



# CROWLEY MARINE SERVICES, INC.

ENVIRONMENTAL  
PROTECTION  
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September 18, 1995

Mr. Barney Chan  
Alameda County Health Care Service Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, #260  
Alameda, California 94502-6577

Reference: **Addendum to the Work Plan for the Site Investigation at the former Pacific Dry Dock and Repair Company Yard II Facility, Oakland, California**

Dear Mr. Chan:

Enclosed for your review is the proposed addendum to the work plan for the site investigation at the above referenced property at 321 Embarcadero. Subject to your review Crowley wishes to commence groundwater monitoring well installation on Monday September 25, 1995.

Please contact me at (206) 443-8042 with any questions or comments that you may have regarding this matter.

Sincerely,

R. Stephen Wilson  
Manager, Environmental Compliance

Encl.

cc: PDDII Correspondence w/o encl.  
PDDII Reports w/encl.  
Dan Schoenholtz w/encl.  
Beth Hamilton w/encl.  
Michael Holly

ADDENDUM TO  
WORK PLAN FOR  
SITE INVESTIGATION

CROWLEY MARINE SERVICES, INC.

PACIFIC DRY DOCK YARD II

September 14, 1995

Background

On July 31, 1995 Crowley Marine Services, Inc. (CMS) submitted a Status Report to the Alameda County Health Care Services Agency ("ACHCSA") chronicling the site investigation activities that have already taken place at Pacific Dry Dock Yard II (the "Site"). Those efforts were preceded by a Work Plan dated June 1991, to which this Addendum applies.

Scope of Work for Work Plan Addendum

The work proposed in this Addendum, including the installation of soil borings and monitoring wells, will be conducted consistent with the provisions of the original Work Plan, which was approved by the ACHCSA in 1992.

1. Monitoring Well Installation

To delineate the extent of groundwater impairment and to evaluate the potential of constituent migration to or from the site, Crowley, through its consultant Versar, proposes to install four monitoring wells, including three wells proposed in the original Work Plan plus one additional well. The proposed locations of the wells, based on recent groundwater sampling results already submitted to ACHCSA, are shown in Figure 1.

2. Soil Sampling

In May 1994 Crowley installed boreholes at the Site and collected numerous soil samples for laboratory analysis. The results of that work are depicted in Figure 2. To further evaluate and delineate the extent of the impacts of constituents of concern on soil at the Site, soil samples will be collected at intervals of 3 feet as the monitoring well borings are drilled. Based on field observations, two soil samples will be selected for analysis from those collected from each boring, and will be analyzed for TPH-G by California Department of Health Services (DHS) Method, TPH-D by EPA Method 8015M, VOC by EPA Method 8240, and total oil and grease by Method 5520EF.

3. Groundwater Sampling

Each newly installed groundwater monitoring well will be measured, developed, purged, and sampled in accordance with standard procedures. Groundwater samples will be collected from each well and analyzed for TPH-G by California DHS Method, TPH-D by EPA Method 8015M, and VOCs by EPA Method 601/602 or 624. Following the initial sampling, groundwater sampling for these newly installed wells will be included in the sampling program for the Site.

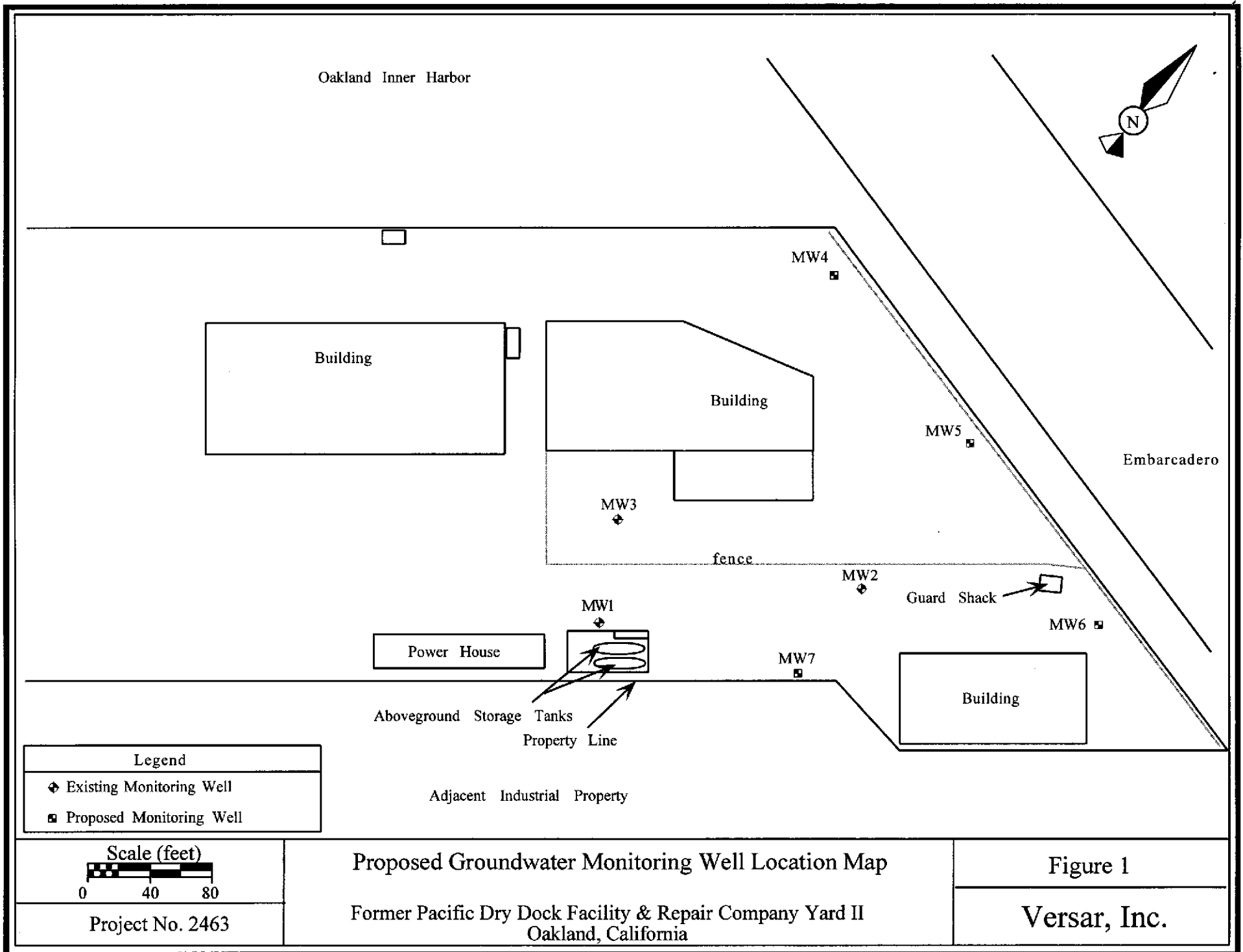
4. Monitoring Well Elevation and Location Survey

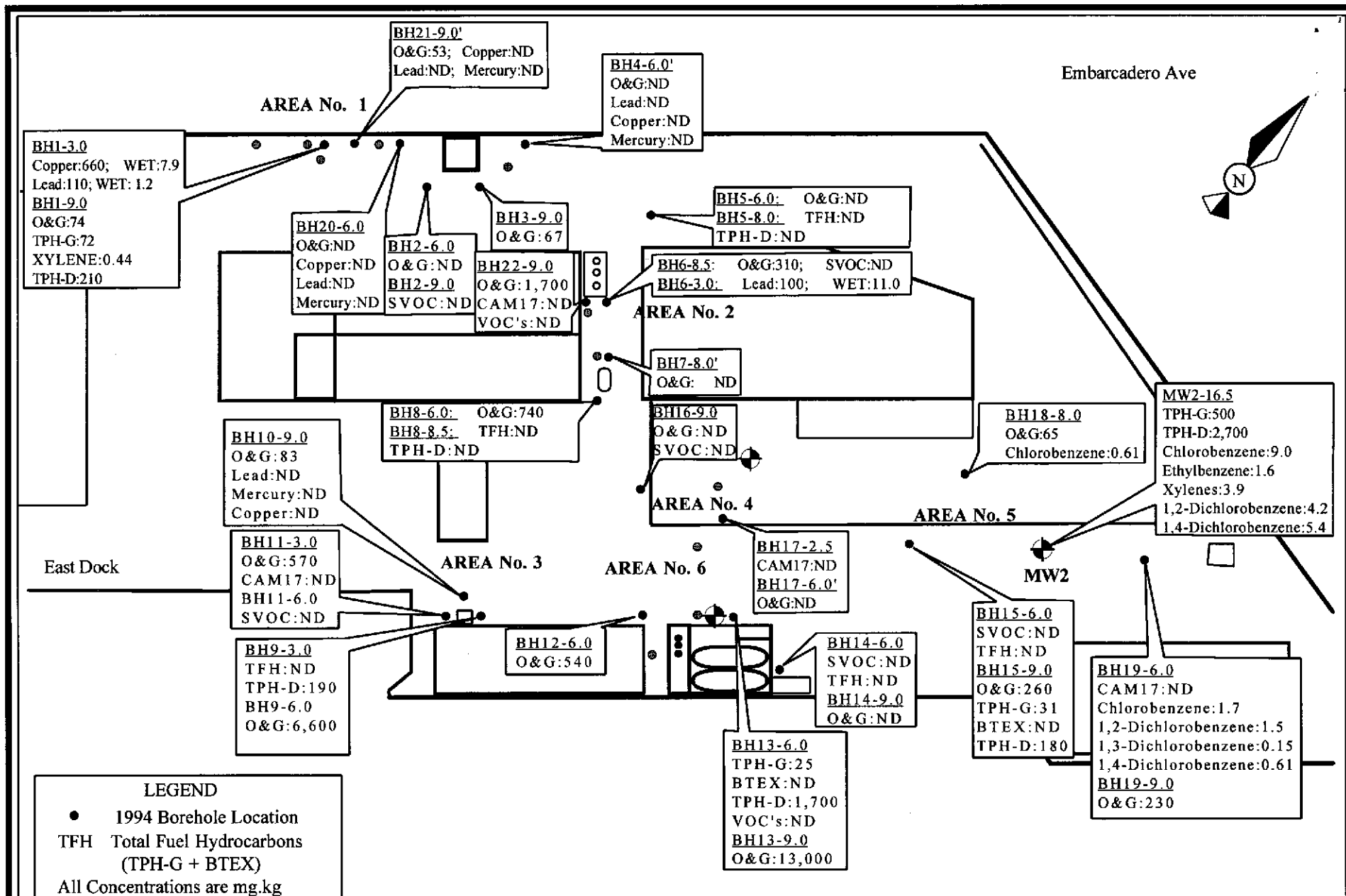
Each newly installed well will be surveyed to a common datapoint and tied into the three existing wells on Site. Data obtained during the survey will be used to calculate groundwater movement beneath the Site.

5. Schedule

Field activities will take place upon approval of this Addendum by the ACHCSA. A proposed schedule is as follows:

Installation of Groundwater Monitoring Well	25 September 1995
Initial Sampling of Monitoring Well	2 October 1995
Receipt of all Analytical Results	23 October 1995
Submittal of PIER	TBA
Groundwater Sampling Event, 3rd Quarter 1995	September 1995





**BH1-3.0**  
Copper:660; WET:7.9  
Lead:110; WET: 1.2  
**BH1-9.0**  
O&G:74  
TPH-G:72  
XYLENE:0.44  
TPH-D:210

**AREA No. 1**

**BH21-9.0'**  
O&G:53; Copper:ND  
Lead:ND; Mercury:ND

**BH4-6.0'**  
O&G:ND  
Lead:ND  
Copper:ND  
Mercury:ND

Embarcadero Ave

**BH20-6.0**  
O&G:ND  
Copper:ND  
Lead:ND  
Mercury:ND

**BH2-6.0**  
O&G:ND  
Copper:ND  
Lead:ND  
Mercury:ND  
**BH2-9.0**  
SVOC:ND

**BH3-9.0**  
O&G: 67  
**BH22-9.0**  
O&G:1,700  
CAM17:ND  
VOC's:ND

**AREA No. 2**

**BH5-6.0:** O&G:ND  
**BH5-8.0:** TFH:ND  
TPH-D:ND

**BH6-8.5:** O&G:310; SVOC:ND  
**BH6-3.0:** Lead:100; WET:11.0

**BH7-8.0'**  
O&G: ND

**BH6-9.0**  
O&G:ND  
SVOC:ND

**AREA No. 4**

**BH10-9.0**  
O&G: 83  
Lead:ND  
Mercury:ND  
Copper:ND

**BH8-6.0:** O&G:740  
**BH8-8.5:** TFH:ND  
TPH-D:ND

**BH18-8.0**  
O&G:65  
Chlorobenzene:0.61

**MW2-16.5**  
TPH-G:500  
TPH-D:2,700  
Chlorobenzene:9.0  
Ethylbenzene:1.6  
Xylenes:3.9  
1,2-Dichlorobenzene:4.2  
1,4-Dichlorobenzene:5.4

**AREA No. 5**

East Dock

**BH11-3.0**  
O&G:570  
CAM17:ND  
**BH11-6.0**  
SVOC:ND

**AREA No. 3**

**AREA No. 6**

**BH17-2.5**  
CAM17:ND  
**BH17-6.0'**  
O&G:ND

**MW2**

**BH9-3.0**  
TFH:ND  
TPH-D:190  
**BH9-6.0**  
O&G:6,600

**BH12-6.0**  
O&G:540

**BH14-6.0**  
SVOC:ND  
TFH:ND  
**BH14-9.0**  
O&G:ND

**BH15-6.0**  
SVOC:ND  
TFH:ND  
**BH15-9.0**  
O&G:260  
TPH-G:31  
BTEX:ND  
TPH-D:180

**BH19-6.0**  
CAM17:ND  
Chlorobenzene:1.7  
1,2-Dichlorobenzene:1.5  
1,3-Dichlorobenzene:0.15  
1,4-Dichlorobenzene:0.61  
**BH19-9.0**  
O&G:230

**BH13-6.0**  
TPH-G:25  
BTEX:ND  
TPH-D:1,700  
VOC's:ND  
**BH13-9.0**  
O&G:13,000