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21 January 2003

Project No. P279

Workplan
Sampling, Testing, and Backfilling of Tank Excavation
~~2440 East Eleventh Street~~
Oakland CA

Dear Mr. Gholami:

This workplan proposes sampling and backfilling of a currently-open tank excavation at the subject property (Figures 1 through 3).

A chronology regarding the tank is presented in Table 1. In May 1992, a 1,000-gallon underground gasoline tank was removed from an area immediately outside the northeast corner of the building at the subject property. Contamination was discovered during tank removal and this excavation remains open (covered with trench plates).

Depending on water conditions within the excavation at the time of sampling, we propose to collect grab soil samples from each of the sidewalls and base of the excavation, along with a grab sample of any water within the excavation. Samples will be analyzed for TPH-diesel, TPH-gasoline/BTEX/Fuel oxygenates (EPA Method 8260B) and total lead. A report summarizing our finding will be prepared and submitted to Alameda County. Sampling and testing requirements are summarized in Table 2. Standard operating procedures are attached.

If there is no evidence of contamination, the excavation will be backfilled using clean, imported soil. If evidence of contamination is discovered, we will consult with you regarding any need for further work prior to backfilling the excavation.

If water is present at the time of backfilling the excavation, pea gravel will be used to backfill the excavation to a level approximately 1 foot above water level. Pea gravel will be placed without compaction. Backfill above the water level may consist of any suitable soil placed in lifts and compacted using mechanical means. The surface of the excavation will be completed with 9 inches of aggregated base, overlain by 6 inches of asphalt concrete. Backfill requirements are summarized in Table 2.

Mail: PO Box 8330, Berkeley CA 94707-8330 Office: 900 Santa Fe Avenue, Albany CA 94706

If you have any questions or comments, please call.

Sincerely,

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Expires 12/31/09

Douglas W. Lovell, PE
Geoenvironmental Engineer

Attachments

cc Chuck Hedley/San Francisco Bay Regional Water Quality Control Board, Oakland CA
Jeffrey Eandi/Eandi Metal Works, Oakland CA

Table 1

Environmental Chronology
2440 East Eleventh Street
Oakland CA

Date	Performed By	Event
Unknown	Unknown	• 1,000-gallon underground leaded gasoline tank installed.
15 August 1991	Eandi Metal Works	• The 1,000-gallon tank was emptied of product. Use of the tank was discontinued
11 May 1992	Unknown	• The 1,000-gallon tank was removed. • Contamination was discovered.
10 July 1995	AGI Technologies	• Five soil borings were drilled. Soil samples were collected and analyzed for total petroleum hydrocarbons as gasoline (TPH-gasoline); benzene, toluene, ethylbenzene, and xylenes (BTEX); MtBE (EPA Method 8020); and total metals. • Three of the borings were completed as monitoring wells (MW-1, MW-2, and MW-3). • Water levels were measured in wells MW-1, MW-2, and MW-3. • MW-1, MW-2, and MW-3 were developed and groundwater samples were collected. Samples were analyzed for TPH-gasoline, BTEX, MtBE (EPA Method 8020), and total lead. • Elevation survey was conducted for MW-1, MW-2, and MW-3.
17 July 1995	AGI Technologies	• Groundwater levels were measured in MW-1, MW-2, and MW-3. • Groundwater samples were collected from MW-1, MW-2, and MW-3. Samples were analyzed for TPH-gasoline, BTEX, MtBE (EPA Method 8020), and total lead
20 October 1995	AGI Technologies	• Groundwater levels were measured in MW-1, MW-2, and MW-3. • Groundwater samples were collected from MW-1, MW-2, and MW-3. Samples were analyzed for TPH-gasoline, BTEX, and total lead.
25 January 1996	AGI Technologies	• Groundwater levels were measured in MW-1, MW-2, and MW-3. • Groundwater samples were collected from MW-1, MW-2, and MW-3. Samples were analyzed for TPH-gasoline, BTEX, MtBE (EPA Method 8020), and total lead
25 April 1996	AGI Technologies	• Groundwater levels were measured in MW-1, MW-2, and MW-3. • Groundwater samples were collected from MW-1, MW-2, and MW-3. Samples were analyzed for TPH-gasoline, BTEX, MtBE (EPA Method 8020), and total lead.
11 - 12 June 2001	Kleinfelder	• Groundwater levels were measured in MW-1, MW-2, and MW-3. • Groundwater samples were collected from MW-1, MW-2, and MW-3. Samples were analyzed for TPH-gasoline, BTEX, and total lead.
5 February 2002	Kleinfelder	• Groundwater levels were measured in MW-1, MW-2, and MW-3. • Groundwater samples were collected from MW-1, MW-2, and MW-3. Samples were analyzed for TPH-gasoline, BTEX, MtBE (EPA Method 8020), and total lead

General Notes:

(a) AGI Technologies = AGI Technologies (Bellevue WA).

(b) Kleinfelder = Kleinfelder (Oakland CA).

(c) TPH-gasoline = total petroleum hydrocarbons as gasoline.

(d) BTEX = benzene, toluene, xylenes, and total xylenes.

(e) MtBE = methyl tert-butyl ether.

Table 2

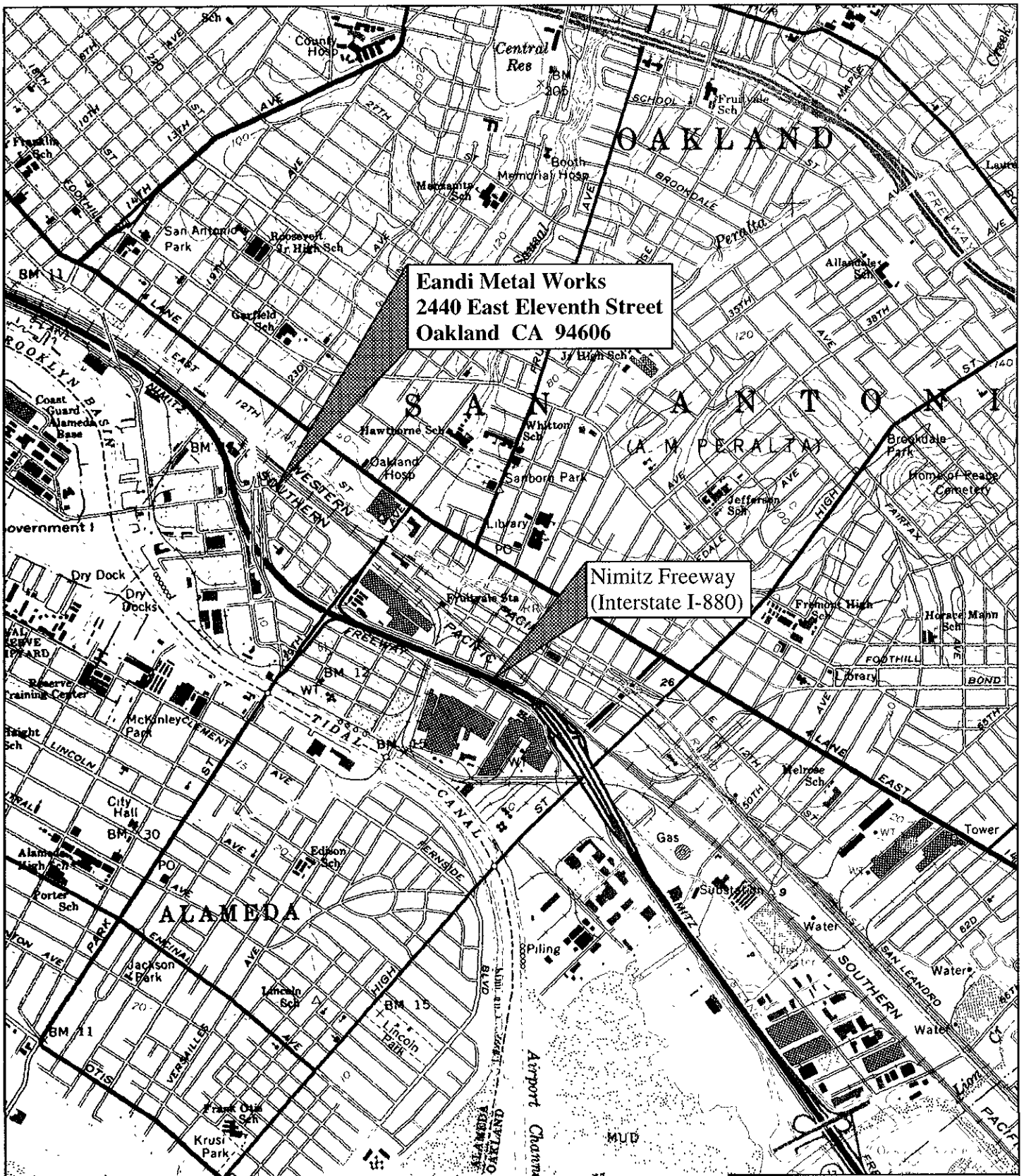
Sampling, Testing, and Backfill Requirements for Tank Excavation
2440 East Eleventh Street
Oakland CA

Item	Requirement
Number of Soil Samples	If water is not present in the excavation, a soil sample will be collected from each sidewall and from the base. If water is present in the excavation, a soil sample will be collected from each sidewall, but not from the base.
Soil Sample Locations	If water is not present, the sidewall samples will be collected from (1) the midpoint along the length of the sidewall, and (2) a depth equal to two-thirds of the depth of the sidewall. The base sample will be collected from the center of the base of the excavation. If water is present, the sidewall samples will be collected from (1) the midpoint along the length of the sidewall, and (2) a depth equal to the water depth.
Preparation Prior to Soil Sampling	Remove loose soil using a decontaminated trowel or shovel. Remove loose soil will intact, un-aerated, native soil is exposed.
Soil Sampler	2-inch diameter by 6-inch long metal liners.
Soil Sampler Decontamination	Wash with Alconox or other low-phosphate soap, rinse with tap water, rinse with distilled water.
Soil Sample Collection	Drive liner into freshly-exposed soil using a mallet. Drive liner until it is completely full of soil. Remove soil from outside the line using a trowel. Extract liner, if necessary-pack the ends of the liner with soil to fill any voids, cap ends, label, store on ice.
Field Observations During Soil Sampling	Screen samples with field organic vapor monitor. Note chemical staining and chemical odor. Visually classify samples according to ASTM D 2488 - Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).
Soil Samples Retained for Potential Physical Testing	None.
Water Sampler	Bailer or glass container attached to pole.
Water Sampler Decontamination	Wash with Alconox or other low-phosphate soap, rinse with tap water, rinse with distilled water.
Water Sample Collection	Lower container into the water and collect sample from the center of the plan view of the excavation and the mid-depth of the water column. Discharge or decant into sample containers.
Water Sample Containers	Three 40 mL VOAs for TPH-gasoline/BTEX/fuel oxygenates. One 1 L amber glass for TPH-diesel. One 250 mL plastic for total lead, preserved with HNO3 to pH<2.
Chemical Testing for Soil and Groundwater Samples	Analyze samples for TPH-diesel, TPH-gasoline/BTEX/fuel oxygenates (EPA Method 8260) and total lead.
Excavation Backfill	If water is present during backfilling, place imported pea gravel to an elevation approximately 1 foot above the water elevation. Pea gravel may be placed without compaction. Any suitable imported soil may be used to backfill above the water table. Place soil in approximate 9-inch lifts and mechanically compact to achieve at least 90% relative compaction (based on the Modified Proctor method). Finish the surface of the excavation with 9 inches of aggregate base and 6 inches of asphalt concrete.
Compaction Testing During Backfill	None.

General Notes

(a) TPH = Total Petroleum Hydrocarbons.

(b) BTEX = Benzene, Toluene, Ethylbenzene, and Total Xylenes



Basemap: U.S. Geological Survey, 7.5 Minute Quadrangle, Oakland East CA. 1959 (Photorevised 1980)

Figure 1

Location Map

2440 East Eleventh Street Oakland CA

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N

0 100 200

Approximate Scale in Feet

Basemap: Aerial photograph, flown 24 August 1998, photograph number ALA-AV-6100-11-38, original scale 1:12,000. Pacific Aerial Surveys, Oakland CA

Figure 2

Vicinity Map

2440 East Eleventh Street Oakland CA

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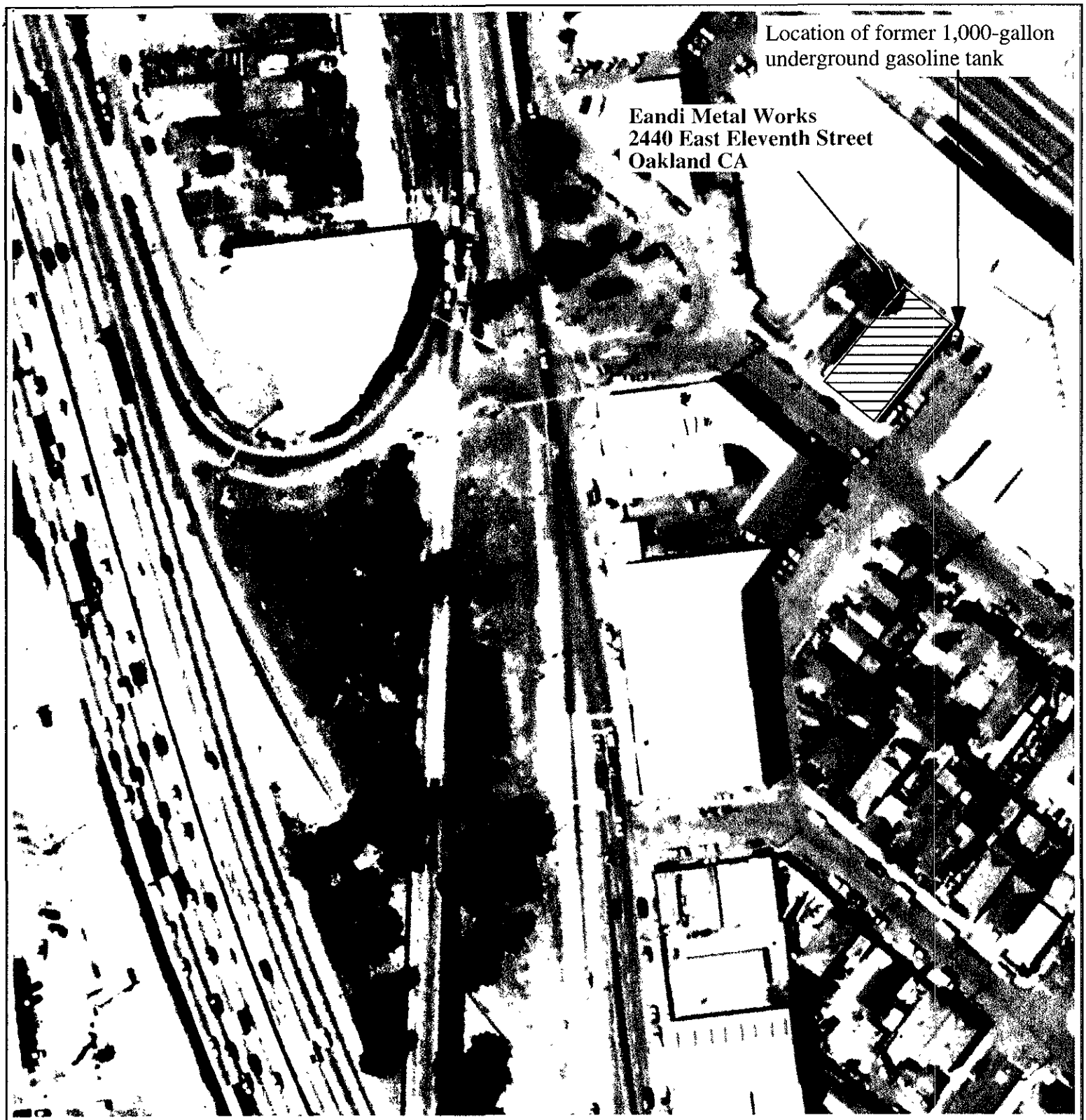

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0 100 200

Approximate Scale in Feet

Basemap: Aerial photograph, flown 24 August 1998, photograph number ALA-AV-6100-11-38, original scale 1:12,000. Pacific Aerial Surveys, Oakland CA

Figure 3

Site Plan

2440 East Eleventh Street
Oakland CA

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ATTACHMENT 1

Standard Operation Procedures

STANDARD OPERATING PROCEDURE (SOP) 9A
VERIFICATION SOIL SAMPLING FOR UNDERGROUND TANK REMOVAL

1.0 INTRODUCTION AND SUMMARY

This SOP describes procedures for verification soil sampling during the removal of underground storage tanks. The sampling protocols described herein are suitable for collecting soil samples for chemical analysis, limited physical testing, and visual classification. These procedures are intended to allow collection of verification samples which will provide the information necessary to (1) evaluate whether a release has occurred and (2) determine what residual contaminant levels, if any, remain after initial excavation of soil.

This SOP has been developed for routine use within the San Francisco Bay area and should be closely examined and potentially modified if applied to other locations.

2.0 EQUIPMENT AND MATERIALS

- Backhoe or other piece of equipment capable of obtaining a grab soil sample from the base and sidewalls of the excavation (for excavations deeper than ±5-feet)
- Brass or stainless steel liners, 3- to 6-inch length and 2- or 2.5-inch diameter, fitted with plastic endcaps
- Hammer or other tool to drive liners into soil
- Teflon sheets, approximate 6-mil thickness, approximate 3-inch width
- Bottles and jars: 8-ounce wide-mouth glass jars, laboratory cleaned
- Kimwipes, clean silica sand, and/or deionized water (for blank sample preparation)
- Duct tape
- UST removal observation form, soil sampling form, sample labels, chain-of-custody forms, hazardous and non-hazardous waste labels, field notebook, and marking pens
- Zip-lock plastic bags of size to accommodate sample containers
- Stainless steel spatula, spoon, and bowl
- Steel shovel and trowel
- Cooler with ice
- Organic vapor meter: the make, model, and calibration information of the organic vapor meter (including compound and concentration of calibration gas) should be documented in the field notes
- Buckets (minimum 2) and brushes (minimum 2) for decontamination
- Low residue, organic free soap such as Liquinox or Alconox
- Distilled or deionized water (minimum 2 gallons)
- Garden hose and confirm availability of onsite tap water
- Paper towels and garbage bag

- Digital camera or 35mm camera and film
- Copy of current RWQCB Tri-Regional Recommendations and current county or city requirements (if available)
- Gloves: work, nitrile, and latex
- Half-face respirator with OV-HEPA cartridges
- Coveralls, steel-toed water-repellent boots, hardhat, earplugs
- Fire extinguisher and first-aid kit
- Measuring tapes and toolbox with standard tools

As specified in the Site Safety Plan, additional safety and personnel decontamination equipment and materials may be needed.

3.0 TYPICAL PROCEDURES

These sampling procedures are generally applicable. However local regulations should be researched prior to beginning a specific project, as they may require different procedures than described herein.

1. Obtain Soil from the Base of the Tank Excavation Soil samples should be collected from the base of the excavation beneath each end of the former tank location (fill/pump end only for tank volume less than 1,000 gallons). Soil from the upper two feet of native soil (or fill material) below tank invert should be brought up to the ground surface for sample collection using the backhoe bucket. If the water table is above the bottom of the excavation, verification soil samples should be collected immediately above the water table in the excavation side walls adjacent to the tank ends (groundwater samples should also be collected in accordance with SOP 9B - Verification Groundwater Sampling for Underground Storage Tank Removal. If staining, elevated organic vapor meter readings, or other evidence of release are still present in the excavation - then samples should be collected of the affected soil.
2. Sample Collection Using a shovel or trowel, trim the soil collected in the backhoe bucket as required to expose fresh unaerated material. Fill a liner by driving it into the soil. Remove the liner (excavate with trowel if necessary) and cap each end with pre-cut Teflon sheeting and plastic end cap, seal with duct tape (do not use electrical tape). Label the liner, enter onto chain-of-custody form, and place in a zip-lock bag on ice in a cooler. Measure cavity created by liner removal from soil with field organic vapor monitor and record result.
3. Classify Soil Exposed in Excavation Visually describe soil encountered in the excavation according to ASTM D 2488-Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).
4. Collect Piping Soil Sample If product piping was removed outside the limits of the tank excavation, collect one soil sample for each 20 linear feet of piping. Because of the typically shallow depth of the piping trench, soil samples from beneath former piping locations may be usually be collected by directly driving a sample liner into freshly exposed soil (without the aid of a backhoe).

5. Collect Soil Remediation Verification Samples If overexcavation was performed to remove contaminated soil, collect one verification sample at the base of the excavation, and samples every 15 to 20 lineal feet around the excavation perimeter. Use methods described in 1 and 2 above.
6. Document Locations Measure horizontal and vertical dimensions necessary to reconstruct sampling locations. The depths of all samples should be measured and recorded in field notes. The excavation, tank, and piping should be located relative to prominent site features such as buildings, intersections, fence lines, and a sketch showing the site features, tank and piping locations, excavation perimeter, and sample locations should be prepared in the field.
7. Laboratory Analyses Analytical requirements vary with the substances reportedly stored in each tank. A laboratory certified by the State of California should be contracted to perform the analyses.

4.0 QUALITY ASSURANCE AND QUALITY CONTROL

Field quality control samples are not normally collected during soil sampling.

Optional quality control soil samples may include collection of replicates, at an approximate frequency of 1 replicate for every 10 natural samples. Replicates are collected by driving two liners adjacent to each other. Each sample is labeled according to normal requirements. The replicate samples obtained in such a manner are suitable for assessing the reproducibility of both chemical and physical parameters. Interpretation of the reproducibility of data should recognize the potential for significant changes in soil type over even a 6-inch interval. Accordingly, replicates do not supply the same information as normally encountered duplicate or split samples. Duplicate or split samples are better represented by the laboratory performing replicate analyses on adjacent subsamples of soil from the same liner.

Optional quality control samples may be collected to check for cross-contamination using field blanks. Field blanks may be prepared by (1) wipe sampling decontaminated liners and split-spoon with kimwipes, (2) pouring clean silica sand into a decontaminated liner, or (3) pouring deionized water over the decontaminated liner and collecting the water that contacts the sampling implements for aqueous analysis. Field blanks may be prepared at the discretion of the field staff given reasonable doubt regarding the efficacy of the decontamination procedures.

5.0 DOCUMENTATION

Observations, measurements, and other documentation should be recorded on the following:

- Field Notebook
- Underground Storage Tank Sampling Form
- Underground Storage Tank Observation Form
- Excavation Log Form
- Sample Label
- Chain-of-Custody Form

In addition to the standardized entries, notations of unusual or unexpected conditions as well as deviations from this SOP should be recorded.

6.0 DECONTAMINATION

Prior to entering the site, the backhoe and appurtenant items (bucket, tracks, shovels, troughs and buckets, etc.) should be decontaminated by steam cleaning, pressure washing, or soap washing and rinsing.

Between each tank excavation (if more than one), appurtenant items that contacted soil should be decontaminated by steam cleaning, pressure washing, or soap washing and rinsing. Prior to leaving a site where contamination was encountered, the backhoe and appurtenant items should be decontaminated by steam cleaning, pressure washing, or soap washing and rinsing. If contamination is encountered, onsite decontamination of materials and equipment that contacted the contaminated soil should be contained (lined pit or drum). Decontamination of materials and equipment contacting uncontaminated soil may occur upon open ground or areas discharging to a sanitary sewer (discharge to a storm sewer may be acceptable if only minor amounts of solids and soap are discharged).

Prior to sample collection, the liners, end caps, trowel, liner driving equipment, and other equipment or materials that may directly contact the sample should be decontaminated. Decontamination for these items should consist of a soap wash, followed by a tap water rinse, followed by a distilled water rinse.

If decontamination solutions and brushes are used to clean materials and equipment that previously contacted contaminated soil, the solutions should be changed between tank excavations. Otherwise, the solutions and brushes may be reused.

7.0 INVESTIGATION-DERIVED WASTE

Wastes resulting from the activities of this SOP may include excess soil sample, decontamination wastewaters, and miscellaneous waste (paper, plastic, gloves, jars, aluminum foil, etc.) Unless otherwise prohibited by the Site Safety Plan, excess soil sample may be returned to the excavation of origin (or soil stockpile), and miscellaneous waste may be disposed of as municipal waste.

Decontamination wastewaters may be discharged to sanitary sewers, subject to sewer district restrictions.

8.0 SAFETY

Normal and special safety precautions are described in the Site Safety plan. Physical hazards typically prevail because the backhoe or excavator contains exposed moving parts constructed of heavy material with sharp edges.

Chemical hazards are typically discovered upon removal of the tank from the excavation. Opportune monitoring for volatile chemicals may be conducted at this time.

9.0 REFERENCES

American Society for Testing and Materials, 1992. *1992 Annual Book of ASTM Standards, Section 4 - Construction, Volume 4.08 - Soil and Rock, Building Stones; Geotextiles.* ASTM, Philadelphia, PA. 1992.

Regional Water Quality Control Board, 1990. *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites.* California Regional Water Quality Control Board, San Francisco Bay Region, Oakland CA. 10 August 1990.

U.S. Environmental Protection Agency, 1989a. *A Compendium of Superfund Field Operations Methods, EPA/540/P-87/001, OSWER Directive 9355.0-14.* USEPA, Office of Emergency and Remedial Response, Washington, DC. December 1989.

U.S. Environmental Protection Agency, 1989b. *Soil Sampling Quality Assurance User's Guide - Second Edition.* National Technical Information Service, PB 89-189 864/AS, Springfield, VA. 1989.

STANDARD OPERATING PROCEDURE (SOP) 9B
VERIFICATION GROUNDWATER SAMPLING FOR UNDERGROUND TANK REMOVAL

1.0 INTRODUCTION AND SUMMARY

This SOP describes procedures for verification sampling during the removal of underground storage tanks. The sampling protocols described herein are suitable for collecting soil and groundwater samples for chemical analysis, limited physical testing, and visual classification. These procedures are intended to allow collection of verification samples which will provide the information necessary to evaluate whether a release has occurred and if a leak is suspected, what residual contaminant levels remain after initial excavation of contaminated soil. This SOP also describes the collection of grab groundwater samples from within the tank removal excavation.

This SOP has been developed for routine use within the San Francisco Bay area and should be closely examined and potentially modified if applied to other locations.

2.0 EQUIPMENT AND MATERIALS

- Bottles and jars: 8-ounce wide-mouth glass jars, 40-ml amber glass vials with teflon septa closures, 1-liter amber glass wide mouthed jars, and 500-ml poly bottles, laboratory cleaned
- Laboratory grade HCl and eyedropper for preservation of groundwater samples to be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX)
- Handpump, 0.45 μm disposable filters, and laboratory grade HNO3 and eyedropper for field-filtering and preservation of groundwater samples to be analyzed for metals (necessary if groundwater is encountered during removal of waste oil, used oil, or unknown contents tank)
- Kimwipes, clean silica sand, and deionized water (for blank sample preparation)
- Duct tape
- UST removal observation form, UST sampling form, sample labels, excavation log forms, chain-of-custody forms, hazardous waste labels, field organic vapor monitor calibration form, field notebook, and marking pens
- Ziploc plastic bags of size to accommodate sample containers
- Bailer with bottom-emptying device and bailer rope
- Cooler with ice
- Field organic vapor monitor: the make, model, and calibration information of the field organic vapor monitor (including compound and concentration of calibration gas) should be documented in the field notes
- Buckets (minimum 2) and brushes (minimum 2) for decontamination
- Low residue, organic free soap such as Liquinox or Alconox
- Distilled or deionized water (minimum 2 gallons)

- Garden hose and confirm availability of onsite tap water
- Paper towels and garbage bag
- Camera and film
- Copy of current RWQCB Tri-Regional Recommendations and current county or city requirements (if available)
- Gloves: work, nitrile, and latex
- Half-face respirator with OV-HEPA cartridges
- Coveralls, steel-toed water-repellent boots, hardhat, earplugs
- Fire extinguisher and first-aid kit
- Measuring tapes and toolbox with standard tools

As specified in the Site Safety Plan, additional safety and personnel decontamination equipment and materials may be needed.

3.0 TYPICAL PROCEDURES

These sampling procedures are generally applicable. However local regulations should be researched prior to beginning a specific project, as they may require different procedures than described herein.

1. Collect groundwater samples If groundwater is encountered during tank removal, a sample should be collected. Form an approximate 2 to 3-foot deep hole below the groundwater table using the backhoe bucket and allow groundwater to recharge the hole. A grab groundwater sample should then be collected using a bailer. Fill containers without headspace, acidify BTEX samples with HCl to pH<2, filter and acidify metals samples with HNO3 to pH<2, label, enter onto chain-of-custody form, and place on ice in a cooler.
2. Document locations Measure horizontal and vertical dimensions necessary to reconstruct sampling locations. The depths of all samples should be measured and recorded in field notes. The excavation, tank, and piping should be located relative to prominent site features such as buildings, intersections, fence lines, and a sketch showing the site features, tank and piping location, excavation perimeter, and sample locations should be prepared in the field.

4.0 QUALITY ASSURANCE AND QUALITY CONTROL

Field quality control samples are not normally collected during soil sampling.

Optional quality control samples may be collected to check for cross-contamination using field blanks. Field blanks may be prepared by pouring deionized water over the decontaminated liner and collecting the water that contacts the sampling implements for aqueous analysis. Field blanks may be prepared at the discretion of the field staff given reasonable doubt regarding the efficacy of the decontamination procedures.

5.0 DOCUMENTATION

Observations, measurements, and other documentation should be recorded on the following:

- Field Notebook
- Field Organic Vapor Calibration Form
- Sample Label
- Chain-of-Custody Form

In addition to the standardized entries, notations of unusual or unexpected conditions as well as deviations from this SOP should be recorded.

6.0 DECONTAMINATION

Prior to entering the site, the backhoe and appurtenant items (bucket, tracks, shovels, troughs and buckets, etc.) should be decontaminated by steam cleaning, pressure washing, or soap washing and rinsing.

Between each tank excavation (if more than one), appurtenant items that contacted soil should be decontaminated by steam cleaning, pressure washing, or soap washing and rinsing. Prior to leaving a site where contamination was encountered, the backhoe and appurtenant items should be decontaminated by steam cleaning, pressure washing, or soap washing and rinsing. If contamination is encountered, onsite decontamination of materials and equipment that contacted the contaminated soil or water should be contained (lined pit or drum). Decontamination of materials and equipment contacting uncontaminated soil or groundwater may occur upon open ground or areas discharging to a sanitary sewer (discharge to a storm sewer may be acceptable if only minor amounts of solids and soap are discharged.

Prior to sample collection; equipment or materials that may directly contact the sample should be decontaminated. Decontamination for these items should consist of a soap wash, followed by a tap water rinse, followed by a distilled water rinse.

If decontamination solutions and brushes are used to clean materials and equipment that previously contacted contaminated soil or groundwater, the solutions should be changed between tank excavations. Otherwise, the solutions and brushes may be reused.

7.0 WASTE HANDLING AND DISPOSAL

Wastes resulting from the activities of this SOP may include excess water sample, decontamination wastewater, and miscellaneous waste (paper, plastic, gloves, jars, aluminum foil, etc.) Unless otherwise prohibited by the Site Safety Plan, excess soil or water sample may be returned to the excavation of origin or soil stockpile, and miscellaneous waste may be disposed of as municipal waste.

Decontamination wastewater may be discharged to sanitary sewers, subject to sewer district restrictions.

8.0 SAFETY

Normal and special safety precautions are described in the Site Safety plan. Physical hazards typically prevail because the backhoe or excavator contains exposed moving parts constructed of heavy material with sharp edges.

Chemical hazards are typically discovered upon removal of the tank from the excavation. Opportune monitoring for volatile chemicals may be conducted at this time.

9.0 REFERENCES

American Society for Testing and Materials, 1990. 1990 Annual Book of ASTM Standards, Section 4 - Construction, Volume 4.08 - Soil and Rock, Building Stones; Geotextiles. ASTM, Philadelphia, PA. 1990.

Regional Water Quality Control Board, 1990. Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites. California Regional Water Quality Control Board, San Francisco Bay Region, Oakland CA. 10 August 1990.

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U.S. Environmental Protection Agency, 1989b. Soil Sampling Quality Assurance User's Guide - Second Edition. National Technical Information Service, PB 89-189 864/AS, Springfield, VA. 1989.