STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
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June 19, 2013

Mr. David Harris
Petrocard, Inc.
730 Central Avenue South
Kent, Washington 98032

Re: Opinion pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site:

- **Site Name:** Pacific Express
- **Site Address:** 3215 4th Avenue South, Seattle, WA
- **Facility/Site No.:** 2457955
- **VCP Project No.:** NW 2642
- **Cleanup Site ID No.:** 5286

Dear Mr. Harris:

Thank you for submitting documents regarding your proposed remedial action for the **Pacific Express** facility (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following releases at the Site:

- Total petroleum hydrocarbons in the gasoline (TPH-G), diesel (TPH-D) and oil ranges (TPH-O), benzene, toluene, ethylbenzene and xylenes (BTEX) and lead into the Soil and Ground Water

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in

accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding your proposed remedial action(s):

1. Maul, Foster and Alongi, Inc., 2012. *Soil and Groundwater Investigation at the PetroCard 4th Avenue South Cardlock.* May 31.

2. Maul, Foster and Alongi, Inc., 2012. *Soil and Groundwater Characterization Work Plan, PetroCard 4th Avenue Site.* March 23.

3. Aspect Consulting, Inc., 2011. *Status Update for Pacific Express Site.* November 23.

4. Aspect Consulting, Inc., 2006. *Remediation Status Report, May 2005 to April 2006, 3215 Avenue South, Seattle, Washington.* June 23.

5. Aspect Consulting, Inc., 2006. *Pending Inactive Determination Status, Pacific Express Site.* April 6.

6. Aspect Consulting, Inc., 2005. *Air Sparging and Dual-Phase Extraction System Construction and Operation, Former South Center Oil, 3215 Fourth Avenue South, Seattle, Washington.* May 4.

7. Aspect Consulting, Inc., 2004. *Cleanup Action Plan, Former South Center Oil.* May 14.

8. Hart Crowser, Inc., 2003. *Site Investigation and Aquifer Characterization Report, Former South Center Oil, Seattle, Washington.* September 3.

9. WGR Southwest, Inc., 2002. *July 2002 Groundwater Monitoring Report, 3215 4th Avenue, Seattle, WA.* August 12.

10. Farallon Consulting, 2001. *Forensic Analysis of Petroleum Hydrocarbons, Pacific Pride/Southcenter Oil, 3215 4th Avenue South, Seattle, Washington.* June 11.

11. Farallon Consulting, LLC, 2001. *Quarterly Status Report, Southcenter Oil/Pacific Pride, 3215 4th Avenue South, Seattle, Washington.* September 11.

12. WGR Southwest, Inc., 1999. *Remediation System Design Summary, Former South Center Oil Site, 3215 4th Avenue, Seattle, WA.* August 9.

13. Worldwide Geosciences, Inc., 1999. *Characterization of Product Samples, South Center Oil – Seattle Site.* August 20.

14. WGR Southwest, Inc., 1998. *Transmittal of Results of Recent Subsurface Investigation at 3215 4th Avenue South, Seattle, WA.* August 31.

15. WGR Southwest, Inc., 1998. *Soil and Groundwater Investigation for South Center Oil, Inc. Property at 3215 4th Avenue South, Seattle, WA.* May 19.

16. Bristol Environmental Services Corporation, 1998. *Expanded Phase II Site Assessment, Pacific Pride Facility, 3215 4th Avenue South, Seattle, Washington.* May.

17. Bristol Environmental Services Corporation, 1998. *Phase II Site Assessment, Pacific Pride Facility, 3215 4th Avenue South, Seattle, Washington.* May.

18. Bristol Environmental Services Corporation, 1998. *Phase I Site Assessment, Pacific Pride Facility, 3215 4th Avenue South, Seattle, Washington.* May.

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 at (425) 649-7235 or sending an email to: nwro_public_request@ecy.wa.gov.

The Site is defined by the extent of contamination caused by the following releases:

- Total petroleum hydrocarbons in the gasoline (TPH-G), diesel (TPH-D) and oil range (TPH-O), benzene, toluene, ethylbenzene and xylenes (BTEX) and lead into the Soil and Ground Water

The Site is more particularly described in **Enclosure A** to this letter, which includes detailed Site diagrams. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following release(s) at the Site, Ecology has determined:**

- The proposed removal of approximately 80 cubic yards of soil contaminated with TPH-D and TPH-O in the area surrounding MW-6 will constitute an interim action under MTCA (WAC 173-340-430).

- The proposed removal of an underground storage tank (UST) if present, and related contaminated soil, will also constitute an interim action under MTCA.

- Based on samples collected in ten direct push borings in April 2012, ground water containing TPH-D and TPH-O exceeding Method A cleanup level is migrating off-Site to the north and is most likely migrating off-Site to the west.

- Concentrations of TPH-G and benzene in ground water on the Site continue to exceed the Method A cleanup levels and suggest a current and ongoing source such as leaking product lines or pump islands.

- Concentrations of TPH-G, TPH-D, TPH-O and benzene in ground water exceed MTCA Method A cleanup levels. The distribution of TPH-G and TPH-D in ground water on the Site constitutes a comingled plume.

This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action. To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

If you have any questions regarding this opinion, please contact me by phone at (425) 649-7064 or via email at hvic461@ecy.wa.gov .

Sincerely,

Heather Vick, LHg
NWRO Toxics Cleanup Program

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

cc: Meredith D'Andrea, Maul, Foster and Alongi, Inc.
Sonia Fernandez, VCP Coordinator, Ecology

Enclosure A

Description and Diagrams of the Site

Site Description

This section provides Ecology's understanding and interpretation of site conditions, and is the basis for the opinions expressed in the body of the letter.

Site: The Site is defined by petroleum hydrocarbon contamination in soil and ground water located at 3215 4th Avenue South in Seattle, Washington (Property). The Property, which corresponds to King County tax parcel number 766620-5520, is approximately 0.86 acre in size and is located at the northwest corner of the intersection of 4th Avenue South and South Horton Street.

Area and Property Description: The Property is located in an area of Seattle known as 'south of downtown' or the "SODO district". The Property, which is located on reclaimed tidal flats, is surrounded by commercial and industrial land uses including a fast-food restaurant, an auto repair shop and warehouses.

Property History and Current Use: Available historical information reportedly indicates that the Property was developed in 1916 as an office building. A 1936 aerial photograph available on King County IMAP shows the Property as undeveloped. Beginning in 1955, the Property was used as a combination refueling station, pressure washer facility and automotive garage. The former service station was located in the southeast quarter of the Property and consisted of a small office building, three fuel islands and four to six underground storage tanks (UST). The pressure washer facility was located along the western boundary of the Property and consisted of a pump building, two vehicle ramps and several sumps, trenches and grease pits. The automotive garage was located in the northwest quarter of the Property and consisted of a building with three hydraulic hoists and two USTs.

A 1984 permit is on file with King County for demolition of the existing building and removal of USTs; no other information is available. Also in 1984, the Property was redeveloped and upgraded to its current configuration as a Pacific Pride gasoline station, mini-market and truck scale. The gas station was operated by South Center Oil from 1984 to 1998. Current operations on the Property include a Gull self-service gasoline station/mini-mart and a Pacific Pride commercial fueling station. Both of these operations each sell gasoline and diesel fuel. The 2,400-square foot mini-market building is located in the approximate center of the Property. The fueling system consists of four USTs located in the southwest portion of the Site with underground piping to three fuel islands located on the east, south and west sides of the mini-market building. The USTs include one 15,000-gallon diesel UST, two 10,000-gallon gasoline USTs and one 6,000-gallon gasoline UST. The fuel islands on the east side of the Property provide Gull gasoline and diesel, while the fuel islands on the south and west sides of the Property distribute Pacific Pride commercial fuel (gasoline and diesel). The truck scale is located along the northern edge of the Property.

Sources of Contamination: Contaminant sources include potential releases of gasoline and diesel fuel from the product transfer piping beneath the dispensers of the retail fueling station however the exact locations of the releases have not been determined.

Also, releases of diesel and oil from a former waste oil UST in the northwest corner of the Property have been attributed to the presence of free product in monitoring well MW-6. In 1999, a waste-oil UST was removed and the leaky transfer piping was repaired.

Physiographic Setting: The Site is located in a former tide flat of the Duwamish River. In the early 1900s the Duwamish River channel was modified and became the Duwamish Waterway. The Duwamish Waterway flows north and discharges into Elliot Bay in central Puget Sound. The lower Duwamish Waterway is an estuary and is tidally-influenced up to about river mile 12.0.

Surface/Storm Water System: The Duwamish Waterway is the closest surface water body and is located approximately 2,500 feet west of the Site.

Ecological Setting: The Property contains buildings and is otherwise covered with asphalt and concrete pavement. There is no undeveloped land on the Site or within 500 feet of any part of the Site.

Geology: The Site is located in a former estuarine tidal flat that was infilled in approximately 1914 associated with engineering modifications of the Duwamish River which resulted in the Duwamish Waterway. Approximately 10 feet of fill materials from dredging of the Duwamish Waterway channel or from downtown Seattle regrading activities were placed in the vicinity of the Site. The fill materials consist of silty fine sand with occasional gravel. Underlying the fill are native sands with interbedded silt, silty sand and clay. A low-permeability clay unit of variable thickness (2 to 4 feet) with interbedded sand layers has been encountered at a depth of approximately 17 feet below the ground surface (bgs).

Ground Water: Ground water occurs as a shallow unconfined aquifer within the native sand deposits underlying the fill. The water table occurs at depths of approximately 8 to 10 feet below the ground surface. Ground water elevations, which fluctuate between approximately 1 and 1.5 feet seasonally, do not show evidence of tidal influence. Ground water flow is reportedly generally to the northeast under hydraulic gradients of less than 0.006. Pumping tests were performed in July 2003 at well HC-PW4 which is screened from 5 to 15 feet bgs or about 2 feet above the clay layer. During the pumping tests, HC-PW4 yielded about 0.5 gallon per minute.

Water Supply: The Property is served by the City of Seattle where water is obtained from the Cedar River watershed. No drinking water wells have been identified near the Site.

Soil and Ground Water Investigations: A Phase II site investigation in 1998 indicated that ground

water on the Site contained TPH-G and TPH-D at concentrations exceeding MTCA cleanup levels. Monitoring wells MW-1 through MW-5 were installed in 1998 and a soil probe investigation (SP-1 through SP-8) was conducted.

Monitoring wells MW-6 through MW-12 were installed in 1998 and MW-13 and MW-14 were installed in October 1999.

In April 2012, eleven geoprobe borings (GP01 through GP11) were advanced to collect soil and shallow ground water samples to delineate the extent of diesel impacts surrounding MW-6. The borings were advanced in locations radially outwards from MW-6 at approximate 10 foot intervals until no petroleum was present using field screening. Each of the borings were advanced to 15 feet bgs; ground water was encountered at 6 to 8 feet bgs.

Release and Extent of Soil and Ground Water Contamination:

Soil: In 1998, elevated concentrations of TPH-G and BTEX were detected beneath the two pump islands extending to the north and northwest. Elevated concentrations of TPH-D in soil exceeding Method A cleanup levels were encountered in two locations: beneath the diesel pump islands (5,400 mg/kg) and adjacent to the former waste oil UST (up to 18,000 mg/kg). TPH-O was also detected next to the former waste oil UST (up to 23,000 mg/kg).

Neither the lateral nor the vertical extent of soil contamination has been determined although it likely does not extend much below the water table at a depth of approximately 10 feet.

Ground Water: Prior to remediation, the extent of TPH-G and benzene exceeding cleanup levels reached the northeast Property line. Pure-phase gasoline was observed in ground water in four monitoring wells (MW-4, MW-5, MW-7 and MW-12) north and northwest of the pump islands prior to remediation. The more recent ground water data indicate the area of TPH-G and BTEX exceeding cleanup levels is limited to immediately north of the store and the pump islands. Concentrations of TPH-G and BTEX have been reduced to below cleanup levels in monitoring wells at the Property line (MW-1, MW-3, MW-9 and MW-10).

Up to 8 inches of free product containing diesel- and oil-range hydrocarbons have been observed in monitoring well MW-6 which is adjacent to the former waste oil UST. Free product has also been observed in monitoring wells MW-4, MW-5, MW-7 and MW-12.

Ground water samples were analyzed for TPH-D once, in February 2010. TPH-d was detected at concentrations exceeding Method A cleanup levels in MW-4 (1,300 µg/L), MW-6 (17,000 µg/L) and MW-8 (1,700 µg/L). The distribution of TPH-D in ground water is similar to that of TPH-G. The ground water samples delineate the horizontal extent of TPH-D contamination in ground water except at MW-6 where the contamination most likely extends off-Property to the northwest.

The April 2012 soil and ground water investigation in the vicinity of MW-6 identified an area of soil contaminated with TPH-D and TPH-O just to the east of MW-6. TPH-D and TPH-O in ground water in concentrations exceeding Method A cleanup levels was found to extend off-Site to the north and to the west of MW-6. Data from a surface geophysical survey performed at the same time indicated a potential UST about 25 feet south of MW-6.

Possible gasoline additives, such as lead, methyl tertiary-butyl ether (MTBE), ethylene dichloride (EDC) and ethylene dibromide (EDB) have not been detected in ground water at concentrations exceeding MTCA Method A cleanup levels.

Soil and Ground Water Remediation:

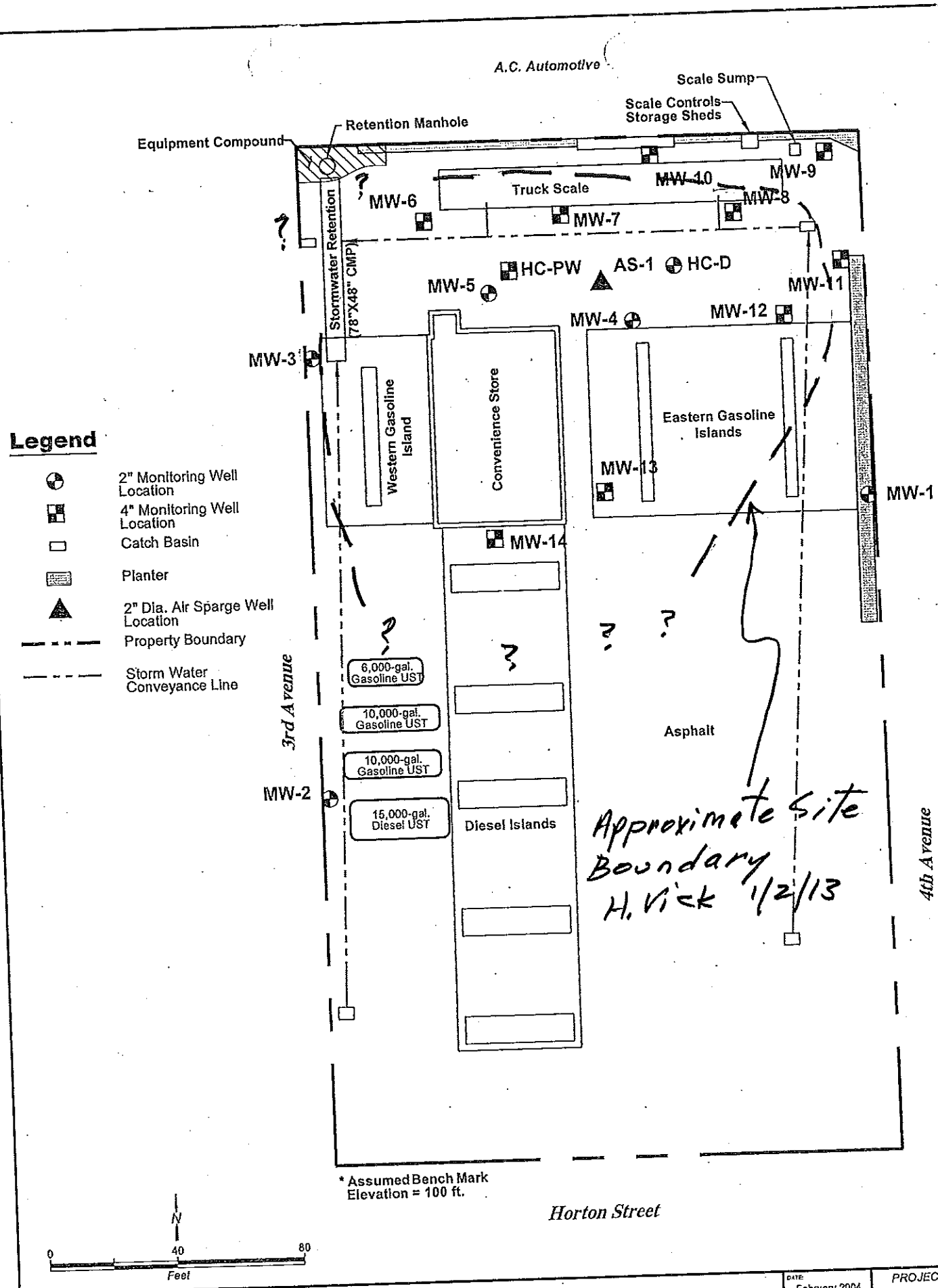
- **October 1999 to December 2000:** A soil vapor extraction system was operated using 12 monitoring wells and a horizontal piping line. The SVE system removed approximately 8,600 pounds of contaminants. Follow operation of the SVE system, three of four wells that formerly contained gasoline free product no longer had measurable product. TPH-G and BTEX concentrations remained elevated.

- **November 2004 to April 2007**: A dual-phase extraction (DPE) and air sparging (AS) system to treat contaminated soil and ground water was installed which removed approximately 2,400 pounds of contaminants. Contaminant concentrations in ground water dropped by more than 98 percent and concentrations at wells at the Property boundary were below cleanup levels. However, performance monitoring in July 2007 indicated that gasoline and benzene concentrations in MW-4 had rebounded to 12,000 micrograms per liter (µg/L) and 360 µg/L respectively.

- **December 2007 to January 2008:** In situ chemical oxidation (ISCO) was used to oxidize contaminants with sodium persulfate injections in areas of the Site still requiring cleanup. Two thousand gallons of 3 percent sodium persulfate was injected in three events between December 3, 2007 and January 2, 2008. Post ISCO injection monitoring showed declines in contaminant concentrations in MW-5 but an increase in TPH-G was measured in MW-5.

- **April 2008 to June 2008**: The DPE/AS system was restarted and run for three months.

Site Diagrams



Site Map

Southcenter Oil - 3215 4th Avenue South
Seattle, Washington

DATE:	February 2004
DESIGNED BY:	JJP
DRAWN BY:	JRS
REVISED BY:	-
PROJECT NO.	030165
FIGURE NO.	2

Aspect consulting
IN-DEPTH PERSPECTIVE
179 Madrone Lane North
Bainbridge Island, WA 98110
(206) 780-9370
811 First Avenue #480
Seattle, WA 98104
(206)-328-7443

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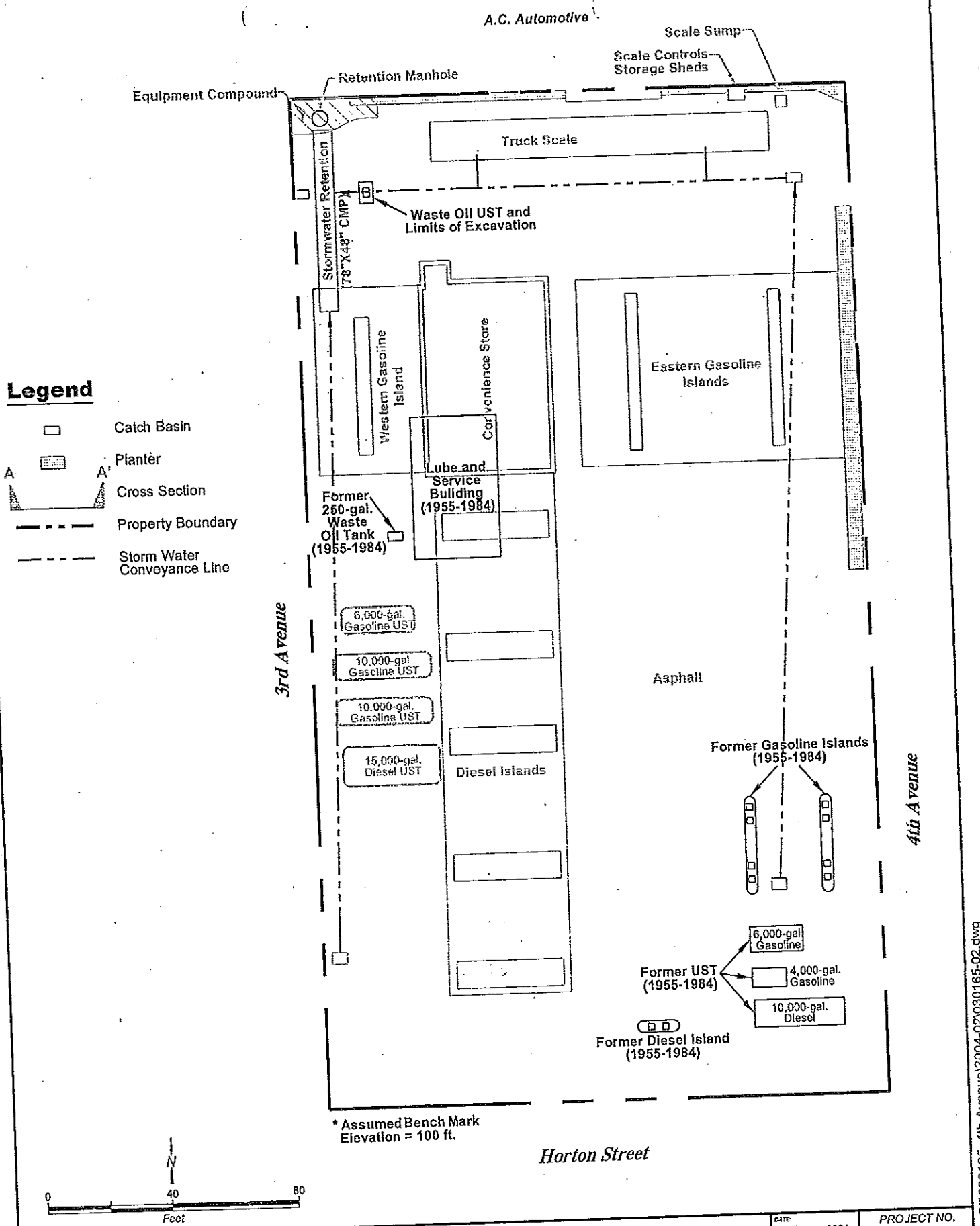

Historical Features Map

Southcenter Oil - 3215 4th Avenue South
Seattle, Washington

Aspect consulting
IN-DEPTH PERSPECTIVE
179 Madrona Lane North
Bainbridge Island, WA 98110
(206) 780-9370
811 First Avenue #480
Seattle, WA 98104
(206)-328-7443

DATE: February 2004	PROJECT NO. 030165
DESIGNED BY: JJP	
DRAWN BY: JRS	FIGURE NO. 3
REVISED BY: -	

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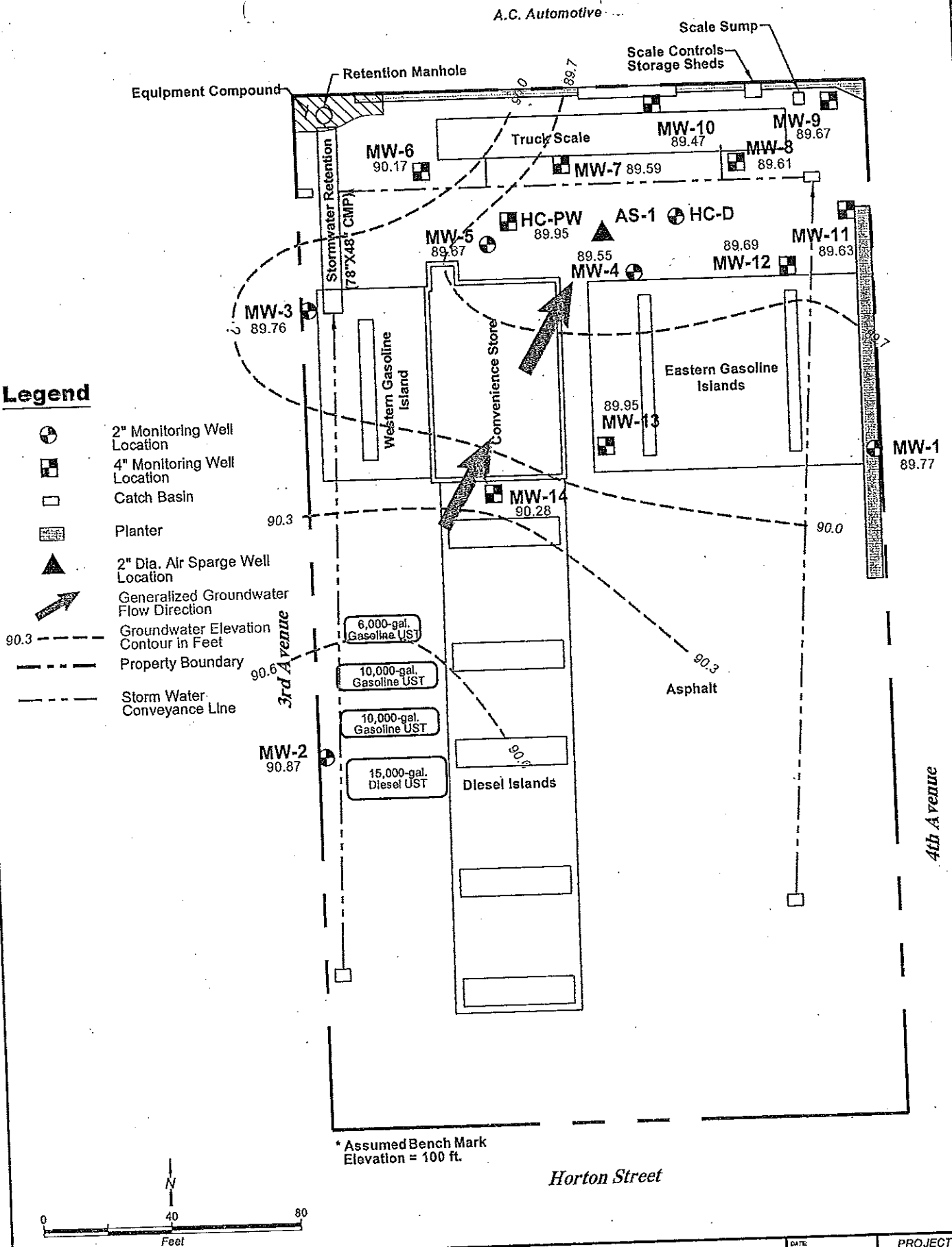

Groundwater Elevation Contour Map July 2003

Southcenter Oil - 3215 4th Avenue South

Seattle, Washington

Aspect consulting
IN-DEPTH PERSPECTIVE
179 Madrone Lane North
Bainbridge Island, WA 98110
(206) 780-9370
811 First Avenue #480
Seattle, WA 98104
(206)-326-7443

DATE: February 2004	PROJECT NO. 030165
DESIGNED BY: JJP	
DRAWN BY: JRS	FIGURE NO. 6
REVISED BY: -	

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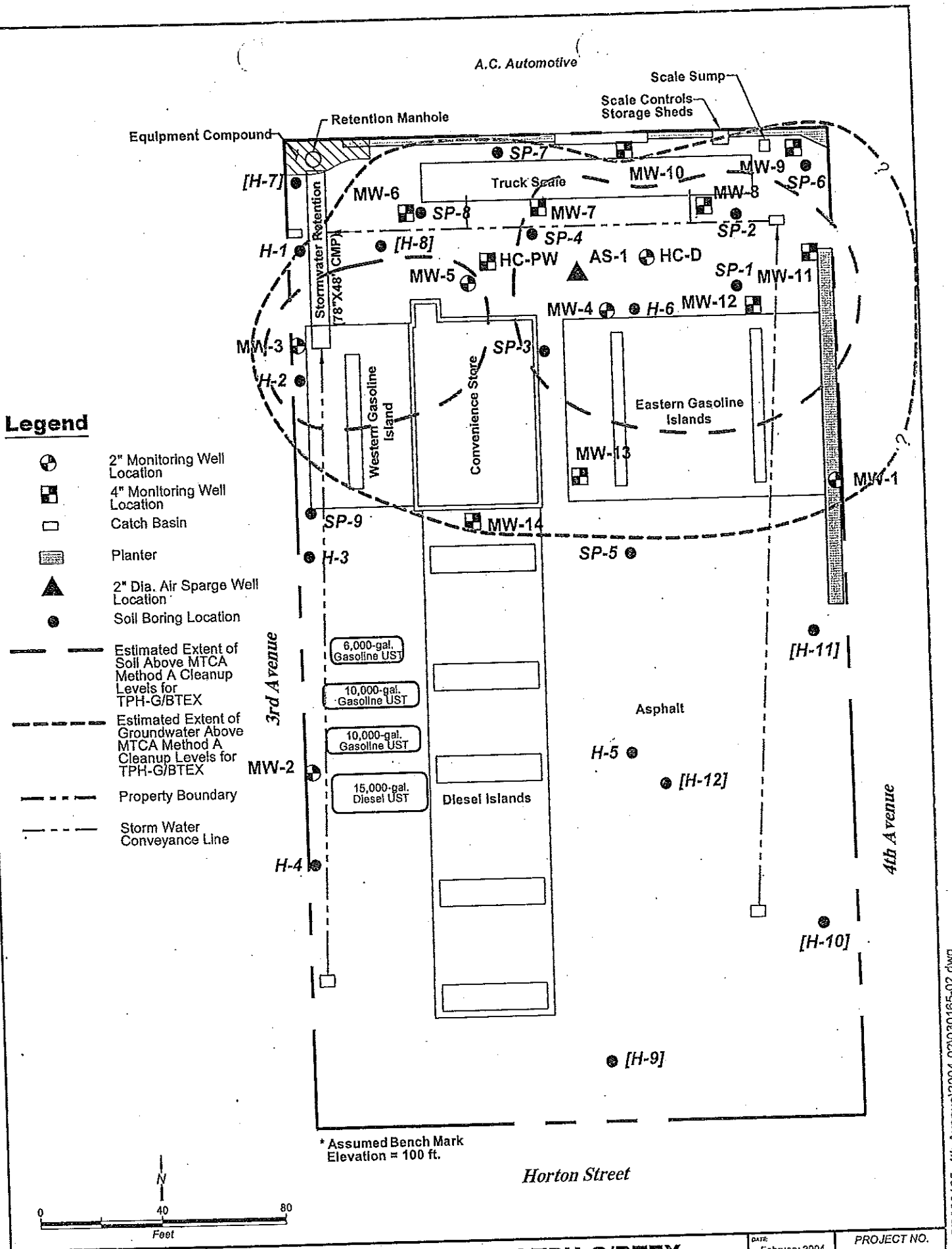

Legend

- 2" Monitoring Well Location
- 4" Monitoring Well Location
- Catch Basin
- Planter
- 2" Dia. Air Sparge Well Location
- Soil Boring Location
- Estimated Extent of Soil Above MTCA Method A Cleanup Levels for TPH-G/BTEX
- Estimated Extent of Groundwater Above MTCA Method A Cleanup Levels for TPH-G/BTEX
- Property Boundary
- Storm Water Conveyance Line

Estimated Extent of TPH-G/BTEX Occurrences in Soil and Groundwater

Southcenter Oil - 3215 4th Avenue South

Seattle, Washington

Aspect consulting
IN-DEPTH PERSPECTIVE
179 Madrone Lane North
Bainbridge Island, WA 98110
(206) 780-9370
811 First Avenue #480
Seattle, WA 98104
(206)-328-7443

DATE: February 2004	PROJECT NO. 030165
DESIGNED BY: JJP	
DRAWN BY: JRS	FIGURE NO. 7
REVISED BY:	

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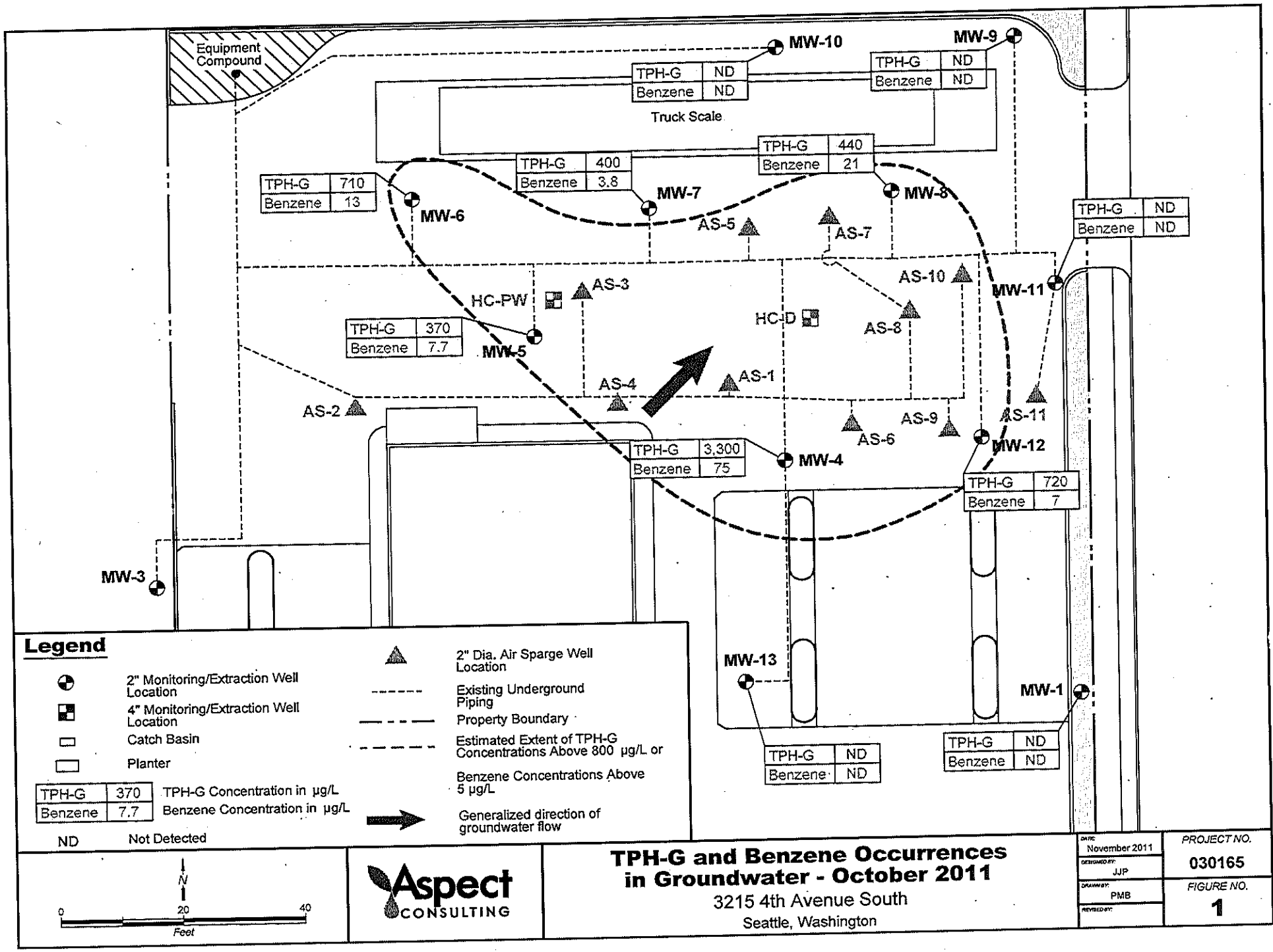

Aspect CONSULTING

TPH-G and Benzene Occurrences in Groundwater - October 2011

3215 4th Avenue South
Seattle, Washington

DATE:	November 2011
DESIGNED BY:	JJP
DRAWN BY:	PMB
REVISED BY:	
PROJECT NO.	030165
FIGURE NO.	1

Q:\Southcenter Oil\030165 4th Avenue\2011-1110 -02.dwg