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DEPARTMENT OF ECOLOGY
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November 5, 2009

Ronald S. Taylor
President
Capital Industries Inc.
PO Box 80983
Seattle, WA 98108-0286

RE: **Capital Industries Site #11598755**
Remedial Investigation Agreed Order
Remedial Investigation: First Phase Report

Dear Mr. Taylor:

On September 18, 2009, the Washington State Department of Ecology (Ecology) received a draft *First Phase Report* from Farallon Consulting, representing Capital Industries (Capital). The Report discusses the results of phased direct-push groundwater sampling in the Capital remedial investigation (RI) study area and proposes new monitoring wells. Thank you for submitting the document by its' scheduled due date.

Many of the new wells proposed by Capital in the Report are positioned and screened at good locations. However, following our review, Ecology emailed Capital a groundwater *data gap analysis* (10/9/09) which suggested that additional locations should be considered. The parties met on October 19 and discussed a new well-network proposal by Capital, intended to address Ecology's RI data gap concerns.

On October 29 Capital provided Ecology emailed meeting notes, summarizing the well location and screening interval agreements reached on October 19. The email is enclosed (Enclosure A). Ecology agrees with Capital's summary in the email, and the company should now proceed to obtain access for, and install, the new wells. Capital should also prepare a draft Groundwater Monitoring Plan. Since the installation of the new wells is the more time-critical work element, Capital may submit the Monitoring Plan after the wells are installed. Please provide this document to Ecology within thirty (30) days of completing the installations.

Several comments related to the September First Phase Report are enclosed (Enclosure B). Ecology is **not** requesting a revision of the Report, but in certain cases we ask that our comments be addressed in Capital's draft Groundwater Monitoring Plan.

If you have any questions about this letter, please contact me at (425) 649-4449 or ejon461@ecy.wa.gov.

Sincerely,

EJones

Ed Jones
Environmental Engineer
Hazardous Waste and Toxics Reduction Program

EJ:SA
By certified mail: 7009 1410 0002 4171 0539

cc: P. Jewett/D. Caputo, Farallon
D. Verfurth, G&R
Tong Li, GWS
N. Johnson, AAG
J. Knox, PGG
D. Hillman, Aspect
W. Carroll, Pacific Crest
W. Beck, PSC
G. Degginger, LPA&C
S. Jones, Marten Law Group
Central Files

ENCLOSURE A

October 29, 2009, Email
From Farallon Consulting to Ecology

Ed and Tong,

Farallon Consulting LLC (Farallon) has prepared this email on behalf of Capital Industries (Capital) to confirm that the monitoring well locations developed in the meeting conducted on October 19, 2009 with Farallon and the Washington State Department of Ecology (Ecology) have been approved by Capital. The monitoring well locations approved by Capital are shown on the attached Figure.

The following summaries the discussion of the meeting that was held to determine the revised locations, depths, and screen intervals for proposed monitoring wells to complete the Remedial Investigation (RI) for the Capital Area of Investigation. As discussed, Farallon developed the revised monitoring well locations, depths, and screen intervals in accordance with the Remedial Investigation Work Plan dated September 16, 2008, prepared by Farallon to be installed during December 2009 (dependant on access negotiations).

The purpose of the October 19 meeting was to determine the final monitoring well locations based on Ecology's comments presented to Farallon in the *CI First Phase Report, 9/09* email attachment. During the meeting, Farallon proposed a revised version of the monitoring well network based on a review of Ecology's comments. Ecology concurred that the following changes to the monitoring well network proposed on Figure 10 of the *Remedial Investigation Field Program, First Phase Report* will provide adequate groundwater data to satisfy the groundwater monitoring objectives of the remedial investigation (revised locations shown on attached figure):

- CI-9 Cluster – The original CI-9 was proposed near direct push (DP) location B-19 to bound the Plant 4 plume; however, Ecology determined that this well cluster is not necessary and would better serve the objectives of the investigation at a point downgradient of DP point B13. The revised CI-9 location would provide analytical and hydraulic data downgradient of Plant 4. The revised CI-9 cluster may be installed either north or south of the buildings in the mobile crane company yard based on access negotiations.
- CI-10 Cluster – Ecology proposed an additional and fourth well be installed at the CI-10 cluster and screened within the shallow zone. However, Capital has revised the screen intervals to include a shallow well zoned from 25 to 35 feet below ground surface (bgs) and intermediate well zoned from 45 to 55 feet bgs instead of installing a fourth monitoring well.
- CI-12 Cluster – Ecology proposed Capital modify the location of the CI-12 cluster to a location 100 to 150 feet south of the originally proposed location. Capital will comply with this request.

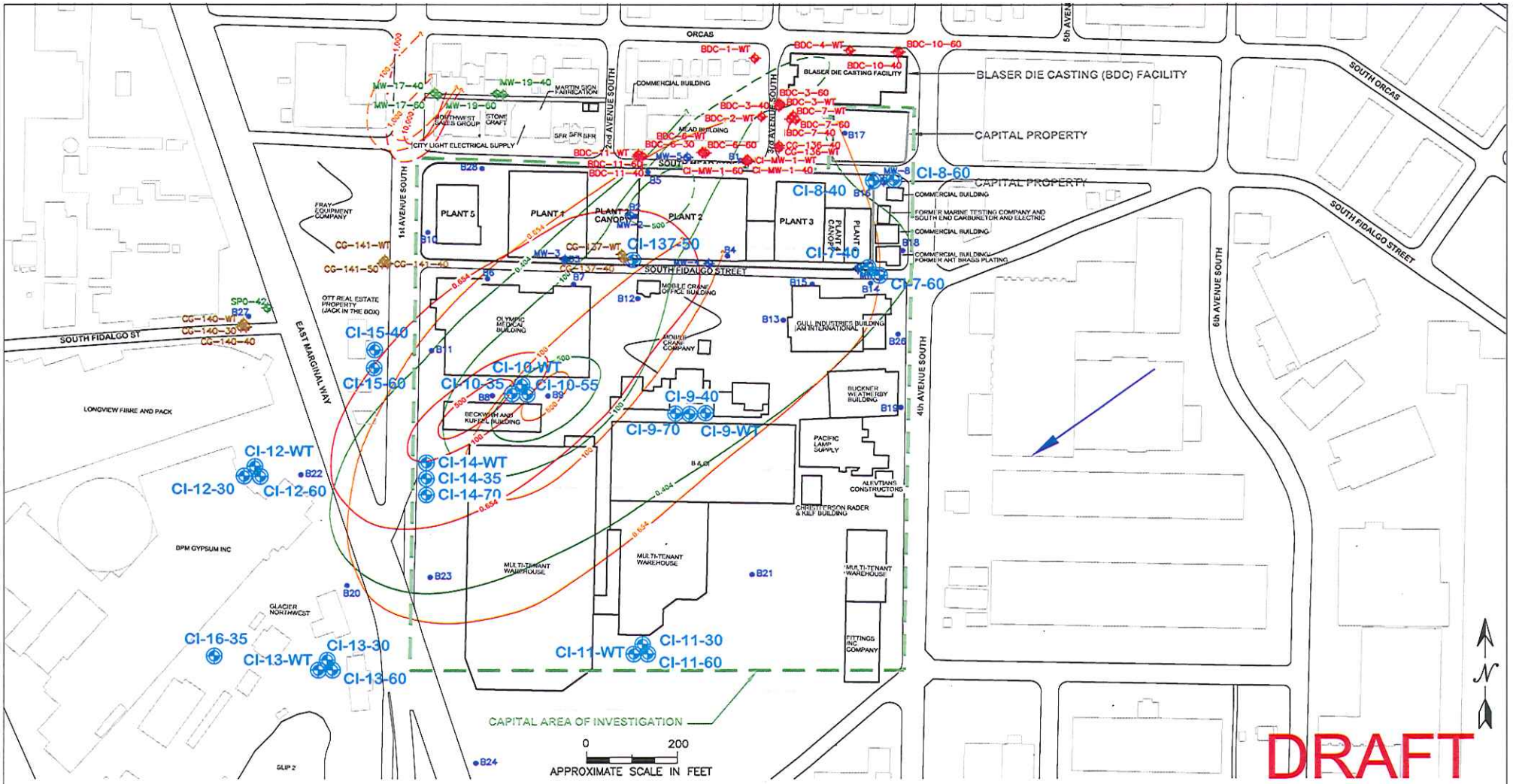
- CI-13 Cluster – Ecology proposed Capital install a monitoring well cluster downgradient of DP location B23 and modify the location of the CI-13 cluster to a point approximately 250 feet southwest. To satisfy Ecology's monitoring requirements in this area, the CI-13 cluster has been modified to a location approximately 200 feet southeast of the originally proposed location. One additional monitoring well, CI-16-35, has been proposed south of the BPM Gypsum building at the request of Ecology.
- CI-14 Cluster - Ecology proposed Capital install an additional well cluster near the intersection of East Marginal Way and 1st Avenue South to define subsurface conditions downgradient of B8 and B9. Capital will complied with this request.
- CI-15 Cluster – Ecology proposed installation of shallow and intermediate zone monitoring wells downgradient of DP point B11. Capital will comply with this request by installing the CI-15 cluster on the southern portion of the Ott Real Estate Property.

Farallon is in the process of establishing access for the proposed monitoring well locations. Farallon will notify Ecology if changes to monitoring well locations have been made due to access negotiations.

If you have any questions or additional comments please feel free to contact me.

Regards,

Daniel Caputo
Farallon Consulting, L.L.C.



LEGEND

- CAPITAL INDUSTRIES BORING
- CAPITAL INDUSTRIES MONITORING WELL
- BLASER DIE CASTING BORING
- BLASER DIE CASTING BORING MONITORING WELL
- PSC MONITORING WELL
- ART BRASS PLATING BORING MONITORING WELL
- PROPOSED MONITORING WELL

ALL LOCATIONS ARE APPROXIMATE

- TCE GROUNDWATER ISOCONCENTRATION CONTOUR-WATER TABLE ZONE, DASHED WHERE INFERRED
- TCE GROUNDWATER ISOCONCENTRATION CONTOUR-SHALLOW ZONE, DASHED WHERE INFERRED
- TCE GROUNDWATER ISOCONCENTRATION CONTOUR-INTERMEDIATE TABLE ZONE, DASHED WHERE INFERRED

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

FIGURE 1

PROPOSED GROUNDWATER MONITORING WELL LOCATIONS
REMEDIAL INVESTIGATION
CAPITAL INDUSTRIES, INC.,
SEATTLE, WASHINGTON

FARALLON PN: 457-004

Drawn By: DEW	Checked By: DC/PJ	Date: 10/20/09	Disk Reference: 457004G

ENCLOSURE B

Capital Industries
First Phase Report
Comments

1. Page 2-3. In Section 2.3 Capital states that "there is a suspected source area located in the area north of Capital Plant 5." No further information about this "source" is provided (essentially, the information is repeated on page 5-2). It is true that groundwater contamination in the shallow and intermediate zones has been detected at points B28 and SPO-19, north of Plant 5. Perhaps this was all the sentence was meant to convey. The use of the term "source area" could imply, though, that Capital believes that releases have occurred just north of Plant 5 and are the cause of the groundwater contamination detected at B28 and/or SPO-19. If this is the case, we should discuss ways to better determine the nature of this "source" area.

   In addition, Section 3.2 (page 3-7) identifies the Sahlberg Equipment facility as "a known source of HCOCs". If Capital intends to collect additional RI data to investigate the Sahlberg Equipment facility property (or other potentially contributing chlorinated ethene sources) beyond the historical record research effort, this should be discussed with the Department.

2. Pages 4-10 and 4-11. Section 4.3.3 summarizes Capital's conclusions about how well the direct push work in Phase 1 bounded the extent of groundwater contamination. For example:

   - Capital believes that the lateral and vertical extents of TCE and cis-1,2-DCE in groundwater have been bounded ("defined") to the east, west, and south. Capital also believes that the lateral extent of PCE in groundwater on the Plant 4 portion of the site is defined.

     However, TCE detections at point B23 exceed screening levels in all three saturated zones. B20 may be down- or cross-gradient of B23 for some or all of the zones, but we will not know this until wells are installed in the area and a better picture of local gradients emerges.

     It is also true that TCE was detected at the lowest sampling intervals at B8 and B9. Admittedly, the concentrations were low (3.6 and 1.8, respectively) and appear to decrease from the shallow and upper intermediate aquifer zones, but they exceeded screening levels and did not "bound" the vertical extent of contamination.[1]

[1] As Capital acknowledges at the top of page 5-2.

PCE and TCE detections at the water table zone at B13 (the highest detection of TCE and the second highest detection of PCE) probably originated from Plant 4 releases. There are no data points downgradient of B13 to "define" these PCE/TCE water table zone plumes. The Plant 4 TCE plume may commingle with the Plant 2 TCE plume to the northwest but the longitudinal leading edge of the PCE/TCE plumes does not appear to be defined downgradient of Plant 4.

Ecology is not asking that the First Phase Report be revised, but we disagree with, and do not approve, the overly general statement made in this part of the Report.

- Capital believes that the lateral and vertical downgradient extents of vinyl chloride in groundwater have been bounded ("defined") except for areas downgradient of B20-22 and B-27 (depending on the zone).

  However, vinyl chloride was detected at the lowest sampling intervals at B8, B13, and B15. Again, concentrations were relatively low, but – as reported on page 5-2 – they exceeded screening levels and did not "bound" the vertical extent of contamination.

  Ecology is not asking that Capital revise the First Phase Report. However, we disagree with, and do not approve, the overly general statement made about vinyl chloride in this part of the Report.

3. Page 5-2. The third paragraph of Section 5.1 states that the lateral and vertical extents of downgradient TCE contamination in groundwater have been determined for all three zones, with the exception of the vertical extents at B8 and B9. As noted above, however, B20 may be down- or cross-gradient of the TCE detections at B23 for some or all of the zones. We will not know this until wells are installed in the area and a better picture of local groundwater gradients emerges.

4. Page 5-2. The fourth paragraph of Section 5.1 states that the lateral extent of downgradient vinyl chloride contamination in groundwater has been defined for the shallow zone, with the exception of areas downgradient of B20, B22, and B27. However, vinyl chloride was also detected at relatively low levels at B21. B24 may be directly downgradient of B21 but they are separated by more than 750 feet. We will not know if B24 can be considered a downgradient bounding point for B21 until wells are installed in the area and a better picture of local groundwater gradients emerges (groundwater flow variation may be a factor to consider with a distance of 750 feet between these two points).

5. Page 5-2. While Ecology agrees that it is <u>possible</u> that the up and downgradient sampling results near the 5900 1st Ave. property suggest a "potential source area," this is not the only plausible explanation for the concentrations detected. If Capital intends to further investigate this area to determine if there is a *non-Capital* TCE source area south of Fidalgo, the parties should discuss how this investigation should proceed.

6. Page 5-3. Section 5.2 identifies the data gaps that Capital believes should be filled in order to complete the RI. Ecology agrees with the *unknowns* identified here. However, it can be helpful to not only identify what is not known, but to additionally propose:

   a) what can be estimated or assumed (with confidence), even if unknown; and,

   b) what must be measured.

   Usually, when differentiating between these two types of "data gaps," reference can be made to the site *hypothesis* or *conceptual model.* For example, although we have no groundwater concentration data between points B13 and points B9, 23, and 21, we have expectations about how groundwater flows in this area and the levels of TCE, DCEs, and vinyl chloride we would detect if we were to sample. If we feel that those expectations do not need to be confirmed, then the "data gaps" for the area can be "filled" with assumptions and estimates. But if we lack confidence in the ability to "fill" the data gaps with assumptions and estimates, and/or the consequences of mis-characterizing the area by using assumptions and estimates is are unacceptable, the data gaps should be "filled" with measurements.

   The third bullet, therefore, should have been expanded to discuss PCE (at and downgradient of Plants 3 and 4), TCE, cis-1,2-DCE, and vinyl chloride. First, the *unknowns* should have been acknowledged, both vertically and laterally. Unless two data points are very close together, for example, it should have been acknowledged that concentrations between sampling points are not known. Then, taking these unknowns one-by-one, Capital could have proposed the ones you feel should be addressed by new data (measurements) and those that can be addressed, in a reasonably confident manner, by using existing data, assumptions, and estimates. For all but the obvious cases, if the intent is to use existing data, assumptions, and estimates in the RI Report, the document should have stated why Capital believes this approach will effectively serve the RI's characterization needs.

   With respect to vinyl chloride and bounding the extent of water table contamination, Ecology agrees that levels in the area downgradient of B22 remain a data gap. For the shallow zone, levels in the area downgradient of B20, 22, and 27 remain data gaps (not just 20 and 22). For the upper intermediate zone, levels in the area downgradient and south of B20 remain data gaps (not just 20 and 22). However, these gaps only relate to *extent* (i.e., bounding). As noted above, Capital must also consider how characterization between points should proceed. In both cases, filling the second bullet's data gap (groundwater flow directions) is crucial.

   With respect to the fourth bullet, Ecology agrees that the impact of upgradient groundwater contamination to areas south and southwest of Mead St. is somewhat unknown. If this is an RI data gap that the company feels needs to be filled, Capital should propose, specifically, how you intend to fill it.

The identification of RI data gaps is very important and Ecology appreciates Capital's inclusion of them in the First Phase Report. Because of their critical nature, they should also be discussed in the draft Groundwater Monitoring Plan (or RI Work Plan, or both). Capital should present the discussion in a manner that addresses the comments above.

7. Page 6-1. Ecology generally agrees with the objectives of the RI Field program in Section 6.1.1. These objectives should be linked to specific field and data evaluation tasks in the draft Groundwater Monitoring Plan.

   In addition, Ecology recommends that another objective be added when developing the Groundwater Monitoring Plan:

   > "Provide data to develop and test a site hydrogeologic and contaminant migration conceptual model(s) in support of RI fate and transport evaluations."

   Ecology realizes that development of conceptual models may not be a field task *per se*, but this is an important RI task. As RI well data (and any fate and transport modeling outputs) are generated, these can be used to refine the conceptual models and help us determine if there are additional RI data gaps that should be filled. The models can also be used by the authors of the draft RI Report to put Capital's investigation findings into context.

8. Page 6-2. While many of the proposed wells on Figure 10 make obvious sense, the Report does not link each well and screening interval proposal with a specific *unknown/data gap.* Nor is there a defined *strategy* for selecting particular locations – other than the implicit goal of placing some wells at locations where direct push sampling detected elevated COC concentrations.

   As a result, Ecology prepared our own data gaps analysis, which was provided to Capital on October 9. Subsequently, the parties met and agreed on a network that would adequately address RI data gaps. Ecology appreciates Capital's willingness to propose a modified network that better addresses data gaps, but linking the new network to RI/FS data gaps has yet to be documented. Since the First Phase Report will not be revised, the linkage between wells and data gaps should be articulated explicitly in the draft Groundwater Monitoring Plan.

9. Figures 4 through 7. Please check the northern and easting (x-y) coordinates of PSC well CG-140 cluster to make sure that the location of the well cluster is accurate.

10. Figure 8. The cross-section here shows that two silt or sandy silt layers (USCS symbol ML-low plasticity silt) exist continuously from Blaser Die Casting to the Olympic Medical Building. These silt layers have been interpreted from limited boring data and may not be representative. In addition, the interpretations appear to be inconsistent with the text discussions presented on page 4-4 of Section 4.3.1.1. Ecology is not asking that

Capital revise the figure. However, Capital should understand that we agree with the text discussion, not the cross-section illustrations of the two silt layers. Ecology believes that the ML layers are generally thinner than illustrated on the cross-section, and may be inter-bedded with sand (SP or SM) layers. The silt layers, in our view, are more likely to extend short distances (rather than distances of a few hundred feet).