WORKPLAN
FOR ADDITIONAL SUBSURFACE INVESTIGATION AT THE AC TRANSIT 1177 47TH STREET FACILITY EMERYVILLE CALIFORNIA

- What about soil sampling + GW sampling in vicinity of tank farm 2

- should borings be closer to storm drain / backfill?

- Is aquifer confined? & should new wells be screened 4-15' bgs?

Prepared For:
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Prepared By:
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August 8, 2000

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August 15, 2000

Ms. eva chu
Alameda County Health Division
Division of Environmental Protection
Department of Environmental Health
1131 Harbor Bay Parkway, Second Floor
Alameda, CA 94502

Dear Ms. chu:

Subject: Workplan for Additional Subsurface Investigation
AC Transit, 1177 47th Street, Emeryville

Enclosed is a copy of the Workplan for Additional Subsurface Investigation for the AC Transit facility located at 1177 47th Street in Emeryville. The report was prepared by Safety-Kleen Consulting in response to your May 24, 2000, request for additional investigation to further define the extent of total petroleum hydrocarbons in groundwater downgradient of the existing monitoring well network.

The scope of work outlined in the workplan includes collecting water samples from four borings that will be drilled downgradient of the existing monitoring wells using a Geo-probe drill rig, installing two additional monitoring wells, and properly abandoning monitoring well W-2.

If you have any questions regarding this report, please call me at (510) 577-8869.

Sincerely,

Suzanne Patton, P.E.
Environmental Manager

SP/sp

cc: Brad Wright, Safety-Kleen Consulting

Introduction

Safety-Kleen Consulting (SKC) is submitting this workplan on behalf of AC Transit, in response to Alameda County Health Care Services (ACHCS) May 24, 2000, letter which requested additional subsurface investigations at the AC Transit facility located at 1177 47th Street, Emeryville, California (the site). The scope of work detailed in this workplan has been designed to further define the extent of total petroleum hydrocarbons in groundwater downgradient of the existing monitor well network.

Background

On April 12, 1989, AC Transit detected a diesel fuel leak associated with the site's underground storage tank and delivery system. It was estimated that approximately 16,000 gallons of diesel fuel leaked into to the subsurface and site's stormwater conveyance system. The results of actions taken to recover approximately 13,300 gallons of fuel and investigate the subsurface impact of a diesel fuel leak are presented in the technical report *Site Characterization and Conceptual Remedial Action Plan, Diesel Leak at AC Transit, Emeryville*, dated July 1989. As reported in the technical document, quarterly monitoring of seven groundwater wells was performed for a period one year period following the investigation.

In August 1999, quarterly groundwater monitoring of site monitor wells MW-1 through MW-10 was reinstated in accordance with directives from ACHCS. Further, in a letter dated February 2, 2000, the ACHCS revised quarterly monitoring to include analysis of benzene, toluene, ethylbenzene, xylene (BTEX) and MTBE and sampling of monitor wells W-1 through W-4. Monitor wells W-1 and W-4 were located and sampled during the first quarter 2000 sampling event. Monitor wells W-2 and W-3 were located and added to the sampling event conducted during the second quarter 2000.

The results of the quarterly monitoring performed in 1999 and 2000 indicate that groundwater flow is towards the west at a gradient of approximately 0.02 feet/foot. Concentrations of total petroleum hydrocarbons (TPH) have been detected in all site monitor wells; MTBE has been detected in monitor wells MW-1, MW-2, MW-5, MW-7, MW-10 and W-2. Benzene has been detected over the state of California maximum contaminant level (MCL) in monitor wells MW-6, W-1 and W-4. These results indicate that the existing monitor well network does not fully define the extent of the diesel plume.

In addition, after locating and inspecting monitor well W-2 it was determined that the casing was bent at a depth of approximately three feet below grade. This damage prevents lowering of a bailer into the casing for purposes of collecting a groundwater sample.

The following scope of work details an approach to further define the extent of diesel and related compounds in groundwater at the site. In addition, the workplan proposes abandonment of monitor well W-2 via pressure grouting.

Scope of Work

Prior to initiating sampling at the site, the following activities will be performed:

- A site specific Health and Safety Plan will be prepared in accordance with California Occupational Health and Safety Administration requirements.
- Underground Service Alert (USA) will be notified of impending activities. Additionally, a professional underground utility locator will clear each boring location.
- Subcontracts will be secured.
- Required permits will be obtained from Alameda County Public Works Agency (ACPWA).
- Core concrete at required drilling location.

collect a soil sample from one of borings at ~3' bgs (vadose zone) for TOC, water content, bulk density, porosity.

Grab Groundwater Borings

As shown on Figure 1, four grab groundwater borings will be installed west and downgradient of the current monitor well network. Based on the lithologic log from monitor well MW-10, it is anticipated that the borings will extend to depths of approximately 25 feet below groundsurface. The grab groundwater borings will be installed using a Geoprobe hydraulically-driven drilling rig. During boring advancement, a soil core will be collected for purposes of describing the lithology encountered. Soil cuttings and water generated during boring installation will be placed in appropriate containers for storage and disposal in accordance with local, state and federal regulations.

After completing the borings to the required depth, ¾-inch PVC casing will be installed to the total depth of the borings for purposes of collecting grab groundwater samples. Groundwater samples will be collected using either a peristaltic pump or bailer. A reasonable attempt will be made to purge one to three borehole volumes of groundwater prior to sample collection. Groundwater will be transferred to appropriate laboratory containers and a unique sample identification number will be attached to each container. The sample identification number will be documented on the chain-of-custody form. Samples will be collected for chemical analysis by USEPA Method 8015 for diesel and TPH and Method 8021 for gasoline, BTEX and MTBE. Upon completion of sample collection, each borehole will be backfilled with neat cement and topped with appropriate material to match the surrounding surface.

The results of the laboratory analysis performed on the grab groundwater samples will be evaluated and based on the evaluation up to two monitor wells will be installed on the site and added to the quarterly monitoring program. If concentrations detected in the grab groundwater samples are below MCLs, monitor wells will be located in close proximity to the site's storm drain system, which was impacted during the 1989 diesel spill. If concentrations detected in the grab groundwater samples are above MCLs, monitor wells will be installed to confirm the detected concentrations.

Monitor Wells

Based on the results of the laboratory analysis performed on the grab groundwater samples, up to two additional monitor wells will be installed at the site. The wells will be installed using hollowstem auger drilling equipment and will be completed to an approximate depth of 25 feet below groundsurface. Monitor well construction will be in compliance with the ACPWA installation permit and agency guidelines. The wells will be constructed with two-inch diameter PVC screen and casing. The screen interval will not exceed 15 feet and will extend approximately two feet above first encountered groundwater insuring interception of floating hydrocarbons. The filterpack will be installed via tremie from the bottom up and will extend approximately 1.5 feet above the screened interval. A one foot bentonite bridge will be placed on top of the filterpack and the remaining annular space will be sealed with neat cement. Each well will be protected with a traffic rated vault box set to grade and locking cap. The top of casing elevation of the new monitor wells will be surveyed relative to monitor well MW-10. Prior to sample collection, the new monitor wells will be developed by swabbing the screened interval to promote flow through the filterpack and purging of approximately ten casing volumes of groundwater. Sample collection will coincide with the fourth quarter 2000 sampling event.

Sample collection and laboratory analysis will be consistent with the site's current monitoring program.

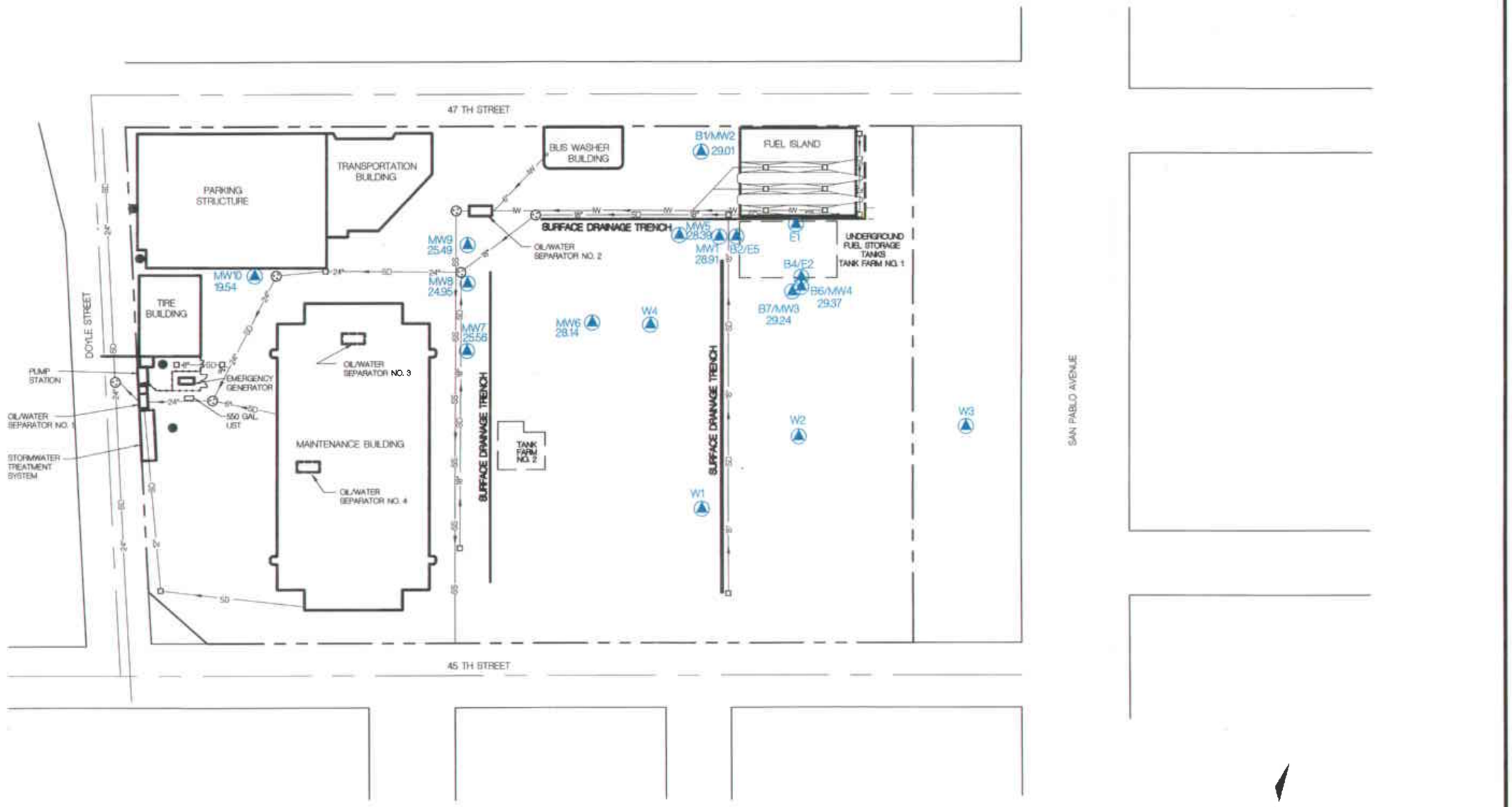
Monitor Well W-2 Abandonment

As describe above, the casing of monitor well W-2 is bent at a depth of approximately three feet below groundsurface. This prevents introduction of a bailer for sample collection. Therefore, it is proposed that this monitor well be abandoned using pressure-grouting methodology. Pressure grouting will include filling the casing will neat cement via tremie pipe from the bottom up. Once the casing has been completely filled, a cap will be sealed to the top of the casing and additional cement will be pumped under pressure into the casing.

Reporting

The results of the laboratory analysis performed on the grab groundwater samples will be summarized in a brief letter report to be submitted to the ACHCS. The letter report will also propose monitor well locations and will present the rationale for location selection.

Soil boring logs, monitor well logs and the laboratory results of samples collected from the new monitor wells will be included in the site's fourth quarter groundwater monitoring report. This report will present a brief description of the field activities, a site map denoting boring locations, a summary table of laboratory analytical results, a brief discussion of the analytical results and conclusions and recommendations. Copies of laboratory analytical reports and soil boring logs will be provided as an appendix. The report will be reviewed and stamped by a California registered geologist.



LEGEND

- MANHOLE
- CATCH BASIN
- MONITORING WELL
- PROPOSED GRAB GROUNDWATER BORING
- SD — STORM DRAIN PIPELINE
- SS — SANITARY SEWER PIPELINE
- IW — INDUSTRIAL WASTE PIPELINE
- CHAIN LINK FENCE

	BY	DATE
DRAWN	WRB	8/1/00
CHECKED		
APPROVED		
APPROVED		
APPROVED		

safety-kleen consulting

EMERYVILLE FACILITY - OAKLAND CALIFORNIA

FIGURE 1
AC TRANSIT - PROPOSED BORING MAP

SCALE: 1" = 100'

DWG NO: 792551-006