

APPENDIX A

PHASE III ISRA PROJECT CORRESPONDENCES

APPENDIX A – Phase III ISRA Project Correspondences

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1. A. Lenox, Boeing, 2011. ISRA IEL-2 – Excavation Update, Email to C. Owens, RWQCB, P. Raftery, RWQCB, M. Ali, RWQCB, and B. King, DTSC. May 23.
2. B. King, DTSC, 2011. Agreement for Confirmation Sampling and Backfill at Boeing ISRA area IEL-2, Email to A. Fischl, MWH, C. Owens, RWQCB, M. Ali, RWQCB, and P. Raftery, RWQCB. June 3.
3. B. King, DTSC, 2011. Confirmation for Boeing ISRA area IEL-2, Email to A. Lenox, Boeing, C. Owens, RWQCB, M. Ali, RWQCB, and P. Raftery, RWQCB. June 17.
4. C. Owens, RWQCB, 2011. Confirmation for Boeing ISRA area IEL-2, Email to A. Lenox, Boeing, B. King, DTSC, M. Ali, RWQCB, and P. Raftery, RWQCB. June 17.
5. B. King, DTSC, 2011. Confirmation for NASA ISRA areas AP/STP-1E-1 and AP/STP-1E-3, Email to A. Lenox, Boeing. November 7.
6. C. Owens, RWQCB, 2011. Confirmation for NASA ISRA areas AP/STP-1E-1 and AP/STP-1E-3, Email to A. Lenox, Boeing. November 7.
7. B. King, DTSC, 2011. Agreement for Path Forward at NASA ISRA areas at AP/STP, Email to A. Lenox, Boeing. November 14.
8. C. Owens, RWQCB, 2011. Agreement for Path Forward at NASA ISRA areas at AP/STP, Email to M. Ali, RWQCB, B. King, DTSC, A. Lenox, Boeing, and P. Raftery, RWQCB. November 15.
9. B. King, DTSC, 2011. Agreement for Sampling Plans at NASA ISRA areas AP/STP-1B and AP/STP-1C-2, Email to A. Lenox, Boeing, M. Malinowski, DTSC, and C. Owens, RWQCB. November 29.
10. C. Owens, RWQCB, 2011. Agreement for Sampling Plans at NASA ISRA areas AP/STP-1B and AP/STP-1C-2, Email to A. Lenox, Boeing, B. King, DTSC, and M. Malinowski, DTSC. November 29.
11. B. King, DTSC, 2011. Agreement for Excavation Plans at NASA ISRA areas AP/STP-1C-1 and AP/STP-1E-2, Email to A. Lenox, Boeing, C. Owens, RWQCB, and P. Raftery, RWQCB. December 13.
12. C. Owens, RWQCB, 2012. Agreement for Excavation Plans at NASA ISRA areas AP/STP-1C-1 and AP/STP-1E-2, Email to A. Fischl, MWH. March 14.

13. B. King, DTSC, 2012. Agreement for Excavation and Sampling Plans at NASA ISRA areas AP/STP-1B, -1C-1, -1C-2, and -1E-2, Email to A. Lenox, Boeing, C. Owens, RWQCB, and P. Raftery, RWQCB. March 22.
14. C. Owens, RWQCB, 2012. Agreement for Excavation and Sampling Plans at NASA ISRA areas AP/STP-1B, -1C-1, -1C-2, and -1E-2, Email to A. Lenox, Boeing, B. King, DTSC, A. Fischl, MWH, and P. Raftery, RWQCB. March 22.
15. A. Elliott, NASA, 2012. Notification of Subsurface Feature Investigation East of the Area II Sewage Treatment Plant, Interim Source Removal Action (ISRA), California Water Code Section 13304 Order (NPDES NO. CA0001309, CI NO. 6027, SCP NO. 1111, SITE ID NO. 2040109, Letter to P. Carpenter, DTSC. August 6.
16. B. King, DTSC, 2012. Agreement for Excavation and Sampling Plans at NASA ISRA areas AP/STP-1B, -1C-1, and -1C-2, Email to C. Owens, RWQCB, A. Lenox, Boeing, P. Raftery, RWQCB, and M. Ali, RWQCB. September 20.
17. C. Owens, RWQCB, 2012. Agreement for Excavation and Sampling Plans at NASA ISRA areas AP/STP-1B, -1C-1, and -1C-2, Email to A. Lenox, Boeing, P. Raftery, RWQCB, M. Ali, RWQCB, and B. King, DTSC. September 20.
18. B. King, DTSC, 2012. Confirmation for NASA ISRA areas at AP/STP and ELV, Email to A. Lenox, Boeing and C. Owens, RWQCB. October 23.
19. C. Owens, RWQCB, 2012. Confirmation for NASA ISRA areas at AP/STP and ELV, Email to A. Lenox, Boeing, A. Fischl, MWH, P. Zorba, NASA, R. Dean, NASA, B. King, DTSC, M. Ali, RWQCB, and P. Raftery, RWQCB. October 23.
20. NASA Public Notice, 2012. ISRA Excavation and Removal of “ELV” Soil Has Begun. November 13.
21. B. King, DTSC, 2012. Agreement for Sampling at NASA ISRA area ELV-1C, Email to A. Lenox, Boeing, A. Fischl, MWH, P. Zorba, NASA, R. Dean, CH2M Hill, C. Owens, RWQCB, M. Ali, RWQCB, and P. Raftery, RWQCB. November 21.
22. C. Owens, RWQCB, 2012. Agreement for Sampling at NASA ISRA area ELV-1C, Email to B. King, DTSC, A. Lenox, Boeing, A. Fischl, MWH, P. Zorba, NASA, R. Dean, CH2M Hill, M. Ali, RWQCB, and P. Raftery, RWQCB. November 21.
23. B. King, DTSC, 2013. Confirmation for NASA ISRA areas AP/STP-1B and AP/STP-1C-1 Additional Excavation Areas, Email to A. Lenox, Boeing, C. Owens, RWQCB, P. Raftery, RWQCB, and M. Ali, RWQCB. January 7.
24. M. Ali, RWQCB, 2013. Confirmation for NASA ISRA areas AP/STP-1B and AP/STP-1C-1 Additional Excavation Areas, Email to A. Lenox, Boeing, C. Owens, RWQCB, P. Raftery, RWQCB, and B. King, DTSC. January 7.

25. B. King, DTSC, 2013. Agreement for Confirmation and Radiological Sampling at NASA ISRA area ELV-1C, Email to C. Owens, RWQCB, A. Lenox, Boeing, P. Raftery, RWQCB, and M. Ali, RWQCB. January 28.
26. C. Owens, RWQCB, 2013. Agreement for Confirmation and Radiological Sampling at NASA ISRA area ELV-1C, Email to A. Lenox, Boeing, P. Raftery, RWQCB, M. Ali, RWQCB, and B. King, DTSC. January 28.
27. B. King, DTSC, 2013. Confirmation for Boeing ISRA area IEL-3, Email to A. Lenox, Boeing, A. Fischl, MWH, C. Owens, RWQCB, P. Raftery, RWQCB, and M. Ali, RWQCB. February 7.
28. C. Owens, RWQCB, 2013. Confirmation for Boeing ISRA area IEL-3, Email to A. Lenox, Boeing, A. Fischl, MWH, P. Raftery, RWQCB, M. Ali, RWQCB, and B. King, DTSC. February 7.
29. B. King, DTSC, 2013. Agreement for Confirmation Sampling at NASA ISRA area ELV-1C, Email to A. Fischl, MWH, C. Owens, RWQCB, P. Raftery, RWQCB, and M. Ali, RWQCB. February 22.
30. C. Owens, RWQCB, 2013. Agreement for Confirmation Sampling at NASA ISRA area ELV-1C, Email to B. King, DTSC, A. Fischl, MWH, P. Raftery, RWQCB, and M. Ali, RWQCB. February 22.
31. C. Owens, RWQCB, 2013. A2LF Discussion Confirmation Email, Email to A. Fischl, MWH, P. Raftery, RWQCB, M. Ali, RWQCB, B. King, DTSC. May 23.
32. B. King, DTSC, 2013. Agreement for NASA ISRA areas in ELV, LOX, and AP/STP, Email to A. Fischl, MWH, C. Owens, RWQCB, P. Raftery, RWQCB, and M. Ali, RWQCB. May 31.
33. C. Owens, RWQCB, 2013. Agreement for NASA ISRA areas in ELV, LOX, and AP/STP, Email to A. Fischl, MWH, P. Raftery, RWQCB, M. Ali, RWQCB, and B. King, DTSC. May 31.
34. B. King, DTSC, 2013. Agreement for NASA ISRA areas in AP/STP, ELV, and LOX, Email to A. Lenox, Boeing, M. Ali, RWQCB, and P. Raftery, RWQCB. July 10.
35. C. Owens, RWQCB, 2013. Agreement for NASA ISRA areas in AP/STP, ELV, and LOX, Email to B. King, DTSC, A. Lenox, Boeing, M. Ali, RWQCB, and P. Raftery, RWQCB. July 10.
36. B. King, DTSC, 2013. Agreement for Waste Characterization Sample Results at NASA ISRA area ELV-1D, Email to A. Lenox, Boeing, C. Owens, RWQCB, P. Raftery, RWQCB, and M. Ali, RWQCB. July 16.

37. P. Raftery, RWQCB, 2013. Agreement for Waste Characterization Sample Results at NASA ISRA area ELV-1D, Email to A. Lenox, Boeing, B. King, DTSC, C. Owens, RWQCB, and M. Ali, RWQCB. July 16.
38. B. King, DTSC, 2013. Agreement for Excavation and Sampling Plans NASA ISRA areas at LOX, Email to A. Lenox, Boeing, C. Owens, RWQCB, P. Raftery, RWQCB, and M. Ali, RWQCB. August 9.
39. M. Ali, RWQCB, 2013. Agreement for Excavation and Sampling Plans NASA ISRA areas at LOX, Email to A. Lenox, Boeing, C. Owens, RWQCB, P. Raftery, RWQCB, and B. King, DTSC. August 9.
40. M.K. Stenstrom, Surface Water Expert Panel, 2013. Note from the Expert Panel regarding Area I Landfill and ISRA sites at LOX (LOX1A, LOX-1B4, LOX-1C, and LOX-1D). August 29.
41. B. King, DTSC, 2013. Agreement for NASA ISRA areas LOX-1B-1, LOX-1B-2, and LOX-1B-3, Email to A. Lenox, Boeing, C. Owens, RWQCB, P. Raftery, RWQCB, and M. Ali, RWQCB. September 16.
42. P. Raftery, RWQCB, 2013. Agreement for NASA ISRA areas LOX-1B-1, LOX-1B-2, and LOX-1B-3, Email to A. Lenox, Boeing. September 16.
43. B. King, DTSC, 2013. Agreement for NASA ISRA areas AP/STP-1C-2, ELV-1C, and ELV-1D, Email to A. Fischl, MWH, C. Owens, RWQCB, P. Raftery, RWQCB, and M. Ali, RWQCB. November 15.
44. C. Owens, RWQCB, 2013. Agreement for NASA ISRA areas AP/STP-1C-2, ELV-1C, and ELV-1D, Email to A. Fischl, MWH, P. Raftery, RWQCB, M. Ali, RWQCB, and B. King, DTSC. November 15.

Alexander Fischl

From: Lenox, Arthur J [arthur.j.lenox@boeing.com]
Sent: Monday, May 23, 2011 4:36 PM
To: Cassandra Owens; Peter Raftery; Ali, Mazhar ; Buck King
Cc: Alexander Fischl; Shelby Valenzuela
Subject: ISRA IEL-2 - Excavation Update
Attachments: Map with feature location.pdf

Cassandra/Peter/Mazhar/Buck,

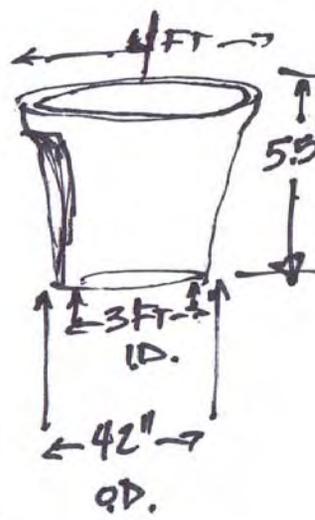
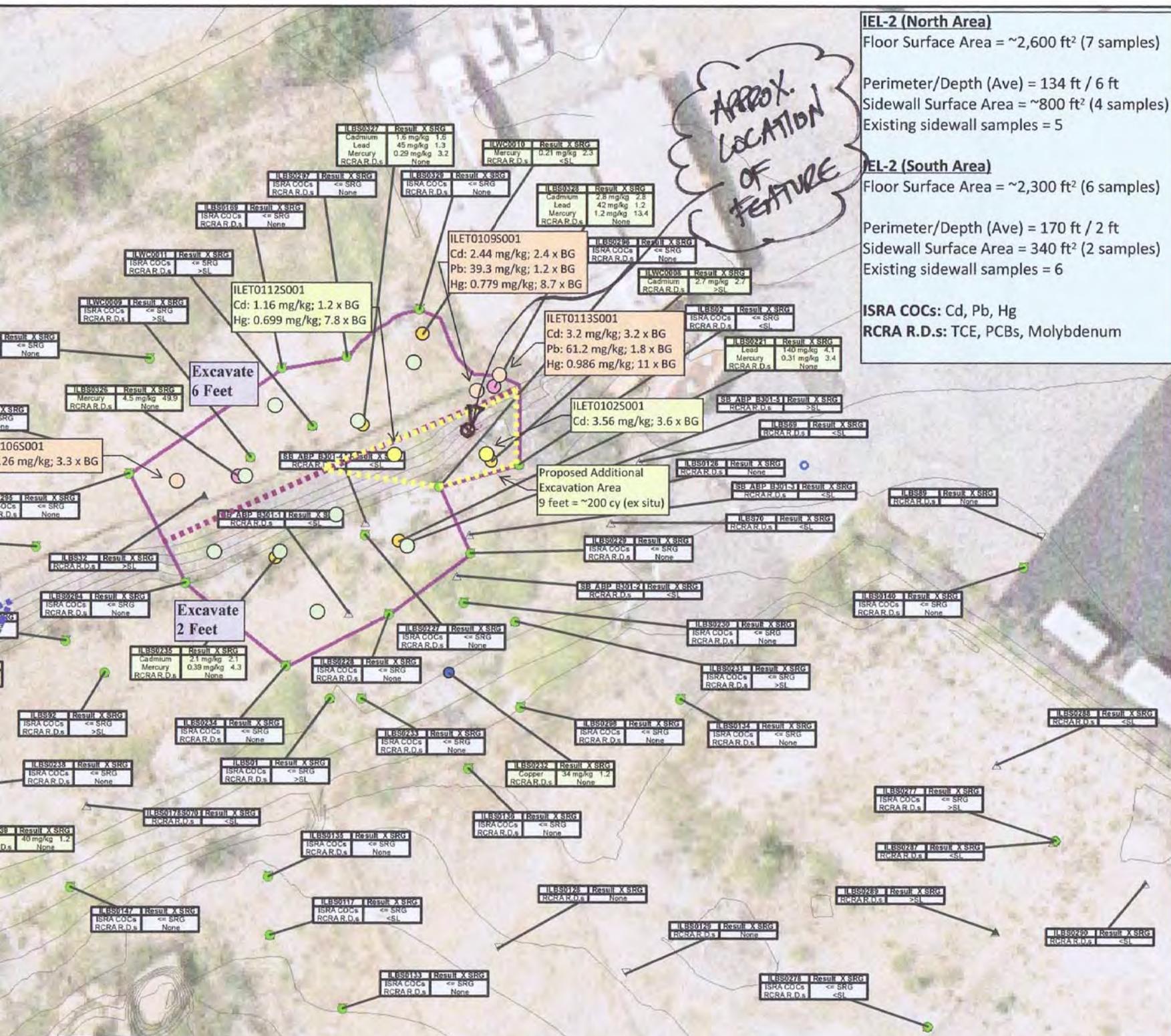
On Friday May 20th, during the additional excavation at IEL-2, a cement and/or ceramic pipe was unearthed in the southern portion of the excavation (see attached figure). The pipe was approximately 4 feet in diameter and 5.5 feet tall (see photo below). The pipe was found seated upright with the open ends horizontal and filled with pea-sized gravel. The pipe was monitored for volatile organic vapors with a PID and none were present. No staining to the surrounding soil or soil beneath the pipe was observed. The pipe and its contents were removed, placed into a roll off bin and transported into the hazardous waste yard at SSFL.



Tomorrow, soil samples will be collected underneath the feature and the samples will be analyzed for VOCs, SVOCs (SIM and TICS), TPH, PCB, Metals, Perchlorate, 1-4 Dioxane, Hex Chrome, and Anions (including ISRA COCs).

Please call me if you have any questions.

Thanks, Art



* TOP WAS BELL SHAPED

Alexander Fischl

From: Buck King [BKing@dtsc.ca.gov]
Sent: Friday, June 03, 2011 9:48 AM
To: Alexander Fischl; 'Cassandra Owens'; Mazhar Ali; 'PeterRaftery'
Cc: Arthur J Lenox; Margaret Milman-Barris
Subject: Re: IEL-2 Data Request

Art,
I have reviewed the attached figures and tables and spoken with Alex Fischl this morning to verify my understanding of the information. Per my conversation with Alex, I am requesting that an excavation bottom confirmation soil sample be collected at confirmation sample ILET0101 and analyzed for full suite VOCs. This confirmation sample VOC analysis is requested to provide information regarding residual TCE concentrations below the excavated and removed SB_ABP_301-5_0-1 sample which contained TCE at concentration of 1,300 ug/kg.

DTSC concurs with the request to backfill the IEL-2 excavation following requested sample collection prior to receipt of analytical results. This email is intended to communicate DTSC's recommendations to the RWQCB. Please call or email me if there are any questions or concerns.

Buck King, PG, CHG
Senior Engineering Geologist
(510) 540-3955 Fax (510) 540-3937
bking@dtsc.ca.gov

>>> Alexander Fischl <Alexander.Fischl@us.mwhglobal.com> 6/2/2011 6:59 PM >>>
All,

I believe the data attached includes all of the information requested during our teleconference a few hours ago. Included are the following:

- 1) IEL-2 Confirmation Sample Location Figure - this figure shows locations of confirmation samples.

- 2) IEL-2 Confirmation Sample Results Figure - this is the figure I showed during the teleconference, but updated with RWQCB split data and mercury data for the 2 samples we discussed today; results shown are those above background for ISRA COCs (if RWQCB split sample collected also, only highest result shown)

- 3) IEL-2 Locations with Full suite metals and/or PCBs - this figure identifies the locations within the boundary and on the sidewalls of the IEL-2 excavation where samples are in place that were analyzed for full suite metals and/or PCBs; The four floor confirmation samples in the northern portion of the excavation that are circled in blue will be analyzed for full suite metals (this is a change from what was discussed during the teleconference).

4) IEL-2 Tabulated Data - this table contains metals and RCRA Risk Driver results for locations within the boundary and on the sidewalls of the IEL-2 excavation collected at depths <=10 feet bgs, including samples excavated, samples used as sidewall confirmation samples, and in place samples located below the excavation depth (does not include confirmation sample results)

5) IEL-2 Confirmation Sample PCB Results - this table contains results of PCBs > eco RBSLs (see item 1 for confirmation sample location IDs)

Please let me know if you have any questions.

[\[cid:image001.jpg@01CC2147.31DF1580\]](#)

Alex Fischl, P.M.P
Project Manager /
Environmental Scientist
MWH Americas, Inc.
2121 N. California Blvd.
Suite 600
Walnut Creek, CA 94596

Telephone: 925 627 4500
Direct Line: 925 627 4627
Cell Phone: 925 997 7384
Fax: 925 627 4501

BUILDING A BETTER WORLD

Alexander Fischl

From: Buck King [BKing@dtsc.ca.gov]
Sent: Friday, June 17, 2011 10:09 AM
To: Arthur J Lenox; 'Cassandra Owens'; 'Mazhar Ali'; 'PeterRaftery'
Cc: Paul J Costa; Alexander Fischl; Dixie Hambrick; 'Jim O'Tousa'
Subject: Re: IEL ISRA Agreement

DTSC confirms agreement with the description of IEL-2 excavation disposition agreement described below by Art Lennox on 6/8/2011.

Buck King, PG, CHG
Senior Engineering Geologist
(510) 540-3955 Fax (510) 540-3937
bking@dtsc.ca.gov

>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 6/8/2011 2:59 PM >>>
All -

This email serves to document the agreements reached during teleconferences held with RWQCB and DTSC staff regarding excavation extent, confirmation sampling results, and backfill approach for ISRA area IEL-2 in Outfall 009 (Boeing property). A summary of the agreements reached during the teleconferences are described below.

IEL-2 (ISRA COCs = Cd, Pb, Hg)

Prior to beginning excavation activities, a teleconference was held with agencies on March 28, 2011 during which an agreement was made that excavating soils with ISRA COCs above soil remediation goals (SRGs) to a depth of 6 feet will be protective of surface water even if soils deeper than 6 feet contain ISRA COCs above SRGs. This approach is consistent with the approach used to protect surface water from perchlorate contamination during the Happy Valley (B359) Interim Measure performed in 2004 under DTSC oversight.

Two rounds of confirmation sampling were performed at IEL-2. During a teleconference with agencies on May 17, 2011 to review the first round of confirmation sample results, an agreement was made to perform additional excavation to address two floor confirmation samples with results above SRGs (ILET0102 and ILET0112). During the additional excavation, an approximately 5-foot section of a 4-foot diameter cement and/or ceramic pipe found seated upright with open ends and filled with pea-sized gravel was unearthed. The pipe and its contents were removed and are being characterized for disposal. A summary of the feature and the post-removal sampling plan were transmitted via email to agencies by Art Lenox on May 23, 2011. During a teleconference with agencies on June 2, 2011 to review the second round of confirmation sample results, agencies concurred that excavation activities are complete. Prior to backfill, DTSC requested time to review a data package containing metals, PCB, and TCE data in the vicinity of IEL-2. This package was transmitted to agencies via email by Alex Fischl on June 2, 2011. In an email to Boeing on June 3, 2011, DTSC approved the request to backfill pending collection of a sample at ILET0101 for VOCs analysis.

Following collection of the sample at ILET0101 on June 6, 2011, backfill activities began at IEL-2. As discussed with RWQCB and DTSC initially during a teleconference on March 28, 2011 and during subsequent weekly ISRA teleconferences, the backfill plan for the portion of the excavation that extends 6 feet or more below initial grade involves installation of a permeable liner, placement of ¾-inch gravels to approximately 1 foot below final grade, installation of a permeable liner, and placement of approximately 1 foot of soil from a borrow area located approximately 50 feet west of the excavation. The data associated with this soil borrow area was presented to the agencies during the weekly ISRA teleconference on April 20, 2011 and transmitted via email to the agencies by Alex Fischl on April 21, 2011. The southern portion of the excavation will be re-contoured with adjacent soils to restore the overall drainage pattern of the area.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art Lenox

Alexander Fischl

From: Cassandra Owens [C Owens@waterboards.ca.gov]
Sent: Friday, June 17, 2011 10:04 AM
To: Arthur J Lenox; Buck King; Mazhar Ali; Peter Raftery
Cc: Paul J Costa; Alexander Fischl; Dixie Hambrick; 'Jim O'Tousa'
Subject: Re: IEL ISRA Agreement

The attached email appropriately documents agreements made with Regional Board staff during the referenced conference call. The email also appropriately documents the information provided to both Regional Board and DTSC staff subsequently and the concurrence from DTSC that after collection of the additional sample backfilling could proceed.

Thanks
Cassandr

Cassandra D. Owens
Unit Chief, Industrial Permitting Unit (NPDES)
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013
Phone (213) 576-6750
c Owens@waterboards.ca.gov

a
>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 6/8/2011 2:59 PM >>>
All -

This email serves to document the agreements reached during teleconferences held with RWQCB and DTSC staff regarding excavation extent, confirmation sampling results, and backfill approach for ISRA area IEL-2 in Outfall 009 (Boeing property). A summary of the agreements reached during the teleconferences are described below.

IEL-2 (ISRA COCs = Cd, Pb, Hg)

Prior to beginning excavation activities, a teleconference was held with agencies on March 28, 2011 during which an agreement was made that excavating soils with ISRA COCs above soil remediation goals (SRGs) to a depth of 6 feet will be protective of surface water even if soils deeper than 6 feet contain ISRA COCs above SRGs. This approach is consistent with the approach used to protect surface water from perchlorate contamination during the Happy Valley (B359) Interim Measure performed in 2004 under DTSC oversight.

Two rounds of confirmation sampling were performed at IEL-2. During a teleconference with agencies on May 17, 2011 to review the first round of confirmation sample results, an agreement was made to perform additional excavation to address two floor confirmation samples with results above SRGs (ILET0102 and ILET0112). During the additional excavation, an approximately 5-foot section of a 4-foot diameter cement and/or ceramic pipe found seated upright with open ends and filled with pea-sized gravel was unearthed. The pipe and its contents were removed and are being characterized for disposal. A summary of the feature and the post-removal sampling plan were transmitted via email to agencies by Art Lenox on May 23, 2011. During a teleconference with agencies on June 2, 2011 to review the second round of confirmation sample results, agencies concurred that excavation activities are complete. Prior to backfill, DTSC requested time to review a data package containing metals, PCB, and TCE data in the vicinity of IEL-2. This package was transmitted to agencies via email by Alex Fischl on June 2, 2011. In an email to Boeing on June 3, 2011, DTSC approved the request to backfill pending collection of a sample at ILET0101 for VOCs analysis.

Following collection of the sample at ILET0101 on June 6, 2011, backfill activities began at IEL-2. As discussed with RWQCB and DTSC initially during a teleconference on March 28, 2011 and during subsequent weekly ISRA teleconferences, the backfill plan for the portion of the excavation that extends 6 feet or more below initial grade involves installation of a permeable liner, placement of ¾-inch gravels to approximately 1 foot below final grade, installation of a permeable liner, and placement of approximately 1 foot of soil from a borrow area located approximately 50 feet west of the excavation. The data associated with this soil borrow area was presented to the agencies during the weekly ISRA teleconference on April 20, 2011 and transmitted via email to the agencies by Alex Fischl on April 21, 2011. The southern portion of the excavation will be re-contoured with adjacent soils to restore the overall drainage pattern of the area.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox

-----Original Message-----

From: Buck King [<mailto:BKing@dtsc.ca.gov>]
Sent: Monday, November 07, 2011 9:01 AM
To: Lenox, Arthur J
Cc: Mark Malinowski; Cassandra Owens
Subject: Re: AP/STP-1E-1, -1E-3 ISRA Agreement

Art,

This email is confirmation that DTSC is in agreement with the ISRA project decisions described below.

Buck King, PG, CHG
Senior Engineering Geologist
(510) 540-3955 Fax (510) 540-3937
bking@dtsc.ca.gov

>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 11/3/2011 1:50 PM >>>
Dear Cassandra, Buck, Peter and Mazhar,

This email serves to document the agreements reached during teleconferences held with RWQCB and DTSC staff regarding excavation extent and confirmation sampling results for ISRA areas AP/STP-1E-1 and -1E-3 in Outfall 009 (NASA property). Attending the teleconference were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Ashley Boudreaux and Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH).

A summary of the agreements reached during the teleconferences are described below.

Completed areas

* AP/STP-1E-1 (dioxins): Additional excavation was performed to address one initial floor confirmation sample with results above soil remediation goals (APET0200), and an additional floor confirmation sample was collected. Five primary confirmation samples and five agency split samples collected, all data received. All in place samples contain results

less than soil remediation goals. Agencies concurred during call that excavation activities at this location are complete.

* AP/STP-1E-3 (dioxins): Excavation performed as planned. Two primary and two agency split samples collected, all data received. All results less than soil remediation goals. Agencies concurred during call that excavation activities at this location are complete.

Please reply to this email concurring with the summary above.

Sincerely,

Art Lenox

Alexander Fischl

From: Cassandra Owens <Cowens@waterboards.ca.gov>
Sent: Monday, November 07, 2011 9:17 AM
To: Arthur J Lenox; Buck King; Mazhar Ali; Peter Raftery
Cc: PG Randy Dean (Randy.Dean@ch2m.com); Ashley E. (MSFC-AS10) Boudreaux; peter.d.zorba@nasa.gov; Alexander Fischl
Subject: Re: AP/STP-1E-1, -1E-3 ISRA Agreement

This email confirms that Regional Board staff agrees that the decisions made during the meeting to discuss the confirmation sampling from the referenced sites are accurately documented in the attached email summary.

Cassandra

Cassandra D. Owens
Unit Chief, Industrial Permitting Unit (NPDES)
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013
Phone (213) 576-6750
cowens@waterboards.ca.gov

>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 11/3/2011 1:50 PM >>>
Dear Cassandra, Buck, Peter and Mazhar,

This email serves to document the agreements reached during teleconferences held with RWQCB and DTSC staff regarding excavation extent and confirmation sampling results for ISRA areas AP/STP-1E-1 and -1E-3 in Outfall 009 (NASA property). Attending the teleconference were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Ashley Boudreaux and Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH).

A summary of the agreements reached during the teleconferences are described below.

Completed areas

- AP/STP-1E-1 (dioxins): Additional excavation was performed to address one initial floor confirmation sample with results above soil remediation goals (APET0200), and an additional floor confirmation sample was collected. Five primary confirmation samples and five agency split samples collected, all data received. All in place samples contain results less than soil remediation goals. Agencies concurred during call that excavation activities at this location are complete.
- AP/STP-1E-3 (dioxins): Excavation performed as planned. Two primary and two agency split samples collected, all data received. All results less than soil remediation goals. Agencies concurred during call that excavation activities at this location are complete.

Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox

From: Buck King [mailto:BKing@dtsc.ca.gov]
Sent: Monday, November 14, 2011 2:32 PM
To: Lenox, Arthur J
Cc: Mark Malinowski; Cassandra Owens
Subject: Re: Agreement for AP/STP ISRA Area Path Forward

Art,
I have reviewed the attached and agree that it reflects our previous meeting and post meeting discussions. I have also briefed Mark Malinowski and received his concurrence on the described resampling approach for the recent step out sampling results. We recommend that you proceed with the resampling activity at ISRA area AP/STP-1C-1, and begin soil removal activities at ISRA Areas AS/STP-1B and AP/STP-1C-2 while the weather permits.

Buck King, PG, CHG
Senior Engineering Geologist
(510) 540-3955 Fax (510) 540-3937
bking@dtsc.ca.gov

>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 11/10/2011 4:51 PM >>>
Hello Cassandra, Peter, Mazhar and Buck,

This email serves to document the agreements reached during the teleconference held with RWQCB and DTSC staff regarding the management of soils within ISRA areas AP/STP-1B, -1C-1, and -1C-2. Attending the teleconference was: Cassandra Owens and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). During the teleconference, a review of the results of samples collected to confirm and/or delineate the extent of soils with radionuclides above preliminary EPA radiological trigger levels within these ISRA areas, in addition to discussing the conclusions and additional actions, which were consistent with the letter NASA sent to the RWQCB and DTSC on October 19, 2011 that was approved by the RWQCB and DTSC in a letter dated November 10, 2011. A summary of the radiological sample results for each area and the agreements reached during the teleconference are described below.

AP/STP-1B

One waste characterization sample within ISRA area AP/STP-1B contained uranium-238 (U-238) above the EPA trigger level (APWC0207). The location was re-sampled and two step-out samples were collected and analyzed for U-238. The

results of all 3 samples were below the trigger level, and therefore the initial exceedance is considered an anomaly. Thus, all soils within AP/STP-1B are considered not to contain radionuclides above trigger levels and will be disposed of without radiological restrictions.

AP/STP-1C-1

Four waste characterization samples within ISRA area AP/STP-1C-1 contained either cesium-137 (Cs-137) or U-238 above the EPA trigger level (APWC0004, 0009, 0016, and 0019). Each location was re-sampled and two or three step-out samples were collected and analyzed for either Cs-137 or U-238. The results of all four re-samples were below the trigger level, however, only the step-out samples around APWC0009 were all below the trigger level. Therefore the initial exceedance at APWC0009 is considered an anomaly, but additional sampling is necessary to confirm and/or delineate the extent of soils with radionuclides (U-238) at the other three areas. At this time, additional sampling will involve re-sampling the six step-out samples that contained U-238 above the trigger level. If re-sampling results at the step-out locations are below the trigger levels, then the areas will be considered not to contain radionuclides above trigger levels. Two delineation samples will also be collected, but submitted to the laboratory on hold. If re-sampling results are above the trigger levels, one or both of these samples may be analyzed to delineate an area of soil that is considered not to contain radionuclides above trigger levels that will be disposed of without radiological restrictions.

AP/STP-1C-2

Four waste characterization samples within ISRA area AP/STP-1C-2 contained either Cs-137, strontium-90 (St-90), or U-238 above the EPA trigger level (APWC0102, 0108, 0110, 0116). Each location was re-sampled and two to four step-out samples were collected and analyzed for either Cs-137, St-90, or U-238. The results of all re-samples and step-outs were below the trigger level, and therefore the initial exceedances are considered anomalies. Thus, all soils within AP/STP-1C-2 are considered not to contain radionuclides above trigger levels and will be disposed of without radiological restrictions.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art Lenox

From: Alexander Fischl [mailto:Alexander.Fischl@us.mwhglobal.com]
Sent: Thursday, November 10, 2011 4:30 PM
To: Lenox, Arthur J
Subject: Updated AP/STP-1C-1 Fig

[cid:image001.jpg@01CC9FC6.06778960]

Alex Fischl, P.M.P
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Environmental Scientist
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BUILDING A BETTER WORLD

Alexander Fischl

From: Cassandra Owens <Cowens@waterboards.ca.gov>
Sent: Tuesday, November 15, 2011 8:11 AM
To: Ali, Mazhar; King, Buck; Lenox, Arthur J; Raftery, Peter
Cc: Alexander Fischl; Mazhar Ali; Randy.Dean@; ZORBA, PETER D. (HQ-LP040); allen.elliott@
Subject: Re: Agreement for AP/STP ISRA Area Path Forward

The attached documents accurately reflect the conclusions discussed during the teleconference and the supplemental decisions presented by Peter Zorba regarding the additional sampling. Regional Board staff approves the proposals documented here and the associated work plan for implementation.

Cassandra

Cassandra D. Owens
Unit Chief, Industrial Permitting Unit (NPDES)
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013
Phone (213) 576-6750
cowens@waterboards.ca.gov

>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 11/10/2011 4:51 PM >>>
Hello Cassandra, Peter, Mazhar and Buck,

This email serves to document the agreements reached during the teleconference held with RWQCB and DTSC staff regarding the management of soils within ISRA areas AP/STP-1B, -1C-1, and -1C-2. Attending the teleconference was: Cassandra Owens and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). During the teleconference, a review of the results of samples collected to confirm and/or delineate the extent of soils with radionuclides above preliminary EPA radiological trigger levels within these ISRA areas, in addition to discussing the conclusions and additional actions, which were consistent with the letter NASA sent to the RWQCB and DTSC on October 19, 2011 that was approved by the RWQCB and DTSC in a letter dated November 10, 2011. A summary of the radiological sample results for each area and the agreements reached during the teleconference are described below.

AP/STP-1B

One waste characterization sample within ISRA area AP/STP-1B contained uranium-238 (U-238) above the EPA trigger level (APWC0207). The location was re-sampled and two step-out samples were collected and analyzed for U-238. The results of all 3 samples were below the trigger level, and therefore the initial exceedance is considered an anomaly. Thus, all soils within AP/STP-1B are considered not to contain radionuclides above trigger levels and will be disposed of without radiological restrictions.

AP/STP-1C-1

Four waste characterization samples within ISRA area AP/STP-1C-1 contained either cesium-137 (Cs-137) or U-238 above the EPA trigger level (APWC0004, 0009, 0016, and 0019). Each location was re-sampled and two or three step-out samples were collected and analyzed for either Cs-137 or U-238. The results of all four re-samples were below the trigger level, however, only the step-out samples around APWC0009 were all below the trigger level. Therefore the initial exceedance at APWC0009 is considered an anomaly, but additional sampling is necessary to confirm and/or delineate the extent of soils with radionuclides (U-238) at the other three areas. At this time, additional sampling will involve re-sampling the six step-out samples that contained U-238 above the trigger level. If re-sampling results at the step-out locations are below the trigger levels, then the areas will be considered not to contain radionuclides above trigger levels. Two delineation samples will also be collected, but submitted to the laboratory on hold. If re-sampling results are above the trigger levels, one or both of these samples may be analyzed to delineate an area of soil that is considered not to contain radionuclides above trigger levels that will be disposed of without radiological restrictions.

AP/STP-1C-2

Four waste characterization samples within ISRA area AP/STP-1C-2 contained either Cs-137, strontium-90 (St-90), or U-238 above the EPA trigger level (APWC0102, 0108, 0110, 0116). Each location was re-sampled and two to four step-out samples were collected and analyzed for either Cs-137, St-90, or U-238. The results of all re-samples and step-outs were below the trigger level, and therefore the initial exceedances are considered anomalies. Thus, all soils within AP/STP-1C-2 are considered not to contain radionuclides above trigger levels and will be disposed of without radiological restrictions.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox

From: Alexander Fischl [<mailto:Alexander.Fischl@us.mwhglobal.com>]
Sent: Thursday, November 10, 2011 4:30 PM
To: Lenox, Arthur J
Subject: Updated AP/STP-1C-1 Fig



Alex Fischl, P.M.P
Project Manager /
Environmental Scientist

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BUILDING A BETTER WORLD

Alexander Fischl

From: Buck King <BKing@dtsc.ca.gov>
Sent: Tuesday, November 29, 2011 8:46 AM
To: Arthur J Lenox; Mark Malinowski; Cassandra Owens
Cc: PG Randy Dean(Randy.Dean@ch2m.com); PETER D. (HQ-LP040)
(peter.d.zorba@nasa.gov) ZORBA; Alexander Fischl; MALI@waterboards.ca.gov;
praftery@waterboards.ca.gov
Subject: Re: AP/STP-1B, -1C-2 ISRA Confirmation Sampling Plan

The soil confirmation sampling plan agreements described below accurately reflect the November 22, 2011 teleconference. Please use this email as documentation for DTSC approval of the proposed sampling strategy for NASA ISRA areas AP/STP-1B and AP/STP-1C-2.

Buck King, PG, CHG
Senior Engineering Geologist
(510) 540-3955 Fax (510) 540-3937
bking@dtsc.ca.gov

>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 11/28/2011 9:29 AM >>>
Good morning Buck and Cassandra -

This email serves to document the agreements reached during the teleconference held on November 22, 2011 with RWQCB and DTSC staff regarding the confirmation sampling plans for ISRA areas AP/STP-1B and AP/STP-1C-2. Attending the teleconference were: Cassandra Owens and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are described below.

AP/STP-1B

An agreement was reached to decrease the number of floor confirmation samples by 15 (from 46 to 31) and increase the number of sidewall confirmation samples by 2 (from 8 to 10). A floor confirmation sample frequency of 1 per 600 ft² was deemed sufficient for this area due to its relatively large size, as opposed to the frequency of 1 per 400 ft² prescribed in the Final ISRA Work Plan. The number of sidewall confirmation samples increased by 2 to provide better coverage, resulting in two times the number of samples if using the frequency prescribed in the Final ISRA Work Plan of 1 per 200 ft².

AP/STP-1C-2

An agreement was reached to decrease the number of floor confirmation samples by 4 (from 24 to 20) and increase the number of sidewall confirmation samples by 4 (from 6 to 10). The decrease of 4 floor confirmation samples results in a frequency of 1 per 475 ft², slightly above the frequency of 1 per 400 ft² prescribed in the Final ISRA Work Plan. The

number of sidewall confirmation samples increased by 4 to provide better coverage, resulting in more than two times the number of samples if using the frequency prescribed in the Final ISRA Work Plan of 1 per 200 ft².

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art

Alexander Fischl

From: Cassandra Owens <COWENS@waterboards.ca.gov>
Sent: Tuesday, November 29, 2011 3:54 PM
To: Arthur J Lenox; Buck King; Mark Malinowski
Cc: PG Randy Dean(Randy.Dean@ch2m.com); PETER D.(HQ-LP040)
(peter.d.zorba@nasa.gov) ZORBA; Alexander Fischl; Mazhar Ali; Peter Raftery
Subject: Re: AP/STP-1B, -1C-2 ISRA Confirmation Sampling Plan

Regional Board staff approves of the soil confirmation sampling plan agreements as per the attached email.

Cassandra D. Owens
Unit Chief, Industrial Permitting Unit (NPDES)
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013
Phone (213) 576-6750
cowens@waterboards.ca.gov

>>> Buck King <BKing@dtsc.ca.gov> 11/29/2011 8:45 AM >>>

The soil confirmation sampling plan agreements described below accurately reflect the November 22, 2011 teleconference. Please use this email as documentation for DTSC approval of the proposed sampling strategy for NASA ISRA areas AP/STP-1B and AP/STP-1C-2.

Buck King, PG, CHG
Senior Engineering Geologist
(510) 540-3955 Fax (510) 540-3937
bking@dtsc.ca.gov

>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 11/28/2011 9:29 AM >>>
Good morning Buck and Cassandra -

This email serves to document the agreements reached during the teleconference held on November 22, 2011 with RWQCB and DTSC staff regarding the confirmation sampling plans for ISRA areas AP/STP-1B and AP/STP-1C-2. Attending the teleconference were: Cassandra Owens and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are described below.

AP/STP-1B

An agreement was reached to decrease the number of floor confirmation samples by 15 (from 46 to 31) and increase the

number of sidewall confirmation samples by 2 (from 8 to 10). A floor confirmation sample frequency of 1 per 600 ft² was deemed sufficient for this area due to its relatively large size, as opposed to the frequency of 1 per 400 ft² prescribed in the Final ISRA Work Plan. The number of sidewall confirmation samples increased by 2 to provide better coverage, resulting in two times the number of samples if using the frequency prescribed in the Final ISRA Work Plan of 1 per 200 ft².

AP/STP-1C-2

An agreement was reached to decrease the number of floor confirmation samples by 4 (from 24 to 20) and increase the number of sidewall confirmation samples by 4 (from 6 to 10). The decrease of 4 floor confirmation samples results in a frequency of 1 per 475 ft², slightly above the frequency of 1 per 400 ft² prescribed in the Final ISRA Work Plan. The number of sidewall confirmation samples increased by 4 to provide better coverage, resulting in more than two times the number of samples if using the frequency prescribed in the Final ISRA Work Plan of 1 per 200 ft².

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art

Alexander Fischl

From: Buck King <BKing@dtsc.ca.gov>
Sent: Tuesday, December 13, 2011 8:34 AM
To: Arthur J Lenox; Cassandra Owens; praftery@waterboards.ca.gov
Cc: PG Randy Dean(Randy.Dean@ch2m.com); Mark Malinowski; Peter Zorba; Alexander Fischl
Subject: Re: AP/STP-1C-1, -1E-2 Confirmation Email

The description below and associated attached figures accurately describes the agreements reached during the December 9, 2011 meeting regarding additional soil excavation at AP/STP -1E-2 and soil management at AP/STP AP/STP-1-C-1. DTSC recommends that the ISRA work proceed as weather conditions permit.

Buck King, PG, CHG
Senior Engineering Geologist
(510) 540-3955 Fax (510) 540-3937
bking@dtsc.ca.gov

>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 12/12/2011 2:21 PM >>>
Hello Cassandra, Peter, and Buck -

This email serves to document the agreements reached during the teleconference held on December 9, 2011 with RWQCB and DTSC staff regarding the management of soils within ISRA area AP/STP-1C-1 and additional excavation within ISRA area AP/STP-1E-2. Attending the teleconference were: Cassandra Owens and Peter Raftery (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are described below. The AP/STP-1C-1 and AP/STP-1E-2 sample location maps with data plotted are attached to this email.

AP/STP-1C-1

During the teleconference held on November 9, 2011 with RWQCB and DTSC staff, it was agreed that the initial four waste characterization samples with radionuclide results above EPA trigger levels for cesium-137 (Cs-137) and uranium-238 (U-238) were not confirmed. However, six stepout samples contained U-238 above the trigger level and these locations were to be resampled. The results of 4 of the 6 re-samples were below the trigger level, and therefore the initial exceedances are considered anomalies. The other 2 re-samples confirmed the initial exceedance of the trigger level.

Additionally, the uranium-235 (U-235) results were discussed. As mentioned on the call, all 20 waste characterization samples analyzed for U-235 were non-detect. However, one of the results had a detection limit slightly above (7/1,000) the preliminary EPA trigger value. Sample APWC0005 had a result for U-235 of <0.137 pCi/g compared to a trigger value of 0.130 pCi/g. This sample was collected in July 2010, before development of the trigger levels. Soil from this location will not be excavated until final trigger values are established.

Based on the above information, soil associated with the 2 confirmed exceedances and APWC0005 will be delineated and agencies will be notified prior to removal of the soil. The agreed-upon delineation is shown on the attached figure. The remaining soils within AP/STP-1C-1 are considered not to contain radionuclides above trigger levels and will be disposed of without radiological restrictions.

AP/STP-1E-2

The ISRA COC at AP/STP-1E-2 is dioxins. Per the discussion, additional excavation is planned at 3 locations (APET0501, 0502, and 0503). The approach is to excavate additional soil from an approximately 20' by 20' area around each sample, modifying the excavation limits based on the location of sidewalls and other confirmation samples with results below the soil remediation goals (SRGs). The excavation depth will be 1 foot within a 10' by 10' area around each sample and sloping to existing grade at the excavation limits. Once the additional excavation is complete, a floor confirmation sample collocated with the sample above the SRG will be collected. We will notify you prior to collection of the sample in case you want to collect a split sample. As was agreed to during the call, additional excavation will not be performed at APET0500 because the primary result (2.35 pg/g [validated]) is well below the SRG (3 pg/g) and the RWQCB split sample result (3.05 pg/g [validated]) is essentially equivalent to the SRG when precision of the analysis is considered.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art Lenox

Alexander Fischl

From: Cassandra Owens <Cowens@waterboards.ca.gov>
Sent: Wednesday, March 14, 2012 2:44 PM
To: Alexander Fischl
Cc: Mazhar Ali; Peter Raftery
Subject: Re: FW: AP/STP-1C-1, -1E-2 Confirmation Email

The attached email summarizes additional work proposed for AP/STP-1C-1 and AP/STP-1E-2 and agreed to during the conference call held December 9, 2011. Sorry for the delay in responding.

Cassandra

Cassandra D. Owens
Unit Chief, Industrial Permitting Unit (NPDES)
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013
Phone (213) 576-6750
cowens@waterboards.ca.gov

>>> Alexander Fischl <Alexander.Fischl@us.mwhglobal.com> 3/8/2012 4:38 PM >>>
Cassandra/Peter,

I was just looking through my emails and noticed we never received a confirmation email from the RWQCB responding to the email below summarizing the agreements reached during a conference call on December 9th discussing excavation plans at AP/STP-1C-1 and -1E-2. I have attached DTSC confirmation email for your reference. Please take a moment and review the email. A response from RWQCB would be appreciated to complete our record of this conversation.

Thank you,

Alex Fischl
MWH - Walnut Creek, CA Office
office: 925-627-4627
cell: 925-997-7384

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Monday, December 12, 2011 2:22 PM
To: Cassandra Owens; Buck King; praftery@waterboards.ca.gov
Cc: Alexander Fischl; PG Randy Dean (Randy.Dean@ch2m.com); Peter Zorba
Subject: AP/STP-1C-1, -1E-2 Confirmation Email

Hello Cassandra, Peter, and Buck -

This email serves to document the agreements reached during the teleconference held on December 9, 2011 with RWQCB and DTSC staff regarding the management of soils within ISRA area AP/STP-1C-1 and additional excavation within ISRA area AP/STP-1E-2. Attending the teleconference were: Cassandra Owens and Peter Raftery (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are described below. The AP/STP-1C-1 and AP/STP-1E-2 sample location maps with data plotted are attached to this email.

AP/STP-1C-1

During the teleconference held on November 9, 2011 with RWQCB and DTSC staff, it was agreed that the initial four waste characterization samples with radionuclide results above EPA trigger levels for cesium-137 (Cs-137) and uranium-238 (U-238) were not confirmed. However, six stepout samples contained U-238 above the trigger level and these locations were to be resampled. The results of 4 of the 6 re-samples were below the trigger level, and therefore the initial exceedances are considered anomalies. The other 2 re-samples confirmed the initial exceedance of the trigger level.

Additionally, the uranium-235 (U-235) results were discussed. As mentioned on the call, all 20 waste characterization samples analyzed for U-235 were non-detect. However, one of the results had a detection limit slightly above (7/1,000) the preliminary EPA trigger value. Sample APWC0005 had a result for U-235 of <0.137 pCi/g compared to a trigger value of 0.130 pCi/g. This sample was collected in July 2010, before development of the trigger levels. Soil from this location will not be excavated until final trigger values are established.

Based on the above information, soil associated with the 2 confirmed exceedances and APWC0005 will be delineated and agencies will be notified prior to removal of the soil. The agreed-upon delineation is shown on the attached figure. The remaining soils within AP/STP-1C-1 are considered not to contain radionuclides above trigger levels and will be disposed of without radiological restrictions.

AP/STP-1E-2

The ISRA COC at AP/STP-1E-2 is dioxins. Per the discussion, additional excavation is planned at 3 locations (APET0501, 0502, and 0503). The approach is to excavate additional soil from an approximately 20' by 20' area around each sample, modifying the excavation limits based on the location of sidewalls and other confirmation samples with results below the soil remediation goals (SRGs). The excavation depth will be 1 foot within a 10' by 10' area around each sample and sloping to existing grade at the excavation limits. Once the additional excavation is complete, a floor confirmation sample collocated with the sample above the SRG will be collected. We will notify you prior to collection of the sample in case you want to collect a split sample. As was agreed to during the call, additional excavation will not be performed at APET0500 because the primary result (2.35 pg/g [validated]) is well below the SRG (3 pg/g) and the RWQCB split sample result (3.05 pg/g [validated]) is essentially equivalent to the SRG when precision of the analysis is considered.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox

Alexander Fischl

From: Buck King <BKing@dtsc.ca.gov>
Sent: Thursday, March 22, 2012 9:02 AM
To: Arthur J Lenox; cowens@waterboards.ca.gov; Peter Raftery
Cc: Randy.Dean@CH2M.com; Mark Malinowski; PETER D.(HQ-LP040) ZORBA; Alexander Fischl
Subject: Re: AP/STP-1B,-1C-1,-1C-2,-1E-2 Confirmation Email (2 of 2)

The email description and attached figures accurately summarizes the agreements reached during the March 14, 2012 ISRA teleconference meeting. The DTSC accepts the proposed sampling and excavation strategies for AP/STP-1B, -1C-1, -1C-2, and -1E-2.

Buck King, PG, CHG
Senior Engineering Geologist
(510) 540-3955 Fax (510) 540-3937
bking@dtsc.ca.gov

>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 3/20/2012 2:29 PM >>>
Hello Cassandra, Peter, and Buck -

This email serves to document the agreements reached during the teleconference held on March 14, 2012 with RWQCB and DTSC staff regarding planned activities at ISRA areas AP/STP-1B, -1C-1, -1C-2, and -1E-2. Attending the teleconference were: Cassandra Owens and Peter Raftery (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are described below. The figures reviewed during the teleconference are attached to this email for review.

AP/STP-1B

Per the discussion, additional excavation is planned at two locations to remove soil associated with two samples with dioxins above the SRG as shown on the attached figure titled "AP-STP-1B Conf Smple Results_031412". Excavation depth at each location will be an additional foot. After this planned additional excavation is complete, floor confirmation samples collocated with samples above the SRG will be collected. As was agreed to during the call, additional excavation will not be performed at APET0702, 0703, and 0705. In each instance, the primary result is below the SRG and the split sample result is slightly above the SRG.

AP/STP-1C-1

Per the discussion, the one radionuclide result confirmed above the December 2011 trigger levels will be delineated using the boundary developed during a previous teleconference held on December 9, 2011. Additionally, ISRA area AP/STP-1C-1 will be divided into 4 subareas, each with a different suite of ISRA COCs. The ISRA COCs for each subarea were based on existing data as shown on the attached figure titled "AP-STP-1C-1_Subareas Metals_031412." Each

confirmation sample will be analyzed for the ISRA COCs identified for the subarea the sample is located within. The agreed-upon confirmation sampling plans are shown on the attached figures titled "AP-STP-1C-1_Confirm Plan_Sidewall_031412" and "AP-STP-1C-1_Confirm Plan_Floor_031412."

AP/STP-1C-2

Per the discussion, additional excavation is planned at three locations to remove soil with ISRA COCs above the SRGs as shown on the attached figure titled "AP-STP-1C-2 Conf Smple Results_031412". The first excavation area is located in the western portion of the ISRA area to remove soil associated with five samples with copper above the SRG and one sample with dioxins above the SRG. Prior to performing the additional excavation, two samples will be collected at locations shown on the attached figure and analyzed for copper. If results are below the SRG, the excavation extent shown on the attached figure will be followed with excavation depth being an additional 2 feet; otherwise the excavation extent will be revised based on the results and reviewed with the agencies prior to implementation. The second excavation area is located in the central portion of the ISRA area to remove soil associated with six samples with dioxins above the SRG. The excavation extent shown on the attached figure will be followed with excavation depth being an additional 1 foot, unless limited based on recommendations from the project biologist due to the work being performed in the vicinity of protected oak trees. The third excavation area is located in the eastern portion of the ISRA area to remove soil associated with three samples with dioxins above the SRG. The excavation extent shown on the attached figure will be followed with excavation depth being an additional 1 foot. After this planned additional excavation is complete, floor confirmation samples collocated with samples above the SRGs will be collected. The two exceptions to this are samples APET0814 and APET0819 located in the western excavation area that will not be resampled due to their proximity to other samples that will be resampled.

AP/STP-1E-2

Per the discussion, the excavation and confirmation sampling plan agreed to during the teleconference held on December 9, 2011 was reviewed. Refer to the confirmation email summarizing the teleconference dated December 12, 2011 for details.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
Arthur.j.lenox@boeing.com

Alexander Fischl

From: Cassandra Owens <Cowens@waterboards.ca.gov>
Sent: Thursday, March 22, 2012 9:38 AM
To: Art Lennox; Buck King; Alexander Fischl <Alexander.Fischl@us.mwhglobal.com>; Peter Raftery
Cc: Mazhar Ali
Subject: Re: AP/STP-1B,-1C-1,-1C-2,-1E-2 Confirmation Email (2 of 2)

The RWQCB accepts the proposed sampling and excavation plans discussed during the March 14, 2012 ISRA teleconference meeting. The description presented herewith accurately summaries the agreements reached.

Cassandra D. Owens
Unit Chief, Industrial Permitting Unit (NPDES)
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013
Phone (213) 576-6750
cowens@waterboards.ca.gov

>>> Buck King <BKing@dtsc.ca.gov> 3/22/2012 9:02 AM >>>

The email description and attached figures accurately summarizes the agreements reached during the March 14, 2012 ISRA teleconference meeting. The DTSC accepts the proposed sampling and excavation strategies for AP/STP-1B, -1C-1, -1C-2, and -1E-2.

Buck King, PG, CHG
Senior Engineering Geologist
(510) 540-3955 Fax (510) 540-3937
bking@dtsc.ca.gov

>>> "Lenox, Arthur J" <arthur.j.lenox@boeing.com> 3/20/2012 2:29 PM >>>

Hello Cassandra, Peter, and Buck -

This email serves to document the agreements reached during the teleconference held on March 14, 2012 with RWQCB and DTSC staff regarding planned activities at ISRA areas AP/STP-1B, -1C-1, -1C-2, and -1E-2. Attending the teleconference were: Cassandra Owens and Peter Raftery (RWQCB), Buck King (DTSC), Art Lennox (Boeing), Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are described below. The figures reviewed during the teleconference are attached to this email for review.

AP/STP-1B

Per the discussion, additional excavation is planned at two locations to remove soil associated with two samples with dioxins above the SRG as shown on the attached figure titled "AP-STP-1B Conf Smple Results_031412". Excavation depth at each location will be an additional foot. After this planned additional excavation is complete, floor confirmation samples collocated with samples above the SRG will be collected. As was agreed to during the call, additional excavation will not be performed at APET0702, 0703, and 0705. In each instance, the primary result is below the SRG and the split sample result is slightly above the SRG.

AP/STP-1C-1

Per the discussion, the one radionuclide result confirmed above the December 2011 trigger levels will be delineated using the boundary developed during a previous teleconference held on December 9, 2011. Additionally, ISRA area AP/STP-1C-1 will be divided into 4 subareas, each with a different suite of ISRA COCs. The ISRA COCs for each subarea were based on existing data as shown on the attached figure titled "AP-STP-1C-1_Subareas Metals_031412." Each confirmation sample will be analyzed for the ISRA COCs identified for the subarea the sample is located within. The agreed-upon confirmation sampling plans are shown on the attached figures titled "AP-STP-1C-1_Confirm Plan_Sidewall_031412" and "AP-STP-1C-1_Confirm Plan_Floor_031412."

AP/STP-1C-2

Per the discussion, additional excavation is planned at three locations to remove soil with ISRA COCs above the SRGs as shown on the attached figure titled "AP-STP-1C-2 Conf Smple Results_031412". The first excavation area is located in the western portion of the ISRA area to remove soil associated with five samples with copper above the SRG and one sample with dioxins above the SRG. Prior to performing the additional excavation, two samples will be collected at locations shown on the attached figure and analyzed for copper. If results are below the SRG, the excavation extent shown on the attached figure will be followed with excavation depth being an additional 2 feet; otherwise the excavation extent will be revised based on the results and reviewed with the agencies prior to implementation. The second excavation area is located in the central portion of the ISRA area to remove soil associated with six samples with dioxins above the SRG. The excavation extent shown on the attached figure will be followed with excavation depth being an additional 1 foot, unless limited based on recommendations from the project biologist due to the work being performed in the vicinity of protected oak trees. The third excavation area is located in the eastern portion of the ISRA area to remove soil associated with three samples with dioxins above the SRG. The excavation extent shown on the attached figure will be followed with excavation depth being an additional 1 foot. After this planned additional excavation is complete, floor confirmation samples collocated with samples above the SRGs will be collected. The two exceptions to this are samples APET0814 and APET0819 located in the western excavation area that will not be resampled due to their proximity to other samples that will be resampled.

AP/STP-1E-2

Per the discussion, the excavation and confirmation sampling plan agreed to during the teleconference held on December 9, 2011 was reviewed. Refer to the confirmation email summarizing the teleconference dated December 12, 2011 for details.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
Arthur.j.lenox@boeing.com<mailto:Arthur.j.lenox@boeing.com>

National Aeronautics and Space Administration

George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



August 6, 2011

Reply to Attn of:

Department of Toxic Substances Control
ATTN: Paul Carpenter, Senior Engineering Geologist
8800 Cal Center Drive
Sacramento, CA 95826

Subject: Notification of Subsurface Feature Investigation East of the Area II Sewage Treatment Plant, Interim Source Removal Action (ISRA), California Water Code Section 13304 Order (NPDES NO. CA0001309, CI NO. 6027, SCP NO. 1111, SITE ID NO. 2040109)

Dear Mr. Carpenter:

NASA is planning to investigate a subsurface feature 100 feet northeast of the Area II Sewage Treatment Plant (B515). The purpose of this letter is to notify you of our intended activities to document, photograph, and further identify the subsurface feature. This feature was discovered by NASA's contractor CH2MHILL in Fall 2010 near debris area CH2-G02-1073, and is located approximately 20 feet east of the planned excavation boundary of an Ash Pile/Sewage Treatment Plant (AP/STP) Interim Source Removal Action (ISRA) area, AP/STP-1C-1. The proximity of this feature to the AP/STP ISRA areas is shown on the attached Figure 1.

A preliminary field investigation of this feature was performed in November 2010. The findings of that investigation are described in a memorandum prepared by MWH dated January 21, 2011 and revised on January 25, 2011 (MWH, 2011). On the basis of these findings and a review of available historic SSFL drawings, the feature is believed to be the westernmost distribution box for the former leachfield associated with the Service Area buildings.

NASA plans to further investigate this subsurface feature when ISRA excavation activities resume at the AP/STP-1C1 area. The proposed investigation includes removing soil from the top and sides of the feature. This soil removal will expose the feature so the actual dimensions can be measured, and so subsurface piping connections can be observed and documented. The work to excavate around the feature (hand tools and backhoe) will be documented in daily field notes and photographs. Health and safety protocols during the investigation and removal activities will follow those specified in the contractors' Health and Safety Plan. Once the feature is uncovered, documented, and photographed, the excavated soil will be replaced around the feature. NASA will develop a technical memorandum to summarize the previously described investigation activities once completed.

NASA understands this feature is of interest to DTSC. If you have any questions or require any additional information, please contact me at 818-466-4483 or peter.zorba@nasa.gov.

Sincerely,



en

Allen Elliott
NASA SSFL Program Director

cc: Allen Elliott/NASA
Tom Skaug/DTSC
Buck King/DTSC
Art Lenox/Boeing
Randy Dean/CH2MHILL

Attachments:

Figure 1: Location of Feature at Former Sewage Treatment Plant

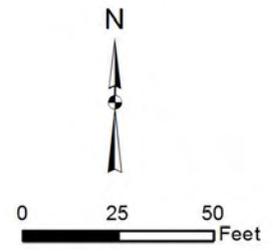
References:

MWH, 2011. Memorandum, Underground Tank at AP/STP. January 21, 2011 (rev. January 25, 2011).



Legend

-  RFI Site Boundary
-  ISRA Excavation
-  Surface Water Drainage
-  Unknown Subsurface Feature



SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA
**Unknown Subsurface Feature Location
AP/STP Area**
FIGURE 1

Alexander Fischl

From: King, Buck@DTSC <Buck.King@dtsc.ca.gov>
Sent: Thursday, September 20, 2012 10:54 AM
To: Owens, Cassandra@Waterboards; Lenox, Arthur J; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); Randy Dean; Alexander Fischl
Subject: RE: AP/STP-1B, -1C-1, -1C-2 Confirmation Email

ISRA Team,

The description of the September 19, 2012 conference call presented below is accurate and reflects issues and decisions made during the call. DTSC is in agreement with decisions regarding ISRA excavation boundaries made during the call.

Buck King
DTSC Senior Engineering Geologist

From: Owens, Cassandra@Waterboards
Sent: Thursday, September 20, 2012 10:30 AM
To: Lenox, Arthur J; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: ZORBA, PETER D. (HQ-LP040); Randy Dean; Alexander Fischl
Subject: RE: AP/STP-1B, -1C-1, -1C-2 Confirmation Email

Hi Everyone,

One change is Mazhar Ali was also on the conference call. With that change, I believe the attached email accurately documents the decisions made during the conference call on September 19, 2012.

Thanks
Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Lenox, Arthur J [mailto:arthur.j.lenox@boeing.com]
Sent: Wednesday, September 19, 2012 4:11 PM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Buck King; Ali, Mazhar@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); Randy Dean; Alexander Fischl
Subject: AP/STP-1B, -1C-1, -1C-2 Confirmation Email

Hello Cassandra, Peter, and Buck -

This email serves to document the agreements reached during the teleconference held on September 19, 2012 with RWQCB and DTSC staff regarding additional excavation within ISRA areas AP/STP-1B and AP/STP-1E-2, and the excavation boundary for ISRA area AP/STP-1C-1. Attending the teleconference were: Cassandra Owens and Peter Raftery (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The AP/STP-1B, AP/STP-1C-1, and AP/STP-1C-2 sample location maps with data plotted which were reviewed during the teleconference are attached to this email for reference.

AP/STP-1B

During the March 14, 2012 teleconference, it was agreed to perform additional excavation at two locations to remove soil associated with two samples with dioxins above the SRG (APET0706 and 0712), and that additional excavation will not be performed at three locations which have primary results below the soil remediation goal (SRG) and split sample results slightly higher than the SRG (APET0702, 0703, and 0705). In April, dioxin results for two samples, APET0703 and 0705, were received. These results were reviewed during the call. It was agreed to expand the additional excavation area for APET0712 to include sample APET0703, which had dioxins above the SRG and is located adjacent to sample APET0712. It was also agreed not to perform additional excavation at APET0705, which had the primary result below the SRG and the split sample result slightly higher than the SRG.

AP/STP-1C-2

During the March 14, 2012 teleconference, it was agreed to perform additional excavation at three areas in AP/STP-1C-2. The western and central additional excavation areas contain several Coast Live Oak trees, a Ventura County protected tree species. In preparation for resuming ISRA activities, the project biologist inspected these three planned additional excavation areas and made the recommendation that in the western and central excavation areas, additional excavation would expose the roots and potentially cause damage to the tree. Additional excavation was proposed in the eastern area to remove copper results above the ISRA SRG and in the central area to remove dioxins slightly above the ISRA SRG. After discussing the details of these two areas, it was agreed that no additional excavation will occur to protect the oak trees because copper has been in compliance at Outfall 009 since 2006 and although the dioxin results are slightly above the SRG (up to 2.5 times the SRG), runoff from AP/STP area has not been observed during the two years of performance monitoring (2010-2011 and 2011-2012 rainy season). The eastern and western areas will be restored by placing some dirt from the sides of the excavation over the tree roots to help preserve the tree and installing fiber rolls for erosion control.

AP/STP-1C-1

During the March 14, 2012 teleconference, the confirmation sampling plan for AP/STP-1C-1 was agreed to. In April, sidewall confirmation samples were collected at either new locations or existing locations to complete the confirmation sampling analytical suite. The results from this sampling event were reviewed during the call. The following agreements were made.

- 1) Samples APBS1128, APBS1261, and APET0901, which have cadmium detected slightly above the SRG (up to 1.2 times the SRG), will be used as sidewall samples since cadmium has been in compliance at Outfall 009 since 2005.
- 2) The ISRA boundary will be expanded to remove sample APBS1193 as shown on attached figure and a new sidewall sample will be collected.
- 3) Samples APBS1170, 1172, and 1200, which have dioxins slightly above the SRG (up to 3.4 times the SRG), will be used as sidewall samples since they are located close to an active road and that further investigation of these results will be performed at a later time as part of the AOC.
- 4) The ISRA boundary will be expanded to be adjacent to the road to remove sample APSS05 as shown on the attached figure and a new sidewall sample will be collected.
- 5) The ISRA boundary will be expanded to remove sample APBS1169 as shown on the attached figure. This sample is located between several features, including a bedrock outcrop, an oak tree, a monitoring well, and an active road. As much soil as is feasible will be removed from this area, however a new sidewall sample will not be collected due to the presence of these features.

- 6) Sample APBS1117, which has dioxins slightly above the SRG (1.7 times the SRG), will be used as a sidewall sample since it is located close to bedrock and an oak tree.

- 7) The accuracy of sample locations APBS1028, 1117, 1118, and 1169 located in the southwestern portion of the ISRA area was discussed. Sample stakes for APBS1117 and 11169 are still present and show the samples at the base of the bedrock outcrop, as opposed to on top of the outcrop as shown on the figure. Sample stakes for APBS1028 and 1118 were not present in the field, however, after the teleconference CH2M HILL confirmed these samples were collected on the east side of the bedrock outcrop, within the ISRA boundary. It was agreed that the southwestern boundary will extend to the bedrock outcrop, but will not continue on top of it.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

Alexander Fischl

From: Owens, Cassandra@Waterboards <Cassandra.Owens@waterboards.ca.gov>
Sent: Thursday, September 20, 2012 10:31 AM
To: Lenox, Arthur J; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: ZORBA, PETER D. (HQ-LP040); Randy Dean; Alexander Fischl
Subject: RE: AP/STP-1B, -1C-1, -1C-2 Confirmation Email

Hi Everyone,

One change is Mazhar Ali was also on the conference call. With that change, I believe the attached email accurately documents the decisions made during the conference call on September 19, 2012.

Thanks
Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Lenox, Arthur J [mailto:arthur.j.lenox@boeing.com]
Sent: Wednesday, September 19, 2012 4:11 PM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Buck King; Ali, Mazhar@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); Randy Dean; Alexander Fischl
Subject: AP/STP-1B, -1C-1, -1C-2 Confirmation Email

Hello Cassandra, Peter, and Buck -

This email serves to document the agreements reached during the teleconference held on September 19, 2012 with RWQCB and DTSC staff regarding additional excavation within ISRA areas AP/STP-1B and AP/STP-1E-2, and the excavation boundary for ISRA area AP/STP-1C-1. Attending the teleconference were: Cassandra Owens and Peter Raftery (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The AP/STP-1B, AP/STP-1C-1, and AP/STP-1C-2 sample location maps with data plotted which were reviewed during the teleconference are attached to this email for reference.

AP/STP-1B

During the March 14, 2012 teleconference, it was agreed to perform additional excavation at two locations to remove soil associated with two samples with dioxins above the SRG (APET0706 and 0712), and that additional excavation will not be performed at three locations which have primary results below the soil remediation goal (SRG) and split sample results slightly higher than the SRG (APET0702, 0703, and 0705). In April, dioxin results for two samples, APET0703 and 0705, were received. These results were reviewed during the call. It was agreed to expand the additional excavation area for APET0712 to include sample APET0703, which had dioxins above the SRG and is located adjacent to sample

APET0712. It was also agreed not to perform additional excavation at APET0705, which had the primary result below the SRG and the split sample result slightly higher than the SRG.

AP/STP-1C-2

During the March 14, 2012 teleconference, it was agreed to perform additional excavation at three areas in AP/STP-1C-2. The western and central additional excavation areas contain several Coast Live Oak trees, a Ventura County protected tree species. In preparation for resuming ISRA activities, the project biologist inspected these three planned additional excavation areas and made the recommendation that in the western and central excavation areas, additional excavation would expose the roots and potentially cause damage to the tree. Additional excavation was proposed in the eastern area to remove copper results above the ISRA SRG and in the central area to remove dioxins slightly above the ISRA SRG. After discussing the details of these two areas, it was agreed that no additional excavation will occur to protect the oak trees because copper has been in compliance at Outfall 009 since 2006 and although the dioxin results are slightly above the SRG (up to 2.5 times the SRG), runoff from AP/STP area has not been observed during the two years of performance monitoring (2010-2011 and 2011-2012 rainy season). The eastern and western areas will be restored by placing some dirt from the sides of the excavation over the tree roots to help preserve the tree and installing fiber rolls for erosion control.

AP/STP-1C-1

During the March 14, 2012 teleconference, the confirmation sampling plan for AP/STP-1C-1 was agreed to. In April, sidewall confirmation samples were collected at either new locations or existing locations to complete the confirmation sampling analytical suite. The results from this sampling event were reviewed during the call. The following agreements were made.

- 1) Samples APBS1128, APBS1261, and APET0901, which have cadmium detected slightly above the SRG (up to 1.2 times the SRG), will be used as sidewall samples since cadmium has been in compliance at Outfall 009 since 2005.
- 2) The ISRA boundary will be expanded to remove sample APBS1193 as shown on attached figure and a new sidewall sample will be collected.
- 3) Samples APBS1170, 1172, and 1200, which have dioxins slightly above the SRG (up to 3.4 times the SRG), will be used as sidewall samples since they are located close to an active road and that further investigation of these results will be performed at a later time as part of the AOC.
- 4) The ISRA boundary will be expanded to be adjacent to the road to remove sample APSS05 as shown on the attached figure and a new sidewall sample will be collected.
- 5) The ISRA boundary will be expanded to remove sample APBS1169 as shown on the attached figure. This sample is located between several features, including a bedrock outcrop, an oak tree, a monitoring well, and an active road. As much soil as is feasible will be removed from this area, however a new sidewall sample will not be collected due to the presence of these features.
- 6) Sample APBS1117, which has dioxins slightly above the SRG (1.7 times the SRG), will be used as a sidewall sample since it is located close to bedrock and an oak tree.
- 7) The accuracy of sample locations APBS1028, 1117, 1118, and 1169 located in the southwestern portion of the ISRA area was discussed. Sample stakes for APBS1117 and 11169 are still present and show the samples at the base of the bedrock outcrop, as opposed to on top of the outcrop as shown on the figure. Sample stakes for APBS1028 and 1118 were not present in the field, however, after the teleconference CH2M HILL confirmed these samples were collected on the east side of the bedrock outcrop, within the ISRA boundary. It was agreed that the southwestern boundary will extend to the bedrock outcrop, but will not continue on top of it.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795

Cell - (818) 312-2798
arthur.j.lenox@boeing.com

Alexander Fischl

From: King, Buck@DTSC <Buck.King@dtsc.ca.gov>
Sent: Tuesday, October 23, 2012 12:04 PM
To: Art Lenox (arthur.j.lenox@boeing.com); Owens, Cassandra@Waterboards
Cc: Alexander Fischl
Subject: RE: AP/STP and ELV Confirmation (1 of 2)

The email description and 5 figures accurately describes the ISRA excavation area agreements reached during the Oct 3 and Oct 22, 2012 teleconference.

Buck King, PG. CHG.
Senior Engineering Geologist
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710
Telephone: 510.540.3955
e-mail : buck.king@dtsc.ca.gov

From: Alexander Fischl [<mailto:Alexander.Fischl@us.mwhglobal.com>]
Sent: Tuesday, October 23, 2012 9:18 AM
To: King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com)
Subject: FW: AP/STP and ELV Confirmation (1 of 2)

Buck,

I've been meaning to get set-up with our IT folks to get access to the file sharing system that Dave used, but haven't yet. So, instead I've split the PDF into 2 parts.

Alex Fischl
MWH - Walnut Creek, CA Office
office: 925-627-4627
cell: 925-997-7384

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Monday, October 22, 2012 3:53 PM
To: Alexander Fischl; ZORBA, PETER D. (HQ-LP040); Randy Dean (Randy.Dean@ch2m.com); 'King, Buck@DTSC'; Owens, Cassandra@Waterboards; Mazhar Ali (mali@waterboards.ca.gov); Raftery, Peter@Waterboards
Subject: AP/STP and ELV Confirmation

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconferences held on October 3, 2012 and October 22, 2012 with RWQCB and DTSC staff regarding results of confirmation samples collected at AP/STP ISRA areas and results of radiological samples collected at ELV-1C. Attending both teleconferences were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), Randy Dean (CH2M HILL),

and Alex Fischl (MWH). A summary of the agreements reached during the teleconferences are summarized below. The AP/STP-1B, AP/STP-1C-1 (2 maps), AP/STP-1C-2, AP/STP-1E-2, and ELV-1C sample location maps with data plotted which were reviewed during the teleconference are attached to this email for reference.

AP/STP-1B

During the October 22, 2012 teleconference, it was agreed to perform additional excavation at the two locations shown on the attached figure (red dashed boundaries) to remove soil associated with 10 samples with dioxins above the soil remediation goal (SRG). Excavation depth will be 1 or 2 feet below current grade as indicated on the figure. Once the additional excavations are completed, confirmation samples will be collected at the locations where the 10 samples were and analyzed for dioxins. It was also agreed that excavation is completed in the eastern portion of the ISRA area based on the confirmation sample results below the SRG in the two completed additional excavations shown on the attached figure (black dashed boundaries).

AP/STP-1C-1

During the October 3, 2012 teleconference, metals results for confirmation samples collected within ISRA area AP/STP-1C-1 were reviewed. It was agreed to perform additional excavation at one location in the northwest portion of the ISRA area shown on the attached figure (red dashed boundary) to remove soil associated with one sample with metals above the SRGs (APET0915). Excavation depth will be 2 feet below current grade and once the additional excavation is completed, a confirmation sample will be collected at the location where the sample was and analyzed for metals and dioxins. Additionally, it was agreed to leave four other samples with metals slightly above the SRGs in place (APET0924, 928, 936, and 937). The rationale for not excavating soil associated with these samples included the metals were slightly above the SRGs, cadmium and mercury detections above the SRG are low priority because these metals have not been detected in the Outfall 009 NPDES sample since 2005, the RWQCB split result was below the SRG, there is little to no stormwater runoff from the AP/STP ISRA areas based on inspections performed during the last two rainy seasons, and/or future remediation work under the AOC is expected to include removal of the leachfield, which overlaps this ISRA area.

During the October 22, 2012 teleconference, it was agreed to perform additional excavation at the five locations shown on the attached figure (red dashed boundaries) to remove soil associated with 16 samples with dioxins above the soil remediation goal (SRG). Excavation depth will be 1 or 2 feet below current grade as indicated on the figure. Once the additional excavations are completed, confirmation samples will be collected at the locations where the 16 samples were. Samples collected where APET0935, 936, and 937 were will be analyzed for metals and dioxins (two of these samples contained metals above the SRGs, but were agreed to be left in place as described in the previous paragraph), while the samples collected where the other samples were will be analyzed for dioxins.

AP/STP-1C-2

During the October 22, 2012 teleconference, it was agreed that excavation is completed in this ISRA area based on the confirmation sample results below the SRG in the one completed additional excavation (eastern area) shown on the attached figure (black dashed boundaries). During the September 19, 2012 teleconference, it was agreed that no additional excavation would occur to remove samples with results above the SRGs in the central or western portion of the ISRA area to protect the oak trees. The memorandum prepared by Padre Associates documenting their recommendation to not excavate additional soil near the Oak trees in AP/STP-1C-2 was emailed to the RWQCB and DTSC on October 3, 2012.

AP/STP-1E-2

During the October 22, 2012 teleconference, it was agreed that excavation is completed in this ISRA area. In two of the three additional excavations shown on the attached figure (black dashed boundaries), the confirmation sample results were below the SRG. In the third additional excavation, although the sample result was slightly above the SRG, it was agreed to not perform additional excavation because the result is only slightly above the SRG, there is little to no stormwater runoff from the AP/STP ISRA areas based on inspections performed during the last two rainy seasons, and further excavation at this location could result in failure of an adjacent steep slope within the AP/STP drainage.

ELV-1C

During the October 22, 2012 teleconference, radiological results for samples collected to confirm or delineate radiological exceedances of the December 2011 radiological trigger levels (RTLs) within ISRA area ELV-1C were reviewed. It was agreed that the resample at ISWC0097 did not confirm the initial results of cs-137 and U-238 above the RTLs and that ISWC0055 was delineated as shown on the attached figure (black dashed line). Additionally, the plan to excavate the non-hazardous soils from ELV-1C (west of the blue dashed line) excluding the delineated area around sample ISWC0055 was agreed to. The area east of the blue dashed line, which is California hazardous for lead and where radiological results above the trigger level have not yet been delineated, will remain in place until the DTSC radiological look-up table is finalized.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

Alexander Fischl

From: Owens, Cassandra@Waterboards <Cassandra.Owens@waterboards.ca.gov>
Sent: Tuesday, October 23, 2012 11:00 AM
To: Lenox, Arthur J; Alexander Fischl; ZORBA, PETER D. (HQ-LP040); Randy Dean (Randy.Dean@ch2m.com); King, Buck@DTSC; Ali, Mazhar@Waterboards; Raftery, Peter@Waterboards
Subject: RE: AP/STP and ELV Confirmation

The attached email accurately reflects the items discussed and the agreements made during the two conference calls referenced.

Thanks
Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Lenox, Arthur J [mailto:arthur.j.lenox@boeing.com]
Sent: Monday, October 22, 2012 3:53 PM
To: Alexander Fischl; ZORBA, PETER D. (HQ-LP040); Randy Dean (Randy.Dean@ch2m.com); King, Buck@DTSC; Owens, Cassandra@Waterboards; Ali, Mazhar@Waterboards; Raftery, Peter@Waterboards
Subject: AP/STP and ELV Confirmation

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconferences held on October 3, 2012 and October 22, 2012 with RWQCB and DTSC staff regarding results of confirmation samples collected at AP/STP ISRA areas and results of radiological samples collected at ELV-1C. Attending both teleconferences were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconferences are summarized below. The AP/STP-1B, AP/STP-1C-1 (2 maps), AP/STP-1C-2, AP/STP-1E-2, and ELV-1C sample location maps with data plotted which were reviewed during the teleconference are attached to this email for reference.

AP/STP-1B

During the October 22, 2012 teleconference, it was agreed to perform additional excavation at the two locations shown on the attached figure (red dashed boundaries) to remove soil associated with 10 samples with dioxins above the soil remediation goal (SRG). Excavation depth will be 1 or 2 feet below current grade as indicated on the figure. Once the additional excavations are completed,

confirmation samples will be collected at the locations where the 10 samples were and analyzed for dioxins. It was also agreed that excavation is completed in the eastern portion of the ISRA area based on the confirmation sample results below the SRG in the two completed additional excavations shown on the attached figure (black dashed boundaries).

AP/STP-1C-1

During the October 3, 2012 teleconference, metals results for confirmation samples collected within ISRA area AP/STP-1C-1 were reviewed. It was agreed to perform additional excavation at one location in the northwest portion of the ISRA area shown on the attached figure (red dashed boundary) to remove soil associated with one sample with metals above the SRGs (APET0915). Excavation depth will be 2 feet below current grade and once the additional excavation is completed, a confirmation sample will be collected at the location where the sample was and analyzed for metals and dioxins. Additionally, it was agreed to leave four other samples with metals slightly above the SRGs in place (APET0924, 928, 936, and 937). The rationale for not excavating soil associated with these samples included the metals were slightly above the SRGs, cadmium and mercury detections above the SRG are low priority because these metals have not been detected in the Outfall 009 NPDES sample since 2005, the RWQCB split result was below the SRG, there is little to no stormwater runoff from the AP/STP ISRA areas based on inspections performed during the last two rainy seasons, and/or future remediation work under the AOC is expected to include removal of the leachfield, which overlaps this ISRA area.

During the October 22, 2012 teleconference, it was agreed to perform additional excavation at the five locations shown on the attached figure (red dashed boundaries) to remove soil associated with 16 samples with dioxins above the soil remediation goal (SRG). Excavation depth will be 1 or 2 feet below current grade as indicated on the figure. Once the additional excavations are completed, confirmation samples will be collected at the locations where the 16 samples were. Samples collected where APET0935, 936, and 937 were will be analyzed for metals and dioxins (two of these samples contained metals above the SRGs, but were agreed to be left in place as described in the previous paragraph), while the samples collected where the other samples were will be analyzed for dioxins.

AP/STP-1C-2

During the October 22, 2012 teleconference, it was agreed that excavation is completed in this ISRA area based on the confirmation sample results below the SRG in the one completed additional excavation (eastern area) shown on the attached figure (black dashed boundaries). During the September 19, 2012 teleconference, it was agreed that no additional excavation would occur to remove samples with results above the SRGs in the central or western portion of the ISRA area to protect the oak trees. The memorandum prepared by Padre Associates documenting their recommendation to not excavate additional soil near the Oak trees in AP/STP-1C-2 was emailed to the RWQCB and DTSC on October 3, 2012.

AP/STP-1E-2

During the October 22, 2012 teleconference, it was agreed that excavation is completed in this ISRA area. In two of the three additional excavations shown on the attached figure (black dashed boundaries), the confirmation sample results were below the SRG. In the third additional excavation, although the sample result was slightly above the SRG, it was agreed to not perform additional excavation because the result is only slightly above the SRG, there is little to no stormwater runoff from the AP/STP ISRA areas based on inspections performed during the last two rainy seasons, and further excavation at this location could result in failure of an adjacent steep slope within the AP/STP drainage.

ELV-1C

During the October 22, 2012 teleconference, radiological results for samples collected to confirm or delineate radiological exceedances of the December 2011 radiological trigger levels (RTLs) within ISRA area ELV-1C were reviewed. It was agreed that the resample at ISWC0097 did not confirm the initial results of cs-137 and U-238 above the RTLs and that ISWC0055 was delineated as shown on the attached figure (black dashed line). Additionally, the plan to excavate the non-hazardous soils from ELV-1C (west of the blue dashed line) excluding the delineated area around sample ISWC0055 was agreed to. The area east of the blue dashed line, which is California hazardous for lead and where radiological results above the trigger level have not yet been delineated, will remain in place until the DTSC radiological look-up table is finalized.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

NASA Public Notice

ISRA Excavation and Removal of "ELV" Soils Has Begun

November 13, 2012

To undertake some Interim Source Removal Action (ISRA) activities in the Expendable Launch Vehicle (ELV) Service area in NASA-administered Area II before the onset of seasonal rains, NASA has begun excavation and removal of some surface soils. The area being excavated is the southwestern portion of the ELV-1C area.

This action is taken at the direction of the Los Angeles Regional Water Quality Control Board (RWQCB) and with the concurrence of the Department of Toxic Substances Control (DTSC). Soils within this portion of the ELV-1C area have been sampled, analyzed, and compared to the ISRA cleanup goals approved by the RWQCB. Any soils with concentrations above these goals will be excavated. Additionally, waste characterization soil samples were analyzed in the ELV-1C area and, with the written approval of DTSC, these soils were screened against the Radiological Trigger Levels (RTLs) provided by EPA in December 2011. The soil sample results in the southwestern portion of the ELV-1C area yielded no radionuclide results at or above the December 2011 RTLs. The soils will be transported for disposal at the Waste Management Landfill in Lancaster, California, which accepts non-hazardous soils.

This decision reflects cooperation among NASA, DTSC and the RWQCB. The parties concluded that, because the EPA's recommended RTLs are a more conservative screening level than the expected radiological lookup tables (to be finalized next year), and because the southwestern ELV-1C soils results are below the RTLs, NASA should begin this important ISRA work this year, in the attempt to remove approximately 600 cubic yards soil before winter rains.

Posted 11/13/2012 on the NASA website: http://ssfl.msfc.nasa.gov/news/default.aspx#isra_20121113

Alexander Fischl

From: King, Buck@DTSC <Buck.King@dtsc.ca.gov>
Sent: Wednesday, November 21, 2012 1:22 PM
To: Lenox, Arthur J; Alexander Fischl; ZORBA, PETER D. (HQ-LP040); 'Randy Dean (Randy.Dean@ch2m.com)'; Owens, Cassandra@Waterboards; Ali, Mazhar@Waterboards; Raftery, Peter@Waterboards
Subject: RE: ELV-1C Confirmation Email

Art,
I concur with the meeting summary below and the attached figure describing confirmation sample locations and analyses.

Buck King, PG. CHG.
Senior Engineering Geologist
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710
Telephone: 510.540.3955
e-mail : buck.king@dtsc.ca.gov

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Wednesday, November 21, 2012 1:03 PM
To: Alexander Fischl; ZORBA, PETER D. (HQ-LP040); 'Randy Dean (Randy.Dean@ch2m.com)'; Owens, Cassandra@Waterboards; King, Buck@DTSC; Ali, Mazhar@Waterboards; Raftery, Peter@Waterboards
Subject: ELV-1C Confirmation Email

All -

This email serves to document the agreements reached during the teleconference held on November 20, 2012 with RWQCB and DTSC staff regarding the confirmation sampling plan for ISRA area ELV-1C. Attending the teleconference were: Cassandra Owens and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are described below. The ELV-1C sample location maps showing the confirmation sampling plan that was agreed to during the teleconference is attached to this email for reference.

ELV-1C

An agreement was reached to decrease the number of floor confirmation samples by 6 (from 27 to 21) and increase the number of sidewall confirmation samples by 2 (from 9 to 11). A floor confirmation sample frequency of 1 per 500 ft² was deemed sufficient for this area due to its elongated shape, as opposed to the frequency of 1 per 400 ft² prescribed in the Final ISRA Work Plan. The number of sidewall confirmation samples increased by 2 to provide better coverage in areas where sample locations are shown under asphalt on the figure when they are actually located within the ISRA area. The planned confirmation sample analytical suite for both floor and sidewall samples is shown on the attached figure. During the call, it was also stated that only non-hazardous soils with radionuclides below the December 2011 radiological trigger levels (RTLs) will be excavated at this time and that RWQCB and DTSC will be notified prior to removing other soil with ELV-1C.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Happy Thanksgiving,

Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

Alexander Fischl

From: Owens, Cassandra@Waterboards <Cassandra.Owens@waterboards.ca.gov>
Sent: Wednesday, November 21, 2012 1:27 PM
To: King, Buck@DTSC; Lenox, Arthur J; Alexander Fischl; ZORBA, PETER D. (HQ-LP040); 'Randy Dean (Randy.Dean@ch2m.com)'; Ali, Mazhar@Waterboards; Raftery, Peter@Waterboards
Subject: RE: ELV-1C Confirmation Email

Art,

I also agree that the email below and the associated accurately summarizes the agreements reached during the call held on November 20, 2012.

Thanks
Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: King, Buck@DTSC
Sent: Wednesday, November 21, 2012 1:22 PM
To: Lenox, Arthur J; Alexander Fischl; ZORBA, PETER D. (HQ-LP040); 'Randy Dean (Randy.Dean@ch2m.com)'; Owens, Cassandra@Waterboards; Ali, Mazhar@Waterboards; Raftery, Peter@Waterboards
Subject: RE: ELV-1C Confirmation Email

Art,
I concur with the meeting summary below and the attached figure describing confirmation sample locations and analyses.

Buck King, PG. CHG.
Senior Engineering Geologist
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710
Telephone: 510.540.3955
e-mail : buck.king@dtsc.ca.gov

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Wednesday, November 21, 2012 1:03 PM

To: Alexander Fischl; ZORBA, PETER D. (HQ-LP040); 'Randy Dean (Randy.Dean@ch2m.com)'; Owens, Cassandra@Waterboards; King, Buck@DTSC; Ali, Mazhar@Waterboards; Raftery, Peter@Waterboards

Subject: ELV-1C Confirmation Email

All -

This email serves to document the agreements reached during the teleconference held on November 20, 2012 with RWQCB and DTSC staff regarding the confirmation sampling plan for ISRA area ELV-1C. Attending the teleconference were: Cassandra Owens and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Peter Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are described below. The ELV-1C sample location maps showing the confirmation sampling plan that was agreed to during the teleconference is attached to this email for reference.

ELV-1C

An agreement was reached to decrease the number of floor confirmation samples by 6 (from 27 to 21) and increase the number of sidewall confirmation samples by 2 (from 9 to 11). A floor confirmation sample frequency of 1 per 500 ft² was deemed sufficient for this area due to its elongated shape, as opposed to the frequency of 1 per 400 ft² prescribed in the Final ISRA Work Plan. The number of sidewall confirmation samples increased by 2 to provide better coverage in areas where sample locations are shown under asphalt on the figure when they are actually located within the ISRA area. The planned confirmation sample analytical suite for both floor and sidewall samples is shown on the attached figure. During the call, it was also stated that only non-hazardous soils with radionuclides below the December 2011 radiological trigger levels (RTLs) will be excavated at this time and that RWQCB and DTSC will be notified prior to removing other soil with ELV-1C.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Happy Thanksgiving,

Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

From: King, Buck@DTSC [<mailto:Buck.King@dtsc.ca.gov>]

Sent: Monday, January 07, 2013 3:08 PM

To: Lenox, Arthur J; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards

Cc: peter.d.zorba@nasa.gov; Alexander Fischl; Randy Dean (Randy.Dean@ch2m.com)

Subject: RE: AP/STP Sample Results

The two attached figures and summary description of confirmation sampling results are consistent with my understanding of the issue and conversation conducted on December 14, 2012. DTSC agrees that the confirmation sample results are acceptable for concluding the ISRA excavations are complete. The DTSC also concurs with deferring additional excavation at the areas of elevated dioxins observed in the vicinity of the Area II leach field to final remedial activities associated with NASA AOC implimentaion.

Buck King, PG. CHG.

Senior Engineering Geologist

Department of Toxic Substances Control

700 Heinz Avenue

Berkeley, California 94710

Telephone: 510.540.3955

e-mail : buck.king@dtsc.ca.gov

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]

Sent: Monday, January 07, 2013 1:15 PM

To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC

Cc: peter.d.zorba@nasa.gov; Alexander Fischl; Randy Dean (Randy.Dean@ch2m.com)

Subject: FW: AP/STP Sample Results

Hi Cassandra, Peter, Mazhar and Buck,

Please take a look at the email/figures (below) and let us know if you concur.

Thanks, Art

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]

Sent: Wednesday, December 19, 2012 2:13 PM

To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; Randy Dean (Randy.Dean@ch2m.com)
Subject: AP/STP Sample Results

Hi Cassandra, Peter, Mazhar, Buck,

During teleconferences held on December 13, 2012 with RWQCB staff and December 14, 2012 with DTSC staff, we reviewed results for confirmation samples collected within additional excavation areas at ISRA areas AP/STP-1B and AP/STP-1C-1. During these teleconferences, it was agreed that confirmation sample results within AP/STP-1B met the soil remediation goals (SRGs) and that excavation at this ISRA area is complete. For AP/STP-1C-1, it was agreed that excavation at this ISRA area is complete and that two confirmation sample results from the additional excavation areas with dioxin results slightly above the SRG would remain in place. The primary rationale for not excavating soil associated with these samples was that there is little to no stormwater runoff from the AP/STP ISRA areas based on inspections performed during the last two rainy seasons and future remediation work under the AOC is expected to include removal of the leachfield, which overlaps this ISRA area.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Happy Holidays,

Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

From: Ali, Mazhar@Waterboards [<mailto:Mazhar.Ali@waterboards.ca.gov>]
Sent: Monday, January 07, 2013 3:56 PM
To: Lenox, Arthur J; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; King, Buck@DTSC
Cc: peter.d.zorba@nasa.gov; Alexander Fischl; Randy Dean (Randy.Dean@ch2m.com)
Subject: RE: AP/STP Sample Results

Hello Art:

Happy New Year.

We agree with Buck's concurrence.

Thank you.

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Monday, January 07, 2013 1:15 PM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: peter.d.zorba@nasa.gov; Alexander Fischl; Randy Dean (Randy.Dean@ch2m.com)
Subject: FW: AP/STP Sample Results

Hi Cassandra, Peter, Mazhar and Buck,

Please take a look at the email/figures (below) and let us know if you concur.

Thanks, Art

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Wednesday, December 19, 2012 2:13 PM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; Randy Dean (Randy.Dean@ch2m.com)
Subject: AP/STP Sample Results

Hi Cassandra, Peter, Mazhar, Buck,

During teleconferences held on December 13, 2012 with RWQCB staff and December 14, 2012 with DTSC staff, we reviewed results for confirmation samples collected within additional excavation areas at ISRA areas AP/STP-1B and AP/STP-1C-1. During these teleconferences, it was agreed that confirmation sample results within AP/STP-1B met the soil remediation goals (SRGs) and that excavation at this ISRA area is complete. For AP/STP-1C-1, it was agreed that excavation at this ISRA area is complete and that two confirmation sample results from the additional excavation areas with dioxin results slightly above the SRG would remain in place. The primary rationale for not excavating soil associated with these samples was that there is little to no stormwater runoff from the AP/STP ISRA areas based on inspections performed during the last two rainy seasons and future remediation work under the AOC is expected to include removal of the leachfield, which overlaps this ISRA area.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Happy Holidays,

Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
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arthur.j.lenox@boeing.com

Alexander Fischl

From: King, Buck@DTSC <Buck.King@dtsc.ca.gov>
Sent: Monday, January 28, 2013 10:27 AM
To: Owens, Cassandra@Waterboards; Lenox, Arthur J; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'
Subject: RE: ELV-1C Confirmation Email

I also agree that the email below accurately documents the discussions and decisions that I participated in on the behalf of DTSC during January 18, 2013 conference call regarding ELV-1C ISRA area.

Buck King, PG. CHG.
Senior Engineering Geologist
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710
Telephone: 510.540.3955
e-mail : buck.king@dtsc.ca.gov

From: Owens, Cassandra@Waterboards
Sent: Monday, January 28, 2013 10:12 AM
To: Lenox, Arthur J; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'
Subject: RE: ELV-1C Confirmation Email

Hi Art,

The attached email summarizes the decisions agreed to during the January 18, 2013, conference call.

Thanks
Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Tuesday, January 22, 2013 4:29 PM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC

Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'

Subject: ELV-1C Confirmation Email

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on January 18, 2013 with RWQCB and DTSC staff regarding results of confirmation samples and radiological samples collected at ISRA area ELV-1C. Attending both teleconferences were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The two figures presented during the teleconference are attached to this email for reference.

ELV-1C Confirmation Sample Results

During the teleconference, metals and dioxin results for confirmation samples collected within the eastern (non-haz, non-rad) portion of the ISRA area were reviewed. Metals results were below the soil remediation goals (SRGs) in confirmation samples; however, two floor confirmation samples and three sidewall confirmation samples had dioxin results above the SRG. It was agreed that since the sidewall samples were collected adjacent to asphalt, the need for additional excavation would be evaluated once asphalt removal was performed or during future remediation work under the AOC, which ever occurred first. It was also agreed that additional excavation would be performed to remove the two floor confirmation samples with dioxin results above the SRG to the extent shown on the attached figure (red dashed boundary). Bedrock is anticipated to be encountered during the additional excavation at a foot below the current grade, but if bedrock was not encountered in a portion of the additional excavation area, confirmation samples would be collected and analyzed for dioxins.

ELV-1C Radiological Sample Results

During the teleconference, results for samples collected to delineate radiological exceedances of the November 2012 radiological trigger level (RTL) for Cs-137 within the eastern (Cal Haz) portion of ISRA area ELV-1C were reviewed. It was agreed that one sample would be analyzed to characterize the triangular-shaped area adjacent to the non-haz area (ISWC0123), and if this sample was below the RTLs the soil would not have radiological restrictions. It was also agreed that three additional samples (the three gray dots on attached figure) would be collected in the eastern portion of the Cal Haz area to delineate soils with Cs-137 above the RTL. Soil would only be isolated and considered not to have radiological restrictions if the Cs-137 result was below the RTL in both the center sample and the eastern most sample, or in all three samples. Soil with Cs-137 results above the RTL will remain in place until the DTSC radiological look-up table is finalized.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

Alexander Fischl

From: Owens, Cassandra@Waterboards <Cassandra.Owens@waterboards.ca.gov>
Sent: Monday, January 28, 2013 10:12 AM
To: Lenox, Arthur J; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'
Subject: RE: ELV-1C Confirmation Email

Hi Art,

The attached email summarizes the decisions agreed to during the January 18, 2013, conference call.

Thanks
Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Tuesday, January 22, 2013 4:29 PM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'
Subject: ELV-1C Confirmation Email

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on January 18, 2013 with RWQCB and DTSC staff regarding results of confirmation samples and radiological samples collected at ISRA area ELV-1C. Attending both teleconferences were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The two figures presented during the teleconference are attached to this email for reference.

ELV-1C Confirmation Sample Results

During the teleconference, metals and dioxin results for confirmation samples collected within the eastern (non-haz, non-rad) portion of the ISRA area were reviewed. Metals results were below the soil remediation goals (SRGs) in confirmation samples; however, two floor confirmation samples and three sidewall confirmation samples had dioxin results above the SRG. It was agreed that since the sidewall samples were collected adjacent to asphalt, the need for additional excavation would be evaluated once asphalt removal was performed or during future remediation work under the AOC, which ever occurred first. It was also agreed that additional excavation would be performed to remove the two floor confirmation samples with dioxin results above the SRG to the extent shown on the attached figure (red

dashed boundary). Bedrock is anticipated to be encountered during the additional excavation at a foot below the current grade, but if bedrock was not encountered in a portion of the additional excavation area, confirmation samples would be collected and analyzed for dioxins.

ELV-1C Radiological Sample Results

During the teleconference, results for samples collected to delineate radiological exceedances of the November 2012 radiological trigger level (RTL) for Cs-137 within the eastern (Cal Haz) portion of ISRA area ELV-1C were reviewed. It was agreed that one sample would be analyzed to characterize the triangular-shaped area adjacent to the non-haz area (ISWC0123), and if this sample was below the RTLs the soil would not have radiological restrictions. It was also agreed that three additional samples (the three gray dots on attached figure) would be collected in the eastern portion of the Cal Haz area to delineate soils with Cs-137 above the RTL. Soil would only be isolated and considered not to have radiological restrictions if the Cs-137 result was below the RTL in both the center sample and the eastern most sample, or in all three samples. Soil with Cs-137 results above the RTL will remain in place until the DTSC radiological look-up table is finalized.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

From: King, Buck@DTSC [<mailto:Buck.King@dtsc.ca.gov>]

Sent: Thursday, February 07, 2013 2:20 PM

To: Lenox, Arthur J; Alexander Fischl; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards

Subject: RE: IEL-3 Confirmation Sample Results

I concur that the email below accurately reflects DTSC agreement regarding acceptance of ISRA confirmation sample results and deferral of area of elevated lead identified by sample ILET0123 to subsequent RFI investigation and remediation.

Buck King, PG. CHG.

Senior Engineering Geologist

Department of Toxic Substances Control

700 Heinz Avenue

Berkeley, California 94710

Telephone: 510.540.3955

e-mail : buck.king@dtsc.ca.gov

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]

Sent: Wednesday, February 06, 2013 4:52 PM

To: Alexander Fischl; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC

Subject: IEL-3 Confirmation Sample Results

Hi Cassandra, Peter, Mazhar, Buck,

This email serves to document the agreements reached during the teleconference held on February 6, 2012 with RWQCB and DTSC staff, we reviewed results for confirmation samples collected at ISRA area IEL-3. Attending the teleconference were: Peter Raftery and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), and Alex Fischl (MWH). All floor and sidewall confirmation sample results collected at IEL-3 met the soil remediation goals (SRGs) with the exception of one sidewall sample. Sidewall sample ILET0123 contained mercury at a concentration slightly above the background concentration for mercury (0.113 mg/kg vs 0.09 mg/kg). RWQCB and DTSC staff attending the call agreed soil associated with this sample would be left in place because mercury has been in compliance at Outfall 009 since 2005 and the data would be included in the RCRA Facility Investigation program. However, RWQCB staff on the call

requested that Cassandra Owens (RWQCB) review and also agrees with the approach prior to restoring the ISRA area.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art Lenox

Boeing Environmental Remediation

Office - (818) 466-8795

Cell - (818) 312-2798

arthur.j.lenox@boeing.com

From: Owens, Cassandra@Waterboards [<mailto:Cassandra.Owens@waterboards.ca.gov>]
Sent: Wednesday, February 06, 2013 5:16 PM
To: Lenox, Arthur J; Alexander Fischl; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Subject: RE: IEL-3 Confirmation Sample Results

The Regional Board staff concurs with the decision to move forward with restoring the ISRA area since the mercury detected will be addressed during the RCRA Facility Investigation program. Sorry for the delay.

Thanks
Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Wednesday, February 06, 2013 4:52 PM
To: Alexander Fischl; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Subject: IEL-3 Confirmation Sample Results

Hi Cassandra, Peter, Mazhar, Buck,

This email serves to document the agreements reached during the teleconference held on February 6, 2012 with RWQCB and DTSC staff, we reviewed results for confirmation samples collected at ISRA area IEL-3. Attending the teleconference were: Peter Raftery and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), and Alex Fischl (MWH). All floor and sidewall confirmation sample results collected at IEL-3 met the soil remediation goals (SRGs) with the exception of one sidewall sample. Sidewall sample ILET0123 contained mercury at a concentration slightly above the background concentration for

mercury (0.113 mg/kg vs 0.09 mg/kg). RWQCB and DTSC staff attending the call agreed soil associated with this sample would be left in place because mercury has been in compliance at Outfall 009 since 2005 and the data would be included in the RCRA Facility Investigation program. However, RWQCB staff on the call requested that Cassandra Owens (RWQCB) review and also agrees with the approach prior to restoring the ISRA area.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

Alexander Fischl

From: King, Buck@DTSC <Buck.King@dtsc.ca.gov>
Sent: Friday, February 22, 2013 9:44 AM
To: Alexander Fischl; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); 'Randy.Dean@CH2M.com'; Art Lenox (arthur.j.lenox@boeing.com)
Subject: RE: ELV-1C Confirmation Email

I concur for the DTSC that the two proposed ELV-1C floor confirmation soil samples are acceptable for the characterization of the additional ISRA excavation area.

Buck King, PG. CHG.
Senior Engineering Geologist
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710
Telephone: 510.540.3955
e-mail : buck.king@dtsc.ca.gov

From: Alexander Fischl [<mailto:Alexander.Fischl@us.mwhglobal.com>]
Sent: Thursday, February 21, 2013 6:12 PM
To: King, Buck@DTSC; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); 'Randy.Dean@CH2M.com'; Art Lenox (arthur.j.lenox@boeing.com)
Subject: RE: ELV-1C Confirmation Email

Cassandra, Peter, Mazhar, and Buck –

We completed the additional excavation within the red dashed boundary at ISRA area ELV-1C (~2 additional feet) as was agreed during the teleconference on January 18, 2013. To our surprise, bedrock was not encountered and we estimate 2 feet of additional soil remain based on testing with a metal probe. Therefore, we will be collecting confirmation samples within this additional excavation boundary. Consistent with the confirmation sampling approach for additional excavation areas at other ISRA areas, we propose collecting a floor confirmation sample at the 2 floor sample locations where the dioxin results exceeded soil remediation goals (EVET0010 and EVET0011) and analyzing the samples for dioxins. The locations are shown on the attached figure.

Please confirm your agreement with this approach. Also, if you would like to collect a split sample, please let us know a day early next week when you are available.

Thank you,
Alex Fischl
MWH - Walnut Creek, CA Office
office: 925-627-4627
cell: 925-997-7384

From: King, Buck@DTSC [<mailto:Buck.King@dtsc.ca.gov>]
Sent: Monday, January 28, 2013 10:27 AM
To: Owens, Cassandra@Waterboards; Lenox, Arthur J; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards

Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'
Subject: RE: ELV-1C Confirmation Email

I also agree that the email below accurately documents the discussions and decisions that I participated in on the behalf of DTSC during January 18, 2013 conference call regarding ELV-1C ISRA area.

Buck King, PG. CHG.
Senior Engineering Geologist
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710
Telephone: 510.540.3955
e-mail : buck.king@dtsc.ca.gov

From: Owens, Cassandra@Waterboards
Sent: Monday, January 28, 2013 10:12 AM
To: Lenox, Arthur J; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'
Subject: RE: ELV-1C Confirmation Email

Hi Art,

The attached email summarizes the decisions agreed to during the January 18, 2013, conference call.

Thanks
Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Tuesday, January 22, 2013 4:29 PM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'
Subject: ELV-1C Confirmation Email

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on January 18, 2013 with RWQCB and DTSC staff regarding results of confirmation samples and radiological samples collected at ISRA area ELV-1C. Attending both teleconferences were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements

reached during the teleconference are summarized below. The two figures presented during the teleconference are attached to this email for reference.

ELV-1C Confirmation Sample Results

During the teleconference, metals and dioxin results for confirmation samples collected within the eastern (non-haz, non-rad) portion of the ISRA area were reviewed. Metals results were below the soil remediation goals (SRGs) in confirmation samples; however, two floor confirmation samples and three sidewall confirmation samples had dioxin results above the SRG. It was agreed that since the sidewall samples were collected adjacent to asphalt, the need for additional excavation would be evaluated once asphalt removal was performed or during future remediation work under the AOC, which ever occurred first. It was also agreed that additional excavation would be performed to remove the two floor confirmation samples with dioxin results above the SRG to the extent shown on the attached figure (red dashed boundary). Bedrock is anticipated to be encountered during the additional excavation at a foot below the current grade, but if bedrock was not encountered in a portion of the additional excavation area, confirmation samples would be collected and analyzed for dioxins.

ELV-1C Radiological Sample Results

During the teleconference, results for samples collected to delineate radiological exceedances of the November 2012 radiological trigger level (RTL) for Cs-137 within the eastern (Cal Haz) portion of ISRA area ELV-1C were reviewed. It was agreed that one sample would be analyzed to characterize the triangular-shaped area adjacent to the non-haz area (ISWC0123), and if this sample was below the RTLs the soil would not have radiological restrictions. It was also agreed that three additional samples (the three gray dots on attached figure) would be collected in the eastern portion of the Cal Haz area to delineate soils with Cs-137 above the RTL. Soil would only be isolated and considered not to have radiological restrictions if the Cs-137 result was below the RTL in both the center sample and the eastern most sample, or in all three samples. Soil with Cs-137 results above the RTL will remain in place until the DTSC radiological look-up table is finalized.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox
Boeing Environmental Remediation
Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

Alexander Fischl

From: Owens, Cassandra@Waterboards <Cassandra.Owens@waterboards.ca.gov>
Sent: Friday, February 22, 2013 9:47 AM
To: King, Buck@DTSC; Alexander Fischl; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); 'Randy.Dean@CH2M.com'; Art Lenox (arthur.j.lenox@boeing.com)
Subject: RE: ELV-1C Confirmation Email

Regional Board staff also agrees that the two proposed flow confirmation soil samples are acceptable for the characterization of the ELV-1C area where additional excavation was completed.

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: King, Buck@DTSC
Sent: Friday, February 22, 2013 9:44 AM
To: Alexander Fischl; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); 'Randy.Dean@CH2M.com'; Art Lenox (arthur.j.lenox@boeing.com)
Subject: RE: ELV-1C Confirmation Email

I concur for the DTSC that the two proposed ELV-1C floor confirmation soil samples are acceptable for the characterization of the additional ISRA excavation area.

Buck King, PG. CHG.
Senior Engineering Geologist
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710
Telephone: 510.540.3955
e-mail : buck.king@dtsc.ca.gov

From: Alexander Fischl [mailto:Alexander.Fischl@us.mwhglobal.com]
Sent: Thursday, February 21, 2013 6:12 PM
To: King, Buck@DTSC; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); 'Randy.Dean@CH2M.com'; Art Lenox (arthur.j.lenox@boeing.com)
Subject: RE: ELV-1C Confirmation Email

Cassandra, Peter, Mazhar, and Buck –

We completed the additional excavation within the red dashed boundary at ISRA area ELV-1C (~2 additional feet) as was agreed during the teleconference on January 18, 2013. To our surprise, bedrock was not encountered and we estimate 2 feet of additional soil remain based on testing with a metal probe. Therefore, we will be collecting confirmation samples within this additional excavation boundary. Consistent with the confirmation sampling approach for additional excavation areas at other ISRA areas, we propose collecting a floor confirmation sample at the 2 floor sample locations where the dioxin results exceeded soil remediation goals (EVET0010 and EVET0011) and analyzing the samples for dioxins. The locations are shown on the attached figure.

Please confirm your agreement with this approach. Also, if you would like to collect a split sample, please let us know a day early next week when you area available.

Thank you,
Alex Fischl
MWH - Walnut Creek, CA Office
office: 925-627-4627
cell: 925-997-7384

From: King, Buck@DTSC [<mailto:Buck.King@dtsc.ca.gov>]
Sent: Monday, January 28, 2013 10:27 AM
To: Owens, Cassandra@Waterboards; Lenox, Arthur J; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'
Subject: RE: ELV-1C Confirmation Email

I also agree that the email below accurately documents the discussions and decisions that I participated in on the behalf of DTSC during January 18, 2013 conference call regarding ELV-1C ISRA area.

Buck King, PG. CHG.
Senior Engineering Geologist
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710
Telephone: 510.540.3955
e-mail : buck.king@dtsc.ca.gov

From: Owens, Cassandra@Waterboards
Sent: Monday, January 28, 2013 10:12 AM
To: Lenox, Arthur J; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'
Subject: RE: ELV-1C Confirmation Email

Hi Art,

The attached email summarizes the decisions agreed to during the January 18, 2013, conference call.

Thanks
Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board

320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]

Sent: Tuesday, January 22, 2013 4:29 PM

To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC

Cc: ZORBA, PETER D. (HQ-LP040); Alexander Fischl; 'Randy.Dean@CH2M.com'

Subject: ELV-1C Confirmation Email

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on January 18, 2013 with RWQCB and DTSC staff regarding results of confirmation samples and radiological samples collected at ISRA area ELV-1C. Attending both teleconferences were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The two figures presented during the teleconference are attached to this email for reference.

ELV-1C Confirmation Sample Results

During the teleconference, metals and dioxin results for confirmation samples collected within the eastern (non-haz, non-rad) portion of the ISRA area were reviewed. Metals results were below the soil remediation goals (SRGs) in confirmation samples; however, two floor confirmation samples and three sidewall confirmation samples had dioxin results above the SRG. It was agreed that since the sidewall samples were collected adjacent to asphalt, the need for additional excavation would be evaluated once asphalt removal was performed or during future remediation work under the AOC, which ever occurred first. It was also agreed that additional excavation would be performed to remove the two floor confirmation samples with dioxin results above the SRG to the extent shown on the attached figure (red dashed boundary). Bedrock is anticipated to be encountered during the additional excavation at a foot below the current grade, but if bedrock was not encountered in a portion of the additional excavation area, confirmation samples would be collected and analyzed for dioxins.

ELV-1C Radiological Sample Results

During the teleconference, results for samples collected to delineate radiological exceedances of the November 2012 radiological trigger level (RTL) for Cs-137 within the eastern (Cal Haz) portion of ISRA area ELV-1C were reviewed. It was agreed that one sample would be analyzed to characterize the triangular-shaped area adjacent to the non-haz area (ISWC0123), and if this sample was below the RTLs the soil would not have radiological restrictions. It was also agreed that three additional samples (the three gray dots on attached figure) would be collected in the eastern portion of the Cal Haz area to delineate soils with Cs-137 above the RTL. Soil would only be isolated and considered not to have radiological restrictions if the Cs-137 result was below the RTL in both the center sample and the eastern most sample, or in all three samples. Soil with Cs-137 results above the RTL will remain in place until the DTSC radiological look-up table is finalized.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,
Art Lenox
Boeing Environmental Remediation

Office - (818) 466-8795
Cell - (818) 312-2798
arthur.j.lenox@boeing.com

From: Owens, Cassandra@Waterboards [<mailto:Cassandra.Owens@waterboards.ca.gov>]
Sent: Thursday, May 23, 2013 10:35 AM
To: Alexander Fischl; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com); ZORBA, PETER D. (HQ-LP040); Randy Dean (Randy.Dean@ch2m.com)
Subject: RE: A2LF Discussion Confirmation Email

This email accurately outlines the discussion regarding the proposed actions at A2LF and the decision to complete any required soil removal under the AOC activities that will be completed in the area.

Thanks,

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Alexander Fischl [<mailto:Alexander.Fischl@us.mwhglobal.com>]
Sent: Wednesday, May 22, 2013 7:14 PM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com); ZORBA, PETER D. (HQ-LP040); Randy Dean (Randy.Dean@ch2m.com)
Subject: A2LF Discussion Confirmation Email

Hello Cassandra, Peter, Mazhar, Buck -

This email serves to document the agreements reached during the teleconference held on May 15, 2013 with RWQCB and DTSC staff regarding ISRA activities at Area 2 Landfill (A2LF). The agreements reached during the teleconference are summarized below. Attending the teleconference were:

Cassandra Owens, Peter Raftery, Mazhar Ali – RWQCB
Buck King – DTSC
Peter Zorba, Merrilee Fellows – NASA
Randy Dean – CH2M HILL

Alex Fischl – MWH

Dan Bourdeau – Geosyntec

Jon Jones, Dr. Bob Gearheart, Dr. Mike Josselyn, and Dr. Mike Stenstrom – Storm Water Expert Panel members

During the teleconference, the details of the A2LF ISRA areas were reviewed and discussed how the preliminary remediation areas developed for work to be performed under the AOC are more than 13 times the surface area and encompass the ISRA areas. Then, , NASA, the Expert Panel and Buck King of DTSC expressed the concern that difficulties associated with implementing the A2LF ISRA areas would likely result in an increase the contribution of COCs to surface water compared to current conditions, thereby not meeting the intent of the ISRA activities. In particular, there was discussion about the difficulties associated with performing excavation and restoration activities on the steep slope of the A2LF and the uncertainties of excavating a portion of the landfill without an approved backfill source. A surface water model prepared by Geosyntec was also reviewed, the results of which indicated there is little runoff from the A2LF ISRA areas that reaches the Northern Drainage. These results are consistent with observations made during the three years of surface water monitoring, during which only one sample was collected downslope of the A2LF and the results were below NPDES permit limits. Following this discussion, it was agreed that soil removal activities would be conducted under the AOC and no action would be performed as part of the ISRA program.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,



Alex Fischl, P.M.P
Project Manager /
Environmental Scientist

MWH Americas, Inc.
2121 N. California Blvd.
Suite 600
Walnut Creek, CA 94596

Telephone: 925 627 4500
Direct Line: 925 627 4627
Cell Phone: 925 997 7384
Fax: 925 627 4501

BUILDING A BETTER WORLD

Alexander Fischl

From: King, Buck@DTSC <Buck.King@dtsc.ca.gov>
Sent: Friday, May 31, 2013 3:10 PM
To: Alexander Fischl; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'peter.d.zorba@nasa.gov'; Randy Dean (Randy.Dean@ch2m.com)
Subject: RE: ELV, LOX, AP/STP Confirmation Email, revised (1 of 2)

The 2 emails accurately describe my understanding of the results and decisions made regarding NASA area ISRA soils during the May 15th and subsequent May 29th conference calls.

From: Alexander Fischl [mailto:Alexander.Fischl@us.mwhglobal.com]
Sent: Thursday, May 30, 2013 7:46 AM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'peter.d.zorba@nasa.gov'; Randy Dean (Randy.Dean@ch2m.com)
Subject: ELV, LOX, AP/STP Confirmation Email, revised (1 of 2)

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on May 15, 2013 with RWQCB and DTSC staff regarding ISRA activities at the LOX, ELV, and AP/STP. Attending the teleconference were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The figures presented during the teleconference are attached to this email for reference.

LOX Radiological Sample Results

During the teleconference, results for samples to confirm radiological exceedances of the DTSC Look-up Table (LUT) values for U-238 at LOX-1C and U-235 and LOX-1D were reviewed. It was agreed that since both resamples were below the LUT values and did not confirm the original result above LUT values, all soils within LOX-1C and LOX-1D will be disposed of without radiological restrictions.

At LOX-1B-3, one sample has confirmed Cs-137 and U-238 above the LUT values. Delineation of the soils associated with this sample was agreed to during the call.

ELV-1C Confirmation Sample Results

During the teleconference, metals and dioxin results for confirmation samples collected within the additional excavation area and the Cal Haz area adjacent to areas with soils above LUT values were reviewed. It was agreed to leave the floor confirmation sample with dioxins above the SRG collected within the additional excavation area in place. Additionally, it was agreed to leave a floor confirmation sample with lead above the SRG collected within the Cal Haz area in place. The rationale for leaving the samples in place is each sample had a split sample that had results below the SRG, there will be little stormwater runoff from the area since the excavation will not be backfilled, a BMP is being installed downslope of the excavation that will address any stormwater runoff from the area, and the data will be considered during development of future remediation work under the AOC.

In addition, it was reiterated that the need for additional excavation associated with sidewall samples collected adjacent to asphalt with results above the SRGs would be evaluated once asphalt removal was performed or during future remediation work under the AOC, whichever occurs first.

ELV-1D Radiological Sample Results

During the teleconference, the result for the sample to delineate the radiological exceedance of the LUT value for Cs-137 was reviewed. It was agreed that delineation of the soil associated with the sample above the LUT value within the ISRA boundary was complete. During the teleconference and in a subsequent email from May 21, 2013, DTSC requested that a western sidewall sample be analyzed for Cs-137. During a teleconference held on May 29, 2013 with RWQCB and

DTSC, NASA agreed to analyze the central western sidewall sample (EVET0101) for Cs-137 with the agreement from agencies that the result would not affect the planned ISRA excavation.

ELV-1D Waste Characterization Approach

During the teleconference, the existing chemical and radiological waste characterization of soils was reviewed. To confirm the low-level VOC results detected in about half of the waste characterization samples, it was proposed to place the shallow non-visually impacted soils into bins and sample the soils ex situ for VOCs. This proposed additional sampling effort will provide more accurate conditions of the waste material for disposal. Elevated VOCs are present within stained soil below the non-visually impacted soil. Since radiological waste characterization of the soils is complete, the samples would not be split for radiological analysis. RWQCB and DTSC requested time to review the waste characterization plan in the ISRA Soil Management Plan and to discuss this approach with internal staff prior to making a decision.

ELV-1D Western Boundary Sample Results

During the teleconference, metals and dioxin results for three samples collected along the western boundary were reviewed. Although two of the samples had a metal result slightly above the SRG, copper in one and lead in the other, it was agreed that the samples will be used as confirmation sidewall samples. The rationale for using these samples as sidewall samples is there will be little stormwater runoff from the area since the area is a depression, a BMP is being installed downslope of the excavation that will address any stormwater runoff from the area, and the data will be considered during development of future remediation work under the AOC.

AP/STP Post-Excavation Survey Results

During the teleconference, the planned boundary and the post excavation boundary surveyed by Cal Vada were compared and discrepancies evaluated. The reason for the discrepancies, including inaccuracies with Cal Vada's survey, and the planned corrective actions for future ISRA work were discussed. In addition, samples located near or outside the actual excavation boundary at AP/STP-1B, -1C-1, and -1C-2 were discussed. It was agreed to leave two samples at AP/STP-1B with dioxin results above SRGs in place and two samples at AP/STP-1C-1 with either dioxin or mercury results slightly above the SRG in place. The rationale for leaving the samples in place is there was minimal soil associated with these samples, accessing the samples would require disturbing the restored ISRA area, there is little to no stormwater runoff from AP/STP, and the data will be considered during development of future remediation work under the AOC. At AP/STP-1C-2 there are two samples with dioxins above the SRG and two samples with lead above the SRG located outside the actual excavation boundary. The two samples with dioxin results above the SRG will be excavated since the area is accessible and the extent of excavation was agreed to. For the two samples with lead above the SRG, it was agreed that a sample would be collected at the sample with the higher lead concentration to confirm the presence of lead above the SRG. Results will be reviewed with agencies upon receipt. Any samples that were planned to be but not removed as part of ISRA will be clearly documented in the ISRA summary report.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,



Alex Fischl, P.M.P
Project Manager /
Environmental Scientist

MWH Americas, Inc.
2121 N. California Blvd.
Suite 600
Walnut Creek, CA 94596

Telephone: 925 627 4500
Direct Line: 925 627 4627
Cell Phone: 925 997 7384
Fax: 925 627 4501

BUILDING A BETTER WORLD

Alexander Fischl

From: Owens, Cassandra@Waterboards <Cassandra.Owens@waterboards.ca.gov>
Sent: Friday, May 31, 2013 4:15 PM
To: Alexander Fischl; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'peter.d.zorba@nasa.gov'; Randy Dean (Randy.Dean@ch2m.com)
Subject: RE: ELV, LOX, AP/STP Confirmation Email, revised (2 of 2)

The summary of agreements presented in this email accurately reflects the decisions made during conference calls held on May 15, 2013, and on May 29, 2013.

Thanks
Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Alexander Fischl [mailto:Alexander.Fischl@us.mwhglobal.com]
Sent: Thursday, May 30, 2013 7:46 AM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'peter.d.zorba@nasa.gov'; Randy Dean (Randy.Dean@ch2m.com)
Subject: RE: ELV, LOX, AP/STP Confirmation Email, revised (2 of 2)

Alex Fischl
MWH - Walnut Creek, CA Office
office: 925-627-4627
cell: 925-997-7384

From: Alexander Fischl
Sent: Thursday, May 30, 2013 7:46 AM
To: Cassandra Owens (Cowens@waterboards.ca.gov); Peter Raftery (praftery@waterboards.ca.gov); Mazhar Ali (mali@waterboards.ca.gov); 'King, Buck@DTSC'
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'peter.d.zorba@nasa.gov'; Randy Dean (Randy.Dean@ch2m.com)
Subject: ELV, LOX, AP/STP Confirmation Email, revised (1 of 2)

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on May 15, 2013 with RWQCB and DTSC staff regarding ISRA activities at the LOX, ELV, and AP/STP. Attending the teleconference were: Cassandra

Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The figures presented during the teleconference are attached to this email for reference.

LOX Radiological Sample Results

During the teleconference, results for samples to confirm radiological exceedances of the DTSC Look-up Table (LUT) values for U-238 at LOX-1C and U-235 and LOX-1D were reviewed. It was agreed that since both resamples were below the LUT values and did not confirm the original result above LUT values, all soils within LOX-1C and LOX-1D will be disposed of without radiological restrictions.

At LOX-1B-3, one sample has confirmed Cs-137 and U-238 above the LUT values. Delineation of the soils associated with this sample was agreed to during the call.

ELV-1C Confirmation Sample Results

During the teleconference, metals and dioxin results for confirmation samples collected within the additional excavation area and the Cal Haz area adjacent to areas with soils above LUT values were reviewed. It was agreed to leave the floor confirmation sample with dioxins above the SRG collected within the additional excavation area in place. Additionally, it was agreed to leave a floor confirmation sample with lead above the SRG collected within the Cal Haz area in place. The rationale for leaving the samples in place is each sample had a split sample that had results below the SRG, there will be little stormwater runoff from the area since the excavation will not be backfilled, a BMP is being installed downslope of the excavation that will address any stormwater runoff from the area, and the data will be considered during development of future remediation work under the AOC.

In addition, it was reiterated that the need for additional excavation associated with sidewall samples collected adjacent to asphalt with results above the SRGs would be evaluated once asphalt removal was performed or during future remediation work under the AOC, whichever occurs first.

ELV-1D Radiological Sample Results

During the teleconference, the result for the sample to delineate the radiological exceedance of the LUT value for Cs-137 was reviewed. It was agreed that delineation of the soil associated with the sample above the LUT value within the ISRA boundary was complete. During the teleconference and in a subsequent email from May 21, 2013, DTSC requested that a western sidewall sample be analyzed for Cs-137. During a teleconference held on May 29, 2013 with RWQCB and DTSC, NASA agreed to analyze the central western sidewall sample (EVET0101) for Cs-137 with the agreement from agencies that the result would not affect the planned ISRA excavation.

ELV-1D Waste Characterization Approach

During the teleconference, the existing chemical and radiological waste characterization of soils was reviewed. To confirm the low-level VOC results detected in about half of the waste characterization samples, it was proposed to place the shallow non-visually impacted soils into bins and sample the soils ex situ for VOCs. This proposed additional sampling effort will provide more accurate conditions of the waste material for disposal. Elevated VOCs are present within stained soil below the non-visually impacted soil. Since radiological waste characterization of the soils is complete, the samples would not be split for radiological analysis. RWQCB and DTSC requested time to review the waste characterization plan in the ISRA Soil Management Plan and to discuss this approach with internal staff prior to making a decision.

ELV-1D Western Boundary Sample Results

During the teleconference, metals and dioxin results for three samples collected along the western boundary were reviewed. Although two of the samples had a metal result slightly above the SRG, copper in one and lead in the other, it was agreed that the samples will be used as confirmation sidewall samples. The rationale for using these samples as sidewall samples is there will be little stormwater runoff from the area since the area is a depression, a BMP is being installed downslope of the excavation that will address any stormwater runoff from the area, and the data will be considered during development of future remediation work under the AOC.

AP/STP Post-Excavation Survey Results

During the teleconference, the planned boundary and the post excavation boundary surveyed by Cal Vada were compared and discrepancies evaluated. The reason for the discrepancies, including inaccuracies with Cal Vada's survey, and the planned corrective actions for future ISRA work were discussed. In addition, samples located near or outside the actual excavation boundary at AP/STP-1B, -1C-1, and -1C-2 were discussed. It was agreed to leave two samples at AP/STP-1B with dioxin results above SRGs in place and two samples at AP/STP-1C-1 with either dioxin or mercury results slightly above the SRG in place. The rationale for leaving the samples in place is there was minimal soil

associated with these samples, accessing the samples would require disturbing the restored ISRA area, there is little to no stormwater runoff from AP/STP, and the data will be considered during development of future remediation work under the AOC. At AP/STP-1C-2 there are two samples with dioxins above the SRG and two samples with lead above the SRG located outside the actual excavation boundary. The two samples with dioxin results above the SRG will be excavated since the area is accessible and the extent of excavation was agreed to. For the two samples with lead above the SRG, it was agreed that a sample would be collected at the sample with the higher lead concentration to confirm the presence of lead above the SRG. Results will be reviewed with agencies upon receipt. Any samples that were planned to be but not removed as part of ISRA will be clearly documented in the ISRA summary report.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,



Alex Fischl, P.M.P
Project Manager /
Environmental Scientist

MWH Americas, Inc.
2121 N. California Blvd.
Suite 600
Walnut Creek, CA 94596

Telephone: 925 627 4500
Direct Line: 925 627 4627
Cell Phone: 925 997 7384
Fax: 925 627 4501

BUILDING A BETTER WORLD

Alexander Fischl

From: King, Buck@DTSC <Buck.King@dtsc.ca.gov>
Sent: Wednesday, July 10, 2013 10:40 AM
To: Lenox, Arthur J; Ali, Mazhar@Waterboards; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); Randy.Dean@CH2M.com; Alexander Fischl
Subject: Third and final June 24 2013 confirmation description.

SSFL ISRA Project Team,

The description below and attached figures and photos accurately describe information reviewed and agreements reached during the June 24, 2013 teleconference. DTSC recommends that the proposed ISRA activities at AP/STP-1C-2, ELV-1D, LOX-1B-1, LOX-1B-2, LOX-1B-3 be conducted. DTSC is in full agreement with deferral of ISRA soil excavation work at LOX-1A, LOX-1B-4, LOX-1C, LOX-1D to a later date under the AOC activities anticipated for these areas.

Buck King, PG. CHG.
Senior Engineering Geologist
Department Of Toxic Substances Control
700 Heinz Ave, Berkeley CA 94710
510.540.3955

From: Lenox, Arthur J [mailto:arthur.j.lenox@boeing.com]
Sent: Wednesday, June 26, 2013 5:52 PM
To: Ali, Mazhar@Waterboards; Owens, Cassandra@Waterboards; King, Buck@DTSC; Raftery, Peter@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); Randy.Dean@CH2M.com; Alexander Fischl
Subject: Confirmation of our June 24th 2013 ISRA Discussion (1 of 2)

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on June 24, 2013 with RWQCB and DTSC staff regarding ISRA activities at the AP/STP, ELV, and LOX. Attending the teleconference were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The figures presented during the teleconference are attached to this email for reference.

AP/STP-1C-2

During the teleconference, the agreements reached during the May 15, 2013 teleconference were reviewed in regards to the four samples with results above SRGs located adjacent to the actual AP/STP-1C-2 excavation boundary. For the two samples with lead above the SRG, it was agreed that a sample would be collected at the location with the higher lead concentration to confirm the presence of lead above the SRG. A sample was collected at APBS1164, which was staked by Cal Vada using the coordinates in EDMS. The lead result was below the SRG confirming the soil associated with the higher lead result was likely removed during the ISRA action, and it was agreed no additional ISRA action would be performed northwest of AP/STP-1C-2. The plan to excavate soil associated with the two samples with dioxin results above the SRG was confirmed.

ELV-1D

During the teleconference, the locations of the waste characterization samples were reviewed. Following a comment from agencies regarding the location of sample ISWC0062 on the figure during the May 15, 2013 teleconference, a QC of all the ELV-1D waste characterization sample locations was performed using photos taken during sample collection. Based on this review, the locations of waste characterization samples were corrected, resulting in the need to collect an additional sample to delineate the exceedance of the LUT value for Cs-137 at ISWC0062. Two stepout samples

(ISWC0137 and ISWC0138) collected northeast of ISWC0062 also have results above the LUT value for Cs-137. Sample results are pending for another stepout sample (ISWC0129). The delineation of the three samples with Cs-137 results above the LUT value if ISWC0129 is below the LUT value was reviewed. Agencies requested an additional sample be collected along the northwestern boundary. Following review of this request with NASA, a response will be provided to the agencies. The Cs-137 result for EVET0101 was below the LUT value and was reviewed with the agencies. Further delineation of Cs-137 results above LUT values will be discussed with agencies during a subsequent teleconference.

LOX-1A

During the teleconference, the ISRA COCs driving the ISRA action as well as the physical location of the ISRA area were reviewed. The primary ISRA COC is copper, which has not been detected in the Outfall 009 NPDES sample since 2006. Lead also exceeded the SRG in a sample, but a downslope sample result was below the SRG for lead. The ISRA area is relatively small, located on a steep (~60%) slope in close proximity to the Northern Drainage, and a tributary to the Northern Drainage runs through the ISRA area. Photos of the terrain were shown during the teleconference. It was agreed that due to the primary COC being copper at this location and the anticipated difficulty restoring the excavation due to the physical location, remediation activities would be conducted under the AOC.

LOX-1B-1, LOX-1B-2, and LOX-1B-3

During the teleconference, the ISRA COCs, confirmation sample suites, and existing and planned sidewall confirmation sample locations for these three ISRA areas were reviewed and agreed to. The characterization of waste soils was also reviewed. LOX-1B-1 and LOX-1B-2 soils are non-hazardous, and LOX-1B-3 soils are either non-hazardous, California hazardous for lead (2 areas), or F-listed. In response to a question from agencies, it was mentioned the source of the California hazardous for lead soils is unknown but could be from painted structures. Agencies also commented that the sample frequency east of LOX-1B-3 near ENBS0013 did not appear consistent with the frequency within the other portions of LOX, but said that it may be more appropriate to address as part of the RFI/AOC program.

LOX-1B-4, LOX-1C, LOX-1D

During the teleconference, the ISRA COCs driving the ISRA actions were reviewed. The primary ISRA COC at LOX-1B-4 and LOX-1C is copper and at LOX-1D is cadmium and copper. Both cadmium and copper have not been detected in the Outfall 009 NPDES sample since 2005 and 2006, respectively. Additionally, copper results at several sample locations at LOX-1C were much higher at 5 feet compared to ground surface. It was discussed that the likely source of the copper at depth at LOX-1C was a former clarifier that was removed in the early 1990s. It was agreed that due to the primary COCs being copper and/or cadmium at these three ISRA areas, remediation activities would be conducted under the AOC.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art

Alexander Fischl

From: Owens, Cassandra@Waterboards <Cassandra.Owens@waterboards.ca.gov>
Sent: Wednesday, July 10, 2013 10:38 AM
To: King, Buck@DTSC; Lenox, Arthur J; Ali, Mazhar@Waterboards; Raftery, Peter@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); Randy.Dean@CH2M.com; Alexander Fischl
Subject: RE: Confirmation of our June 24th 2013 ISRA Discussion (1 of 2)

Regional board staff concurs that the confirmation emails from the June 24, 2013, call accurately reflects the issues discussed and the agreements that we arrived at.

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: King, Buck@DTSC
Sent: Wednesday, July 10, 2013 10:33 AM
To: Lenox, Arthur J; Ali, Mazhar@Waterboards; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); Randy.Dean@CH2M.com; Alexander Fischl
Subject: RE: Confirmation of our June 24th 2013 ISRA Discussion (1 of 2)

SSFL ISRA Project Team,
The description below and attached figures and photos accurately describe information reviewed and agreements reached during the June 24, 2013 teleconference. DTSC recommends that the proposed ISRA activities at AP/STP-1C-2, ELV-1D be conducted. DTSC is in full agreement with deferral of ISRA soil excavation work at LOX-1A, LOX-1B-1, LOX-1B-2, LOX-1B-3, LOX-1B-4, LOX-1C, LOX-1D to a later date under the AOC activities anticipated for these areas.

Buck King, PG. CHG.
Senior Engineering Geologist
Department Of Toxic Substances Control
700 Heinz Ave, Berkeley CA 94710
510.540.3955

From: Lenox, Arthur J [mailto:arthur.j.lenox@boeing.com]
Sent: Wednesday, June 26, 2013 5:52 PM
To: Ali, Mazhar@Waterboards; Owens, Cassandra@Waterboards; King, Buck@DTSC; Raftery, Peter@Waterboards
Cc: ZORBA, PETER D. (HQ-LP040); Randy.Dean@CH2M.com; Alexander Fischl
Subject: Confirmation of our June 24th 2013 ISRA Discussion (1 of 2)

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on June 24, 2013 with RWQCB and DTSC staff regarding ISRA activities at the AP/STP, ELV, and LOX. Attending the teleconference were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The figures presented during the teleconference are attached to this email for reference.

AP/STP-1C-2

During the teleconference, the agreements reached during the May 15, 2013 teleconference were reviewed in regards to the four samples with results above SRGs located adjacent to the actual AP/STP-1C-2 excavation boundary. For the two samples with lead above the SRG, it was agreed that a sample would be collected at the location with the higher lead concentration to confirm the presence of lead above the SRG. A sample was collected at APBS1164, which was staked by Cal Vada using the coordinates in EDMS. The lead result was below the SRG confirming the soil associated with the higher lead result was likely removed during the ISRA action, and it was agreed no additional ISRA action would be performed northwest of AP/STP-1C-2. The plan to excavate soil associated with the two samples with dioxin results above the SRG was confirmed.

ELV-1D

During the teleconference, the locations of the waste characterization samples were reviewed. Following a comment from agencies regarding the location of sample ISWC0062 on the figure during the May 15, 2013 teleconference, a QC of all the ELV-1D waste characterization sample locations was performed using photos taken during sample collection. Based on this review, the locations of waste characterization samples were corrected, resulting in the need to collect an additional sample to delineate the exceedance of the LUT value for Cs-137 at ISWC0062. Two stepout samples (ISWC0137 and ISWC0138) collected northeast of ISWC0062 also have results above the LUT value for Cs-137. Sample results are pending for another stepout sample (ISWC0129). The delineation of the three samples with Cs-137 results above the LUT value if ISWC0129 is below the LUT value was reviewed. Agencies requested an additional sample be collected along the northwestern boundary. Following review of this request with NASA, a response will be provided to the agencies. The Cs-137 result for EVET0101 was below the LUT value and was reviewed with the agencies. Further delineation of Cs-137 results above LUT values will be discussed with agencies during a subsequent teleconference.

LOX-1A

During the teleconference, the ISRA COCs driving the ISRA action as well as the physical location of the ISRA area were reviewed. The primary ISRA COC is copper, which has not been detected in the Outfall 009 NPDES sample since 2006. Lead also exceeded the SRG in a sample, but a downslope sample result was below the SRG for lead. The ISRA area is relatively small, located on a steep (~60%) slope in close proximity to the Northern Drainage, and a tributary to the Northern Drainage runs through the ISRA area. Photos of the terrain were shown during the teleconference. It was agreed that due to the primary COC being copper at this location and the anticipated difficulty restoring the excavation due to the physical location, remediation activities would be conducted under the AOC.

LOX-1B-1, LOX-1B-2, and LOX-1B-3

During the teleconference, the ISRA COCs, confirmation sample suites, and existing and planned sidewall confirmation sample locations for these three ISRA areas were reviewed and agreed to. The characterization of waste soils was also reviewed. LOX-1B-1 and LOX-1B-2 soils are non-hazardous, and LOX-1B-3 soils are either non-hazardous, California hazardous for lead (2 areas), or F-listed. In response to a question from agencies, it was mentioned the source of the California hazardous for lead soils is unknown but could be from painted structures. Agencies also commented that the sample frequency east of LOX-1B-3 near ENBS0013 did not appear consistent with the frequency within the other portions of LOX, but said that it may be more appropriate to address as part of the RFI/AOC program.

LOX-1B-4, LOX-1C, LOX-1D

During the teleconference, the ISRA COCs driving the ISRA actions were reviewed. The primary ISRA COC at LOX-1B-4 and LOX-1C is copper and at LOX-1D is cadmium and copper. Both cadmium and copper have not been detected in the Outfall 009 NPDES sample since 2005 and 2006, respectively. Additionally, copper results at several sample locations at LOX-1C were much higher at 5 feet compared to ground surface. It was discussed that the likely source of the copper at depth at LOX-1C was a former clarifier that was removed in the early 1990s. It was agreed that due to the primary COCs being copper and/or cadmium at these three ISRA areas, remediation activities would be conducted under the AOC.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art

Alexander Fischl

From: King, Buck@DTSC <Buck.King@dtsc.ca.gov>
Sent: Tuesday, July 16, 2013 8:53 AM
To: Lenox, Arthur J; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: Alexander Fischl; ZORBA, PETER D. (HQ-LP040); Randy.Dean@ch2m.com
Subject: RE: ELV 1D Figure

Follow Up Flag: Follow up
Flag Status: Flagged

I concur with the information below regarding ELV-1D waste characterization determinations. DTSC recommends that the proposed ISRA action be approved to proceed.

Buck King, PG. CHG.
Senior Engineering Geologist
Department Of Toxic Substances Control
700 Heinz Ave, Berkeley CA 94710
510.540.3955

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Friday, July 12, 2013 10:41 AM
To: King, Buck@DTSC; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: Alexander Fischl; ZORBA, PETER D. (HQ-LP040); Randy.Dean@ch2m.com
Subject: ELV 1D Figure

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreement reached during the teleconference held on July 10, 2013 with RWQCB and DTSC staff regarding ISRA activities at the ELV-1D. Attending the teleconference were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Rand Dean (CH2M Hill), and Alex Fischl (MWH). A summary is provided below and the figure presented during the teleconference is attached for reference.

ELV-1D

During the teleconference, the recently surveyed locations of waste characterization samples were presented and the Cs-137 results were reviewed. Three waste characterization samples contain Cs-137 above the LUT values (ISWC0062, ISWC0137, and ISWC0138). Delineation of these three samples is proposed using four waste characterization samples with Cs-137 results below the LUT values (ISWC0061, ISWC0064, ISWC0129, and ISWC0132) and depicted on the attached figure by the blue polygon.

Please reply to this email concurring with the delineation approach described above.

Sincerely,

Art Lenox

Alexander Fischl

From: Raftery, Peter@Waterboards <Peter.Raftery@waterboards.ca.gov>
Sent: Tuesday, July 16, 2013 7:21 AM
To: Lenox, Arthur J; King, Buck@DTSC; Owens, Cassandra@Waterboards; Ali, Mazhar@Waterboards
Cc: Alexander Fischl; ZORBA, PETER D. (HQ-LP040); Randy.Dean@ch2m.com
Subject: RE: ELV 1D Figure

Follow Up Flag: Follow up
Flag Status: Flagged

Art:

I concur that the text below accurately represents the results of our discussion of July 10, 2013.

> Peter J. Raftery, PG, CHg
> Engineering Geologist
> CalEPA - Water Board, LA Region
> 320 W. 4th Street
> Los Angeles, Ca 90013
> ph 213.576.6724
> fx 213.576.6717
> praftery@waterboards.ca.gov
>
> Safeguarding the Environment -
> it's Right, it's Smart, it's our Future.

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Friday, July 12, 2013 10:41 AM
To: King, Buck@DTSC; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: Alexander Fischl; ZORBA, PETER D. (HQ-LP040); Randy.Dean@ch2m.com
Subject: ELV 1D Figure

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreement reached during the teleconference held on July 10, 2013 with RWQCB and DTSC staff regarding ISRA activities at the ELV-1D. Attending the teleconference were: Cassandra Owens, Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Rand Dean (CH2M Hill), and Alex Fischl (MWH). A summary is provided below and the figure presented during the teleconference is attached for reference.

ELV-1D

During the teleconference, the recently surveyed locations of waste characterization samples were presented and the Cs-137 results were reviewed. Three waste characterization samples contain Cs-137 above the LUT values (ISWC0062, ISWC0137, and ISWC0138). Delineation of these three samples is proposed using four waste characterization samples with Cs-137 results below the LUT values (ISWC0061, ISWC0064, ISWC0129, and ISWC0132) and depicted on the attached figure by the blue polygon.

Please reply to this email concurring with the delineation approach described above.

Sincerely,

Art Lenox

From: King, Buck@DTSC [<mailto:Buck.King@dtsc.ca.gov>]
Sent: Friday, August 09, 2013 8:52 AM
To: Lenox, Arthur J; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: 'ZORBA, PETER D. (HQ-LP040)'; Randy.Dean@ch2m.com; Alexander Fischl; Andrew Payne; Shelby Valenzuela
Subject: RE: LOX Confirmation Email

I concur that the information in the email below documents discussions and decisions made during the July 17, 2013 teleconference call.

Buck King, PG. CHG.
Senior Engineering Geologist
Department Of Toxic Substances Control
700 Heinz Ave, Berkeley CA 94710
510.540.3955

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Monday, August 05, 2013 1:33 PM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: 'ZORBA, PETER D. (HQ-LP040)'; Randy.Dean@ch2m.com; 'Alexander.Fischl@us.mwhglobal.com';
Andrew.T.Payne@mwhglobal.com; Shelby Valenzuela
Subject: LOX Confirmation Email

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on July 17, 2013 with RWQCB and DTSC staff regarding LOX ISRA activities. Attending the teleconference were: Peter Raftery and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The figures presented during the teleconference are attached to this email for reference.

LOX-1B-1

During the teleconference, the recently collected sidewall confirmation sample results and the floor confirmation sampling plan were reviewed. Based on the results, the excavated boundaries were agreed to be established and no additional

sidewall sampling was necessary. The floor confirmation sampling plan with locations positioned based on a frequency of 1 sample per ~600 ft² was agreed to by the agencies with the understanding that additional excavation activities in this area would be performed as part of the AOC.

LOX-1B-2

During the teleconference, the recently collected sidewall confirmation sample results and the floor confirmation sampling plan were reviewed. Based on the results, additional sidewall confirmation sampling would be performed in the area of two samples, LXET0100 and LXET0103. Following the call, it was determined that samples LXET0100 and LXET0102 were misidentified. Note the corrected figure showing the correct sample locations is attached to this email. In addition, the figure also shows sample LXET0105, which is a step out sample to LXET0103. A separate email will be provided to you that will show you a new proposed excavation boundary.

The floor confirmation sampling plan remains unchanged with locations positioned based on a frequency of 1 sample per ~600 ft² was agreed to by the agencies with the understanding that additional excavation activities in this area would be performed as part of the AOC.

LOX-1B-3

During the teleconference, the recently collected sidewall confirmation sample results and the floor confirmation sampling plan were reviewed. Based on the results, additional sidewall confirmation sampling and/or additional excavation would be performed in the area of two samples, LXBS1047 and LXET0203. The sample location near LXET0203 and revised excavation boundaries near both samples, assuming the sample has results consistent with soil remediation goals, was agreed to. The floor confirmation sampling plan with locations positioned based on a frequency of 1 sample per ~750 ft² was agreed to by the agencies with the understanding that additional excavation activities in this area would be performed as part of the AOC.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art

From: Ali, Mazhar@Waterboards [<mailto:Mazhar.Ali@waterboards.ca.gov>]
Sent: Monday, August 05, 2013 2:40 PM
To: Lenox, Arthur J; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; King, Buck@DTSC
Cc: 'ZORBA, PETER D. (HQ-LP040)'; Randy.Dean@ch2m.com; Alexander Fischl; Andrew Payne; Shelby Valenzuela
Subject: RE: LOX Confirmation Email

Hello Art:

Thank you for your e-mail. Peter is on vacation this week.

I do concur with what is stated in your e-mail.

Sincerely,

Mazhar

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Monday, August 05, 2013 1:33 PM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: 'ZORBA, PETER D. (HQ-LP040)'; Randy.Dean@ch2m.com; 'Alexander.Fischl@us.mwhglobal.com'; Andrew.T.Payne@mwhglobal.com; Shelby Valenzuela
Subject: LOX Confirmation Email

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on July 17, 2013 with RWQCB and DTSC staff regarding LOX ISRA activities. Attending the teleconference were: Peter Raftery and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), and Alex Fischl (MWH). A summary of the agreements reached during the teleconference are summarized below. The figures presented during the teleconference are attached to this email for reference.

LOX-1B-1

During the teleconference, the recently collected sidewall confirmation sample results and the floor confirmation sampling plan were reviewed. Based on the results, the excavated boundaries were agreed to be established and no additional

sidewall sampling was necessary. The floor confirmation sampling plan with locations positioned based on a frequency of 1 sample per ~600 ft² was agreed to by the agencies with the understanding that additional excavation activities in this area would be performed as part of the AOC.

LOX-1B-2

During the teleconference, the recently collected sidewall confirmation sample results and the floor confirmation sampling plan were reviewed. Based on the results, additional sidewall confirmation sampling would be performed in the area of two samples, LXET0100 and LXET0103. Following the call, it was determined that samples LXET0100 and LXET0102 were misidentified. Note the corrected figure showing the correct sample locations is attached to this email. In addition, the figure also shows sample LXET0105, which is a step out sample to LXET0103. A separate email will be provided to you that will show you a new proposed excavation boundary.

The floor confirmation sampling plan remains unchanged with locations positioned based on a frequency of 1 sample per ~600 ft² was agreed to by the agencies with the understanding that additional excavation activities in this area would be performed as part of the AOC.

LOX-1B-3

During the teleconference, the recently collected sidewall confirmation sample results and the floor confirmation sampling plan were reviewed. Based on the results, additional sidewall confirmation sampling and/or additional excavation would be performed in the area of two samples, LXBS1047 and LXET0203. The sample location near LXET0203 and revised excavation boundaries near both samples, assuming the sample has results consistent with soil remediation goals, was agreed to. The floor confirmation sampling plan with locations positioned based on a frequency of 1 sample per ~750 ft² was agreed to by the agencies with the understanding that additional excavation activities in this area would be performed as part of the AOC.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,

Art

Note from the Expert Panel 8-29-2013

This note is to serve as the Expert Panel's summary of the teleconference on August 28, 2013 relating to the Area I landfill and ISRA sites at LOX (LOX1A, LOX1B-4, LOX1C and LOX1D).

The Panel reviewed the Area I landfill site (A1LF) and concludes that it is not contributing to exceedences in the NPDES permit and that the difficult topography and large volume of material make it a good candidate for integration into the final clean up on Boeing property. The criteria for this recommendation at A1LF are similar to the criteria we used for A2LF (low calculated flows per SWMM model; heavy vegetation on hillside; field observations in wet weather by monitoring staff show only small flows; most water quality data show no exceedences). In addition, there are significant BMPs between A1LF and the Northern Drainage channel and Boeing eliminated significant runoff by removing the upper asphalt parking lot and revegetating the area. Samples should continue to be collected in this area and CM 9 can be upgraded if warranted.

The LOX sites are primarily high in copper concentrations, which has not been a recent problem in meeting the permit for Outfall 9. Site LOX1A is on a steep slope and would be difficult to reach with earth moving equipment and stabilize after excavation. Opening this site would probably create more problems with erosion than benefits from soil removal prior to the AOC cleanup.

The other three LOX sites (LOX 1B4, 1C and 1D) also have elevated copper levels in the soils, and are small in area and soil volumes requiring removal. They are or can be isolated from the main stormwater runoff. For example, the east side of LOX 1C could be sealed off from overland flow via a small berm and swale, or with sandbags. For these reasons they are also good candidates to be integrated into the AOC cleanup. Water quality monitoring at LOX should also continue.

The Expert Panel agrees with Boeing and NASA that the better strategy for cleaning up the Area I land fill (A1LF) and the four LOX sites is to integrate them into the larger site wide cleanup and AOC cleanup (NASA only). In the meantime, it is recommended that the sites be isolated hydrologically to the extent feasible and stabilized with vegetation and BMPs.



MK Stenstrom for the Expert Panel

From: King, Buck@DTSC [<mailto:Buck.King@dtsc.ca.gov>]

Sent: Monday, September 16, 2013 1:48 PM

To: Lenox, Arthur J; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards

Cc: Alexander Fischl; Randy.Dean@ch2m.com; 'ZORBA, PETER D. (HQ-LP040)'

Subject: RE: Sept 4th Teleconference Summary - LOX ISRA

The descriptions and agreements presented below are accurate and reflect my understanding and decisions agreed to at the September 4, 2013 LOX ISRA confirmation sampling results evaluation meeting.

Buck King, PG. CHG.

Senior Engineering Geologist

Department Of Toxic Substances Control

700 Heinz Ave, Berkeley CA 94710

510.540.3955

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]

Sent: Monday, September 16, 2013 1:29 PM

To: Owens, Cassandra@Waterboards; King, Buck@DTSC; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards

Cc: Alexander.Fischl@mwhglobal.com; Randy.Dean@ch2m.com; 'ZORBA, PETER D. (HQ-LP040)'

Subject: Sept 4th Teleconference Summary - LOX ISRA

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on September 4, 2013 with RWQCB and DTSC staff regarding LOX ISRA activities. Attending the teleconference were: Peter Raftery and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). During the teleconference, figures displaying the confirmation sample results were reviewed for LOX-1B-1, LOX-1B-2, and LOX-1B-3. For each area, a summary of the results and the agreements reached during the teleconference are provided below. The figures presented during the teleconference are attached to this email for reference, updated with the split data received since the teleconference.

LOX-1B-1

Sample results reviewed during the teleconference are below ISRA soil remediation goals (SRGs) with the exception of one dioxin result slightly above the SRG. Following review of the data, it was agreed that ISRA excavation activities at this area are complete. This agreement includes the understanding that additional excavation activities in this area will be

performed as part of the AOC and prior to that work, surface water flow in the area will be captured in the ISRA excavations.

LOX-1B-2

Sample results reviewed during the teleconference are below ISRA SRGs with the exception of one RWQCB split dioxin result (primary result is below SRG). At the time of the teleconference, data was pending for two split samples. Following review of the data, it was agreed that ISRA excavation activities are complete at this area if the pending two sample results are below or generally consistent with the SRGs. The results for the two pending split samples (LXET0113 and LXET0122) have been received and are below the SRGs. Therefore, ISRA excavation activities are complete. This agreement includes the understanding that additional excavation activities in this area will be performed as part of the AOC and prior to that work, surface water flow in the area will be captured in the ISRA excavations.

LOX-1B-3

Sample results reviewed during the teleconference are below ISRA SRGs with the exception of 5 copper results. Although copper was detected in several samples above the SRG, this metal has been in compliance in Outfall 009 NPDES samples since 2006. At the time of the teleconference, data was pending for two split samples. Following review of the data, it was agreed that ISRA excavation activities are complete at this area (excluding the ~20 cy of soil with radionuclides above look-up table values) if the pending two sample results are below or generally consistent with the SRGs. The results for the two pending split samples (LXET0215 and LXET0228) have been received and are below or generally consistent with the SRGs (dioxins and copper at LXET0228 slightly exceeded the SRGs). Therefore, ISRA excavation activities are complete. This agreement includes the understanding that additional excavation activities in this area will be performed as part of the AOC and prior to that work, surface water flow in the area will be captured in the ISRA excavations.

In response to a request by DTSC during the teleconference, a comparison of confirmation sample results for dioxins to the background value (0.91 pg/g) was performed. Of the 60 samples in the database at the time of the review, 35 samples had dioxin results below the background value.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely, Art

From: Raftery, Peter@Waterboards [<mailto:Peter.Raftery@waterboards.ca.gov>]
Sent: Monday, September 16, 2013 2:29 PM
To: Lenox, Arthur J
Cc: King, Buck@DTSC; Owens, Cassandra@Waterboards
Subject: RE: Sept 4th Teleconference Summary - LOX ISRA

Art:

The descriptions and agreements presented below are accurate and reflect my understanding and decisions agreed to at the September 4, 2013 LOX ISRA confirmation sampling results evaluation meeting.

Peter J. Raftery, P.G., C.HG.
Engineering Geologist
RWQCB-LA
320 W. 4th Street
Los Angeles, CA 90013
ph 213.576.6724
fx 213.576.6717
peter.raftery@waterboards.ca.gov

From: Lenox, Arthur J [<mailto:arthur.j.lenox@boeing.com>]
Sent: Monday, September 16, 2013 1:29 PM
To: Owens, Cassandra@Waterboards; King, Buck@DTSC; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: Alexander.Fischl@mwhglobal.com; Randy.Dean@ch2m.com; 'ZORBA, PETER D. (HQ-LP040)'
Subject: Sept 4th Teleconference Summary - LOX ISRA

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconference held on September 4, 2013 with RWQCB and DTSC staff regarding LOX ISRA activities. Attending the teleconference were: Peter Raftery and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Pete Zorba (NASA), Randy Dean (CH2M HILL), and Alex Fischl (MWH). During the teleconference, figures displaying the confirmation sample results were reviewed for LOX-1B-1, LOX-1B-2, and LOX-1B-3. For each area, a summary of the results and the agreements reached during the teleconference are provided below. The figures presented during the teleconference are attached to this email for reference, updated with the split data received since the teleconference.

LOX-1B-1

Sample results reviewed during the teleconference are below ISRA soil remediation goals (SRGs) with the exception of one dioxin result slightly above the SRG. Following review of the data, it was agreed that ISRA excavation activities at this area are complete. This agreement includes the understanding that additional excavation activities in this area will be performed as part of the AOC and prior to that work, surface water flow in the area will be captured in the ISRA excavations.

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Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely, Art

Alexander Fischl

From: King, Buck@DTSC <Buck.King@dtsc.ca.gov>
Sent: Friday, November 15, 2013 9:41 AM
To: Alexander Fischl; Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'ZORBA, PETER D. (HQ-LP040)'; Randy Dean (Randy.Dean@ch2m.com)
Subject: RE: Oct 14 & 30th Teleconference Summary - AP/STP-1C-2 and ELV

All,
The description below accurately describes discussions and agreements made during October 14 and 30, 2013 teleconferences regarding NASA ISRA excavation work.

Buck King, PG. CHG.
Senior Engineering Geologist
Department Of Toxic Substances Control
700 Heinz Ave, Berkeley CA 94710
510.540.3955

From: Alexander Fischl [mailto:Alexander.Fischl@mwhglobal.com]
Sent: Friday, November 15, 2013 9:10 AM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'ZORBA, PETER D. (HQ-LP040)'; Randy Dean (Randy.Dean@ch2m.com)
Subject: FW: Oct 14 & 30th Teleconference Summary - AP/STP-1C-2 and ELV

Hi All,

Just a friendly reminder . . . please provide a response to the email below.

Thank you,
Alex Fischl
MWH - Walnut Creek, CA Office
office: 925-627-4627
cell: 925-997-7384

From: Alexander Fischl
Sent: Thursday, November 07, 2013 11:46 AM
To: Owens, Cassandra@Waterboards (Cassandra.Owens@waterboards.ca.gov); 'Raftery, Peter@Waterboards'; Mazhar Ali (mali@waterboards.ca.gov); Buck King (BKing@dtsc.ca.gov)
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'ZORBA, PETER D. (HQ-LP040)'; Randy Dean (Randy.Dean@ch2m.com)
Subject: Oct 14 & 30th Teleconference Summary - AP/STP-1C-2 and ELV

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconferences held on October 14 and 30, 2013 with RWQCB and DTSC staff regarding AP/STP and ELV ISRA activities. Attending the teleconferences were: Cassandra Owens (only on October 30, 2013), Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Randy Dean (CH2M HILL), and Alex Fischl (MWH). During

the teleconferences, figures displaying the confirmation sample results were reviewed for AP/STP-1C-2, ELV-1C, and ELV-1D. For each area, a summary of the results and the agreements reached during the teleconference are provided below. The figures presented during the teleconference are attached to this email for reference, updated with the RWQCB split data for ELV-1C received since the teleconferences.

AP/STP-1C-2

During the teleconference on October 14, 2013, sample results collected from the additional soil removal area adjacent to the transformer were reviewed and are below ISRA soil remediation goals (SRGs). Following review of the data, it was agreed that ISRA excavation activities at this area are complete.

ELV-1C

During the teleconferences on October 14 and 30, 2013, sample results in the eastern portion of the ISRA area were reviewed. It was agreed to leave in place two sidewall samples collected adjacent to asphalt with dioxin results above the SRG (EVET0019 and EVET0024) and one floor sample that had an initial dioxin result above the SRG, an internal split sample result below the SRG, and a resample result below the SRG (EVET0023). At the time of the teleconferences, data was pending for two split samples. Following review of the data, it was agreed that ISRA excavation activities are complete at this area if the pending two sample results are below or generally consistent with the SRGs. The results for the two pending split samples (EVET0028 and EVET0029) have been received and are below or generally consistent with the SRGs (dioxins at EVET0029 slightly exceeded the SRGs). Therefore, ISRA excavation activities are complete. This agreement includes the understanding that additional excavation activities in this area will be performed as part of the AOC and prior to that work, surface water flow in the area will be captured in the ISRA excavation.

ELV-1D

During the teleconference on October 30, 2013, a summary of the excavation activities was provided. As planned, the excavation extended vertically to bedrock and therefore no floor confirmation samples were collected. One observation during the excavation activities was the presence of a thin lens of stained soil in the eastern sidewall approximately 15 feet below current grade. The stained soil is assumed to have similar chemical characteristics as the waste characterization samples collected of the stained soil (ISWC0139 and ISWC0140) and therefore was not sampled. The location and results of sidewall samples were reviewed again (originally reviewed during the May 15, 2013 teleconference). Due to the depth of the stained soil, it was agreed ISRA excavation activities are complete. This agreement includes the understanding that additional excavation activities in this area will be performed as part of the AOC and prior to that work, surface water flow in the area will be captured in the ISRA excavation.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,



Alex Fischl, P.M.P
Project Manager /
Environmental Scientist

MWH Americas, Inc.
2121 N. California Blvd.
Suite 600
Walnut Creek, CA 94596

Telephone: 925 627 4500
Direct Line: 925 627 4627
Cell Phone: 925 997 7384
Fax: 925 627 4501

BUILDING A BETTER WORLD

Alexander Fischl

From: Owens, Cassandra@Waterboards <Cassandra.Owens@waterboards.ca.gov>
Sent: Friday, November 15, 2013 9:36 AM
To: Alexander Fischl; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'ZORBA, PETER D. (HQ-LP040)'; Randy Dean (Randy.Dean@ch2m.com)
Subject: RE: Oct 14 & 30th Teleconference Summary - AP/STP-1C-2 and ELV

Alex,

Thanks so much for the explanation. I appreciate it.

The attached email accurately documents the decisions agreed to during the October 14 and October 30th conference calls. Thanks so much for your help and sorry for the delay in providing an approval.

Cassandra

Cassandra D. Owens, Chief
Industrial Permitting Unit
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, California 90013
Phone (213) 576-6750
Cowens@waterboards.ca.gov

From: Alexander Fischl [mailto:Alexander.Fischl@mwhglobal.com]
Sent: Friday, November 15, 2013 9:25 AM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'ZORBA, PETER D. (HQ-LP040)'; Randy Dean (Randy.Dean@ch2m.com)
Subject: RE: Oct 14 & 30th Teleconference Summary - AP/STP-1C-2 and ELV

Cassandra,

The results for EVET0028 (primary and RWQCB split) were below the SRGs for metals and dioxins. The results for EVET0029 (primary and RWQCB split) were below the SRGs for metals. Dioxin results in the primary sample collected at EVET0029 was below the SRG (2.46 pg/g), but the RWQCB split result was slightly above the SRG (5.19 pg/g, validated). Since the primary result at EVET0029 is below the SRG and the RWQCB split is slightly above the SRG, we propose no additional excavation and believe this approach is consistent with previous agreements on the ISRA project.

Please let me know if you have additional questions.

Thank you,

Alex Fischl
MWH - Walnut Creek, CA Office

office: 925-627-4627

cell: 925-997-7384

From: Owens, Cassandra@Waterboards [mailto:Cassandra.Owens@waterboards.ca.gov]
Sent: Friday, November 15, 2013 9:15 AM
To: Alexander Fischl; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'ZORBA, PETER D. (HQ-LP040)'; Randy Dean (Randy.Dean@ch2m.com)
Subject: RE: Oct 14 & 30th Teleconference Summary - AP/STP-1C-2 and ELV

Okay Alex,

I initially dropped the ball. There is one statement below that I have a question about. Can you provide additional clarification? Maybe a summary of the results of the samples.

Thanks
Cassandra

From: Alexander Fischl [mailto:Alexander.Fischl@mwhglobal.com]
Sent: Friday, November 15, 2013 9:10 AM
To: Owens, Cassandra@Waterboards; Raftery, Peter@Waterboards; Ali, Mazhar@Waterboards; King, Buck@DTSC
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'ZORBA, PETER D. (HQ-LP040)'; Randy Dean (Randy.Dean@ch2m.com)
Subject: FW: Oct 14 & 30th Teleconference Summary - AP/STP-1C-2 and ELV

Hi All,

Just a friendly reminder . . . please provide a response to the email below.

Thank you,
Alex Fischl
MWH - Walnut Creek, CA Office
office: 925-627-4627
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From: Alexander Fischl
Sent: Thursday, November 07, 2013 11:46 AM
To: Owens, Cassandra@Waterboards (Cassandra.Owens@waterboards.ca.gov); 'Raftery, Peter@Waterboards'; Mazhar Ali (mali@waterboards.ca.gov); Buck King (BKing@dtsc.ca.gov)
Cc: Art Lenox (arthur.j.lenox@boeing.com); 'ZORBA, PETER D. (HQ-LP040)'; Randy Dean (Randy.Dean@ch2m.com)
Subject: Oct 14 & 30th Teleconference Summary - AP/STP-1C-2 and ELV

Hello Cassandra, Peter, Mazhar, and Buck -

This email serves to document the agreements reached during the teleconferences held on October 14 and 30, 2013 with RWQCB and DTSC staff regarding AP/STP and ELV ISRA activities. Attending the teleconferences were: Cassandra Owens (only on October 30, 2013), Peter Raftery, and Mazhar Ali (RWQCB), Buck King (DTSC), Art Lenox (Boeing), Randy Dean (CH2M HILL), and Alex Fischl (MWH). During the teleconferences, figures displaying the confirmation sample results were reviewed for AP/STP-1C-2, ELV-1C, and ELV-1D. For each area, a summary of the results and the agreements reached during the teleconference are provided below. The figures presented during the teleconference are attached to this email for reference, updated with the RWQCB split data for ELV-1C received since the teleconferences.

AP/STP-1C-2

During the teleconference on October 14, 2013, sample results collected from the additional soil removal area adjacent to the transformer were reviewed and are below ISRA soil remediation goals (SRGs). Following review of the data, it was agreed that ISRA excavation activities at this area are complete.

ELV-1C

During the teleconferences on October 14 and 30, 2013, sample results in the eastern portion of the ISRA area were reviewed. It was agreed to leave in place two sidewall samples collected adjacent to asphalt with dioxin results above the SRG (EVET0019 and EVET0024) and one floor sample that had an initial dioxin result above the SRG, an internal split sample result below the SRG, and a resample result below the SRG (EVET0023). At the time of the teleconferences, data was pending for two split samples. Following review of the data, it was agreed that ISRA excavation activities are complete at this area if the pending two sample results are below or generally consistent with the SRGs. **The results for the two pending split samples (EVET0028 and EVET0029) have been received and are below or generally consistent with the SRGs (dioxins at EVET0029 slightly exceeded the SRGs).** (What does this mean?) Therefore, ISRA excavation activities are complete. This agreement includes the understanding that additional excavation activities in this area will be performed as part of the AOC and prior to that work, surface water flow in the area will be captured in the ISRA excavation.

ELV-1D

During the teleconference on October 30, 2013, a summary of the excavation activities was provided. As planned, the excavation extended vertically to bedrock and therefore no floor confirmation samples were collected. One observation during the excavation activities was the presence of a thin lens of stained soil in the eastern sidewall approximately 15 feet below current grade. The stained soil is assumed to have similar chemical characteristics as the waste characterization samples collected of the stained soil (ISWC0139 and ISWC0140) and therefore was not sampled. The location and results of sidewall samples were reviewed again (originally reviewed during the May 15, 2013 teleconference). Due to the depth of the stained soil, it was agreed ISRA excavation activities are complete. This agreement includes the understanding that additional excavation activities in this area will be performed as part of the AOC and prior to that work, surface water flow in the area will be captured in the ISRA excavation.

Our team appreciates the RWQCB and DTSC timely review of this information. Please reply to this email concurring with the summary above.

Sincerely,



Alex Fischl, P.M.P
Project Manager /
Environmental Scientist

MWH Americas, Inc.
2121 N. California Blvd.
Suite 600
Walnut Creek, CA 94596

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