



## **PERIODIC REVIEW**

**Dexter Horton Building,  
Facility Site ID#: 68766933**

**710 2<sup>nd</sup> Avenue,  
Seattle, Washington**

**Northwest Region Office**

**TOXICS CLEANUP PROGRAM**

**February 2011**

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## 1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of post-cleanup Site conditions and monitoring data to ensure that human health and the environment are being protected at the Dexter Horton Building (Site). Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC).

Cleanup activities at this Site were completed under the Voluntary Cleanup Program. The cleanup actions resulted in concentrations of petroleum hydrocarbons remaining at the Site which exceed MTCA cleanup levels. The MTCA cleanup levels for soil are established under WAC 173-340-740. The MTCA cleanup levels for groundwater are established under WAC 173-340-720. WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a Site every five years under the following conditions:

- (a) Whenever the department conducts a cleanup action
- (b) Whenever the department approves a cleanup action under an order, agreed order or consent decree
- (c) Or, as resources permit, whenever the department issues a no further action opinion, and one of the following conditions exists:
  - 1. Institutional controls or financial assurance are required as part of the cleanup;
  - 2. Where the cleanup level is based on a practical quantitation limit; or
  - 3. Where, in the department's judgment, modifications to the default equations or assumptions using Site-specific information would significantly increase the concentration of hazardous substances remaining at the Site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors the department shall consider include [WAC 173-340-420(4)]:

- (a) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the Site;
- (b) New scientific information for individual hazardous substances of mixtures present at the Site;
- (c) New applicable state and federal laws for hazardous substances present at the Site;
- (d) Current and projected Site use;
- (e) Availability and practicability of higher preference technologies; and
- (f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

The Department shall publish a notice of all periodic reviews in the Site Register and provide an opportunity for public comment.

## **2.0 SUMMARY OF SITE CONDITIONS**

### **2.1 Site Description and History**

Sound Environmental Strategies Corporation (SES) conducted a Voluntary Cleanup Program Interim Remedial Action at the Dexter Horton Building located at 710 - 2nd Avenue in Seattle, Washington, on behalf of Goodman-Carlyle Dexter Horton, LLC (GCDH).

The downtown Seattle property is essentially rectangular and covers approximately 28,200 square feet (ft) of land. The property is developed with a 1922-vintage, 16-story building (with basement) which encloses 388,934 gross square ft of space, according to King County Assessor's records. The Dexter Horton Building was at one time heated by two oil-burning boilers, the fuel for which was stored in three USTs buried beneath the northeastern portion of the building. The three USTs are buried beneath the floor of the former boiler room on the main level of the Dexter Horton Building (level with 2<sup>nd</sup> Avenue). A sub-grade basement wall is located adjacent to the USTs to the west and south. The footing of the basement wall is located approximately 17 ft below the boiler room floor. The basement of the Dexter Horton Building exists only on the western half of the building footprint.

### **2.2 Site Investigations and Sample Results**

Review of soil boring logs compiled during SES' July 2005 investigation of subsurface conditions on the northeast corner of the property indicate the property is underlain to a depth of 5.5 ft below ground surface (bgs) by imported fill material, which is in turn underlain to a depth of a minimum of 17 ft bgs by glacial till described as medium-stiff, moderate to very dense clayey silt.

The property slopes moderately to the southwest and lies at an elevation ranging from 60 ft above sea level on the west side of the property to 90 ft on the east side. The areas immediately adjacent to the property are covered by impervious surfaces (sidewalks, streets, or buildings). Surface water is collected and conveyed away from the property by city storm sewers. No surface water from off-Site areas was observed flowing onto the Site. The nearest surface water feature is Puget Sound, located approximately one and a half blocks to the southwest. Groundwater was not encountered to a depth of 17 ft below grade (the maximum depth explored) in soil borings drilled as part of Site investigation activities. Given the low volatility of Bunker C constituents and the lack of groundwater in the area of contamination, soil was the only media of concern identified.

A Phase One Environmental Site Assessment (Phase One) was performed in April of 2003 by Golder and Associates at the property. The Phase One identified the potential presence of two diesel USTs beneath the boiler room. The location or presence of the USTs was not confirmed in the Phase One. On May 23 and June 3, 2003, SES and Environmental Tank Service (ETS) investigated the suspected UST location depicted on Site drawings. Four foot by four foot holes were cut in the concrete in the suspected location of the UST5 and excavated to a depth of 6 ft

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bgs. The USTs were not located in the areas depicted on the Site drawings provided (north and south ends of the boiler room). In January 2005, SES received a call from the property manager who had identified Bunker C fuel oil in an above floor pipe located in the west end of the boiler room. SES visited the Site with ETS and located a remote fill pipe suspected to be associated with the USTs. ETS returned to the Site on January 29, 2005, to trace the lines and uncover the access hatches to three USTs on the west side of the boiler room. ETS confirmed the presence of three USTs and exposed all three access hatches. ETS returned to the Site on February 11, 2005 to decommission the three USTs. SES visited the Site on February 12, 2005, to inspect the USTs and sample the surrounding soil. The USTs consisted of two 3,800-gallon steel tanks and one 1,800-gallon steel pressure boiler converted to a tank. The USTs appeared to be in good condition with the exception of the center tank that contained a 1-ft by 2-inch hole in the top of the UST on the south side. The west 1,800-gallon UST was full of Bunker C fuel oil. The east 3,800-gallon UST contained 60 inches of Bunker C fuel oil and the middle 3,800-gallon UST contained approximately 58 inches of water and 2 inches of Bunker C fuel oil floating on top of the water. The three USTs were pumped and cleaned and the fuel oil/water mixture was taken off Site by Phillips Services, Inc., to their disposal facility. Access holes were cut into the sidewalls and the floors of the three USTs to enable the collection of soil samples. SES collected a total of seven soil samples during UST decommissioning. The samples were analyzed by Friedman and Bruya, Inc., in Seattle, Washington, for diesel- and heavy oil- range petroleum hydrocarbons (DRPH and ORPH). Of the seven soil samples collected, two contained DRPH concentrations above the Model Toxics Control Act (MTCA) Method A cleanup levels for unrestricted land use (2,000 milligrams per kilogram [mg/kg]). The USTs were filled with controlled density fill to complete the decommissioning process. Excavation of the contaminated soil beneath the USTs was not feasible due to Site logistics. The building does not have an adequate egress to facilitate excavation of contaminated soil and the contamination is located adjacent to building support columns. SES devised a plan to address the soil contamination by in-situ treatment/oxidation. SES summarized the UST decommissioning and analytical results in a report titled Underground Storage Tank Decommissioning Report, August 22, 2005.

## 2.3 Cleanup Actions

The Dexter Horton Building was at one time heated by an oil-burning furnace, the fuel for which was stored in three underground storage tanks (USTs) buried beneath the northeastern portion of the building. The USTs, which had contained Bunker C fuel, were decommissioned by SES in 2005. During the decommissioning process, petroleum-contaminated soil was encountered in the vicinity of the USTs. Groundwater has not been affected as evidenced by the absence of groundwater and soil contamination at the base of the UST cavity. Since UST and soil excavation was not feasible, in situ (in place) chemical oxidation treatment with hydrogen peroxide was conducted to treat contaminated soil in July and August 2005. The peroxide treatment reduced petroleum hydrocarbon contamination to below MTCA Method A cleanup levels under the USTs; however, an estimated 85 cubic yards of shallow (0 to 6 feet below ground surface) petroleum contaminated soil remains beneath the concrete floor of the building. The shallow contaminated soil is accessible for removal by excavation; however, in its current state does not pose a direct contact risk because it is covered with a concrete floor slab.

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SES installed four borings in the vicinity of the former USTs, three of which were finished as hydrogen peroxide injection wells on July 11 through 13, 2005. A monitoring well to investigate the potential for the presence of groundwater in the vicinity of the soil contamination was installed east of the UST cavity in an uphill location, and therefore presumed to be upgradient, on July 14, 2005. Water was encountered in a thin perched zone at a depth of approximately 3 ft below the slab elevation, possibly in fill material between the foundation slab and native till material. A water sample, subsequently determined to be associated with surface water runoff, was collected from monitoring well MW-1. Boring IN-1 was drilled on July 11, 2005 in a location immediately to the west of former UST. Soil samples were collected from this boring at depths of 6, 9, 12, 15, and 16.5 ft and analyzed for NWTPH-Dx. The boring was terminated because of refusal at a total depth of 17.2 ft. Analytical results revealed exceedance of the MTCA Method A diesel and heavy oil cleanup level of 2,000 mg/kg at depths of 6, 15, and 16.5 ft (4,100; 5,300; and 3,500 mg/kg, respectively). No groundwater was encountered. Boring IN-2 was drilled on July 12, 2005, between former USTs 2 and 3 until refusal was encountered at a total depth of 10.75 ft. Samples were collected at depths of 6, 9, and 10.75 ft, and submitted for NWTPH-Dx analysis. Analytical results revealed exceedance of the MTCA Method A diesel and heavy oil cleanup level at the 6 and 10.75 foot depths (19,000 and 18,000, respectively). No groundwater was encountered. Boring IN-3 was drilled on July 13, 2005, between former USTs 1 and 2 until refusal was encountered at a total depth of 18.7 ft. Samples were collected at depths of 6, 9, 11.5, 13.6, 16.5, and 18.7 ft and submitted for NWTPH-Dx analysis. Analytical results determined that diesel and heavy oil range petroleum hydrocarbons were below (less than 250 mg/kg, respectively) their respective MTCA Method A cleanup levels in all soil samples. No groundwater was encountered. Boring IN-4 was drilled on July 13, 2005 at the northern end of former UST 2 to a total depth of 15.5 ft. Samples were collected at depths of 9 ft, 12 ft 5 inches, and 15.5 ft and submitted for NWTPH-Dx analysis. Analytical results revealed total petroleum hydrocarbon concentrations below the MTCA Method A level in all samples (less than 250 ppm, respectively). Boring MW-1 was drilled on July 14 approximately 45 ft to the east of IN-3 and completed as a background groundwater monitoring well. Soil samples were collected at depths of 6, 9, 12, and 16.9 ft and submitted for extended DRPH analysis. Water was encountered in a thin perched zone at a depth of approximately 3 ft below the slab elevation, possibly in fill material between the foundation slab and native till material. The water encountered in this area is thought to be surface drainage from surrounding footing drains and rain diversion drains, and is not present in any of the other Site borings/wells or building drain sumps. Analytical results of soil and water samples revealed no total petroleum hydrocarbon concentrations above the MTCA Method A level in all samples (less than 250 mg/kg in soil and less than 250 parts per billion [ppb] in water, respectively).

SES installed six borings in the vicinity of the former USTs on August 13, 2005, to evaluate the effects of the peroxide injections. The borings were drilled by Environmental Services Network Northwest, Inc. (ESN), with a limited access 2-inch split spoon driven by a 90-lb hydraulic hammer. Soil samples were analyzed for total recoverable petroleum hydrocarbons (TRPH), DRPH, and ORPH using EPA method NWTPH-Dx. Boring SS-1 was drilled in the southwest corner of the UST cavity to a depth of 6 ft bgs. The boring was terminated because of refusal at a total depth of 6 ft. ESN drillers felt the split spoon was hitting concrete at 6 ft bgs. Soil from 0 to 6 ft bgs consisted of a dry, loose, tan colored fine to medium sand with some silt, with no visual

petroleum staining and a slight asphaltic odor. A soil sample was collected from this boring at 6 ft bgs and analyzed for NWTPH-Dx. Analytical results revealed exceedance of the cleanup level at the 6 ft depth (7,800 mg/kg TRPH, 2,700 mg/kg DRPH, and 8,800 mg/kg ORPH). No groundwater was encountered.

Boring SS-2 was drilled south of UST 3 to a depth of 6 ft bgs. The boring was terminated because of refusal at a total depth of 6 ft. ESN drillers felt the split spoon was hitting concrete at 6 ft bgs. Soil from 0 to 6 ft bgs consisted of a dry, loose, tan colored fine to medium sand with some silt, with no visual petroleum staining and a slight asphaltic odor. A soil sample was collected from this boring at 6 ft bgs and analyzed for NWTPH-Dx. Analytical results revealed exceedance of the cleanup level at the 6 ft depth (6,500 mg/kg TRPH, 17,000 mg/kg DRPH, and 18,000 mg/kg ORPH). No groundwater was encountered.

Boring SS-3 was drilled adjacent to the southwest corner of UST 3 to a depth of 18 ft bgs. Soil from 0 to 9 ft bgs consisted of a dry, loose, tan colored fine to medium sand with some silt, with no visual petroleum staining and a slight asphaltic odor. Soil from 9 to 18 ft bgs consisted of moist, dense, blue grey colored sandy silt with a slight petroleum hydrocarbon odor and some visual petroleum staining. Soil samples were collected at depths of 6, 9, 12, 15, and 18 ft bgs and submitted for NWTPH-Dx analysis. Analytical results revealed exceedance of the cleanup level at the 6 ft and 9 ft depths. Analytical results determined that TRPH, DRPH, and ORPH were below the cleanup level in soil samples collected at 12, 15, and 18 ft bgs. No groundwater was encountered.

Boring SS-4 was drilled between USTs 2 and 3 adjacent to IN-2 to a depth of 18 ft bgs. Soil from 0 to 7 ft bgs consisted of a dry, loose, tan colored fine to medium sand with some silt, with no visual petroleum staining and a slight asphaltic odor. Soil from 7 to 18 ft bgs consisted of moist, dense, blue grey colored sandy silt with a slight petroleum hydrocarbon odor and some visual petroleum staining. Soil samples were collected at depths of 6, 9 to 10, 11 to 12, 15, and 18 ft bgs and submitted for NWTPH-Dx analysis. Analytical results revealed exceedance of the cleanup level at the 6 ft depth (16,000 mg/kg TRPH, 11,000 mg/kg DRPH, and 8,900 mg/kg ORPH). Analytical results determined that TRPH, DRPH, and ORPH were below the cleanup level in soil samples collected at 9 to 10, 11 to 12, 15, and 18 ft bgs. No groundwater was encountered.

Boring SS-5 was drilled south of UST 3 to a depth of 6 ft bgs. The boring was terminated because of refusal at a total depth of 6 ft. ESN drillers felt the split spoon was hitting concrete at 6 ft bgs. Soil from 0 to 6 ft bgs consisted of a dry, loose, tan colored fine to medium sand with some silt, with no visual petroleum staining and a slight asphaltic odor. Soil samples were not collected. No groundwater was encountered.

Boring SS-6 was drilled west of UST 3 adjacent to IN-1 to a depth of 6 ft bgs. The boring was terminated because of refusal at a total depth of 6 ft. Soil from 0 to 6 ft bgs consisted of a dry, loose, tan colored fine to medium sand with some silt, with no visual petroleum staining and a slight asphaltic odor. Soil samples were not collected. No groundwater was encountered.

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During building construction in the early 1920s, the hillside between 3rd Avenue and 2nd Avenue was excavated to facilitate construction of the foundation of the existing building. Soil beneath the concrete slab in the boiler room consists of dense, dry fine sand with some silt (glacial till). The USTs were placed beneath the concrete slab in an excavation area that was created to facilitate the construction of the basement wall foundation footing. Information gathered from the subsurface investigations suggests an excavated slope exists starting at the east end of the UST cavity and sloping down to the west towards the basement wall footing at 17 ft bgs. Once the USTs were in place and the basement wall was constructed the cavity was backfilled with soil.

SES oversaw the decommissioning (in place) in February 2005, of the three USTs buried beneath the boiler room floor. Soil samples collected and observations made during the UST decommissioning suggested that the DRPH contaminated soil beneath the USTs from 6 ft to 17 ft bgs originated from a failure in UST 2. Given the viscous nature of Bunker C heating oil and the hard glacial till soil present beneath the USTs, contamination was thought to be localized within the UST cavity. SES drilled five borings in July 2005 in the vicinity of the USTs to define the extent of the Bunker C impacts. No groundwater was encountered to a depth of 17 ft below grade. SES recommended in situ chemical oxidation with hydrogen peroxide to treat the inaccessible Bunker C-contaminated soil beneath the abandoned USTs. The treatments were accomplished in July and August 2005. Subsequent soil sampling at depths below the USTs showed that the peroxide was effective at reducing the concentrations of TRPH in soil below the USTs from a pre-injection concentration of 18,000 mg/kg TRPH to a post-injection concentration of 400 mg/kg. The post peroxide treatment sampling also identified two visually distinct waste types based on fill depth. The soil beneath the USTs consisted of moist, dense, blue grey colored sandy silt with a strong petroleum hydrocarbon odor and visual petroleum staining consistent with that expected from a Bunker C fuel release. However, the shallow UST backfill (0 to 6 ft bgs) atop the three USTs and up against the south and west basement walls consists of a dry, loose, tan colored fine to medium sand with some silt, with no visual petroleum staining and a slight asphaltic odor. Prior to peroxide treatment, both waste types exhibited heavy oil range petroleum hydrocarbon contamination above the Model Toxics Control Act (MTCA) Method A cleanup levels for unrestricted land use. Although the shallow fill atop the USTs exhibits an analytical profile similar to the wastes found under the USTs prior to treatment, the stark difference in its appearance and odor strongly suggests that the hydrocarbon contamination in the shallow fill did not originate from the UST releases. Although difficult to confirm, it is hypothesized that fire debris and/or asphalt was used as shallow fill material during building construction.

Groundwater has not been impacted by the UST release. Groundwater was not identified in any of the 10 borings placed within and adjacent to the UST cavity to a maximum depth of 18 ft bgs. Groundwater monitoring well MW-1, located approximately 45 ft to the east of the UST cavity had a thin perched water zone at a depth of approximately 3 ft bgs and exhibited no detectable petroleum hydrocarbon contamination. The water encountered in this area is thought to be surface drainage from surrounding footing drains and rain diversion drains, and is not present in any of the other Site borings/wells or building drain sumps.

The remedial objectives of: 1) achieving the MTCA Method A or B cleanup levels for inaccessible soils (below the USTs); and, 2) demonstrating no impacts to groundwater have been achieved by this remedial action, according to the consultant. The in situ peroxide treatment reduced petroleum hydrocarbon contamination to below MTCA Method A cleanup levels under the USTs; however, shallow fill atop the USTs and adjacent to the west basement wall still contains NWTPH-Dx compounds well in excess of the diesel range hydrocarbon MTCA Method A soil cleanup level of 2,000 mg/kg. The soil in the 0 to 6 ft below ground surface zone atop the USTs contained up to 19,000 mg/kg NWTPH-Dx. The extent of this shallow fill is estimated to be 20 ft square by 6 ft deep, or roughly 85 cubic yards.

Ecology agreed that since groundwater had not been impacted, soil impacts are confined to the property, an impermeable surface (the concrete floor) precludes direct contact with the contamination, and the low relative miscibility/mobility of Bunker C reduces the potential for migration of the contaminants, and a 'No Further Action' letter was issued February 16, 2006 after a deed restriction was recorded with the county.

## **2.4 Cleanup Levels**

MTCA Method A cleanup standards were used to establish cleanup levels at the conditional points of compliance, and to evaluate protectiveness within those points.

## **2.5 Restrictive Covenant**

Based on the Site use, surface cover and cleanup levels, it was determined that the Site was eligible for a 'No Further Action' determination if a Restrictive Covenant was recorded for the property. A Restrictive Covenant was recorded for the Site in 2006 which imposed the following limitations:

### **Section 1.**

A portion of the Property contains diesel-range petroleum hydrocarbon and motor oil-range petroleum hydrocarbon contaminated soil located beneath the concrete slab in the boiler room in the northeast corner of the building. The Owner shall not alter, modify, or remove the existing structure in any manner that may result in the release or exposure to the environment of that contaminated soil or create a new exposure pathway without prior written approval from Ecology.

Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped area, but are not limited to, include: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork.

Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial

Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

The Restrictive Covenant is available as Appendix 6.4.

## **3.0 PERIODIC REVIEW**

### **3.1 Effectiveness of completed cleanup actions**

The Restrictive Covenant for the Site was recorded and is in place. This Restrictive Covenant prohibits activities that will result in the release of contaminants at the Site without Ecology's approval, and prohibits any use of the property that is inconsistent with the Covenant. This Restrictive Covenant serves to ensure the long term integrity of the remedy.

Based upon Site visits conducted on March 23 and March 30, 2011, the remedy at the Site continues to eliminate exposure to contaminated soils by ingestion and contact. The asphalt appears in satisfactory condition and no repair, maintenance, or contingency actions have been required. The Site is still operating as a downtown office building. A photo log is available as Appendix 6.5.

Soils with TPH concentrations higher than MTCA cleanup levels are still present at the Site. However, the remedy prevents human exposure to this contamination by ingestion and direct contact with soils. The Restrictive Covenant for the property will ensure that the contamination remaining is contained and controlled.

### **3.2 New scientific information for individual hazardous substances for mixtures present at the Site**

There is no new scientific information for the contaminants related to the Site.

### **3.3 New applicable state and federal laws for hazardous substances present at the Site**

The cleanup at the Site was governed by Chapter 173-340 WAC. WAC 173-340-702(12) (c) [2001 ed.] provides that,

“A release cleaned up under the cleanup levels determined in (a) or (b) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provision in this chapter on cleanup levels, unless the department determines, on a case-by-case basis, that the previous cleanup action is no longer sufficiently protective of human health and the environment.”

Although cleanup levels changed for petroleum hydrocarbon compounds as a result of modifications to MTCA in 2001, contamination remains at the Site above the new MTCA Method A and B cleanup levels. These changes do not appear to affect this cleanup. Even so, the cleanup action is still protective of human health and the environment. A table comparing MTCA cleanup levels from 1991 to 2001 is available below.

Analyte	1991 MTCA Method A Soil Cleanup Level (ppm)	2001 MTCA Method A Soil Cleanup Level (ppm)	1991 MTCA Method A Groundwater Cleanup level (ppb)	2001 MTCA Method A Groundwater Cleanup Level (ppb)
Cadmium	2	2	5	5
Lead	250	250	5	15
TPH	NL	NL	1000	NL
TPH-Gas	100	100/30	NL	1000/800
TPH-Diesel	200	2000	NL	500
TPH-Oil	200	2000	NL	500

NL = None listed

### 3.4 Current and projected Site use

The Site is currently used for commercial purposes. There have been no changes in current or projected future Site or resource uses.

### 3.5 Availability and practicability of higher preference technologies

The remedy implemented included containment of hazardous substances, and it continues to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are still not practicable at this Site.

### 3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels

The analytical methods used at the time of the remedial action were capable of detection below selected Site cleanup levels. The presence of improved analytical techniques would not affect decisions or recommendations made for the Site.

## **4.0 CONCLUSIONS**

The following conclusions have been made as a result of this periodic review:

- The cleanup actions completed at the Site appear to be protective of human health and the environment.
- Soils cleanup levels have not been met at the standard point of compliance for the Site; however, the cleanup action has been determined to comply with cleanup standards since the long-term integrity of the containment system is ensured, and the requirements for containment technologies are being met.
- The Restrictive Covenant for the property is in place and continues to be effective in protecting public health and the environment from exposure to hazardous substances and protecting the integrity of the cleanup action.

Based on this periodic review, the Department of Ecology has determined that the requirements of the Restrictive Covenant continue to be met. No additional cleanup actions are required by the property owner. It is the property owner's responsibility to continue to inspect the Site to assure that the integrity of the remedy is maintained.

### **4.1 Next Review**

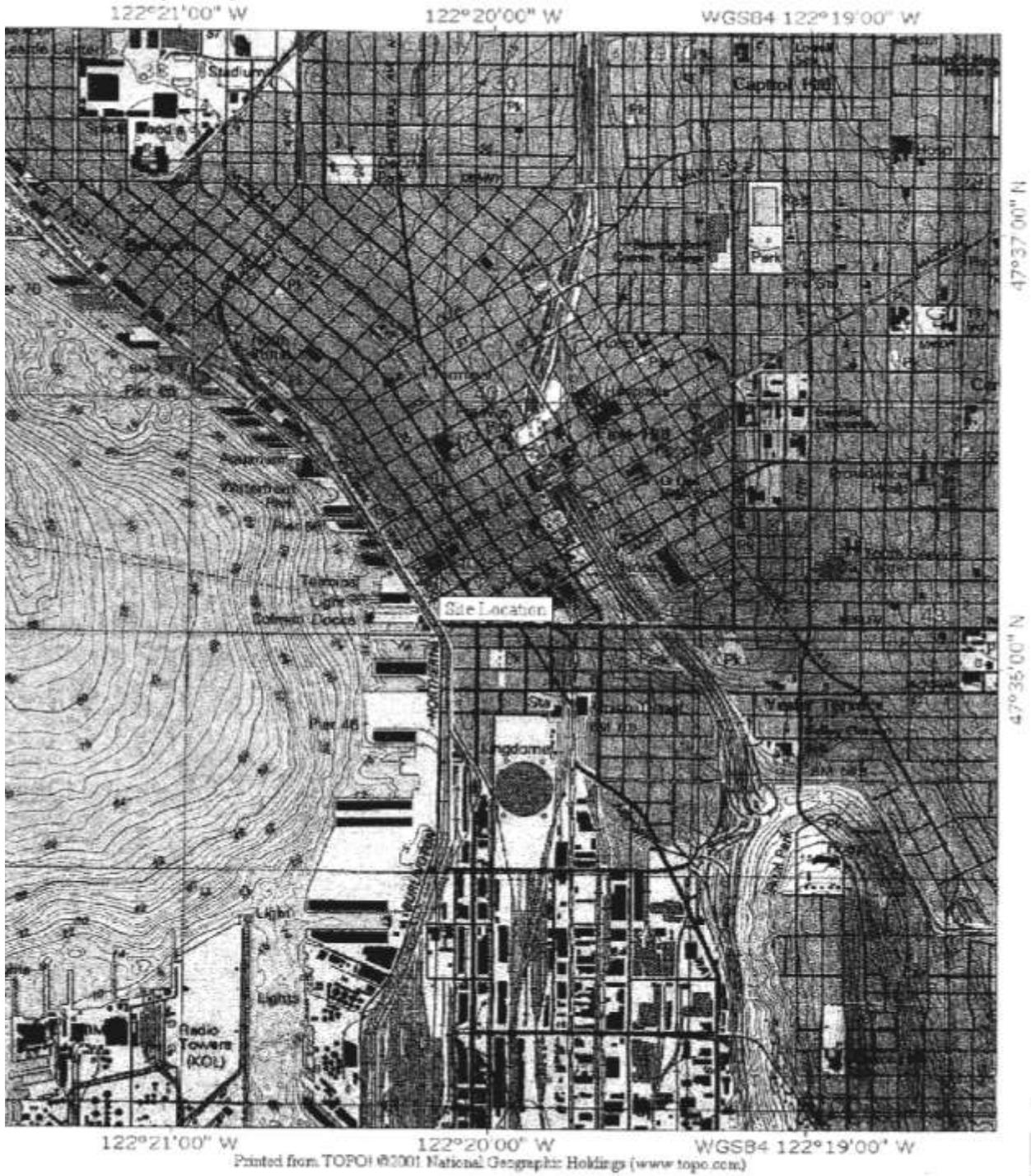
The next review for the Site will be scheduled five years from the date of this periodic review. In the event that additional cleanup actions or institutional controls are required, the next periodic review will be scheduled five years from the completion of those activities.

## **5.0 REFERENCES**

1. Voluntary Cleanup Program Interim Remedial Action Report, dated December 13, 2005. Sound Environmental Strategies.
2. Underground Storage Tank Decommissioning Report, dated August 22, 2005. Sound Environmental Strategies.
3. Project Summary and Progress Report, dated August 11, 2005. Sound Environmental Strategies.
4. 2006 Restrictive Covenant.
5. Ecology, 2011 Site Visits.

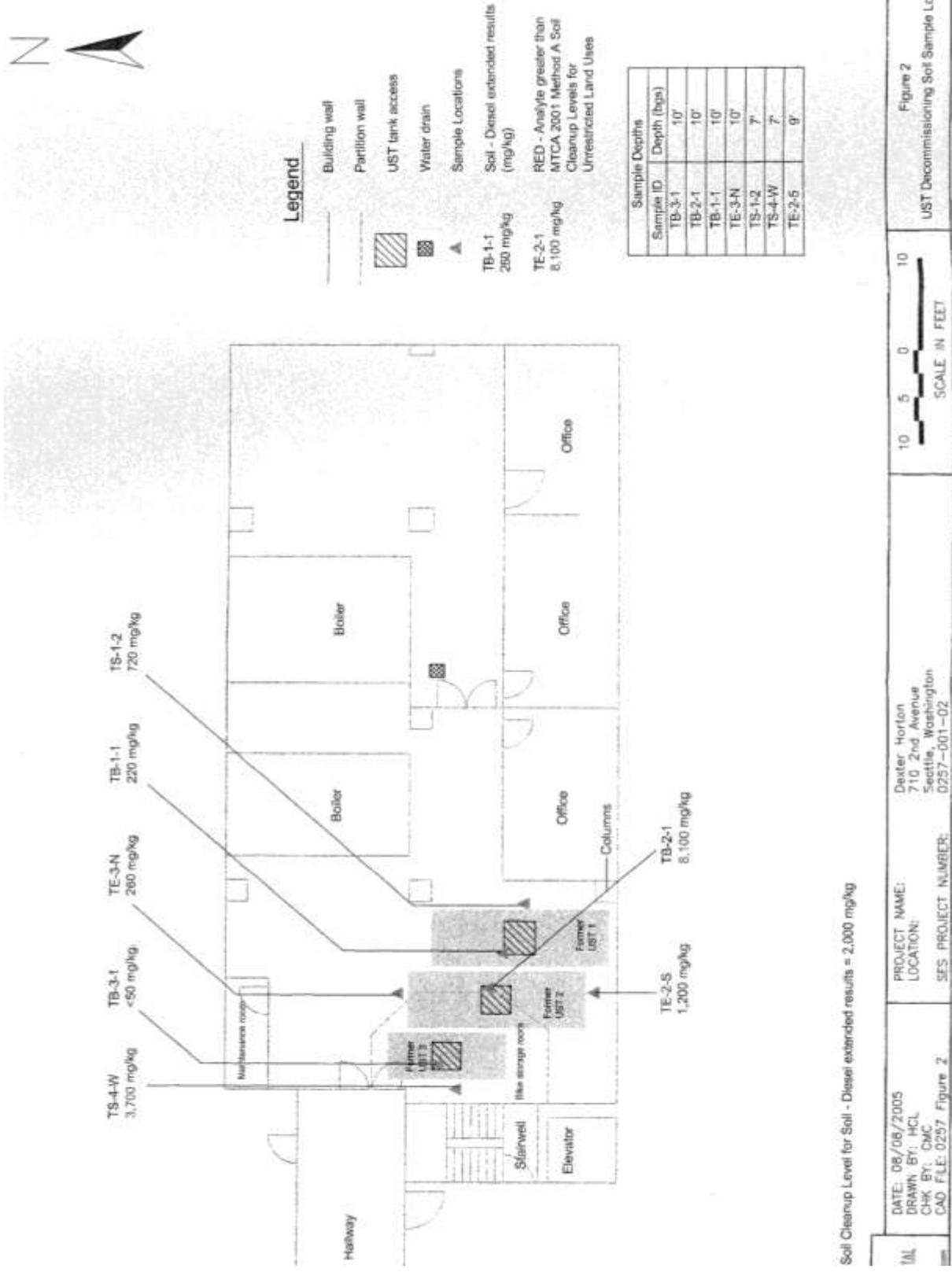
## **6.0 APPENDICES**

### 6.1 Vicinity Map



		Date: August 8, 2005 Drawn By: D. Richardson Chk By: C. Carter SES Project No.: 257-1-2	Dexter Horton Building 710—2 <sup>nd</sup> Avenue Seattle, Washington	<b>FIGURE 1</b> Site Location Map
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## 6.2 Site Plan





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## 6.4 Environmental Covenant

Goodman-Carlyle Dexter Horton LLC  
710 Second Avenue, Suite 830  
Seattle, WA, 98104

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**20060216000824**

GOODMAN CARLYL RCOVE 38.00  
PAGE001 OF 007  
02/16/2006 12:16  
KING COUNTY, WA

### RESTRICTIVE COVENANT

This declaration of Restrictive Covenant is made pursuant to RCW 70.105D.030(1)(f and g), and WAC 173-340-440 by Goodman-Carlyle Dexter Horton LLC, its successors and assigns, and the Washington State Department of Ecology, its successors and assigns.

#### Legal Description:

**5-6-7-8 6 BOREN AND DENNYS ADD & POR VAC ALLEY LESS ST HIST EX RCW 84.26**

#### Tax Parcel ID. #:

**0939000260**

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RESTRICTIVE COVENANT

Goodman-Carlyle Dexter Horton LLC, Dexter Horton Building

This Declaration of Restrictive Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by Goodman-Carlyle Dexter Horton LLC, its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

An independent remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Restrictive Covenant. The Remedial Action conducted at the property is described in the following document:

Sound Environmental Strategies Corporation, December 13, 2005, *Voluntary Cleanup Program Interim Remedial Action Report*. This document is on file at Ecology's Northwest Regional Office.

This Restrictive Covenant is required because the Remedial Action resulted in residual concentrations of diesel-range petroleum hydrocarbons and motor oil-range petroleum hydrocarbons in the form of bunker c heating oil which exceed the Model Toxics Control Act Method A Residential Cleanup Level(s) for soil established under WAC 173-340-740.

The undersigned, Goodman-Carlyle Dexter Horton LLC, is the fee owner of real property (hereafter "Property") in the County of King, State of Washington, that is subject to this Restrictive Covenant. The Property is legally described as follows: 5-6-7-8 6 BOREN AND DENNYS ADD & POR VAC ALLEY LESS ST HIST EX RCW 84.26

Goodman-Carlyle Dexter Horton LLC, makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1.

A portion of the Property contains diesel-range petroleum hydrocarbon and motor oil-range petroleum hydrocarbon contaminated soil located beneath the concrete slab in the boiler room in the northeast corner of the building. The Owner shall not alter, modify, or remove the existing structure in any manner that may result in the release or exposure to the environment of that contaminated soil or create a new exposure pathway without prior written approval from Ecology."

Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped area, but are not limited to, include: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork.

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Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

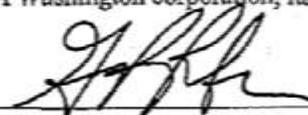
Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

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Goodman-Carlyle Dexter Horton, LLC  
A Delaware limited liability company

By: Goodman Financial Services, Inc.,  
A Washington corporation, its manager

By:   
George Petrie

Title: PRESIDENT

Date: JANUARY 13, 2006



January 10, 2006

Mr. Dale Meyers  
Washington State Department of Ecology  
Northwest Division  
3190 160th Avenue SE  
Bellevue, Washington 98008-5452

**SUBJECT: NO FURTHER ACTION REQUEST WITH INSTITUTIONAL CONTROLS**  
**Dexter Horton Building**  
**710 Second Avenue North**  
**Seattle, Washington**

Dear Mr. Meyers,

The purpose of this technical memorandum is to summarize findings of Sound Environmental Strategies Corporation (SES) *Voluntary Cleanup Program Interim Remedial Action Report* dated December 13, 2005. SES performed underground storage tank (UST) decommissioning, subsurface assessment, and remedial activities at 710 Second Avenue North in Seattle, Washington (the property) between January 2005 and August 2005.

**SUMMARY**

During building construction in the early 1920s, the hillside between Third Avenue and Second Avenue was excavated to facilitate construction of the foundation of the existing Dexter Horton building. Soil beneath the concrete slab in the boiler room consists of dense, dry fine sand with some silt (glacial till). The USTs were placed beneath the concrete slab in an excavation area that was created to facilitate the construction of the basement wall foundation footing. Information gathered from the subsurface investigations suggests an excavated slope exists starting at the east end of the UST cavity and sloping down to the west towards the basement wall footing at 17 ft below ground surface (bgs). Once the USTs were in place and the basement wall was constructed the cavity was backfilled with soil.

In February 2005, SES oversaw the decommissioning (in place) of the three USTs buried beneath the boiler room floor. Soil samples collected and observations made during the UST decommissioning suggested that the diesel-range petroleum hydrocarbons (DRPH) contaminated soil beneath the USTs from 6 ft to 17 ft bgs originated from a failure in UST 2. Given the viscous nature of Bunker C heating oil and the hard glacial till soil present beneath the USTs, contamination was thought to be localized within the UST cavity.

In July 2005, SES drilled five borings in the vicinity of the USTs to define the extent of the Bunker C impacts. No groundwater was encountered to a depth of 17 ft below grade. Following this investigation, the Washington State Department of Ecology (Mr. Dale Meyers, Ecology Site Manager) concurred with SES at a meeting at Ecology's Northwest Regional Office that groundwater was not a media of concern. SES recommended in situ chemical oxidation

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with hydrogen peroxide to treat the inaccessible Bunker C-contaminated soil beneath the abandoned USTs. The treatments were accomplished in July and August 2005. Subsequent soil sampling at depths below the USTs showed that the peroxide was effective at reducing the concentrations of total recoverable petroleum hydrocarbons (TRPH) in soil below the USTs from a pre-injection concentration of 18,000 mg/kg TRPH to a post-injection concentration of 400 mg/kg.

The post peroxide treatment sampling also identified two visually distinct waste types based on fill depth. The soil beneath the USTs consisted of moist, dense, blue grey colored sandy silt with a strong petroleum hydrocarbon odor and visual petroleum staining consistent with that expected from a Bunker C fuel release. However, the shallow UST backfill (0 to 6 ft bgs) atop the three USTs and up against the south and west basement walls consists of a dry, loose tan colored fine to medium sand with some silt, with no visual petroleum staining and a slight asphaltic odor. Prior to peroxide treatment, both waste types exhibited heavy oil range petroleum hydrocarbon contamination above the Model Toxics Control Act (MTCA) Method A cleanup levels for unrestricted land use. Although the shallow fill atop the USTs exhibits an analytical profile similar to the wastes found under the USTs prior to treatment, the stark difference in its appearance and odor strongly suggests that the hydrocarbon contamination in the shallow fill did not originate from the UST releases. Although difficult to confirm, it is hypothesized that fire debris and/or asphalt was used as shallow fill material during building construction.

Groundwater has not been impacted by the UST release. Groundwater was not identified in any of the 10 borings placed within and adjacent to the UST cavity to a maximum depth of 18 ft bgs. Groundwater monitoring well MW-1, located approximately 45 ft to the east of the UST cavity had a thin perched water zone at a depth of approximately 3 ft bgs and exhibited no detectable petroleum hydrocarbon contamination. The water encountered in this area is thought to be surface drainage from surrounding footing drains and rain diversion drains, and is not present in any of the other site borings/wells or building drain sumps.

The remedial objectives of: 1) achieving the MTCA Method A cleanup levels for inaccessible soils (below the USTs); and, 2) demonstrating no impacts to groundwater and adjacent properties have been achieved by this interim remedial action. The in situ peroxide treatment reduced petroleum hydrocarbon contamination to below MTCA Method A cleanup levels under the USTs; however, shallow fill atop the USTs and adjacent to the west basement wall still contains NWTPH-Dx compounds well in excess of the diesel range hydrocarbon MTCA Method A soil cleanup level of 2,000 mg/kg. The soil in the 0 to 6 ft bgs zone atop the USTs contained up to 19,000 mg/kg NWTPH-Dx. The extent of this shallow fill is estimated to be 20 ft square by 6 ft deep, or roughly 85 cubic yards (Figure 1).

SES feels the previous summary and following items provide strong evidence that the soil contamination is confined to on-property soil and is not in contact with any potential migration pathways (i.e. groundwater).

- The contaminated soil is approximately 170 feet up gradient from the west property line (Figure 1).
- Contamination was not in contact with groundwater during any of the boring events.

Goodman & Ariyle Dexter Horton LLC  
January 10, 2006  
Page 3

- Clean bottom samples collected before remedial peroxide injections put the maximum depth of soil contamination at 17 feet bgs.
- There was no indication that groundwater was present to a maximum depth of 18 feet bgs within the tank cavity.
- Peroxide injections were effective at lowering the DRPHx concentrations from 6 to 17 feet bgs.
- The horizontal and vertical extent of remaining soil contamination appears to be localized to the former tank cavity from a depth of 0 to 6 feet bgs.
- The low relative miscibility/mobility of Bunker C reduces the potential for migration of the contaminants.

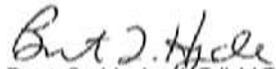
Ecology indicated to SES at the July 2005 meeting that since groundwater had not been impacted, soil impacts are confined to the property, an impermeable surface (the concrete floor) precludes direct contact with the contamination, and the low relative miscibility/mobility of Bunker C reduces the potential for migration of the contaminants, that a No Further Action determination with a deed restriction would be considered for the site.

#### CLOSING

SES appreciates the opportunity to present this no further action request with institutional controls. If you have any questions please call us at 206-306-1900.

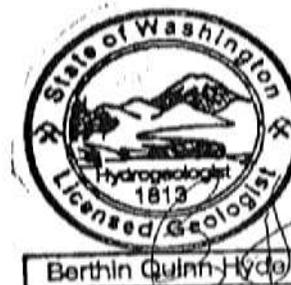
Respectfully,  
Sound Environmental Strategies Corporation

  
Chris Carter  
Environmental Project Manager

  
Bert Q. Hyde, LG/LHG #1813  
Principal Hydrogeologist

CMC:mms

Attachments: Figure 1 – Site Location Plan



Sound Environmental Strategies Corporation

F:\SES CURRENT PROJECTS\0257-001 Dexter Horton (Triad)\0257-001-03 Dexter Horton 2005 UST Decom A SpH Deliverables\RC Technical Memo Final.doc

STATE OF WASHINGTON    )  
                                  ) ss.  
COUNTY OF KING        )

On this 13th day of January 2006 before me personally appeared George Petrie known to me to be the President of Goodman Real Estate\*, a Washington corporation the Manager of Goodman-Carlyle Dexter Horton, LLC, a Delaware limited liability company who executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument and that the seal affixed, if any, is the corporate seal of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.



Rita A. Marinan  
NOTARY PUBLIC in and for the State of Washington  
Residing at: Seattle  
My appointment expires: November 9, 2009



\*On July 21, 2003, the name Goodman Financial Services, Inc. was officially changed to Goodman Real Estate, Inc. by filing an amendment to the articles of incorporation.

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## 6.5 Photo log

**Photo 1: Dexter Horton Building - from the southwest**



**Photo 2: Ground floor area where tank access was cut – weel visible near yellow items**



**Photo 3: Another tank access cutting in bike storage room – well at top middle of picture**



**Photo 4: Another well visible just outside bike storage room, ground floor**

