EA Engineering, Science, and Technology, Inc.

12011 N.E. 1St St, Suite 100
Bellevue, Washington 98005
Telephone: 425-451-7400
Fax: 425-451-7800
www.eaest.com

6 November 2009
LN1065

Ms. Claire Hong
U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue
Seattle, Washington 98101

RE: Air Monitoring Performed during the October 2009 Sampling Event
Boomsnub/Airco Superfund Site, Hazel Dell, Washington
EA Project No. 14495.05.2009.0051

Dear Claire:

On behalf of Linde, LLC (Linde), EA Engineering, Science, and Technology, Inc. (EA) has prepared this letter to summarize the results of air monitoring performed during the October 2009 semiannual sampling event at the Boomsnub/Airco Superfund Site (Site). The monitoring was done at your request and included measurements of well and vault headspace, as well as the breathing zone, as described below.

FIELD PROCEDURES

A photoionization detector (PID) was used during well sampling to monitor total volatile hydrocarbons (TVH). Measurements were obtained from the headspace of wells and vaults and from the breathing zone at each location sampled during the October 2009 event. Two Perkin-Elmer Photovac 2020 meters, equipped with 11.7 eV UV lamps, were used for the measurements. The meters were calibrated at the beginning of each day and at mid-day. The procedures used for the monitoring are summarized below.

Headspace measurements were obtained immediately upon opening the well or vault. For wells, the protective casing was unlocked and opened, and the well cap was lifted enough to insert the sampling tube of the PID into the well headspace. For vaults, the vault lid was unlocked and opened enough to insert the sampling tube of the PID. In both cases, the sampling tube of the PID was immediately inserted into the well or vault to collect a sample of the stagnant air inside. The vaults contain extraction wells, so the interior of the well casing is not readily accessible.

Breathing zone measurements were obtained immediately after the headspace measurements and immediately after fully opening the well or vault. The measurements were obtained from the area approximately 6 to 9 inches forward of the shoulder, near the nose, in accordance with the procedures provided in the Site Health and Safety Plan. These readings are meant to be representative of what an individual sampling the well would be exposed to.

No specific exposure limits have been established for PID measurements because the instruments detect any and all volatile hydrocarbons present which have an ionization energy less than or equal to the lamp output. Specific volatile hydrocarbons present are not identified. For general

comparison purposes, the exposure limits for trichloroethene (TCE), the main volatile hydrocarbon contaminant at the Site, can be used. The federal Occupational Safety and Health Administration (OSHA) has established a time-weighted average (TWA) permissible exposure limit (PEL) of 100 parts per million (ppm) for TCE (29 Code of Federal Regulations 1910.1000, Table Z-2). TWA concentrations for OSHA PELs must not be exceeded during an 8-hour work shift of a 40-hour workweek. The National Institute for Occupational Safety and Health (NIOSH) has established a recommended exposure limit (REL) of 25 ppm as a 10-hour TWA.

RESULTS

Table 1 provides a summary of the PID measurements obtained during the October 2009 sampling event. Well locations are indicated on Figure 1.

Headspace – The PID provides a rapid readout of the TVH concentration in ppm. Where headspace PID readings were observed, the concentrations dropped to 0.0 ppm in less than 10 seconds, with the exception of MW-6A. The highest reading obtained at each location was recorded. In vault for extraction well MW-6A, a measurement of 16.3 ppm was obtained. The reading declined to 0.0 ppm within 30 seconds. Readings above 0.0 ppm were detected in six other Site wells or vaults at concentrations up to 0.6 ppm. It should be noted that with the Photovac 2020 model used, humidity may produce a positive response in the absence of contamination; some of the low-level headspace detections may have been due to the humidity of the stagnant air.

Breathing zone – No detectable TVH concentrations were reported within the breathing zone at any location sampled.

If you have any questions or comments, please contact me at your convenience.

Sincerely,
EA ENGINEERING, SCIENCE,
AND TECHNOLOGY, INC.

Glenn A. Hayman, LHg
Project Coordinator

GH/cb

Electronic cc:
Bernie Zavala, EPA
Brian Thiesse, Linde, LLC
Dave Grupp, Linde, LLC

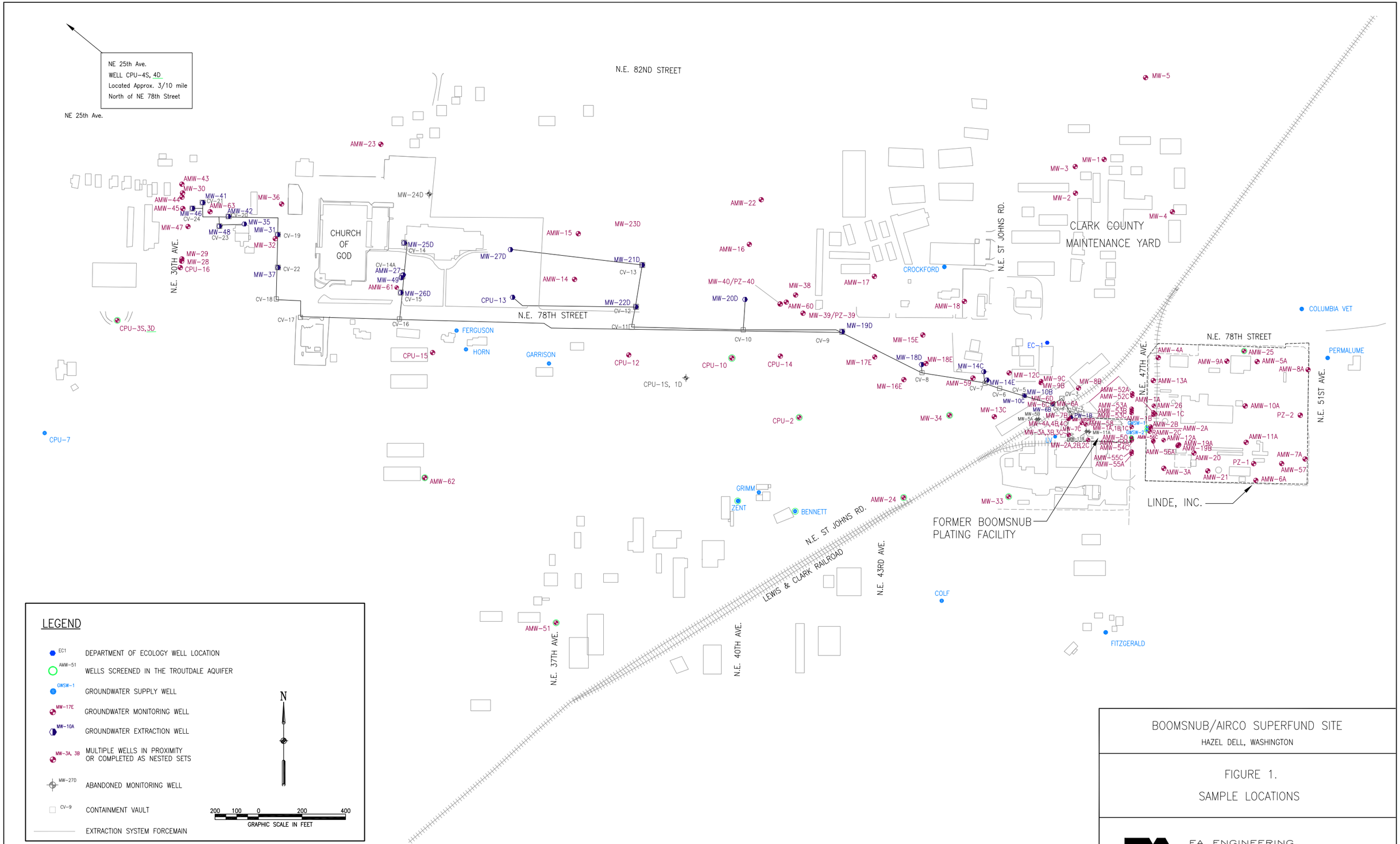
NE 25th Ave.
WELL CPU-4S, 4D
Located Approx. 3/10 mile
North of NE 78th Street
NE 25th Ave.
N.E. 82ND STREET
N.E. 78TH STREET
N.E. 30TH AVE.
N.E. ST JOHNS RD.
N.E. 47TH AVE.
N.E. 51ST AVE.
N.E. 37TH AVE.
N.E. 40TH AVE.
N.E. 43RD AVE.
LEWIS & CLARK RAILROAD
CHURCH OF GOD
CLARK COUNTY MAINTENANCE YARD
FORMER BOOMSNUB PLATING FACILITY
LINDE, INC.
CROCKFORD
FERGUSON
HORN
GARRISON
GRIMM
ZENT
BENNETT
COLF
FITZGERALD
COLUMBIA VET
PERMALUME
AMW-23
MW-24D
AMW-43
MW-30
AMW-44
AMW-45
MW-41
AMW-63
MW-46
CV-24
AMW-42
CV-20
MW-36
MW-47
MW-48
CV-23
MW-35
MW-31
MW-32
CV-19
CV-22
MW-29
MW-28
CPU-16
MW-37
CV-18
CV-17
CPU-3S,3D
CPU-7
AMW-62
MW-25D
CV-14
CV-14A
AMW-27
MW-49
AMW-61
MW-26D
CV-15
CV-16
CPU-15
MW-27D
AMW-15
AMW-14
CPU-13
MW-23D
MW-21D
CV-13
MW-22D
CV-12
CV-11
CV-10
CV-9
CPU-12
CPU-1S, 1D
CPU-10
CPU-14
CPU-2
AMW-22
AMW-16
MW-40/PZ-40
MW-20D
MW-38
AMW-60
MW-39/PZ-39
AMW-17
MW-19D
AMW-18
MW-17E
MW-15E
MW-18D
MW-18E
MW-16E
CV-8
AMW-59
MW-14C
CV-7
MW-14E
CV-5
CV-6
MW-12C
MW-10C
MW-13C
MW-34
MW-9C
MW-9B
MW-10B
MW-6D
MW-6C
MW-6B
MW-6A
CV-4
CV-3
CV-2
CV-1
MW-8B
MW-7B
MW-7C
MW-4A,4B,4C
MW-3A,3B,3C
MW-1A,1B,1C
MW-11A
MW-11B
MW-2A,2B,2C
AMW-52A
AMW-52C
AMW-53A
AMW-53B
AMW-53C
AMW-58
AMW-50
AMW-54A
AMW-54C
AMW-55C
AMW-55A
MW-33
AMW-24
AMW-51
AMW-62
EC-1
AMW-4A
AMW-9A
AMW-25
AMW-5A
AMW-8A
AMW-13A
AMW-1A
AMW-26
AMW-1C
AMW-2B
AMW-2C
AMW-2A
AMW-12A
AMW-19A
AMW-19B
AMW-56A
AMW-20
AMW-3A
AMW-21
AMW-6A
PZ-1
AMW-10A
PZ-2
AMW-11A
AMW-7A
AMW-57
MW-5
MW-1
MW-3
MW-2
MW-4
LEGEND
EC1 DEPARTMENT OF ECOLOGY WELL LOCATION
AMW-51 WELLS SCREENED IN THE TROUTDALE AQUIFER
GWSW-1 GROUNDWATER SUPPLY WELL
MW-17E GROUNDWATER MONITORING WELL
MW-10A GROUNDWATER EXTRACTION WELL
MW-3A, 3B MULTIPLE WELLS IN PROXIMITY OR COMPLETED AS NESTED SETS
MW-27D ABANDONED MONITORING WELL
CV-9 CONTAINMENT VAULT
EXTRACTION SYSTEM FORCEMAIN
N
200 100 0 200 400
GRAPHIC SCALE IN FEET
NOTE: MONITORING WELL LOCATIONS ARE APPROXIMATE.
BOOMSNUB/AIRCO SUPERFUND SITE
HAZEL DELL, WASHINGTON
FIGURE 1.
SAMPLE LOCATIONS
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC

Table 1. Photoionization Detector (PID) Readings in Wells and Vaults, Fall 2009

Well No.	Headspace, ppm	Breathing Zone, ppm
AMW-1A	0.0	0.0
AMW-1B	0.0	0.0
AMW-1C	0.0	0.0
AMW-2A	0.0	0.0
AMW-2B	0.0	0.0
RAMW-2C	0.0	0.0
AMW-3A	0.0	0.0
AMW-4A	0.0	0.0
AMW-6A	0.0	0.0
AMW-7A	0.0	0.0
AMW-8A	0.0	0.0
AMW-10A	0.0	0.0
AMW-11A	0.0	0.0
AMW-12A	0.0	0.0
AMW-13A	0.0	0.0
AMW-14	0.0	0.0
AMW-16	0.0	0.0
AMW-17	0.0	0.0
AMW-18	0.0	0.0
AMW-19A	0.0	0.0
AMW-19B	0.0	0.0
AMW-24	0.0	0.0
AMW-26	0.0	0.0
AMW-43	0.0	0.0
AMW-52A	0.0	0.0
AMW-52C	0.0	0.0
AMW-53A	0.0	0.0
AMW-53B	0.0	0.0
AMW-53C	0.0	0.0
AMW-54A	0.0	0.0
AMW-54C	0.0	0.0
AMW-55A	0.0	0.0
AMW-55C	0.0	0.0
AMW-56A	0.0	0.0
AMW-56C	0.0	0.0
AMW-60	0.0	0.0
AMW-62	0.0	0.0

Well No.	Headspace, ppm	Breathing Zone, ppm
AMW-63	0.0	0.0
CPU-12	0.0	0.0
CPU-14	0.0	0.0
MW-1A	0.0	0.0
MW-1B	0.0	0.0
MW-1C	0.0	0.0
MW-2A	0.0	0.0
MW-2B	0.0	0.0
MW-2C	0.0	0.0
MW-3A	0.0	0.0
MW-3B	0.0	0.0
MW-4A	0.0	0.0
MW-4B	0.0	0.0
MW-4BShed	0.0	0.0
MW-4C	0.0	0.0
MW-6A	16.3	0.0
MW-6C	0.0	0.0
MW-6D	0.0	0.0
MW-7B	0.0	0.0
MW-7C	0.0	0.0
MW-9C	0.0	0.0
MW-12C	0.6	0.0
MW-13C	0.0	0.0
MW-15E	0.0	0.0
MW-16E	0.0	0.0
MW-18E	0.0	0.0
PZ-39	0.0	0.0
MW-23D	0.0	0.0
MW-33	0.0	0.0
MW-35	0.0	0.0
MW-41	0.0	0.0
MW-46	0.0	0.0

Vault No.	Headspace, ppm	Breathing Zone, ppm
AMW-27	0.0	0.0
AMW-59	0.0	0.0
AMW-42	0.0	0.0
CPU-13	0.0	0.0
MW-6B	0.1	0.0
MW-10B	0.2	0.0
MW-10C	0.6	0.0
MW-14C	0.0	0.0
MW-14E	0.0	0.0
MW-18D	0.0	0.0
MW-19D	0.2	0.0
MW-20D	0.3	0.0
MW-21D	0.0	0.0
MW-22D	0.0	0.0
MW-25D	0.0	0.0
MW-26D	0.0	0.0
MW-27D	0.0	0.0
MW-31	0.0	0.0
MW-48	0.0	0.0
MW-49	0.0	0.0
PW-1B	0.0	0.0

NOTES:

- Wells sampled during Fall 2009 are included in this table.
- Results are in part per million (ppm).
- Headspace readings were taken immediately upon opening the well or vault. Detected PID readings decreased to 0.0 within seconds of opening wells and vaults.
- Breathing zone readings were taken from the area approximately 6 to 9 inches forward of the shoulders, near the nose.