



May 8, 2006

Mr. Dom Reale
Department of Ecology
SW Regional Office
300 Desmond Drive
Lacey, WA 98503

Re: Addendum to Engineering Design Report
Shore Terminals Tacoma Facility
Tacoma, Washington
1074-01

Dear Dom:

This letter presents an Addendum to the Engineering Design Report for the Shore Terminals Tacoma Facility, dated February 20, 2006. The Addendum has been prepared in response to a verbal request by the Washington State Department of Ecology (Ecology) for additional monitoring wells in one area of the facility to assist in monitoring the proposed remedial system. Ecology requested that 3 to 4 additional wells be installed in Area 1 prior to implementation of the proposed *in-situ* bioremediation program in this area to better define the extent of dissolved-phase benzene. In an email dated March 29, 2006, Ash Creek Associates, on behalf of the Involved Parties, proposed the installation and monitoring of three groundwater monitoring wells within Area 1 to address this request. Ecology accepted the proposed number and location of the wells in a March 30, 2006 email to Ash Creek Associates (copies of the email correspondence are included as Attachment A for reference). This addendum provides the methods and procedures to be used to install the proposed monitoring wells. Methods for groundwater sampling and analysis are described in the February 20, 2006 Engineering Design Report.

Site Preparation Activities

The following preparation activities will be performed prior to initiating well installation.

Health and Safety Plan. The Health and Safety Plan (HSP) prepared for the project will be updated to include well installation activities.

Underground Utility Location. The one-call utility locating service will be contacted at least 48 hours in advance of initiating fieldwork to allow local utilities the opportunity to identify subsurface utilities in the vicinity of the proposed work. In addition, Shore Terminals facility staff will be consulted to identify underground utilities and/or pipelines, and a private utility locator will be retained to identify and mark subsurface utilities in the vicinity of the proposed explorations.

Monitoring Well Installations

The locations and procedures for the proposed well installations are described below.

Well Locations. The locations of the three proposed monitoring wells are shown on Figure 1, consistent with communications between Ash Creek and Ecology.

Drilling. The borings for the monitoring well installations will be completed using a hollow-stem auger drilling rig in accordance with applicable state and federal regulations and guidelines. A field representative will be present to observe and document the drilling activities. Detailed field logs will be maintained for each boring. Cuttings from the borings will be drummed, characterized, and disposed of as appropriate.

Soil Sample Collection. Soil samples will be collected continuously for lithologic description using a stainless steel split-spoon sampler. The sampling procedure generally includes driving the split-spoon sampler into the soil a distance of 18 inches using a 140-pound hammer with a free-fall height of 30 inches (per ASTM D-1587 guidelines). The field geologist will describe the soil sample using the Unified Soil Classification System (USCS), noting any indications of contamination. Other features such as sorting, sedimentary features, mineralogy, degree of weathering, and contacts with other soil types will also be noted if relevant.

Discrete soil samples will be obtained from the sample core for field screening (described below) and potential chemical analysis (if field screening indicates the presence of hydrocarbon sheen or elevated vapor concentrations). Up to two soil samples may be analyzed from each boring, depending on the results of field screening conducted on the soil column above the water table. Soil samples will not be collected for chemical analysis below the water table. Soil samples obtained for chemical analysis will be collected from the soil core in accordance with EPA Method 5035A (Closed-System Purge-and-Trap And Extraction For Volatile Organics In Soil And Waste Samples, Section A.9.0-6.c). In general, the soil samples will be collected using dedicated EnCore™ samplers (or equivalent) provided by the analytical laboratory, chilled to 4°C on-site, and transported to the laboratory. Three aliquots will be collected for each sample (from the same area of the soil core), one of which will be preserved on-site with methanol (using a pre-weighed VOA prepared by the laboratory).

All sample containers will be marked with a sample number, date of collection, project number, and sampler's initials. Immediately after collection, the samples will be placed in a cooler with ice for field storage and shipment to the analytical laboratory. Chain of custody will be maintained and documented throughout the sample collection and shipment process.

Field Screening Procedures. Headspace vapor measurements will be made on soil samples using a photoionization detector (PID) to assess the possible presence of volatile organic compounds. Soil samples will be placed in resealable plastic bags and allowed to warm to ambient temperature. PID measurements will be made within 30 minutes of collection by inserting the 10.2 eV PID probe through the bag seal. Measurements will be recorded in the field notes. The PID will be calibrated prior to field use using a manufacturer-supplied standard gas.

Sheen tests will be conducted on soil samples to assess if petroleum hydrocarbons are present. Following the completion of the headspace measurement (described above), the sealable bag will be partially filled with water. The presence of petroleum hydrocarbons is indicated if a sheen is produced on the water surface in the bag. Observations will be recorded in the field notes.

Well Construction. The monitoring wells will be constructed in accordance with Washington Administrative Code (WAC) 173-160 and Ecology guidance, Ground Water Monitoring Guidance for Solid Waste Facilities (1990). All wells will be completed to a depth of 15 feet below ground surface (consistent with existing site well depths), using 4-inch diameter flush-threaded Schedule 40 PVC casing. (Installing 4-inch diameter wells instead of using smaller diameter casings will allow the potential use of these wells in the proposed remedial program, if needed based on the groundwater sampling results). The screened intervals of each well will consist of 10 feet of 0.020-inch, machine slotted PVC screen with a PVC end cap placed from the bottom of the boring to approximately 5 feet below grade. Four-inch diameter solid casing will be installed above the screened interval to a few inches below grade. The top of the casing will be sealed with a removable, lockable, water-tight cap.

A clean silica sand pack will be placed between the boring wall and the PVC screen/riser (i.e., the annulus) from the bottom of the well to 1 to 2 feet above the screened interval. A bentonite grout slurry and/or hydrated bentonite chip seal will then be placed above the sand to within about 1 foot of the ground surface. A flush-mounted, traffic rated monument will be installed at the surface and the surface will be sealed with concrete. All monuments will be permanently marked with well identification numbers.

The documentation kept by the field representative will include:

- Length of well components;
- Measurements of bentonite, sand, and concrete depths;
- Types, brands, and amounts of materials used;
- Documentation of decontamination; and
- Any deviation from standard procedures or problems encountered during the well installation activities.

Well Development. After allowing the wells to set for a minimum of 24 hours following construction, the wells will be developed to minimize the turbidity of the groundwater samples collected for analysis and to optimize the hydraulic efficiency of the well. The wells will be developed by surging with a slug rod and purging at least six casing volumes of water from the well.

Surveying. The locations of the monitoring wells will be surveyed by a licensed surveyor. The survey will include determination of the horizontal location relative to the State Plane Coordinate System. The horizontal location will be determined to the nearest 0.1 foot. The elevations at the top of the well casing and monument will be determined relative to an established benchmark (i.e., the datum referenced by the existing site monitoring wells). The elevation of the monitoring wells will be determined at the top of the PVC casing and the rim of the monument to the nearest 0.01 foot.

Equipment Decontamination. To mitigate against potential cross-contamination between explorations, the drilling equipment will be cleaned with a high-pressure washer after each exploration.

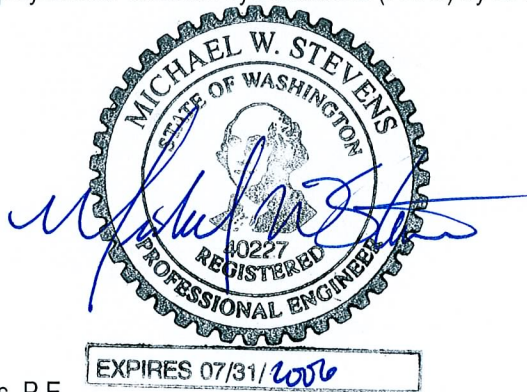
Handling of Investigation-Derived Waste (IDW). IDW will consist of soil cuttings, decontamination water, purge water, and personal protection equipment.

IDW soil will be placed in Department of Transportation (DOT) approved drums. Each drum will be labeled with the project name, general contents, and date. The drummed soil will be stored at an approved location at the site pending proper disposal. Soil will be profiled based on the results of testing conducted on collected soil samples. If no soil samples are collected from the well borings (e.g., no field indications of petroleum hydrocarbons above the water table), one composite sample will be collected from the drums for chemical analysis to support profiling. Decontamination and purge water will be placed in DOT-approved drums and stored temporarily on site pending proper disposal. Water samples will be collected from the drums and analyzed for TPH and BTEX to assist in profiling to determine appropriate disposal. Disposable items, such as sample tubing, disposable bailers, bailer line, gloves, protective overalls (e.g., Tyvek®), paper towels, etc., will be placed in plastic bags after use and deposited in trash receptacles for disposal. Arrangement with a waste disposal subcontractor will be made to dispose of the IDW after chemical analysis results have been received.

Analytical Program

As detailed above, soil samples will be selected for chemical analyses if there are field indications of petroleum hydrocarbons (elevated PID or detected sheen). Soil samples selected for chemical analysis will be submitted to the analytical laboratory and analyzed for total petroleum hydrocarbons (gasoline and diesel/oil hydrocarbons by methods NWTPH-G and NWTPH-Dx, respectively), benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260B, and polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270 SIM.

Sincerely,



Mike Stevens, P.E.
Associate Engineer

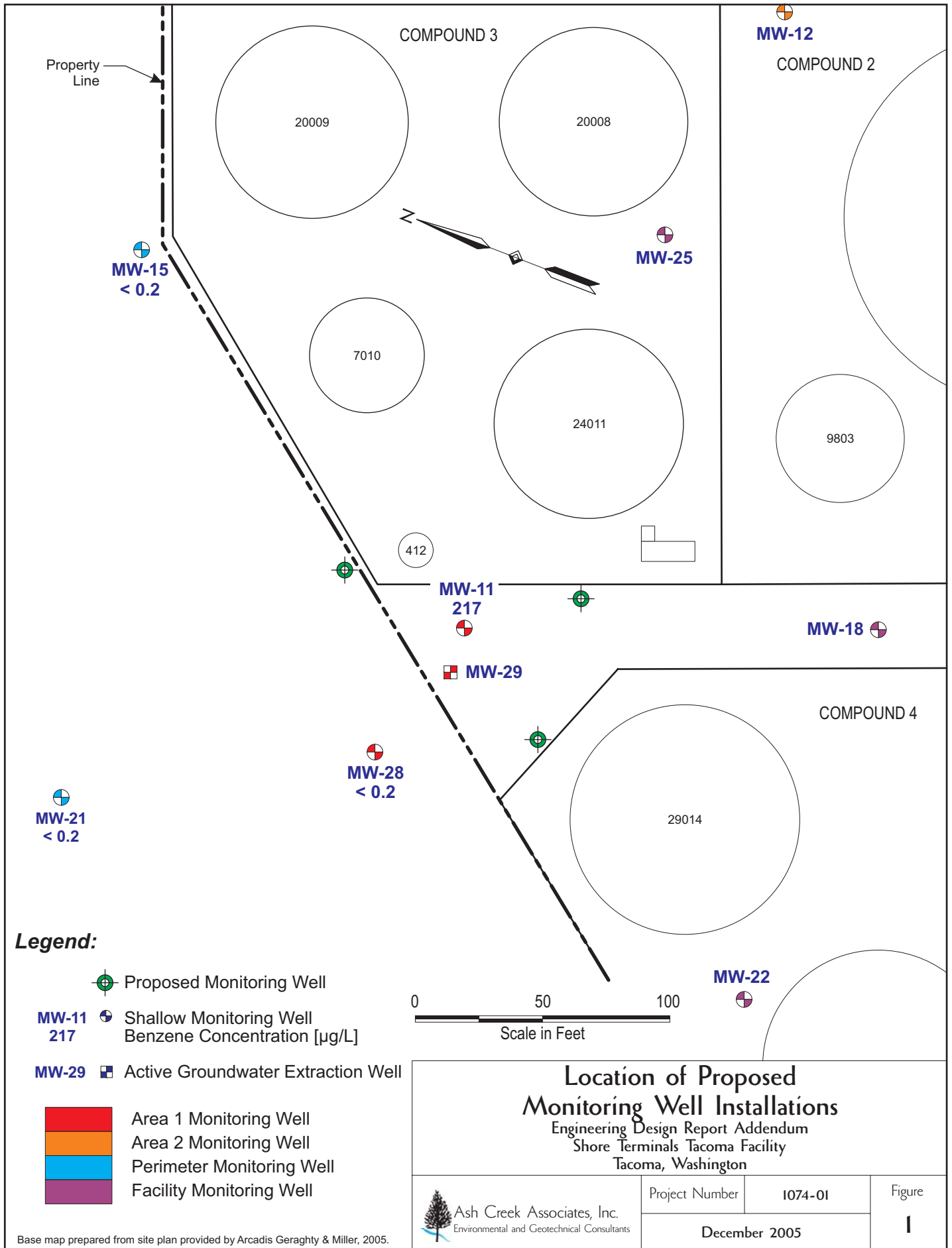
A handwritten signature in blue ink, appearing to read "A. Spencer", written over a large, faint circular stamp.

Amanda Spencer
Principal Hydrogeologist

Attachment:

Figure 1 – Locations of Proposed Monitoring Well Installations
Attachment A – Correspondence with Ecology

cc: Mr. Joe Aldridge, Valero LP
Mr. Jerry Stauffer, Valero LP
Mr. Kipp Eckert, ConocoPhillips Company
Robie Russell, Esq.
Mr. Brett Hunter, Chevron Products Company



From: Amanda Spencer

Sent: Wednesday, March 29, 2006 5:09 PM

To: Reale, Dominick

Cc: Mike Stevens; Stowell, William; Amanda Spencer; Eckert, Kipp W; Aldridge, Joe; robiegruss@aol.com; BLHU@chevrontexaco.com; Stauffer, Jerry

Subject: Proposed well locations - Shore Terminals Tacoma Facility (aka Superior Oil)

Attachments: Proposed well locations.pdf

Hi Dom - In followup to our conversation today, attached is a map showing the proposed locations of the three wells (in red), overlain over the Ecology proposed locations. Let me know if these locations would be acceptable to Ecology.

thanks,

amanda

Amanda Spencer, R.G., P.E.
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From: Reale, Dominick [drea461@ECY.WA.GOV]

Sent: Thursday, March 30, 2006 8:07 AM

To: Amanda Spencer

Cc: Reale, Dominick

Subject: RE: Proposed well locations - Shore Terminals Tacoma Facility (aka Superior Oil)

Amanda, Your proposed well locations should be fine. Please include those in the Area 1 remediation plan. We thank you and your clients for working this through. Dom Reale

-----Original Message-----

From: Amanda Spencer [mailto:aspencer@ashcreekassociates.com]

Sent: Wednesday, March 29, 2006 5:09 PM

To: Reale, Dominick

Cc: Mike Stevens; Stowell, William; Amanda Spencer; Eckert, Kipp W; Aldridge, Joe; robiegruss@aol.com; BLHU@chevrontexaco.com; Stauffer, Jerry

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