Mark

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

December 8, 2009

Mick Reeves
1325 4th Avenue, Suite 1440
Seattle, WA 98101

Re: Further Action at the following Site:

- **Site Name:** Seattle Steam Co. Western Ave.
- **Site Address:** 1319 Western Avenue, Seattle
- **Facility/Site No.:** 2243
- **VCP Project No.:** NW 2196

Dear Mr. Reeves:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Seattle Steam Co. Western Ave. facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Undifferentiated petroleum hydrocarbons, No. 6 fuel oil, and polycylic aromatic hydrocarbons into the Soil and Ground Water.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

The Site, for purposes of this opinion, includes two separate contaminated areas associated with Seattle Steam. One is located within and east of the Western Avenue right-of-way. The other is located within and east of the Alaskan Way right-of-way.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. 2009, June 11, *Site Summary Report, Seattle Steam Company, 1319 Western Avenue, Seattle, Washington,* Kane Environmental Inc.

2. *Re: Results of Ground Water Monitoring for Selected Wells, Post Street and Western Avenue Plants,* letter report from Dalton, Olmsted & Fuglevand, Inc.
   - 1994, February 11
   - 1993, January 23
   - 1992, August 3
   - 1992, January 6
   - 1991, July 29
   - 1991, March 26

3. 1990, December 4, *Repair of Concrete Fuel Storage Tanks, Seattle Steam Facility at Western Avenue,* Dalton, Olmsted & Fuglevand, Inc

4. 1990, February 15, *Underground Storage Tank Evaluation, Seattle Steam Company, Post Street and Western Avenue Plants,* Dalton, Olmsted & Fuglevand, Inc.

Those documents are kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. You can make an appointment by calling the NWRO resource contact, Sally Perkins, at 425 649-7107.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

The following characterization issues need to be addressed:

Western Avenue Portion

- The lateral extent of soil contamination has not been established to the north, south, or east.
- The vertical extent of soil contamination has not been established.
- The character of the oily contamination remains unclear. Only 418.1 analyses of contaminated soil have been completed. Additional NWTPH-Dx (or EPH) analyses need to be completed to establish the type of petroleum present. Additional analyses established in MTCA Table 830-1 for heavy or unknown oils must also be completed unless the identity of the oil can be confirmed.
- The latest sampling event in monitoring well WA-3 reported no detectable hydrocarbons or PAHs in ground water. One more sampling event is needed to confirm this result.
- Additional ground water monitoring wells and sampling events may be necessary, depending on the outcome of explorations undertaken to define the lateral and vertical extent of soil contamination.

Alaskan Way Portion

- The lateral extent of soil contamination has not been established eastward beneath the Seattle Steam facility.
- The vertical extent of soil contamination has not been confirmed.
- Ground water flow directions are not confirmed, so it can not be determined whether the existing monitoring wells are sited in a down gradient location relative to the area of soil contamination. Either ground water flow directions need to be clarified, or an additional well needs to be installed directly within the contaminated soil area as a "worst case" data point. At least two sampling rounds at an appropriate well(s) are needed to confirm the absence of ground water contamination.

2. Establishment of cleanup standards.

Cleanup levels and points of compliance have not been established for the Site. Establishing cleanup levels and points of compliance will need to consider the following.

a. Soil

The Site is located in a commercial area of downtown Seattle. Soil cleanup levels will therefore need to be protective of direct contact for unrestricted use. The point of compliance for this situation is soil within 15 feet of ground surface. If ground water is impacted, soil cleanup levels will need to be protective of ground water quality. The point of compliance for this situation is soil throughout the Site. Other possible pathways or receptors (terrestrial plants and animals, vapor intrusion) are not an issue for soil at this Site.

b. Ground Water

If ground water is impacted, cleanup levels will need to be established protective of potable use unless it can be demonstrated that the water is not potable under MTCA. Cleanup levels protective of surface water beneficial uses would also need to be developed because of the proximity of Elliot Bay, unless it can be shown that hazardous substances are not likely to reach the bay. The standard point of compliance for potable ground water for this Site would be from the water table to the lowest saturated depth potentially impacted by the Site.

3. Selection of cleanup action.

A cleanup action has not been selected. Note that a feasibility study will need to be completed to select a clean action, especially if an environmental covenant is being contemplated.

4. Cleanup.

No cleanup has been performed.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. **Opinion does not constitute a determination of substantial equivalence.**

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. **State is immune from liability.**

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at 425 649-7107 or e-mail at mada461@ecy.wa.gov.

Sincerely,

Mark Adams
NWRO Toxics Cleanup Program

ma/kp

Enclosures (1): A – Description and Diagrams of the Site

cc: Jason Souza, Kane Environmental Inc.
Dolores Mitchell, VCP Financial Manager (without enclosures)

Enclosure A

Description and Diagrams of the Site

Site Description

Site: Seattle Steam at this location has two facilities separated by Western Avenue (together the Property). One is located between Western Avenue and Alaskan Way (1319 Western Avenue), and the other is across Western Avenue to the east. The Site also includes two separate contaminated areas associated with the Seattle Steam facility. One is located within and east of the Western Avenue right-of-way. The other is located within and east of the Alaskan Way right-of-way. Petrolcum hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) were released to soil and ground water in these areas, and comprise the Site, as shown on the attached Site Diagram.

Area Description: The Property is located in downtown Seattle at the base of the steep slope bordering the Elliot Bay waterfront. The elevated Alaskan Way viaduct extends along the west side of the Property. The area is heavily developed with commercial buildings, roads, rail lines, and port facilities.

Property History and Current Use: Seattle Steam and its' predecessors have operated at the Property since before 1920. The main steam plant was located on the Alaskan Way portion. The Western Avenue portion (east of Western Avenue) originally contained a raw-coal bunker and crusher. The crushed coal was delivered to the steam plant via a conveyor beneath Western Avenue. The coal facilities were replaced in 1966 with a concrete 6,000 barrel (bbl) (252,000 gallon) underground storage tank (UST). The UST was lined with steel plate in 1990. The UST held "bunker oil" or Fuel Oil No. 6, until it was drained and cleaned in late 2008 or early 2009, as part of converting it for use as part of a new bio-mass boiler system now under construction.

Several USTs are or were also present on the Alaskan Way portion. One of these is a 3,000 bbl concrete tank, which was constructed in 1954 in an area previously used for pulverizing coal. This tank was also lined with steel plate in 1990 and is currently used for backup storage of Fuel Oil No. 6. Two other smaller steel USTs located north of the 3,000 bbl tank were formerly used for storage of "Bunker C" fuel. These smaller tanks were built in 1920 and were taken out of service in the early 1960s after it was discovered they were leaking.

Physiographic Setting: As noted above, the Site is situated at the base of the steep slope bordering Elliot Bay. The Western Avenue portion of the Property is slightly upslope from the Alaskan Way portion, and is about 10 feet higher in elevation. A flat lying area, filled near the turn of the century, extends westward from the Site about 150 feet to the sea wall. The elevation of the flat-lying area is close to sea level.

Surface/Storm Water System: Most of the property and surrounding area is paved or covered with buildings. Storm water is therefore captured in storm drains and discharged to Elliot Bay, or is captured in a combined sewer system and discharged to the Renton wastewater treatment facility.

Ecological Setting: There are no areas of terrestrial habitat close to the Site. Marine habitat is present in Elliot Bay.

Geology: The Site is situated in an area where fill was placed over loose beach sediments, which in turn overlie dense glacial and interglacial deposits. Explorations at the Site have extended to a maximum depth of 26 feet below ground surface (bgs), and did not penetrate through the fill. The fill is a mix of silt, sand and gravel, with varying amounts of debris, including wood, sawdust, brick, cinders, and ash.

Ground Water: Ground water occurs within the fill under unconfined (water table) conditions. The depth to water varies seasonally and with the tide, ranging from 5 to 10 feet bgs along Alaskan Way to between 15 and 20 feet bgs along Western Avenue. Ground water flow directions at the Property are likely towards Elliot Bay, although elevation data collected from wells west of the steam plan showed no clear pattern of flow.

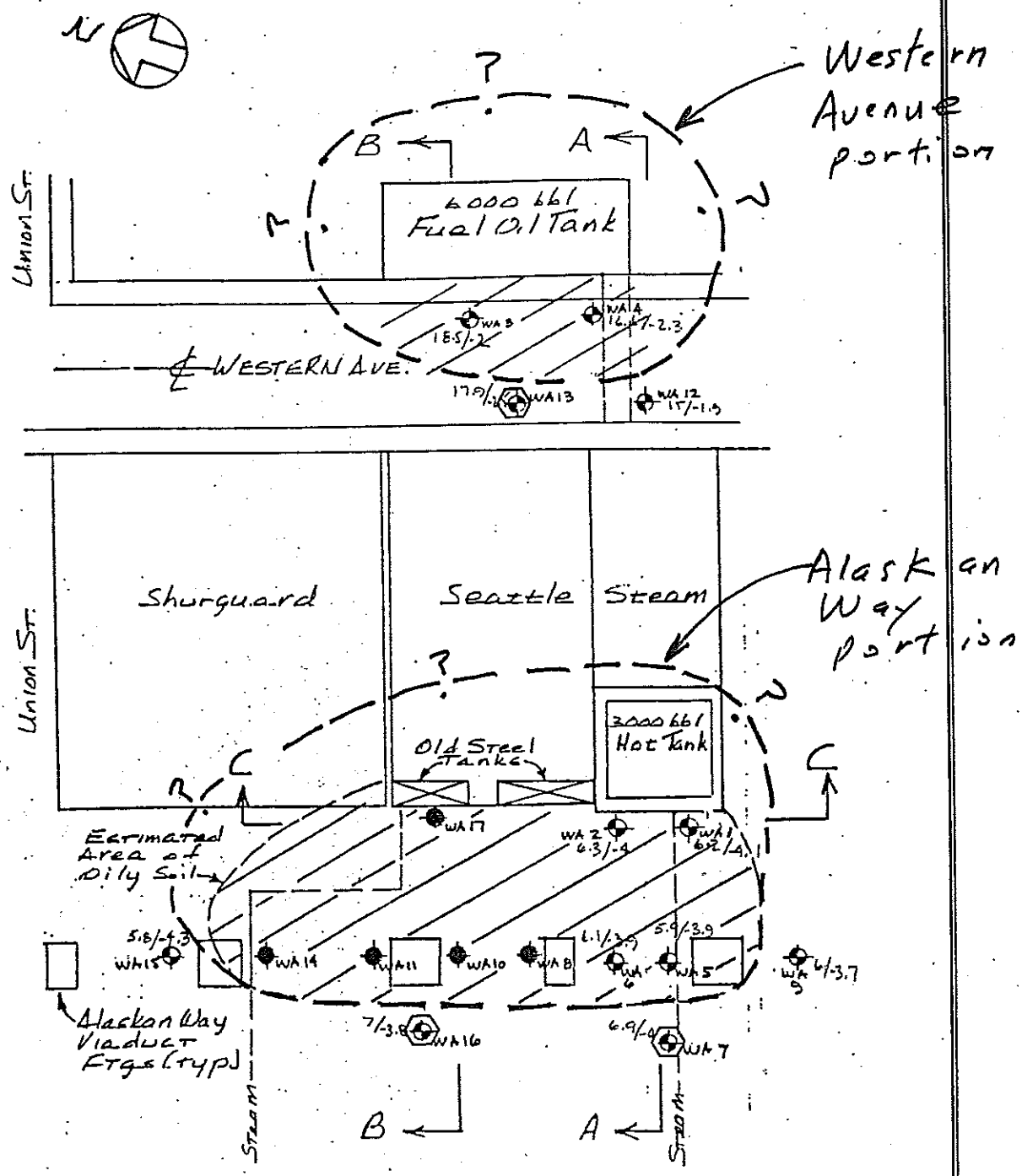
Release and Extent of Contamination – Western Avenue Portion: A black "sticky" petroleum product was detected in soil beneath Western Avenue adjacent to the 6,000 bbl UST. The contamination extended from around 16 feet bgs to the base of the borings at 26 feet bgs. The lateral and vertical extent of this contamination has not been determined. The nature of the petroleum product has also not been confirmed although it is likely bunker oil. Chemical data did show that it contains relatively low levels of carcinogenic PAHs.

One round of ground water samples collected in this area in 1990 showed TPH at a maximum 65 mg/L via 418.1. Subsequent sampling in 1991 for PAHs only in one down gradient well (WA-13) showed low PAH concentrations. Another ground water sample collected in 2009 showed no detectable TPH or PAH. These data suggest that whatever ground water contamination existed in 1990 no longer exists.

Extent of Contamination – Alaskan Way Portion: A similar black petroleum product was detected in soil beneath Alaskan Way adjacent to the 3,000 bbl tank and the other smaller steel tanks. The contamination extended from around 10 feet to the base of the borings at about 19 feet. The depth of contamination has not been determined, but the lateral extent has been largely confirmed, except to the east. No drilling has been completed to the east due to difficult access within the steam plant. The nature of the soil contamination in this area appears similar to that in the Western Avenue portion, except that carcinogenic PAHs are much more prevalent.

One round of ground water samples collected in this area in 1990 showed TPH contamination at a maximum of 22 mg/L via 418.1. Subsequent sampling in 1991 for PAHs only in two downgradient wells (WA-7, WA-16) showed sparse PAH concentrations. Several ground water samples collected in 2009 showed no detectable TPH or PAH. These data suggest that whatever ground water contamination existed in 1990 no longer exists. However, as noted above, the direction of ground water flow is not certain, so it is not clear whether the wells sampled in 2009 were down gradient of the contaminated soil area.

-- APPROXIMATE BOUNDARY of MTCA SITE



Explanation

Monitoring Well

7/-3.8 Surface/Groundwater Elev. 1-27-90 10 AM

Boring

Approx. Scale 1" = 35'

Seattle Steam Company
WESTERN AVENUE PLANT

SITE PLAN

SSC-001-01 **FIGURE 2**

DALTON, OLMSTED & FUGLEVAND, INC.

FIGURE MODIFIED BY MARK ADAMS

ECOLOGY 12/10/09