Oregon
John A. Kitzhaber, MD, Governor

Department of Environmental Quality
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March 14, 2010

Stephanie Shanley
Intel Corporation
M/S: RA1-349
5200 NE Elam Young Parkway
Hillsboro, OR 97124-6497

Re: Progress Report 114 Review
Intel-Aloha, ECSI #1131

Dear Ms. Shanley:

The Oregon Department of Environmental Quality (DEQ) has received and reviewed the following report related to the Intel-Aloha Site:

Progress Report 114 (Third and Fourth Quarters 2010), dated February 16, 2010

DEQ requests a response to the comments below where indicated.

GENERAL COMMENTS

1. It would be helpful if tabs were included to identify attachments, in addition to labeling the attachments either on the tab or table of contents.
2. DEQ would like the Progress Report to be updated and re-organized to be more applicable to the stage of the project. This includes prioritizing monitoring natural attenuation (NA) results and evaluation of monitoring data to remedial action objectives (RAOs). Re-organization includes:
    - Removing the Remedial Investigation subsection in the Sampling and Analysis section unless additional RI work is performed (unlikely).
    - Moving the IRAM Groundwater Treatment summary (and associated tables/figures/attachments) *after* Groundwater Monitoring (and associated tables/figures/attachments), including relocating Table 1 as an attachment.
    - Moving any remaining injection summary/discussion (and associated tables/figures/attachments), including Table 2, to *follow* text discussion and presentation of data related to natural attenuation monitoring.
    - After sections on Actions Taken and Scheduled, discuss Groundwater Monitoring activities and results, including rearranging Table 3 and 4 (Groundwater Monitoring Summary) as Table 1 and 2, in addition to rearranging the groundwater summary (1996 to present) tables as the first attachment followed by the time-series plots, field sheets, laboratory reports, and AMEC's data quality review report.

- On figures, include the applicable risk-based concentrations (RBCs), in addition to MCLs.
- On figures illustrating contaminant sampling results from the most recent NA monitoring event, please include the following:
    i. Total VOCs for Willamette Silt wells;
    ii. Total VOCs for Valley Fill wells;
    iii. Detections exceeding MCLs or DEQ RBCs in Willamette Silt (with separate color or other notation for MCL vs. RBC exceedances);
    iv. Detections exceeding MCLs or DEQ RBCs in Valley Fill (with separate color or other notation for MCL vs. RBC exceedances); and
    v. Plotting of individual contaminant detections (TCE, DCE, VC) is no longer necessary, and NA parameters such as DO and ORP can be presented in tables and discussed in text. Results from the upper and lower VF do not need to be presented separately given that the distinction between the upper and lower units is somewhat arbitrary.
- The number of "time-series" contaminant plots can be reduced, and in some cases the plots simplified. We recommend focusing plots on illustrating contaminant reduction as they relate to achieving site RAOs, specifically reduction of individual contaminants to below MCLs and RBCs. Plots would then necessarily focus on wells where either MCLs or RBCs has not been reached, or contaminant trends are either unstable or increasing. Trends relating to ORP, DO, methane, total ethanes or ethane can be presented in a table and discussed as relevant.

3. We did not see a discussion of the new downgradient wells installed at the request of DEQ, and they were not included on figures. Presumably they will be included in the next progress/monitoring report.
4. The report text notes that supplemental injections in "small areas" may be performed to maintain reduced geochemical conditions. DEQ does not believe any additional injections are warranted, unless significant rebound is observed. Please do not proceed with any further injections into the subsurface without prior DEQ approval.
5. DEQ has stated that they do not believe it is necessary to continue methane monitoring in Arrays A through D if injections are not occurring. However, if Intel believes that the slow release of carbon is still occurring from the Service Courtyard injections, it would be prudent to monitor enclosed spaces in this area.
6. It was discussed in more recent meetings (August and September 2010) that Intel would submit an enhanced in-situ bioremediation (EISB) completion report in the first half of 2011. This report would document EISB activities that occurred and provide a summary performance evaluation in lieu of an extensive analysis, as MCLs have been primarily met and additional EISB treatment is not needed. This report would also include the Service Courtyard injections and evaluation of their effectiveness in reducing site contaminants in this source area. Please provide an update on this proposed submittal.

The treatment and remedy implementation remain consistent with the approved remedy as described in the Record of Decision. The monitoring results are encouraging for the project. The next progress report documenting the activities during the year's first and second quarters is expected in July 2011.

Please feel free to contact me anytime at (503) 229-6900 and if you have any questions concerning this letter.

Best Regards,

Erin K. McDonnell
Project Manager
Cleanup and Emergency Response Section
Northwest Region

cc: Bruce Gilles (DEQ)
Dan Hafley (DEQ)
Russ Bunker (AMEC Earth & Environmental, Inc.)

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Stephanie Shanley
Intel Corporation
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5200 NE Elam Young Parkway
Hillsboro, OR 97124-6497

Re: DEQ Review – NA Monitoring Plan
Intel-Aloha, ECSI #1131

Dear Ms. Shanley:

The Oregon Department of Environmental Quality (DEQ) has received and reviewed the following report related to the Intel-Aloha Site:

Natural Attenuation Monitoring Plan, dated December 22, 2010

DEQ requests a response to the comments below where indicated.

GENERAL COMMENTS

1. DEQ preference is to use our own RBCs (rather than EPA risk-based levels) when available. DEQ risk-based concentrations (RBCs) for PCE, TCE, VC, and 1,2-DCA are 0.093, 0.039, 0.025, and 0.14 micrograms per liter (ug/L), respectively.

   In describing the selected remedial action in the site Record of Decision, it states that once Federal drinking water maximum contaminant levels (MCLs) have been met onsite, monitoring will be performed to ensure that potential off-site exposure to groundwater contaminants would be at concentrations below EPA tapwater PRGs (now Regional Screening Levels [RSLs]). However, the Remedial Action Objectives (RAOs) for the site stipulate treating onsite volatile organic compounds (VOCs) to MCLs before ceasing hydraulic containment, and *allowing natural attenuation (NA) to reduce offsite VOC concentrations to RBCs*. DEQ will require that monitoring of natural attention occur until RAOs are achieved. Please use RBCs and update report text/figures/tables accordingly. If no RBC has been established for a constituent, using the RSL is appropriate.

2. Please update the report to include new monitoring wells (Sections 2.3 and 2.4), and include construction details in appropriate appendices.

SPECIFIC COMMENTS

Section 1.2. It is more accurate to say that it has been observed in the last two monitoring events that most VOC concentrations have met MCLs in the Valley Fill (VF), with the exception being a few

locations for vinyl chloride and those exceedances are marginal. It would also be applicable to list relevant RAOs in this section. Monitoring natural attention will occur until RAOs are achieved. In addition, remedy progress relative to achieving RAOs should be discussed in future monitoring/progress reports.

Section 2.1. Text mentions the potential for adjustments to the monitoring schedule, and that DEQ would be informed of proposed adjustments in routine reports. Please confirm that adjustments to the monitoring schedule will not occur without DEQ approval.

Section 2.2. In the second paragraph of the section, groundwater flow within the upper Valley Fill unit is identified as "subvertical downward". It may be useful to note that there is a subordinate western (horizontal) flow component in the upper VF which prevents contamination from migrating offsite.

Section 2.5. The lowest groundwater levels in the Portland area commonly occur in October or early November. August may be early to capture low hydraulic head conditions in groundwater. Please consider shifting this monitoring to a later event. We further recommend altering the sampling schedule so that annual sampling occurs coincident with the semiannual low groundwater event.

Section 2.9. For semiannual reporting, please discuss QA/QC in the main text, including field and laboratory summaries. In addition, DEQ would like the progress reports to be updated and re-organized to be more applicable to the stage of the project. Please refer to DEQ's comment letter on the most recent submitted Progress Report (114), dated March 14, 2011, and regarding recommended data evaluation and reporting, specifically for maps of site contaminants and time-series plots.

The treatment and remedy implementation remain consistent with the approved remedy as described in the Record of Decision. Please feel free to contact me anytime at (503) 229-6900 and if you have any questions concerning this letter.

Best Regards,

Erin K. McDonnell
Project Manager
Cleanup and Emergency Response Section
Northwest Region

cc: Bruce Gilles (DEQ)
Dan Hafley (DEQ)
Russ Bunker (AMEC Earth & Environmental, Inc.)