdown of the sodium hydroxide, ethanol, and recirculation pumps. Preliminary remote troubleshooting indicated that the cause of the interruption was within the instrumentation and control system. On-site troubleshooting occurred on December 7, 2010. Additional troubleshooting and repairs to the fire alarm control panel and the master inverter occurred on December 11, 2010, at which time the system was returned to normal operation. Information was provided to EPA concerning this interruption and repair by either verbal or written communications on December 2, December 6, December 9, and December 13, 2010.



CUD and DS

- The HDS Treatment Plant and CUD and DS capture equipment remained winterized during the month of December.

Site-wide

- Work continued on updating the Leviathan Mine Project Database with data from monitoring performed by Atlantic Richfield and various agencies.
- A Technical Advisory Committee (TAC) meeting was held on December 2, 2010 in Carson City, Nevada. Atlantic Richfield provided a summary of 2010 response actions at the meeting.
- Given the Leviathan Mine Site TAC Meeting, held on December 2, 2010, the regularly scheduled EPA progress update conference call for December was cancelled.
- Began compiling information for the 2010 Annual Report (due April 10, 2011).
- Began work on the 2011 Removal Action Work Plan (RAWP) (due March 1, 2011), which will describe activities to be performed by Atlantic Richfield at the Site during 2011.

ACTIVITIES FOR UPCOMING MONTH

Aspen Seep

- Continue operation of the Bioreactor in recirculation mode and conduct winter access monitoring and maintenance as outlined in the 2010 RAWP.

CUD and DS

- Data from the 2010 HDS Treatment Plant operations will continue to be compiled for inclusion in the 2010 Annual Report.

Site-wide

- Continue to provide project progress updates to EPA via conference call. The next conference call is currently scheduled for January 18, 2011.
- Continue compiling information for the 2010 Annual Report.
- Continue working on the 2011 Removal Action Work Plan.

* * * *

Quarterly RI/FS Progress Report

As required by Paragraph 63 of the UAO, the following Quarterly Progress Report for Remedial Investigation and Feasibility Study (RI/FS) activities describes: (a) the actions taken to comply with the

UAO during the prior quarter, (b) the work planned for the next quarter, and (c) any problems encountered or anticipated including any actual or anticipated delays in schedules.

Actions Taken to Comply with the UAO

- Atlantic Richfield submitted the Quarterly Progress Report for the third quarter on October 10, 2010.
- On November 1, 2010, Atlantic Richfield submitted additional information in response to EPA comments on the On-Property Focused Remedial Investigation (FRI) Work Plan.
- Atlantic Richfield conducted additional geologic mapping under the Mapping FRI Work Plan in November 2010.
- Atlantic Richfield conducted field reconnaissance of potential surface water and sediment reference locations in November 2010.
- On November 17 and 18, 2010, Atlantic Richfield attended EPA's Leviathan Mine site Washoe Tribe community meetings.
- On December 2 2010, Atlantic Richfield participated in the annual TAC meeting in Carson City Nevada.
- Atlantic Richfield submitted the Well FRI Report to EPA in December 2010.
- On December 9, 2010 Atlantic Richfield received approval with comments to the On-Property FRI Work Plan submitted to EPA on August 11, 2010.
- On December 15, 2010 Atlantic Richfield submitted the revised Human Health Risk Assessment Work Plan.

Work Planned for the Next Quarter

- Atlantic Richfield plans on receiving comments to the Human Health Risk Assessment Work Plan in the first quarter of 2011.
- Atlantic Richfield plans on conducting a Technical Work Group conference call to discuss the scope of the Human Health Risk Assessment Work Plan in January 2011.
- Atlantic Richfield will continue to prepare the draft Ecological Risk Assessment Work Plan in the first quarter of 2011.
- Atlantic Richfield plans on submitting the results of the initial reference FRI study activities in the first quarter of 2011.
- Atlantic Richfield plans on submitting the Mapping FRI Report in the first quarter of 2011.
- Atlantic Richfield plans on submitting a response to EPA and RWQCB comments on the On-Property FRI Work Plan in the first quarter of 2011.
- Atlantic Richfield will be conducting pre-field planning activities for implementation of the On-Property FRI in the first quarter of 2011.

* * * *

If you have any questions or comments, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Gary Riley and Kevin Mayer – USEPA Region 9
January 10, 2011
Page 4 of 4

Sincerely,

ORIGINAL SIGNED BY DAVE McCARTHY ON BEHALF OF

Tony Brown
Project Manager

Attachments:

Table 1 – Aspen Seep Bioreactor Monthly Influent and Effluent Sample Results
Table 2 – Aspen Seep Bioreactor, Recent pH and ORP Field Measurements

cc: Chuck Curtis, Lahontan Regional Water Quality Control Board
Ronald Halsey, Atlantic Richfield Company
Nathan Block, Esq., BP America Inc.
Adam Cohen, Esq., Davis Graham & Stubbs LLP
Dave McCarthy, Copper Environmental Consulting
Joe Niland, AMEC-Geomatrix Consultants, Inc.
Sandy Riese, EnSci, Inc.
Randy Miller, Broadbent & Associates, Inc.

TABLE 1
ASPEN SEEP BIOREACTOR - SAMPLE RESULTS
DECEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Parameter	Basis	December 7 2010 137ASPINF440 Influent mg/L	December 7 2010 137ASPEFF439 Effluent mg/L	Maximum Discharge Criteria mg/L	Average Discharge Criteria mg/L
pH ¹	Field	3.01	6.41	---	6.0 - 9.0 ²
Al	Dissolved	42.0	0.607	4	2
As	Dissolved	<0.000900	<0.000900	0.34	0.15
Cd	Dissolved	0.00128	<0.000100	0.009	0.004
Ca	Dissolved	276	269	--	--
Cr	Dissolved	0.00272	<0.000900	0.97	0.31
Cu	Dissolved	0.530	0.00234	0.026	0.016
Hardness	Dissolved	981	958	--	--
Fe	Dissolved	114	22.7	2	1
Pb	Dissolved	<0.000200	<0.000200	0.136	0.005
Mg	Dissolved	70.5	69.6	--	--
Ni	Dissolved	0.400	0.155	0.84	0.094
Zn	Dissolved	0.499	0.0185 J	0.21	0.21
Se	Total	0.00232	0.000984 J	NP	0.005
Acidity	Total	520	32.0	--	--
Alkalinity (Total)	Total	<2.00	84.0	--	--
Alkalinity (Bicarbonate)	Total	<2.40	102	--	--
Alkalinity (Carbonate)	Total	<1.20	<1.20	--	--
Alkalinity (Hydroxide)	Total	<0.700	<0.700	--	--
Sulfate	Lab Filtered	1590	1290	--	--
Chloride	Total	2.25	3.52	--	--
TDS	Total	2440	2110	--	--
TSS	Total	27.0	16.0	--	--

Notes

1. pH value was collected in field; pH is in standard units.

2. Discharge criteria for average pH based on 24-hour (single day) average discharge.

NA = Data not yet available from laboratory

NP = Not Promulgated

J = Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit.

< = Analyte NOT DETECTED at or above the or method detection limit.

-- = Discharge criteria not established.

Values in bold are effluent concentrations greater than the maximum or average discharge criteria.

TABLE 2
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
DECEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Aspen Influent ¹			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
9/21/2007	6.0	2.91	428.9	7.34	-268.4	7.13	-280.3	9.56	-285.8	7.13	-265.3	8.42	2.6
9/26/2007	6.2	2.89	496.7	7.80	-192.1	7.36	-223.0	9.64	-195.4	7.34	-232.7	8.34	50.3
10/3/2007	5.5	2.85	484.1	8.07	-127.7	8.50	-129.6	11.25	-136.5	7.64	-164.0	8.22	-5.2
10/10/2007	5.8	2.80	498.0	5.50	55.9	5.64	-70.5	10.00	-190.0	6.20	-171.6	7.78*	-268*
10/18/2007	5.9	2.83	482.4	5.00	26.8	5.68	-46.2	11.38	-112.0	6.23	-139.0	8.69*	135*
10/31/2007	9.0	2.88	402.7	4.26	319.3	6.85	-156.7	9.80	-170.0	6.95	-212.2	7.66	-94.3
11/8/2007	6.0	2.88	418.0	7.55	-128.3	7.01	-116.7	8.23	-133.9	6.86	-125.8	7.51	-50.6
11/13/2007	-	2.86	484.5	7.06	-2.3	6.84	-65.3	7.86	-42.6	6.79	-78.1	7.58	4.2
11/27/2007	5.5	2.86	479.4	6.99	-38.5	6.97	-205.0	8.46	-183.9	6.91	-156.8	7.25	-1.7
12/12/2007	-	3.01	482.2	7.20	-25.3	7.20	-115.2	7.64	-107.7	7.04	-129.7	6.90	-31.9
1/15/2008	4.8	2.98	483.3	6.76	5.9	6.73	-85.5	7.89	-94.3	6.67	-137.4	6.71	-33.0
2/7/2008**	-	-	-	-	-	-	-	-	-	-	-	5.77**	20.2**
2/12/2008	7.0	2.76	487.4	6.67	44.6	-	-	7.39	-45.6	6.42	-88.0	6.70	-15.3
3/18/2008	6.0	2.88	375.1	7.85	3.6	-	-	8.80	-189.2	7.23	-211.3	7.05	-95.3
4/10/2008	7.5	2.90	397.7	6.74	-80.0	6.70	-163.4	7.50	-142.6	6.57	-165.3	7.39	-24.5
5/15/2008	7.3	2.97	442.2	6.24	21.2	6.55	-265.4	6.55	-233.7	5.60	-183.7	7.29	-143.3
5/27/2008	7.0	3.00	464.1	7.11	-16.3	6.85	-242.2	6.98	-191.1	6.80	-235.2	7.26	-19.5
6/9/2008	7.0	3.10	455.4	7.40	-47.5	7.09	-251.2	7.70	-178.8	6.97	-219.7	7.19	-61.5
6/17/2008	7.5	2.91	443.9	7.42	-22.7	6.90	-283.0	7.29	-131.0	6.88	-244.3	7.30	-82.5
7/10/2008	7.3	2.98	470.9	7.32	-34.1	6.90	-238.4	7.05	-172.6	6.90	-215.0	7.85	-113.5
7/22/2008	7.0	2.99	455.5	6.94	-272.5	6.97	-267.4	7.07	-190.6	7.01	-248.9	7.35	-89.1
8/4/2008	6.8	2.89	450.7	7.60	-94.4	6.94	-266.0	6.19	-173.1	7.02	-251.2	-	-
8/5/2008	-	3.05	445.3	-	-	-	-	-	-	-	-	7.29	-70.0
8/18/2008	7.3	3.93	478.9	7.46	-166.7	7.08	-291.9	7.40	-202.6	7.07	-268.8	7.40	-52.4
8/22/2008	-	2.89	473.7	7.97	-212.9	7.08	-301.8	7.74	-224.0	7.03	-275.9	7.67	-27.8
8/25/2008	-	2.93	470.5	7.77	-287.7	7.18	-286.1	6.89	-205.6	7.12	-273.8	8.02	-108.4
8/26/2008	-	2.91	468.8	7.95	-255.4	7.09	-305.4	7.75	-281.2	7.14	-273.1	7.77	-41.4
9/24/2008	-	3.03	423.2	7.18	-107.8	6.99	-255.4	7.11	-205.7	6.89	-245.2	7.70	-87.7
9/30/2008	-	3.02	434.3	7.77	-151.9	6.89	-267.5	-	-	6.92	-269.9	8.10	-94.0
10/13/2008	5.8	3.34	433.1	7.17	-98.7	6.94	-218.3	6.80	-157.2	7.01	-206.1	8.32	-101.0
10/27/2008	5.8	3.21	247.8	7.34	-162.5	6.96	-175.3	7.20	-152.3	6.98	-126.8	7.88	273.7
11/19/2008	5.5	2.83	453.7	7.20	-104.5	6.77	-204.7	7.12	-82.2	6.71	-154.7	7.74	-35.1
12/3/2008	5.3	3.56	453.0	7.23	-45.0	6.86	-141.3	7.06	-100.1	6.84	-135.6	7.65	-47.5
1/9/2009	-	3.15	458.3	-	-	-	-	-	-	-	-	6.95	-43.0
1/12/2009	5.3	2.94	466.3	6.36	-82.8	6.38	-245.1	-	-	6.82	-259.0	7.11	-74.0
2/19/2009	5.3	2.78	480.1	6.60	-3.2	6.74	-145.1	7.26	-117.6	6.25	-162.3	6.68	-18.1

TABLE 2
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
DECEMBER 2010 MONTHLY SUMMARY
Draft - Provisional Data

Date	Aspen Influent ¹			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
3/10/2009	5.0	2.88	481.2	-	-	-	-	-	-	-	-	7.36	34.3
4/13/2009	7.0	2.78	532.7	7.45	-9.9	7.04	-185.5	7.50	-65.8	6.98	-175.4	7.77	-32.2
5/6/2009	5.5	2.89	444.4	-	-	6.47	-221.3	-	-	6.56	-206.5	7.62	-86.6
6/3/2009	6.5	2.91	445.9	6.98	-145.1	6.62	-260.8	7.07	-192.8	6.65	-260.4	7.55	-15.4
6/16/2009	6.5	2.98	388.0	7.09	-186.6	6.79	-319.3	7.16	-233.2	6.80	-298.2	7.70	-158.1
7/1/2009	6.0	2.95	376.5	7.43	376.5	6.93	-366.2	7.42	-310.8	6.97	-350.5	7.89	-189.6
7/14/2009	5.8	2.97	394.4	-	-	6.85	-338.8	-	-	6.98	-331.9	7.90	-146.2
7/29/2009	6.0	2.78	404.5	7.24	-175.5	7.39	-427.7	8.10	-260.2	7.29	-403.7	8.05	-135.6
8/5/2009	5.5	2.89	433.8	-	-	-	-	8.73	-120.7	-	-	8.17	-146.0
8/19/2009	5.1	2.97	425.7	-	-	-	-	8.25	-37.6	-	-	7.54	47.0
9/17/2009	5.3	2.38	490.6	7.27	-91.3	6.81	-180.3	7.75	-120.2	6.85	-182.3	6.95	-24.7
9/30/2009	5.0	2.96	503.7	8.03	-18.9	8.99	-253.1	7.75	-217.2	7.03	-276.6	7.98	-17.0
10/15/2009	5.5	2.93	496.6	6.57	-121.4	7.63	-301.0	8.33	-148.5	7.71	-314.5	7.85	-41.2
10/28/2009	4.9	2.96	487.6	8.79	-69.9	7.28	-216.4	9.08	-143.0	7.24	-162.8	7.94	2.8
11/11/2009	5.0	2.91	420.8	8.34	-15.3	7.49	-243.7	8.42	-163.9	7.51	-199.3	7.74	60.6
12/17/2009	5.0	2.90	416.5	4.65	100.2	5.00	15.3	-	-	5.12	-1.8	5.91	-26.4
1/14/2010	4.8	2.85	417.7	6.96	-89.0	6.82	-186.4	-	-	6.84	-206.1	6.45	-67.4
2/2/2010	4.7	2.94	484.0	7.58	-46.7	6.85	-129.6	-	-	6.67	-131.1	6.95	-48.1
3/9/2010	4.8	2.74	474.7	8.27	-78.3	7.95	-204.2	8.74	-208.9	8.10	-220.8	7.75	-5.9
4/16/2010	12.0	2.85	479.5	5.14	135.1	5.61	-19.0	5.04	109.2	5.60	-29.6	6.15	35.9
5/17/2010	9.7	2.97	436.9	6.26	196.9	7.04	-283.9	7.79	-235.1	7.08	285.4	7.76	-73.8
5/24/2010	9.4	3.16	418.0	7.43	-156.1	7.00	-259.9	7.27	-171.4	6.89	-282.6	7.11	-78.6
5/27/2010	9.6	3.18	423.1	5.52	-225.1	7.58	-316.7	8.86	-318.2	6.74	-296.8	7.07	-98.7
6/1/2010	10.5	3.11	444.0	8.47	-32.2	7.72	-292.6	9.00	-	6.74	-300.9	7.01	-31.5
6/14/2010	10.0	2.99	427.7	7.40	-81.7	6.85	-272.5	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/15/2010	-	-	-	8.04	-221.6	6.89	-347.7	-	-	6.17	-355.9	-	-
6/16/2010	-	2.99	427.7	7.40	-81.7	6.85	-272.6	8.22	-220.2	6.61	-181.6	7.48	-93.7
6/18/2010	9.1	-	-	7.72	-211.7	6.79	-335.6	-	-	6.69	-336.7	-	-
6/21/2010	9.0	3.21	409.4	7.99	-242.7	6.96	-364.1	7.86	-303.4	6.78	-349.5	7.70	-142.3
6/30/2010	10.0	2.59	451.5	8.73	-216.2	8.73	-216.2	-	-	6.78	-337.9	7.96	-164.5
7/1/2010	-	2.82	422.4	-	-	-	-	-	-	-	-	7.94	-241.9
7/13/2010	10.0	2.62	479.5	7.52	-112.1	6.90	-279.5	8.02	-255.2	6.90	-294.0	7.76	-65.8
7/21/2010	10.0	2.93	475.1	7.90	-70.5	7.15	-301.5	7.80	-212.4	7.27	-315.3	8.09	-95.7
7/29/2010	10.0	2.90	465.3	7.73	-168.6	7.25	-318.1	7.08	-192.5	7.15	-318.5	7.06	-45.6
8/3/2010	9.0	2.94	458.6	7.69	-193.3	7.16	-311.4	7.16	-311.4	7.17	-324.5	7.39	-66.3
8/12/2010	9.0	2.85	476.3	7.98	-255.3	7.07	-299.3	7.50	-235.2	7.06	-307.0	7.55	-26.2

TABLE 2
ASPEN SEEP BIOREACTOR - RECENT pH and ORP FIELD MEASUREMENTS
DECEMBER 2010 MONTHLY SUMMARY
 Draft - Provisional Data

Date	Aspen Influent ¹			Manhole 1 or 2		Manhole 5 or 4		Manhole 6		Manhole 7		Aspen Effluent	
	Flow (gpm)	pH (s.U.)	ORP (mV)	B.R.#1 Influent pH (s.U.)	ORP (mV)	B.R.#1 Eff/B.R.#2 Inf pH (s.U.)	ORP (mV)	NaOH dosing pH (s.U.)	ORP (mV)	B.R. #2 Eff pH (s.U.)	ORP (mV)	pH (s.U.)	ORP (mV)
8/17/2010	9.5	2.64	470.9	8.09	-47.2	7.54	-306.0	8.47	-206.8	7.37	-320.0	7.86	-74.0
8/24/2010	9.2	3.04	250.0	7.81	-129.9	7.21	-151.9	7.20	-202.9	7.09	-147.9	7.81	2.9
9/2/2010	9.2	2.84	503.9	7.70	-208.4	--	--	8.15	-227.0	7.32	-267.2	7.97	-20.2
9/16/2010	8.0	3.21	455.8	8.40	-219.9	7.29	-209.3	8.66	-197.0	7.32	-279.7	7.76	-76.4
9/22/2010	8.0	3.06	476.5	8.50	-151.0	7.25	-276.9	8.30	-257.8	7.39	-279.9	7.9 ***	-112.0 ***
9/30/2010	7.6	3.16	503.3	8.49	-263.9	7.32	-265.4	8.53	-221.9	7.26	-267.8	8.6 ***	94.1 ***
10/6/2010	9.0	3.28	479.3	7.83	-287.5	7.39	-305.8	8.25	-246.7	7.62	-305.1	8.2 *	-235.5 *
10/11/2010	8.0	3.20	479.3	7.52	-190.4	7.00	-284.4	8.28	-227.4	7.15	-290.4	7.85	26.4
10/19/2010	8.0	2.89	447.3	8.75	-157.3	7.43	-310.4	8.52	-203.0	7.22	-310.6	8.15	130.4
10/28/2010	8.0	2.95	579.0	7.23	-282.8	6.98	-368.9	8.50	-384.7	7.12	-402.6	7.73	-30.7
11/2/2010	8.0	2.69	366.7	7.89	-285.1	7.14	-385.2	8.46	-307.5	7.00	-385.7	7.62	-31.5
11/15/2010	8.5	2.94	361.7	7.79	-273.2	7.08	-381.9	8.04	-269.3	6.89	-384.5	7.64	-2.2
12/7/2010	8.5	3.01	387.2	6.97	-298.4	6.82	-375.1	-	-	6.57	-353.5	6.41	-112.4

Notes

1. Aspen Seep Influent Flow measurements are field measurements completed with a graduated bucket and stop watch.

** Measurements are believed to be erroneous due to calibration error. Parameters were re-evaluated on February 12, 2008.

*** Effluent readings were collected from the centrifuge discharge point on these dates due to sludge dewatering. Water was not being discharged from Pond 4.

- : not measured, not recorded, or bioreactor operation did not have flow at given location on the specified date.

Bioreactor #1 flushed on October 8, 9, and 18, 2007; Bioreactor #1 bypassed during this flushing period.

Low pH readings in Manhole 1 from 10/10/07 through 10/31/07 caused by drainage into pretreatment pond from failed seal in weir box cap.

Low pH readings observed on 12/17/09 caused by stripped gears on NaOH pump head that prevented dosing to Manhole 6.