To: Wetmore, Cynthia[Wetmore.Cynthia@epa.gov]
Cc: Riley, Gary[riley.gary@epa.gov]; Greg Reller[gr@burlesonconsulting.com]; Brown, Anthony R (RM)[anthony.brown@bp.com]; Cohen, Adam[Adam.Cohen@dgslaw.com]; Lambeth, Gregory[Gregory.Lambeth@amecfw.com]; Jefferson, Jill[Jill.Jefferson@amecfw.com]
From: Lombardi, Marc
Sent: Mon 6/19/2017 5:27:59 PM
Subject: RE: EPA approval Crusher Road Slope Instability Monitoring Plan

Cynthia,

The points that were installed (SM-1, SM-2, SM-3, SM-4, SM-6, SM-8, SM-10, SM-13, SM-16) and data sent to the U.S. EPA on Friday (6/16/17) are points that were installed outside of the Lahontan Reginal Water Quality Control Board's (LRWQCB) projected work area for the slope repairs. The survey points within the active movement zone (SM-5, SM-7, SM-9, SM-14, SM-15, SM-17) were initially not installed because the LRWQCB indicated to Atlantic Richfield on June 23, 2017 that they were going to begin repair activities within a couple of days and we were thinking that their activities would destroy the survey points. Up until late last week, Amec Foster Wheeler's geotechnical personnel have been relying on visual observations and physical measurements of the ground cracking/scarps for determinations on relative movement. Because it appears that the repairs are taking a longer time than initially thought to implement, all of the remaining survey points were installed as of last Friday (6/16/17). The only points that were not installed are SM-11 and SM-12, because there is no line of sight from the survey base station point to these locations (trees block the view). The initial survey of the points within the active movement zone that were installed last week will occur tomorrow. We are currently preparing a summary of our observations and will forward those to you as soon as it is complete.

Please let us know if you have further questions.

Thanks,

Marc

Marc R. Lombardi, CEM, PG

Principal Geologist / Office Manager, Environment & Infrastructure Americas, Amec Foster Wheeler

10940 White Rock Road, Suite 190, Rancho Cordova, CA 95670, USA

D (916) 853-8903 M (916) 302-6326

marc.lombardi@amecfw.com amecfw.com

From: Wetmore, Cynthia [mailto:Wetmore.Cynthia@epa.gov]
Sent: Monday, June 19, 2017 8:31 AM
To: Lombardi, Marc <Marc.Lombardi@amecfw.com>
Cc: Riley, Gary <riley.gary@epa.gov>; Greg Reller <gr@burlesonconsulting.com>
Subject: RE: EPA approval Crusher Road Slope Instability Monitoring Plan

Marc,

Sorry to reach out to you directly – but I was wondering if there was more settlement data? There seems to be a number of measuring points with no data included in the Pond Subsidence Spreadsheet – SM-5; SM-7; SM-9; SM-11; SM-12; SM-14; and SM-15.

Thank you

Cynthia Wetmore

Technical Support, US EPA Region 9

(415) 972-3059

From: Lombardi, Marc [mailto:Marc.Lombardi@amecfw.com]
Sent: Friday, June 16, 2017 3:57 PM
To: Deschambault, Lynda <Deschambault.Lynda@epa.gov>; Riley, Gary <riley.gary@epa.gov>
Cc: Brown, Anthony R (RM) <anthony.brown@bp.com>; Greg Reller

<gr@burlesonconsulting.com>; Koger, Cory S SPK <Cory.S.Koger@usace.army.mil>; Wirtschafter, Joshua <Wirtschafter.Joshua@epa.gov>; Chang, Kay SPK <Kay.Chang@usace.army.mil>; Wetmore, Cynthia <Wetmore.Cynthia@epa.gov>; Hillenbrand, John <Hillenbrand.John@epa.gov>; DCarey@waterboards.ca.gov; Barton, Dana <Barton.Dana@epa.gov>; Cohen, Adam <Adam.Cohen@dgslaw.com>
Subject: RE: EPA approval Crusher Road Slope Instability Monitoring Plan

Lynda / Gary,

On behalf of Atlantic Richfield, Amec Foster Wheeler has assembled a data package in response to the U.S. EPA's request for data in the vicinity of the Crusher Road Slope Instability. Due to the expedited nature of the request for information, the data being transmitted is a combination of existing data and newly measured water levels and all data should be considered preliminary in nature.

The U.S. EPA requested the following information in emails dated June 14, 2017:

1. Groundwater data from monitoring wells in the vicinity of the Crusher Road slope instability.

a. Recent groundwater depth to groundwater below top of casing or top of temporary standpipe for flowing artesian wells. This data is provided in the attached file: "170616 Prelim WLs near Pond." Monitoring well location map attached.

2. Results of monitoring point surveys in the vicinity of the Slope Instability.

a. Monitoring point survey information from survey monuments located in the vicinity of the slope instability. This data is provided in the attached file: "2017_0531-0614Pond4SubsidenceStudy." A preliminary map of the monitoring points from the work plan is attached (170515_Monitoring Map); however, this map has not been updated to reflect the actual locations installed.

3. Water chemistry data for monitoring wells MW-10S, MW-10D, MW-13, MW-14, and PZ-38

a. Chemistry data consist of field parameters, general chemistry, and metals. The data are those reported in the Groundwater Technical Data Summary Report, Revision No. 2 dated January 25, 2017. We do not have more recent data available at this time. This data is provided in the attached files: “170123_GWTDSR_TBL5B-2A_Field”; “170123_GWTDSR_TBL5B-2B_Metals_AA”; and “170123_GWTDSR_TBL5B-2C_Inorganics”

4. Observations regarding the degree of saturation of shallow soils at the base of the slope instability

a. During recent field observations, it was noted that water was ponded at the toe of the slope instability indicating saturated conditions at the ground surface. At this time we see no reason to dig a hole to evaluate subsurface saturation.

In an email dated May 25, 2017, the Water Board requested the following information which was provided in an email dated June 15, 2017, and cc’d to the U.S. EPA.

1. Borehole logs and well completion diagrams for wells and piezometers in the vicinity of the slope instability.

2. Recent depth to water information for the wells and piezometers.

3. Topographical maps of the Pond 4 slump area in CADD format.

Should you have any questions or comments please contact Tony Brown at (657) 529-4537 or anthony.brown@bp.com.

Thanks,

Marc

Marc R. Lombardi, CEM, PG

Principal Geologist / Office Manager, Environment & Infrastructure Americas, Amec Foster Wheeler

10940 White Rock Road, Suite 190, Rancho Cordova, CA 95670, USA

D (916) 853-8903 M (916) 302-6326

marc.lombardi@amecfw.com amecfw.com

From: Riley, Gary [mailto:riley.gary@epa.gov]
Sent: Wednesday, June 14, 2017 2:59 PM
To: Deschambault, Lynda; Brown, Anthony R (RM)
Cc: Greg Reller; Cory Koger; Wirtschafter, Joshua; Chang, Kay SPK; Wetmore, Cynthia; Hillenbrand, John; Doug Carey; Barton, Dana
Subject: RE: EPA approval Crusher Road Slope Instability Monitoring Plan

Hello Tony,

One clarification to Lynda's request: we are attempting to understand the most current degree of saturation of soils in and around the slide, in part to assess the ability to conduct the slope stabilization work in the near future. To that end, we are including in this request:

A. the current water levels in the monitoring wells closest to the slide areas

B. observations regarding the degree of saturation of shallow soils at the base of the slide. This should include personnel observing the ground surface in this area, and – if possible – digging a small test hole using hand equipment to a depth of up to 2 ft to examine the degree of saturation.

Thank you,

Gary

--

Gary J. Riley, MSCE, P.E.

LT, U.S. Public Health Service

U.S. EPA Region 9, Superfund Division

riley.gary@epa.gov (415) 972-3003

From: Deschambault, Lynda
Sent: Wednesday, June 14, 2017 10:41 AM
To: Brown, Anthony R (RM) <anthony.brown@bp.com>
Cc: Greg Reller <gr@burlesonconsulting.com>; Cory Koger <Cory.S.Koger@usace.army.mil>; Wirtschafter, Joshua <Wirtschafter.Joshua@epa.gov>; Chang, Kay SPK <Kay.Chang@usace.army.mil>; Wetmore, Cynthia <Wetmore.Cynthia@epa.gov>; Hillenbrand, John <Hillenbrand.John@epa.gov>; Riley, Gary <riley.gary@epa.gov>; Doug Carey <douglas.carey@waterboards.ca.gov>; Barton, Dana <Barton.Dana@epa.gov>
Subject: Re: EPA approval Crusher Road Slope Instability Monitoring Plan

Dear Mr. Brown.

As you are aware, EPA is in receipt of the Water Board's proposal to undertake temporary slope repairs at the Pond 4 Slope Failure to stabilize the slope and restore use of the access road through the site. In your May 31, 2017 letter regarding the Crusher Road Slope Instability Monitoring Plan (below and attached); you noted that "Atlantic Richfield has offered to provide technical input and support to the Water Board to expedite its repairs, and we can share our monitoring results."

EPA requests that groundwater elevation data collected at the vicinity of the Crusher Road Slope Instability, and results of monitoring point surveys be provided to EPA and the waterboard within the next two days. These results are critical to EPA in

determining the need for consultation with EPA Headquarters regarding slope repairs proposed by Water Board. Please also provide the water chemistry data for Monitoring wells 10S, 10D, 13, 14, and PZ 38. EPA understands that these results are likely to be provisional.

Please provide a spreadsheet summarizing each available data set (groundwater levels, monitoring point surveys) by June 16. I will be out of the office until July 12, The spreadsheets should be delivered to Gary Riley of US EPA with a cc to myself.

Best Regards,

Lynda Deschambault

Environmental Scientist

USEPA Region 09

(415) 947-4183

Please be advised I may have limited access to email , therefore please be patient with any communication delays.

From: Brown, Anthony R (RM) [mailto:anthony.brown@bp.com]
Sent: Wednesday, May 31, 2017 2:42 PM
To: Deschambault, Lynda <Deschambault.Lynda@epa.gov>
Cc: Carey, Douglas@Waterboards <douglas.carey@waterboards.ca.gov>; Ferguson, Scott@Waterboards (scott.ferguson@waterboards.ca.gov) <scott.ferguson@waterboards.ca.gov>; Barton, Dana <Barton.Dana@epa.gov>; tavassoli, lily <tavassoli.lily@epa.gov>; Riley, Gary <riley.gary@epa.gov>; Wirtschafter, Joshua <Wirtschafter.Joshua@epa.gov>; Greg Reller (gr@burlesonconsulting.com) <gr@burlesonconsulting.com>; Maas, Ken -FS <kmaas@fs.fed.us>; Halsey, Ronald H <ronald.halsey@bp.com>; Block, Nathan <Nathan.Block@bp.com>; Cohen, Adam <Adam.Cohen@dgslaw.com>; Lombardi, Marc <Marc.Lombardi@amecfw.com>; Sandy Riese <sriese@ensci-inc.com>
Subject: EPA approval Crusher Road Slope Instability Monitoring Plan

Lynda – The attached letter responds to EPA's May 24, 2017 letter concerning the "Crusher Road Slope Stability Monitoring Plan."

Anthony R Brown

Operations Project Manager – Mining

Atlantic Richfield Company

Remediation Management

4 Centerpointe Drive, Suite 200

La Palma, California USA 90623

MS Lync: 657-529-4537

Cell: 951-265-4277

From: Deschambault, Lynda [mailto:Deschambault.Lynda@epa.gov]
Sent: Wednesday, May 24, 2017 5:00 PM
To: Brown, Anthony R (RM)
Cc: Hillenbrand, John; Ferguson, Scott@Waterboards; Wetmore, Cynthia; Black, Ned; Cory Koger; Barton, Dana; Darrel Cruz 2; David Friedman; Doug Carey; Fred K; Riley, Gary; Greg Reller; Wirtschafter, Joshua; Ken Maas; Lombardi, Marc (marc.lombardi@amecfw.com); Michelle Hochrein; Patty Cubanski; Serda, Sophia; Steve Hampton; Thomas Maurer; Toby McBride
Subject: EPA approval Crusher Road Slope Instability Monitoring Plan

Dear Mr. Brown:

EPA has completed its review of Atlantic Richfield Company's May 22, 2017 ARC memorandum describing a Crusher Road Slope Instability Monitoring Plan, Leviathan Mine Alpine County, California, dated May 22, 2017 (memo). The memo was addressed to Anthony Brown of ARC, and prepared by AMEC.

EPA has completed its review and approves ARC to begin the monitoring activities described in ARC's May 22, 2017 memo. In addition EPA provides comments for ARC implementation; including: ongoing Coordinateion with the Waterboard to address the impacts if any to water treatment operations (both ARC and Waterboard), identify short term mitigations to prevent a release; and make short and long term plans for stabilizing the slope. Please let EPA know if we can be of assistance in coordinating that response. In addition, EPA requests sampling of nearby wells, and an expansion of the scope of the assessment. See comments attached.

Please provide updates regarding the Crusher Road Slope Instability as part of ARC's monthly summary report. EPA also requests timely notification of any significant changes to the site.

If you have any questions, please feel free to contact me at (415) 972-3003 or deschambault.lynda@epa.gov.

Sincerely,

Lynda Deschambault

Environmental Scientist

USEPA Region 09

(415) 947-4183

From: Lombardi, Marc [mailto:Marc.Lombardi@amecfw.com]
Sent: Monday, May 22, 2017 12:41 PM
To: DCarey@waterboards.ca.gov
Cc: Chris Stetler (chris.stetler@waterboards.ca.gov) <chris.stetler@waterboards.ca.gov>; Deschambault, Lynda <Deschambault.Lynda@epa.gov>; Greg Reller <gr@burlesonconsulting.com>; Brown, Anthony R (RM) <anthony.brown@bp.com>; Cohen, Adam (Adam.Cohen@dgslaw.com) <Adam.Cohen@dgslaw.com>; 'Sandy Riese' <sriese@ensci-inc.com>; Lambeth, Gregory <Gregory.Lambeth@amecfw.com>; Yuan, Peter <Peter.Yuan@amecfw.com>; Jefferson, Jill <Jill.Jefferson@amecfw.com>; Grant Ohland - (gohland@ohlandhydrogeo.com) <gohland@ohlandhydrogeo.com>
Subject: Leviathan Mine - Crusher Road Slope Instability Monitoring Plan

Doug,

Attached is Atlantic Richfield's Monitoring Plan for the Crusher Road Slope Instability. Please let us know if the LRWQCB has any issues with us implementing this plan. We would like to begin installation of the survey points and initial monitoring as described in the plan on this Wednesday (5/24).

Please let me know if you have any questions.

Thanks,

Marc

Marc R. Lombardi, CEM, PG

Principal Geologist / Office Manager, Environment & Infrastructure Americas, Amec Foster Wheeler

10940 White Rock Road, Suite 190, Rancho Cordova, CA 95670, USA

D (916) 853-8903 M (916) 302-6326

marc.lombardi@amecfw.com amecfw.com

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