State of Oregon
Department of Environmental Quality — Memorandum

Date: February 4, 2013

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From: Fredrick Moore
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Subject: Lockheed Martin RCRA Landfill Timeline • ORD 052 221 025

From our meeting with EPA Region 10 it was decided I would develop a timeline of significant events at the RCRA landfill.

From a review of the record, here is a narrative timeline. The documents that support when the events occurred are listed at the end of this memo.

1984

- Martin Marietta submits a Part A application for the RLF[1] in July 1984. (7/30/93)[i] Further revised Part A applications sent in January 1987 and December 1988.

1985

- Martin Marietta submits Part B application for a waste pile (where the RCRA landfill is currently located) on 1/30/85. (1/30/85)[ii] Application describes that Site 2 (concrete slab where RCRA landfill is currently located) received waste solely from another K088 waste pile designated as Site 1.

1990

- Public Notice of Interim Status Closure Plan on 2/1/90. (2/1/90)[iii]

[1] RLF stands for RCRA Landfill. In 1984, the waste at the concrete slab was intended to be a waste pile. The cited 1993 document used the then common name of RLF.

1991

- Geraghty & Miller submits Part B application with Martin Marietta cover letter dated 9/25/91for a RCRA landfill. (9/91)[iv]

- Final Certification of Closure Submitted (9/27/91)[v]

1993

- Geraghty & Miller submits Part B permit application for a RCRA landfill on July 30, 1993. (1/30/93)[vi]

1999

- Public Notice of Draft Post-Closure Permit (9/16/99)[vii]

2000

- Final Permit Effective (7/13/00)[viii]

- 3 New RCRA Groundwater Monitoring Wells installed on 12/12/00 and 12/13/00. (1/12/01)[ix]

2001

- ARCADIS submits a Class 1 Modification on 2/9/01 to incorporate into the permit installed benchmarks and start photo log of RCRA drains by perimeter ditch (2/22/01)[x]

- ARCADIS submits II.S. change that landfill gas sampling scheduled for April 2001 is now April 2002. (4/18/01)[xi]

- DEQ sends written approval of II.S. gas sampling date change on 5/18/01. (5/18/01)[xii]

- ARCADIS submits II.S. change to remove autodialer notification to DEQ. (8/6/01)[xiii] Autodialer to still send notification to ARCADIS.

2002

- ARCADIS submits letter dated 4/26/02 stating results of small scale pilot test and proposal to try a full-scale pilot test biologically treating CERCLA leachate. No direct involvement at the RCRA landfill. (4/26/02)[xiv]

- DEQ and ARCADIS meet in Bend on July 29 to discuss implementation and options of biologic treatment, still only at the CERCLA landfill. (7/29/02)[xv]

- ARCADIS submits report on 8/23/02 of June RCRA landfill gas sampling and proposes to install lightning rods on the gas vents. (8/23/02)[xvi]

2003

- DEQ, ARCADIS and EPA meet on April 28, 2003 to discuss further biological work at the CERCLA landfill. Pilot test for gas-phase treatment at RCRA landfill is discussed. (4/28/03)[xvii]

- Lightning rods are installed at the RCRA landfill on 8/4/03. (1/23/04)[xviii]

2004

- ARCADIS submits II.S. change on 1/23/04 to include RCRA landfill lightning rods into Inspection Plan. (1/23/04)[xix]

- ARCADIS submits proposal for remediation activities at both the RCRA and CERCLA landfill. (2/12/04)[xx] Proposed activities include:

    - 3,000 watt evaporator for RCRA leachate (never implemented)
    - Pilot gas phase treatment at RCRA landfill (implemented)
    - Routine surface application at CERCLA landfill (no longer implemented)
    - Leachate treatment in CERCLA leachate collection system (implemented)
    - Decommissioning cyanide destruction system (implemented)
    - Termination of post-closure period (not implemented)

- DEQ forwards 2/12/04 proposals to Region 10 RCRA and CERCLA staff. (3/22/04)[xxi]

- DEQ responds in writing to ARCADIS regarding 2/12/04 proposals. (3/24/04)[xxii]

- ARCAIS responds to DEQ comments on 2/12/04 proposals. Proposal for 3,000 watt evaporator is dropped. (6/1/04)[xxiii]

- DEQ, Lockheed Martin and ARCADIS meet in Portland on 5/18/04 to discuss several items including 2/12/04 proposals. (6/7/04)[xxiv]

- DEQ forwards information from 5/18 meeting to Region 10 RCRA and CERCLA staff. (6/7/04)[xxv]

- Region 10 RCRA staff contact David Reisman with EPA ORD regarding ARCADIS work plan. (6/11/04)[xxvi]

- David Reisman with EPA ORD responds to Region 10 RCRA staff regarding molasses treatment on 6/2/04. (6/16/04)[xxvii]

- ARCADIS submits a Temporary Authorization request to conduct a gas phase pilot project at the RCRA landfill. (7/26/04)[xxviii]

- Notice of Temporary Authorization request received by DEQ Bend office on 8/2/04. (8/2/04)[xxix]

- DEQ approves Temporary Authorization request on 8/6/04. (8/6/04)[xxx] 180 days hence is 2/2/05.

- David Reisman with EPA ORD submits comments regarding the CO_2 injection on 8/12/04. (11/22/04)[xxxi]

- CO_2 injection begins at the RCRA landfill on 9/2/04. (10/15/04)[xxxii]

- ARCADIS submits Operation and Monitoring Report describing initiation of gas phase operations at the RCRA landfill. (10/15/04)[xxxiii] The report described baseline levels before initial gas injection as:

> Concentrations of both methane and hydrogen sulfide exceeded the limits of the monitor equipment during the baseline test (Table 2) at the landfill vents. Oxygen levels ranged between 12.9 and 20.9 ppm; however, on several instances the levels were still dropping when the hydrogen sulfide concentrations of hydrogen cyanide ranged between 7.0 and 976 ppm. Wind conditions during the baseline monitoring event varied from moderate to strong south-easterly flows. When subsequent checks were made at the vents (5-15 minutes after removal of the vent cap), levels were typically background, indicating "bubbles" of gas in the hooked upper part of the vent system that were purged by the wind. Air monitoring data from the sump approximated ambient conditions.

- ARCADIS submits another Operation and Monitoring Report discussing the continuing gas phase operation at the RCRA landfill. (11/18/04)[xxxiv] The report states, in part:

> The high concentration of gases and low oxygen levels indicate pockets of gas that quickly disperse after the vent caps have been removed. Air monitoring data from the sump indicated approximate ambient conditions except for carbon dioxide, which varies with injections.

- DEQ notifies ARCADIS that pilot gas project proceeded without addressing most of the EPA ORD last minute comments. Probably just to let the results of the pilot test speak for itself. (11/22/04)[xxxv]

2005

- Region 10 RCRA staff sends an email to DEQ on 1/14/05 stating opinion that a Temporary Authorization request begins on the date of the request, not the date that work begins. (1/14/05)[xxxvi]

- DEQ sends ARCADIS an email on 2/25/05 with opinions on a Temporary Authorization extension and other II.S. changes. (2/25/05)[xxxvii]

- ARCADIS submits Temporary Authorization reissuance request on 3/14/05. (3/14/05)[xxxviii]

- DEQ approves Temporary Authorization reissuance request on 3/25/05. (3/25/05)[xxxix] DEQ states in letter that the approval does not set a precedent on how DEQ will issue future temporary authorization approvals (i.e., future approvals should adhere to administrative dates, not actual work dates). This approval is 231 days from the 8/6/04 initial temporary authorization request and 204 days from when the injection began. From the initial CO_2 injection it is 193 days to when ARCADIS submitted it reissuance request. Approximately 2,000 pounds of CO_2 is injected between 2/2/05 and 3/25/05 (from an eventual total of CO_2 injected of 36,000 pounds injected).[xl]

- ARCADIS submitted a II.S. change to place a blower at a gas vent for enhanced air circulation at the RCRA landfill on 6/14/05. (6/14/05)[xli]

- ARCADIS discontinued CO_2 injection on 7/17/05. (2/8/06)[xlii]

- Temporary Authorization extension period expires 8/1/2005. (3/25/05)[xliii]

- DEQ sent an email accepting the blower's use at the RCRA landfill on 8/9/05. (8/9/05)[xliv]

- ARCADIS submits a letter on 8/12/05 to DEQ stating that the last gas injection was 7/17/05 and will no longer seek a gas injection permit modification. (8/12/05)[xlv]

- ARCADIS took final air monitoring data at the RCRA landfill on 8/24/05. (2/8/06)[xlvi]

- ARCADIS installs .27 hp blower at RCRA landfill gas vent #1 on 8/30/05. (1/28/13)[xlvii]

- ARCADIS submitted to DEQ further information regarding the .27 hp blower at the RCRA landfill on 9/7/05. (9/7/05)[xlviii]

- DEQ sends to ARCADIS an email on 12/19/05 stating that the future permit modification will incorporate a longer holding time for RCRA leachate in the RCRA tank. The email allows current RCRA leachate, because it is in low volume, to exceed 90-day storage. (12/19/05)[xlix]

2006

- ARCADIS submits a II.S. change to introduce a heat source at the RCRA sump and to add a vent system to the RCRA sump building on 9/21/06. (9/21/06)[l]

- DEQ, Lockheed Martin, ARCADIS and Region 10 CERCLA staff meet in Portland on 9/26/06 to discuss site management options. (9/26/06)[li] The RCRA gas vent blower is briefly discussed.

- ARCADIS installs light bulb above RCRA tank on 10/18/06. (1/28/13)[lii]

2007

2008

- ARCADIS submitted a notification on 1/17/08 that there was a fluoride exceedance at monitoring well M-5 (upgradient of the RCRA landfill, downgradient of the past Unloading Area). (1/17/08)[liii]

- DEQ acknowledged the 1/17/08 notification on 1/18/08. (1/18/08)[liv]

- ARCADIS submits results of MW-5 resampling on 1/29/08. (1/29/08)[lv] Results are below the ACL limit.

- DEQ acknowledges the MW-5 resampling on 1/31/08. (1/31/08)[lvi] Facility returns to compliance monitoring.

- ARCADIS submits 2nd round of resampling results for MW-5 per CERCLA requirement on 2/26/08. (2/26/08)[lvii] Results were below the ACL limit.

2009

- ARCADIS submits 8/21/09 requesting guidance for upcoming Part B permit renewal submittal. (8/21/09)[lviii]

- DEQ responds to ARCADIS request for Part B guidance on 11/9/09. (11/09/09)[lix]

2010

- ARCADIS submit Part B permit renewal application on 1/4/10. (1/4/10)[lx]

- DEQ transmits Part B application to Region 10 on 1/11/10. (1/11/10)[lxi]

2011

- DEQ transmits the first draft Lockheed Martin permit to Region 10 on 3/4/11. (3/4/2011)[lxii] Blower unit and light bulb not included in first draft.

- Region 10 sends first set of draft permit comments to DEQ on 5/9/11. (5/9/11)[lxiii]

- ARCADIS permanently stops blower operation sometime in June 2011. (1/28/13)[lxiv]

2012

- DEQ sends to Region 10 second revision of draft permit on 2/21/12. (2/21/12)[lxv] Second draft permit includes provision for light bulb and vacuum blower.

- Region 10 sends comments on second draft permit on 3/29/12. (3/29/12)[lxvi] Region 10 states vacuum blower should have permitted operation parameters but no mention of treatment or closure permit.

- ARCADIS permanently removes light bulb at RCRA tank sometime in May 2012. (1/28/13)[lxvii]

- Region 10 requests several informational items from DEQ regarding the RCRA landfill on 5/2/12. Region 10 clarifies informational items are needed to evaluate the .27 hp blower at the RCRA landfill on 5/3/12. (5/3/12)[lxviii]

- DEQ sends RCRA gas and leachate data to Region 10 on 5/17/12. (5/17/12)[lxix] Gas data within the gas vents recorded in 2004 and 2005 included.

- DEQ and Region 10 visit the RCRA landfill on 5/9/12. (5/18/12)[lxx] Top of the landfill was visited and look-see of the vacuum blower and light bulb accomplished.

- Region 10 submits comments on the permit renewal on 6/12/12. (6/12/12)[lxxi] Region 10 states permit renewal must be a closure permit or a treatment permit.

- Region 10 submits email comments to DEQ in email dated 6/18/12. (6/18/12)[lxxii] This is the essential "technical" document issued by Region 10 to justify the air monitoring constituents to test for.

- Region 10 submits email on 6/21/12 to DEQ stating that if DEQ does not require air monitoring at the RCRA landfill, then EPA is prepared to issue an order. (6/21/12)[lxxiii]

- ARCADIS conducts air screening monitoring at RCRA and CERCLA landfills by DEQ request on 7/9/12. (7/20/12)[lxxiv]

- Region 10 upper management discusses issues of concern with DEQ upper management on 7/11/12. (no documentation of 7/12 date)

- Region 10 submits RCRA and CERCLA issues of concerns to DEQ (not signed) on 7/19/12. (7/19/12)[lxxv]

- ARCADIS submits air monitoring report on 7/20/12 indicating so significant risk outside RCRA gas vents. (7/20/12)[lxxvi]

- Region 10 submits large information request to Lockheed Martin on 7/24/12. Lockheed Martin given 15 days to respond. (7/24/12)[lxxvii]

- Lockheed Martin submits information to Region 10 on 7/25/12 in response to EPA/Lockheed meeting on 6/26/12. (7/25/12)[lxxviii]

- EPA issues unilateral CERCLA 106 order on 9/6/12 to Lockheed Martin to conduct, in part, air monitoring sampling at both RCRA and CERCLA

landfills. (9/6/12)[lxxix]

- Lockheed Martin submits to Region 10 information response on 8/9/12. (8/9/12)[lxxx]

- Lockheed Martin and ARCADIS begin air monitoring at the site on 9/13/12. (10/26/12)[lxxxi]

- Region 10 submits further clarification letter to DEQ regarding the need for a closure permit on 12/20/12. (12/20/12)[lxxxii] The letter was sent in response to 11/26/12 email request from DEQ.

2013

- DEQ sends an email information request to Region 10 regarding comments Region 10 made at the 1/23/13 phone meeting. (1/23/13)[lxxxiii] Information to address what treatment activity occurred in 2012 and what treatment activity occurred that was not permitted.

Documented Sources

[i] File: Large Documents: 7/30/93 bound document (#34) p. A-2

[ii] File: Large Documents: 1/30/95 bound document (#16)

[iii] RCRAInfo Database

[iv] File: Large Document: 9/91 bound document (#33)

[v] RCRAInfo Database

[vi] File: Large Documents: 7/30/93 bound document (#34)

[vii] RCRAInfo Database

[viii] RCRAInfo Database

[ix] File: 2001: 1/12/01 document (#831)

[x] File: 2001: 2/22/01 document

[xi] File: 2001: 4/18/01 document (#774)

[xii] File: 2001: 5/18/01 document

[xiii] File: II.S.: 8/6/01 document

[xiv] File: 2002: 4/26/02 document

[xv] File: 2002: 7/29/02 handout

[xvi] File: 2002: 8/23/02 document

[xvii] File: 2003: 4/28/03 agenda and handout

[xviii] File: II.S. 1/23/04 document

[xix] File: 2004: 1/23/04 document

[xx] File: 2004: 2/12/04 spiral bound document

[xxi] File: 2004: 3/22/04 document (#1089)

[xxii] File: 2004: 3/24/04 document

[xxiii] File: 2004: 6/1/04 document

[xxiv] File: 2004: 6/7/04 document (#1114)

[xxv] File: 2004: 6/7/04 document (#1115)

[xxvi] File: 2004: 6/11/04 email document (#1120)

[xxvii] File: 2004: 6/16/04 email document (no number)

[xxviii] File: 2004: 7/26/04 document (#1175)

[xxix] File: 2004: 8/2/04 document (#1140)

[xxx] File: 2004: 8/6/04 document

[xxxi] File: 2004: 11/22/04 email document (#1158)

[xxxii] File: 2004: 10/15/04: spiral bound document (#1163)

[xxxiii] File: 2004: 10/15/04: spiral bound document (#1163)

[xxxiv] File: 2004: 11/18/04: spiral bound document (#1159)

[xxxv] File: 2004: 11/22/04 email document (#1156)

[xxxvi] File: 2005: 1/14/05 email document (#1185)

[xxxvii] File: 2005: 2/25/05 email document (#1206)

[xxxviii] File: 2005: 3/14/05 document

[xxxix] File: 2005: 3/25/05 document (#1211)

[xl] File: Bookshelf: 2/8/06: Fourth Quarter 2005 and Annual Consolidated CERCLA and RCRA Report, Table 3d.

[xli] File: 2005: 6/14/05 document (#1232)

[xlii] File: Bookshelf: 2/8/06: Fourth Quarter 2005 and Annual Consolidated CERCLA and RCRA Report, p. 5-3.

[xliii] File: 2005: 3/25/05 document (#1211)

[xliv] File: 2005: 8/9/05 document (#1244)

[xlv] File: 2005: 8/12/05 document

[xlvi] File: Bookshelf: 2/8/06: Fourth Quarter 2005 and Annual Consolidated CERCLA and RCRA Report, Table 3d.

[xlvii] File: TBF: 1/28/13 email document

[xlviii] File: II.S.: 9/7/05 document

[xlix] File: 2005: 12/19/05 document (#1268)

[l] File: II.S.: 9/21/06 document

[li] File: 2006: 9/26/06 agenda and handouts (#1343)

[lii] File: TBF: 1/28/13 email document.

[liii] File: 2008: 1/17/08 document

[liv] File: 2008: 1/18/08 document

[lv] File: 2008: 1/29/08 document

[lvi] File: 2008: 1/31/08 document

[lvii] File: 2008: 2/26/08 document

[lviii] File: 2009: 8/21/09 document

[lix] File: 2009: 11/09 document

[lx] File: Bookshelves: 1/4/10 3-ring binder

[lxi] File: 2010: 1/11/10 document

[lxii] File: Draft Compilation: 3/4/2011

[lxiii] File: Draft Compilation: 5/9/11 email document transmittal

[lxiv] File: TBF: 1/28/13 email document

[lxv] File: Draft Compilation: 2/21/11 memo transmittal document

[lxvi] File: Draft Compilation: 3/29/12 document

[lxvii] File: TBF: 1/28/13 email document

[lxviii] File: 2012: 5/3/12 email document

[lxix] File: 2012: 5/17/12 document and CD.

[lxx] File: 2012: 5/18/12 document

[lxxi] File: 2012: 6/12/12 document

[lxxii] File: 2012: 6/18/12 email document

[lxxiii] File: 2012: 6/21/12 email document

[lxxiv] File: 2012: 7/20/12 document

[lxxv] File: 2012: 7/19/12 document.

[lxxvi] File: 2012: 7/20/12 document

[lxxvii] File: 2012: 7/24/12 document

[lxxviii] File: 2012: 7/25/12 document and CD

[lxxix] File: TBF: 9/6/12 3-ring bound document

[lxxx] File: TBF: 8/9/12 document with CD

[lxxxi] File: TBF: 10/26/12 document with ARCADIS 10/26/ report

[lxxxii] File: TBF: 12/20/12 document

[lxxxiii] File: TBF: 1/23/13 email document