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**WORK PLAN FOR  
REMEDATION BY EXCAVATION OF  
DIESEL-IMPACTED SOILS**

**ARATEX SERVICES, INC.  
FACILITY #516  
330 CHESTNUT STREET  
OAKLAND, CALIFORNIA**

*Jan 1992*  
**PREPARED BY**

**RMT, INC.  
JANUARY, 1992**

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**1. INTRODUCTION**

Aratex Services, Inc., Facility #516 is located at 330 Chestnut Street in Oakland, California. One 2,000-gallon underground diesel storage tank was removed from the facility in December, 1988. The lateral and vertical extent of observed hydrocarbon impact on soils and ground water was determined in subsequent investigations. This work plan details the proposed remediation of impacted soil by excavation. ✓

**2. SITE CONDITIONS**

**2.1 Setting**

The project site is situated on the northeast corner of the intersection of Third and Chestnut Streets, approximately 0.1 mile south of the Nimitz Freeway (880) in a primarily commercial and industrial area of Oakland, California. Surface elevations at the project site average approximately 13 feet above mean sea level and slope gradually to the southwest toward the Oakland Inner Harbor of the San Francisco Bay, situated approximately 0.5 mile from the site. ✓

**2.2 Geology**

The project site is situated on the boundary of the Merrit Sand Unit and artificial fill. The fill material, derived from dredged bay materials, including mud or sand and miscellaneous refuse, was placed on near-shore tidal flats to create buildable land area. The fill material is difficult to distinguish from the Merrit Sand which is typically a fine-grained silty sand with some clay lenses. In the vicinity of the project site, the Merrit Sand is underlain by the Posey Unit, a firm sandy clay with some fine gravel, grading with depth to fine- to medium-grained sand. ✓

**2.3 Hydrology**

Ground water occurs between eight and ten feet below grade at the project site, as observed in existing on-site ground-water monitoring wells. Ground water beneath the site flows to the south, toward the bay, at a gradient of approximately 0.005 ft/ft.

### 3. PROJECT HISTORY

Prior to 1988, one 2,000-gallon underground diesel storage tank was utilized by the Aratex facility for back-up boiler operation. The tank and associated piping were precision tested in July of 1987, but were not certified tight. Therefore, the tank was removed in December of 1988. The Alameda County Health Care Services Agency (ACHCSA) reviewed closure documentation and required a supplementary subsurface investigation to evaluate potential fuel hydrocarbon impact on soils or ground water. ✓

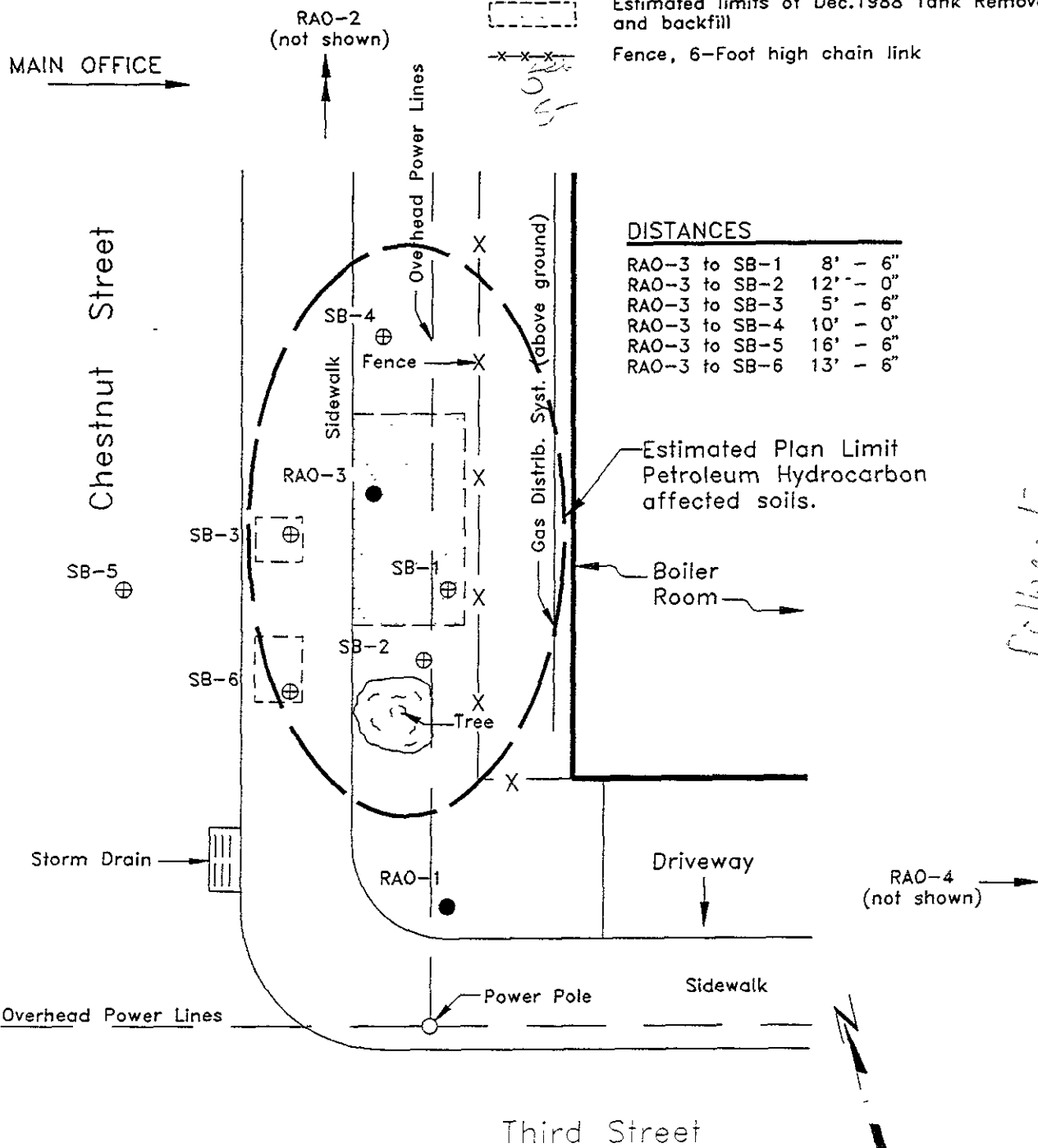
In the spring of 1989, RMT was authorized by Aratex to install four 2-inch diameter ground-water monitoring wells to depths ranging from 24 to 27 feet below grade (RMT, June, 1989). No detectable concentrations of petroleum hydrocarbons were identified in soil or ground-water samples from wells RAO-1, RAO-2, or RAO-4. However, the soil sample collected at eight feet below grade (the capillary fringe), and ground-water samples from RAO-3 contained elevated concentrations of both TPH and BTEX. Locations of the monitoring wells are included on Figure 1.

In March of 1990, RMT resampled the ground-water monitoring wells at the Aratex facility. Results of laboratory analysis of ground-water samples were similar to the spring, 1989, sample analysis results; however, in March, 1990, more than 0.5 foot of floating product was observed in ground-water monitoring well RAO-3.

In September of 1990, RMT conducted a remedial investigation to determine the extent of fuel hydrocarbon-impacted soils around ground-water monitoring well RAO-3, and to evaluate remedial options for the site. Six borings were advanced to depths ranging from eight to 9.5 feet below grade. Analysis of soil samples revealed elevated fuel hydrocarbon concentrations in borings located within 10 feet of RAO-3 (SB-1 through SB-4), indicating that impacted soil is limited to an area within approximately ten feet of the tank excavation, and extends to approximately 11 feet below grade. The best remedial option was clearly excavation and disposal of fuel-impacted soil because of the limited areal extent and volume.

Legend :

- RAO-x ● Ground Water Monitoring Well ; RMT 6/89
- SB-x ⊕ Soil Boring ; RMT 9/90
- Plant
- - - - - Estimated limits of Dec.1988 Tank Removal and backfill
- x-x-x-x Fence, 6-Foot high chain link



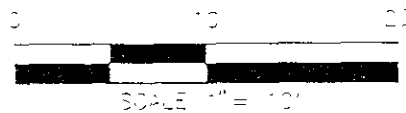
Interpreted Areal Extent  
of

Petroleum Hydrocarbon Affected Area

Arcrex Services, Inc.

330 Chestnut Street

Oakland, Ca



DESIGNED BY	POB
DATE	JANUARY 1991
PROJECT #	20-3-06
FILE #	82207-6

Figure 1

#### 4. PROPOSED SOIL REMEDIATION BY EXCAVATION

RMT proposes to remediate fuel-impacted soil by excavation. The excavation is expected to extend to at least 12 feet below grade. The expected lateral extent of excavation is illustrated on Figure 1. When all required permits and agency approvals have been obtained, excavation operations will be initiated. Concrete and asphaltic concrete pavement will be removed, and sheet-pile shoring will be installed to approximately 12 feet below grade to maintain excavation and building safety. Excavation operations will be accomplished utilizing a backhoe under the supervision of a remediation contractor selected by Aratex, and observed by RMT personnel. Soil removal operations will be continuously monitored with an Organic Vapor Monitor (OVM) to detect excess volatile organic vapors and to direct the focus of the excavation. Excavated soil will be placed on impermeable plastic sheeting and covered until receipt of laboratory results for determination of soil disposal facility location. (Ground water is expected to be encountered at approximately eight feet below grade. Though intrusion is expected to be minimal, the excavation will be pumped as needed. Pumped water will be stored on site in a portable holding tank pending characterization for disposal or discharge.) ✓

On completion of excavation, approximately eight soil samples will be collected for analysis to confirm removal of hydrocarbon-impacted soil. Soil samples collected during excavation operations will be analyzed by the California Department of Health Services Draft Method for total petroleum hydrocarbons (TPH) as diesel, and for aromatic volatile organics (BTEX) according to USEPA test method 8020. On receipt of acceptable results for the excavation samples, the (excavation will be backfilled with imported soil) to greater than 90% maximum density as determined by on-site soil density tests, and the concrete and asphalt pavement will be restored to existing specifications. ? TPH-g?

The soil stockpile generated by excavation, approximately 311 cubic yards, is expected to be acceptable for disposal as non-hazardous material at a Class III landfill or petroleum recycler. To provide data required for such disposal one composite sample will be formed from representative stockpile samples. The sample will be analyzed for TPH and BTEX as discussed above, and will be further analyzed for metals or other potential contaminants as required by the selected

disposal facility. Rubble created during the paving removal will also be hauled to the disposal facility with excavated soil.

On completion of excavation and disposal operations, a final report of closure will be prepared which will summarize project activities and findings.

5. REFERENCES

- Aug*  
RMT, Inc., ~~June~~, 1989, "Soil and Ground Water Investigation for: Aratex Services Facility #516 located at 330 Chestnut Street, Oakland, California," prepared for Aratex Services, Inc., Schaumburg, Illinois, ~~revised October, 1989.~~
- RMT, Inc., August 3, 1990, "March, 1990 Ground Water Wells Sampling and Analyses," Letter report prepared for Ms. R.J. Whitsett, Aratex Services, Inc., Schaumburg, Illinois.
- RMT, Inc., December, 1990, "Supplementary Areal Investigation, Facility #516," prepared for Aratex Services, Inc., Schaumburg, Illinois.

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