PORT OF OAKLAND

January 5, 1998

Ms. Madhulla Logan
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject: Transmittal of Supplemental Site Investigation Workplan for the Former Cryer Boat Yard - 1899 Dennison Street, Oakland

Dear Ms. Logan:

Enclosed please find the Port of Oakland's "Supplemental Site Investigation" workplan for the former Cryer Boat Yard prepared by GAIA Consulting, Inc.. This report was prepared as required in your October 30, 1997 letter to Ms. Diane Heinze. The 30-day deadline stipulated in your letter was extended to January 5, 1998 by your supervisor, Mr. Thomas Peacock on November 20, 1998 during your absence from the office (Confirmation letter from Port of Oakland to Mr. Thomas Peacock dated November 21, 1997).

Please note that the Port plans to remove the debris which inhibits adequate access to the site by April 1998, barring extremely rainy weather and any contracting delays. The proposed subsurface investigation will commence when the site has been cleared of debris. If you have any questions, please contact Ms. Diane Heinze at 272-1467.

Sincerely,

Rachel Hess
Associate Environmental Scientist

enclosure
cc w/ encls: Michele Heffes, Port of Oakland
R. Allan Payne, Wendel, Rosen, Black & Dean

cc w/out encls: Steve Hanson, Neil Werner and Mark O'Brien, Port of Oakland

SUPPLEMENTAL SITE INVESTIGATION WORKPLAN

FORMER CRYER BOAT YARD
Port of Oakland's Portion of Property

OAKLAND, CALIFORNIA

JANUARY 5, 1998

Prepared for:
Port of Oakland
530 Water Street
Oakland, California 94607

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SUPPLEMENTAL SITE INVESTIGATION WORKPLAN
FORMER CRYER BOAT YARD
Port of Oakland's Portion of Property
OAKLAND, CALIFORNIA

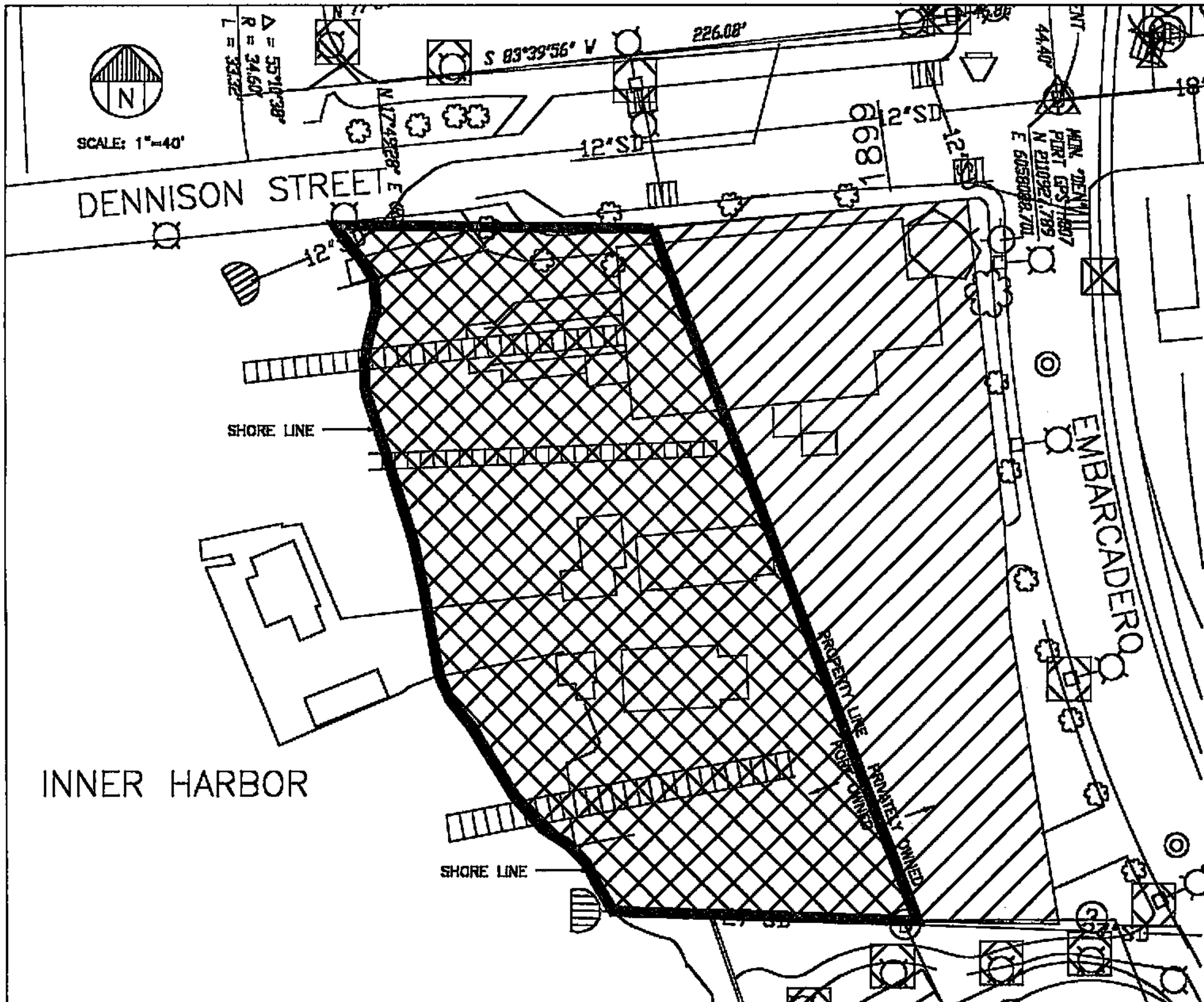
The Port has prepared this workplan in response to the Alameda County Health Care Services Agency, Environmental Health Services' (Alameda County's) requirement for additional investigation and a risk assessment using all site data (see letter from Ms. Madhulla Logan to Ms. Diane Heinze, dated October 30, 1997). As used in this workplan the term "site" refers to the entire area used as a boat yard by the William J. Cryer and Sons (Cryer), and includes both the private and Port-owned portions of the property. Investigations conducted at the private and Port portions of the property and information collected for the two separate portions are identified as appropriate.

This workplan is organized into six sections. It first presents a comprehensive summary of site activities to date, then identifies the remaining data gaps for a risk assessment, and provides recommendations for addressing the identified gaps. In addition, this workplan provides a brief overview of the risk assessment issues, including methodology and site-specific exposure assumptions. The information presented in this workplan integrates information from prior reports for the two portions of the site, and draws on studies conducted by the Port and by others. By integrating the information, the Port can more accurately assess whether potential contaminant migration from the northern portion of the site could result in ecological or human health concerns at the southern (Port-owned) portion of the site. The supplemental investigation proposed in this workplan addresses data gaps identified for the Port of Oakland's portion of the property.

1.0 OVERVIEW OF SITE HISTORY

The Cryer site has apparently been used as an industrial facility since the late 1800s. Based on available Port information, Standard Gas Engine began using the site in the late 1800s. The site is composed of two parcels of land. Through the tidelands act, a portion of the property reverted to the Port in the 1920s, and a portion remained private property. The Port/private property line extends directly through a building that has been located on the site for many years. The northern portion of the site is currently owned by Steam Valve Machine Company, Inc. (Steam Valve); the southern portion of the site is owned by the Port (Figure 1). Historically, the two portions of the site have been operated as one facility. Available information suggests that the site was owned and/or operated by Standard Gas Engine company until 1955. Cryer use of the site is first indicated by a 1926 Sanborn map (Figure 2). Apparently the Cryers leased the site from Standard Gas Engine, although the actual portion of the site used by the Cryers at this time is uncertain. Simultaneous use of a portion of the site by Standard Gas Engine is suggested by a 1927 reference that indicates shipping/receiving of engine parts in 1927 (War Department, 1927).

The private portion of the site was apparently purchased by the Cryers sometime in the late 1940s or early 1950s, as the 1943 War Department map still shows Standard Gas Engine Company at the site, while the 1955 map shows only the Cryers (War Department, 1943 and 1955). The Cryers operated the site as a boat yard until 1989, when the private portion of the site was purchased by Steam Valve Machine Company (Messrs. Cowley and Cheng). In June 1990, Steam Valve Machine Company entered into a Lease/Purchase Agreement with Oceanic Boat Works, Inc. who intended to utilize the property for ship repair and ship building. In



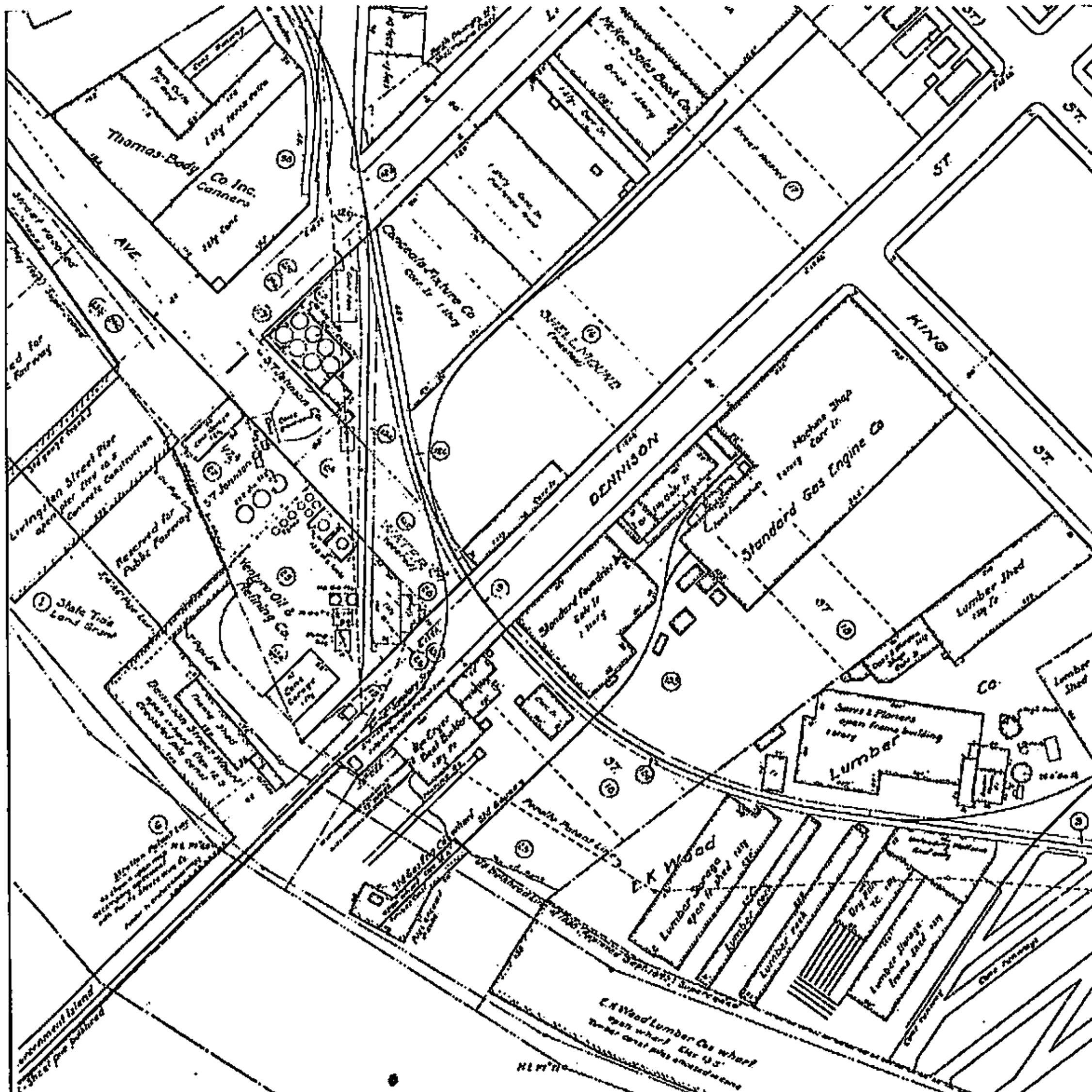
LEGEND:

- APPROXIMATE BOUNDARY OF PORT-OWNED PROPERTY
- PORT OF OAKLAND PORTION OF PROPERTY
- DRY DOCK RAIL
- STEAM VALVE (PRIVATE) PORTION OF PROPERTY

FIGURE 1

SITE LAYOUT

FORMER CRYER BOAT YARD



23 a Quit Claim Deed - Pacific Steel & Wire Co. to City. June 29 1911
b. Deed - Pacific Steel & Wire Co to City for streets June '11
c Lease - City to Pac Steel & Wire Co June 29 1911
d. Deed - California Cotton Mills to City for street purposes. Nov 1 1912.
e. Findings in Fact and Conclusions of Law modifying terms of Lease. June 26, 1913

24 a Ord. No 1969 N.S. Dec 20, 1920 providing for revised agreement with Pac Steel & Wire Co.
b Revised agreement with Pacific Steel and Wire Co May 3 1921
c Ord No 2269 N.S Mar 10 1922 closing and abandoning portions of 13th Ave
d. Deed - Pacific Steel & Wire Co to City for street purposes Mar 17 1922 and Res No 23660 Mar. 22 1922 accepting the same

25 a Sublease - Pacific Steel & Wire Co to S T Johnson Co May 1, 1922
b Sublease - S T Johnson Co to the Ventura Oil Co Nov 13, 1924

26 Ord No 3336 N.S Mar 3, 1914 granting lease to Pacific Steel & Wire Co

27 a Lease - City to S T Johnson Co Oct 23 1922
c Res No 30,936 N.S Nov 14, 1924 Consenting to assignment

28 a Quit Claim Deed - A Warenskjold to City - Jan 6, 1915
b Deed - A Warenskjold to City, Jan 15, 1919

29 a Quit Claim Deed - Standard Gas Engine Co. to City - June 29, 1911.
b Lease City to Standard Gas Engine Co June 30, 1911

30 Lease City to U.S Shipping Board Emergency Fleet Corp. June 15 1918

31 Lease - City to P. Swanson Sept 9, 1917

32 a. Res No 32502 N.S June 3, 1923 authorizing agreement with City of Alameda relative to constructing a dike.
b. Agreement between the Cities of Oakland and Alameda relative to constructing a dike June 8 1923

33 a. Acceptance of Ord No 2828 by Western Pacific Ry Co
b Acceptance of Ord No 2836 by Western Pacific Ry Co

100 Lease - City to Pacific Steel & Wire Co Apr 30 1923.

199 a Boundary Line Suit - Alameda vs Oakland Decision of Superior Court, Mar 12, 1923.
b Boundary Line Suit - Alameda vs Oakland Decision of Supreme Court, Apr 29 1925.

DATE June 1926	SCALE 1" = 100 Ft	INNER HARBOR SURVEY 16TH AVE. TO 23RD AVE.	PORT OF OAKLAND OAKLAND, CALIFORNIA	SHEET OF SHEETS No. 28
DRAWN BY A L Darwell	CHECKED BY E T W			
SUBMITTED BY	HARBOR ENGINEER			

FIGURE 2
1926 SANBORN MAP
FORMER CRYER BOAT YARD

September 1991, Oceanic Boat Works abandoned the site leaving the property in disarray (Steam Valve 1993). Oceanic Boat Works, Inc. was subsequently dissolved. Attempts to locate Oceanic Boat Works' officers have proved futile. (Note: During the period of lease between Cowley/Cheng and Oceanic Boat Works, disputes arose between Messrs. Cowley and Cheng which involved lengthy litigation. The result of the litigation was that on January 10, 1992, the property was transferred to Stephen J. Cowley and Steam Valve Machine Company, Inc. [Steam Valve 1993]).

The existing, large building (Building J313) at the site was built by Standard Gas Engine in 1912. Figure 2 shows the site layout at the time. The current pier was already in existence in 1926. Subsequent Sanborn maps and aerial photographs reviewed by Clayton Environmental Consultants as part of their 1995 Phase I Assessment of the site (Clayton 1995a) show that there have been few modifications to site (small buildings/sheds were added or removed at various times).

At least seven rounds of subsurface sampling have been conducted at the site. The initial sampling activities (in 1991 and 1993) apparently concentrated on the private portion of the property. Subsequently, further sampling has been completed on the private portion of the property (in 1996 and 1997), and well as on the Port portion of the property (in 1995 and 1997). In addition, an informal chronology in the Alameda County files indicates that some type of sampling was performed in 1990; however, there were no corresponding reports in the file. Detailed information regarding prior investigations is provided below.

2.0 PREVIOUS INVESTIGATION RESULTS

As indicated above, multiple rounds of investigation have been completed at the site. Figure 3 provides a summary of the soil boring locations, and Figure 4 shows the locations of the groundwater grab samples that have been collected. As explained below, figures are unavailable for several rounds of investigation at the Steam Valve portion of the property. As a result, boring locations for these investigations (the 1993 and 1996 investigations) are not shown on Figures 3 and 4. The investigations conducted at the private portion of the site are discussed first, followed by the investigations conducted at the Port portion of the property.

2.1 Investigation Summary for the Private (Steam Valve) Portion of the Site

A Level 1 Study for the northern portion of the site[1] was conducted on March 1, 1991 by Subsurface Consultants Inc., on behalf of Steam Valve. The Level 1 Study included the installation of six borings (B-1 through B-6). Two soil samples were collected from each boring (at approximately 1.0 to 2.0 feet below ground surface [bgs] and at between 3.5 and 6.0 bgs). Grab groundwater samples were collected from borings B-1, B-2, and B-3. Soil samples were analyzed for heavy metals, total petroleum hydrocarbons as diesel (TPH-diesel), and oil & grease. Two composites were also analyzed for semivolatile organic compounds (SVOCs) and pesticides and polychlorinated biphenyls (PCBs). Groundwater samples were analyzed for volatile organic compounds (VOCs), SVOCs, and TPH (gasoline and diesel) (SCI 1991). Based on the Level 1 study, Oceanic Boat Works reportedly removed approximately 14-18 inches of top soil which they did not replace.[2] Messrs. Cowley and Cheng were not given a copy of the manifest for the removed soil. After Oceanic Boat Works abandoned the facility, Steam Valve cleaned up the surface debris, removed scrap metal and miscellaneous debris left

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[1] Note: the information provided by Steam Valve refers to "the entire site," however, the figure showing the boring locations indicates that the borings are all on the Steam Valve portion of the site.

[2] Again, the report provided by Steam Valve references "the entire site," however, elevated levels of metals have subsequently been detected on the Port portion of the property.

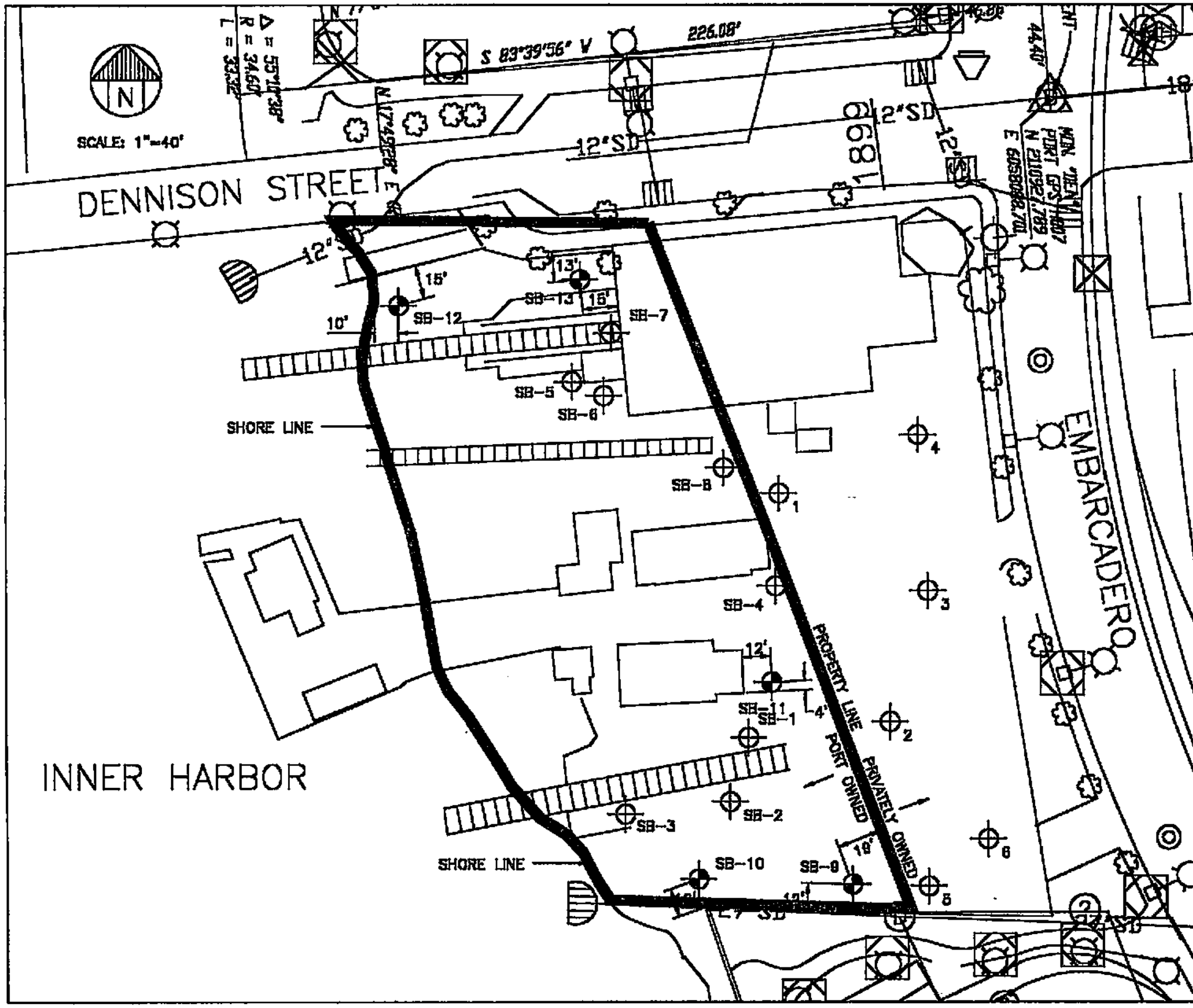


FIGURE 3

PREVIOUS SOIL BORING LOCATIONS

FORMER CRYER BOAT YARD

(APPROXIMATE LOCATIONS)

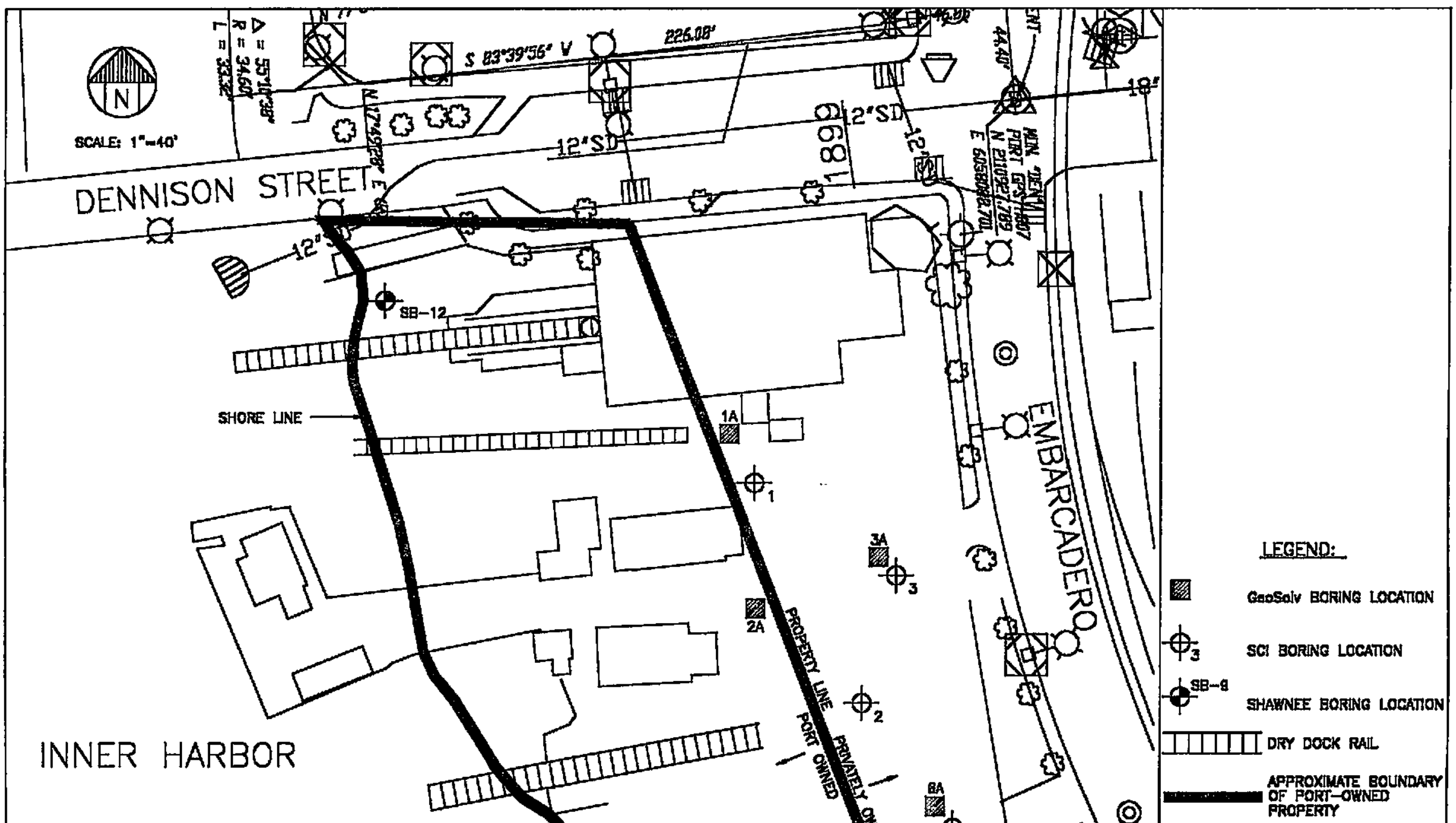


FIGURE 4

PREVIOUS GROUNDWATER SAMPLING LOCATIONS

FORMER CRYER BOAT YARD

(APPROXIMATE LOCATIONS)

by Oceanic Boat Works. According to the Steam Valve report, approximately 24 drums of "toxic materials" were removed from the private portion of the site (Steam Valve 1993). The types of materials removed are not described, and the manifests are not legible.

After the debris had been removed from the property, Steam Valve replaced the removed soil with an aggregate road base material. Steam Valve states that it "retested the bore sites" on March 16, 1993 utilizing the same laboratory (Superior Precision Analytical, Inc.) used for the initial reports (Steam Valve 1993). Three soil samples (B1 at 2.0 to 2.5 feet, B-1 at 4.0 to 4.5 feet, and B-4 at 2.5 to 3.0 feet) were analyzed for heavy metals only. No groundwater samples were analyzed (Bouquenoy 1993). Comparison studies were conducted by the same consultant (Terry Bouquenoy) who evaluated the Level 1 report. No figure is available showing the boring locations.

In September 1993, Superior Precision Analytical apparently collected six soil samples on behalf of Steam Valve from the northern portion of the site. The samples were analyzed for total petroleum hydrocarbon (TPH-gasoline, TPH-diesel, and BTEX), and CAM 17 metals (Steam Valve 1993). The samples were identified as Boring #1 through Boring #6. No depth information is provided. Again, no figure is available to show where the samples were collected.

At the request of Alameda County, Steam Valve conducted additional investigations on its property in 1996 and 1997. The 1996 investigation included the collection of two soil and four groundwater samples. Soil samples were analyzed for heavy metals, TPH (gasoline and diesel), and BTEX. The soil samples are identified as Well #1-3.5 feet, and Well #2 (no depth is provided). Water samples were analyzed for TPH (gasoline and diesel) and BTEX. The sample volume was insufficient for heavy metals analysis (Steam Valve 1996). No figures are available to document the location of the 1996 borings. The 1997 sampling was conducted by GeoSolv (GeoSolv 1997), and included the collection of four groundwater samples from locations adjacent to various former boring locations. Two of the samples were analyzed for BTEX, MTBE, and TPH (gasoline and diesel). One of these samples was also analyzed for polynuclear aromatic hydrocarbons (PNAs). Two samples were analyzed for heavy metals and ketones (EPA Method 8260, to evaluate paint-related chemicals). One of these samples was also analyzed for PNAs.

2.2 Investigation Summary for Port of Oakland Portion of Property

The Port of Oakland began its own investigations on the southern portion of the property (the portion owned by the Port) in 1995. Clayton Environmental Consultants conducted a Phase I Assessment in January 1995 (Clayton 1995a), and then completed a Phase II site investigation in May 1995 (Clayton 1995b). Eight soil borings were drilled and sampled as part of the Phase II investigation (SB-1 through SB-8). Two soil samples were collected from each boring, one at the surface and one between 3.0 and 4.0 feet bgs. The soil samples were analyzed for heavy metals and TPH-diesel. No groundwater samples were collected (Clayton 1995b). At the time, the anticipated future use of the site was commercial/industrial.

As directed by Alameda County, the Port conducted additional subsurface investigation in 1997. Shawnee Company, Inc. was retained to perform the investigation. The investigation included installation of five additional borings on the Port property. Two soil samples (at the surface and at 3.0 feet bgs) were collected from each boring. In addition, as required by Alameda County, grab groundwater samples were collected from three borings (SB-9, SB-10, and SB-12). The soil samples were analyzed for copper, lead, and mercury (the metals historically present at the greatest concentrations relative to their screening levels), as well as TPH-diesel. The soil sample containing the highest concentration of TPH-diesel was also analyzed for PNAs by EPA

Method 8310. The groundwater samples were analyzed for the same three metals and TPH-diesel (Shawnee 1997).

2.3 Investigation Results

A total of 55 soil samples and 14 groundwater samples have been collected at the site. The previous investigations show that elevated levels of metals have consistently been detected in soil throughout the facility, with elevated levels of copper, lead, and mercury being the most common. Elevated levels of zinc and chromium also occur with some frequency. Testing for metals in groundwater showed that four metals (antimony, arsenic, barium, and nickel) were present in grab groundwater samples.

Although Oceanic Boat Works supposedly removed the top 14 to 18 inches of soil across the "entire facility" in 1991 (Steam Valve 1993), the 1995 investigation conducted by Clayton and the 1997 investigation conducted by Shawnee still showed elevated levels of metals in most of the samples collected on the Port portion of the site, including in several samples collected at depth. Thus, it appears that the soil removal was conducted only on the Steam Valve portion of the property.

TPH-diesel was identified in 18 of the 24 soil samples in which it was analyzed. Concentrations ranged from 2 milligrams/kilogram (mg/kg) to 8,300 mg/kg, with four detections exceeding 520 mg/kg (the ecological screening level for upland buffer areas used at the Emeryville Crescent). The Emeryville Crescent is the area just north of the Bay Bridge approach and east of I-80 that is currently being converted to a regional park/public access area.[3] In addition, TPH-diesel (300 micrograms/liter [µg/L]) was detected in a groundwater grab sample from boring SB-12 (the same boring also contained 8,300 mg/kg diesel in soil). Higher levels of TPH-diesel were identified in two groundwater samples from the private portion of the site (20,000 µg/L and 3,400 µg/L, respectively); however, the locations of these samples are unknown.

TPH-gasoline was detected (at 5.9 mg/kg and 17 mg/kg, respectively) in two of the eight samples in which it was analyzed. Benzene, toluene, ethylbenzene, and xylenes (BTEX) have been identified in soil and groundwater on Steam Valve's portion of the property. Benzene has been detected in two of the eight soil samples in which it was analyzed (at 0.14 mg/kg, and 0.15 mg/kg, respectively). It was detected in three of nine groundwater samples (at 0.5 µg/L, 25 µg/L, and 55 µg/L, respectively).

PNAs were detected in two of three samples. The samples collected by Shawnee contained benzo(a)pyrene at a concentration exceeding human health and ecological screening levels, and the same samples contained fluoranthene, phenanthrene, and pyrene at concentrations above ecological screening levels.

Thus, based on the available information regarding the site history described above, the investigations conducted to date, and limited remediation apparently conducted on the northern portion of the property, the following concerns have been established:

- Presence of heavy metals (including copper, chromium, lead, mercury, and zinc) at concentrations exceeding preliminary screening levels for ecological receptors;

[3] The Emeryville Crescent includes upland and tidal areas with elevated concentrations of various types of compounds in soil. In a telephone conversation (December 11, 1997) with Ms. von Rosenberg of GAIA Consulting, Ms. Logan of Alameda County requested that ecological screening of the Cryer site be accomplished by comparing detected concentrations to the ecological screening levels developed for the Emeryville Crescent, because the Emeryville Crescent site is also located on the Bay margin, and is also expected to be used as a park.

- Presence of TPH-diesel exceeding preliminary screening levels for ecological receptors in soil at various locations throughout the site;

- Presence of TPH-diesel in groundwater at several locations at the site;

Results from the various sampling events are presented in Tables 1 to 4.

3.0 DATA GAPS

Although multiple investigations have been conducted at the site, several data gaps still exist. The prior investigations have largely been targeted at evaluating the site based on a potential industrial or commercial reuse. However, the Port and the City of Oakland have retained a consultant to prepare a plan for the Oakland Estuary. The current Administrative Draft of the Estuary Plan shows the intended future use of the property to be a park (Estuary Park). Given the proposed recreational reuse of the property, as well as the locations of the prior samples, the following data gaps have been identified as a result of the comprehensive data review conducted for this workplan:

- No soil samples have been collected in the center-south portion of the site between the two dry dock rails, and immediately east and west of the two dry dock rails.

- The source of diesel in soil at SB-12 has not been identified and the extent of elevated levels of diesel in soil has not been determined.

- The source and extent of TPH-diesel and benzene in groundwater at the site have not been fully defined.

- The locations of March 1993, October 1993, and 1996 Steam Valve samples are unknown.

- Steam Valve 1990 sampling results and sample locations are unavailable.

- Potential human health risks and ecological concerns associated with the proposed reuse have not been evaluated.

4.0 PROPOSED SUPPLEMENTAL INVESTIGATION

To address the data gaps outlined above, the Port of Oakland proposes to install four additional borings. The proposed boring locations are shown on Figure 5. These borings have tentatively been identified as borings SB-14 through SB-17, consistent with the numbering sequence for the previous borings installed at the Port portion of the site. All four borings will be drilled to a minimum depth of 3.0 feet bgs using either direct push (e.g., GeoProbe®) technology or, if significant subsurface obstructions are still likely to be present after removal of the debris, hollow stem auger. Samples will be collected at the surface (0.0 to 0.5 feet bgs) and at 3.0 feet bgs. The surface soil samples will be used to evaluate potential exposures to park users and landscape maintenance personnel. The soil samples from 3.0 feet bgs represent the likely maximum depth that will be required for construction activities if the site is redeveloped into a park.

Access at the site is limited by the buildings, boat rail, and debris currently located on the site. As described in Section 5.0 below, the Port plans to remove the debris in early 1998. The

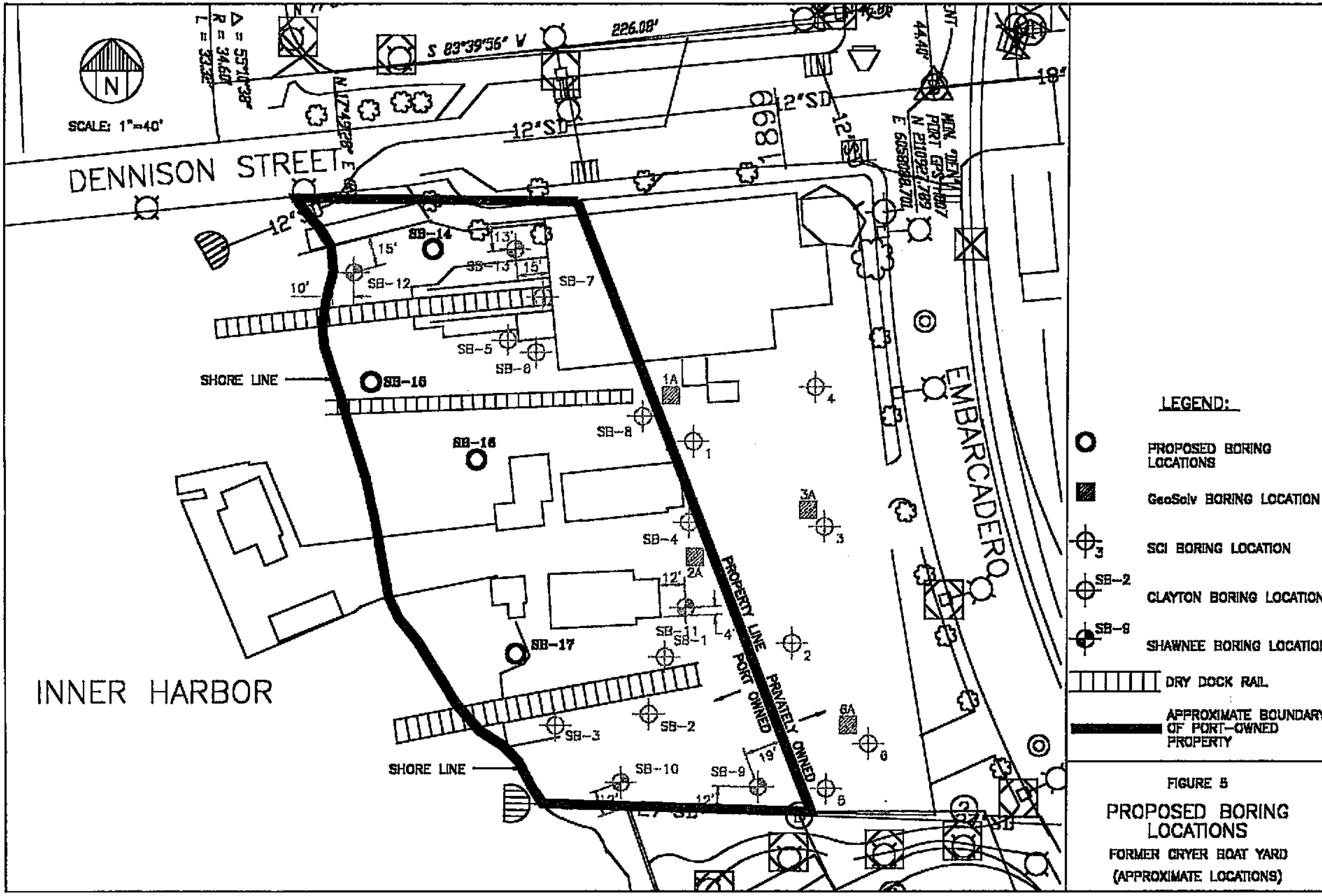


FIGURE 5

PROPOSED BORING LOCATIONS

FORMER CRYER BOAT YARD

(APPROXIMATE LOCATIONS)

boring locations proposed for this supplemental investigation will hopefully be accessible to drilling equipment once the debris has been removed. The borings will be installed as close as feasible to the proposed locations. Nonetheless, given the continuing constraints posed by the buildings and the boat rails, the boring locations must be considered approximate.

At borings SB-14 and SB-15, a third soil sample may also be collected at the groundwater interface, if groundwater is deeper than 5.0 feet bgs. If possible, grab groundwater samples will be collected from these two borings. One groundwater sample will also be collected from boring SB-17. All groundwater samples will be filtered by the laboratory. The logic for placement of the four borings, and the proposed analytical tests are provided below.

Boring SB-14: This boring is designed to further evaluate the elevated concentration of copper detected in boring SB-13 at 3.0 feet bgs. It will also help define the extent of TPH-diesel in soil around boring SB-12. Soil samples collected from SB-14 will be analyzed for metals (chromium, copper, lead, mercury, and zinc) and TPH-diesel. One groundwater grab sample will be analyzed for TPH-diesel and the same suite of metals as the soil samples.

Boring SB-15: This boring is designed to provide data in area that has been previously inaccessible. It will also help define the extent of TPH-diesel in soil around boring SB-12. Soil samples collected from SB-15 will be analyzed for metals (chromium, copper, lead, mercury, and zinc) and TPH-diesel. One groundwater grab sample will be analyzed for TPH-diesel and the same suite of metals as the soil samples.

Boring SB-16: This boring is designed to provide data in area that has been previously inaccessible. Soil samples collected from SB-16 will be analyzed for metals (chromium, copper, lead, mercury, and zinc.) One groundwater grab sample will be analyzed for the same suite of metals as the soil samples.

Boring SB-17: This boring is designed to provide data in area that has been previously inaccessible, and to define the southern extent of benzene and TPH-gasoline in soil and groundwater. Soil samples collected from SB-17 will be analyzed for metals (chromium, copper, lead, mercury, and zinc). In addition, the soil samples and one grab groundwater sample will be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) and TPH-gasoline, and the same suite of metals as the soil samples. To evaluate whether the groundwater is brackish, the groundwater sample will also be analyzed for total dissolved solids.

5.0 PROPOSED SUPPLEMENTAL INVESTIGATION SCHEDULE

As indicated in prior reports, there is significant debris at the Cryer site, prohibiting adequate access to the areas to be investigated. The Port therefore plans to remove the debris prior to starting the site investigation described herein. The Port intends to advertise for public bids to remove the debris from the site. Responses are scheduled to be received during the month of February 1998. The Port will then make its selection, and anticipates that the debris removal will be completed by April 1998, barring extremely rainy weather conditions.

Once the site has been cleared of debris, the subsurface investigation contractor will be mobilized and the samples will be collected. We currently anticipate a two to three week mobilization period. The sampling will require 1 to 2 days, depending on the level of subsurface obstructions. Given the standard laboratory turn-around of three weeks, we anticipate submitting our supplemental site investigation report by June 30, 1998. The supplemental site investigation report will include the requested screening risk assessment.

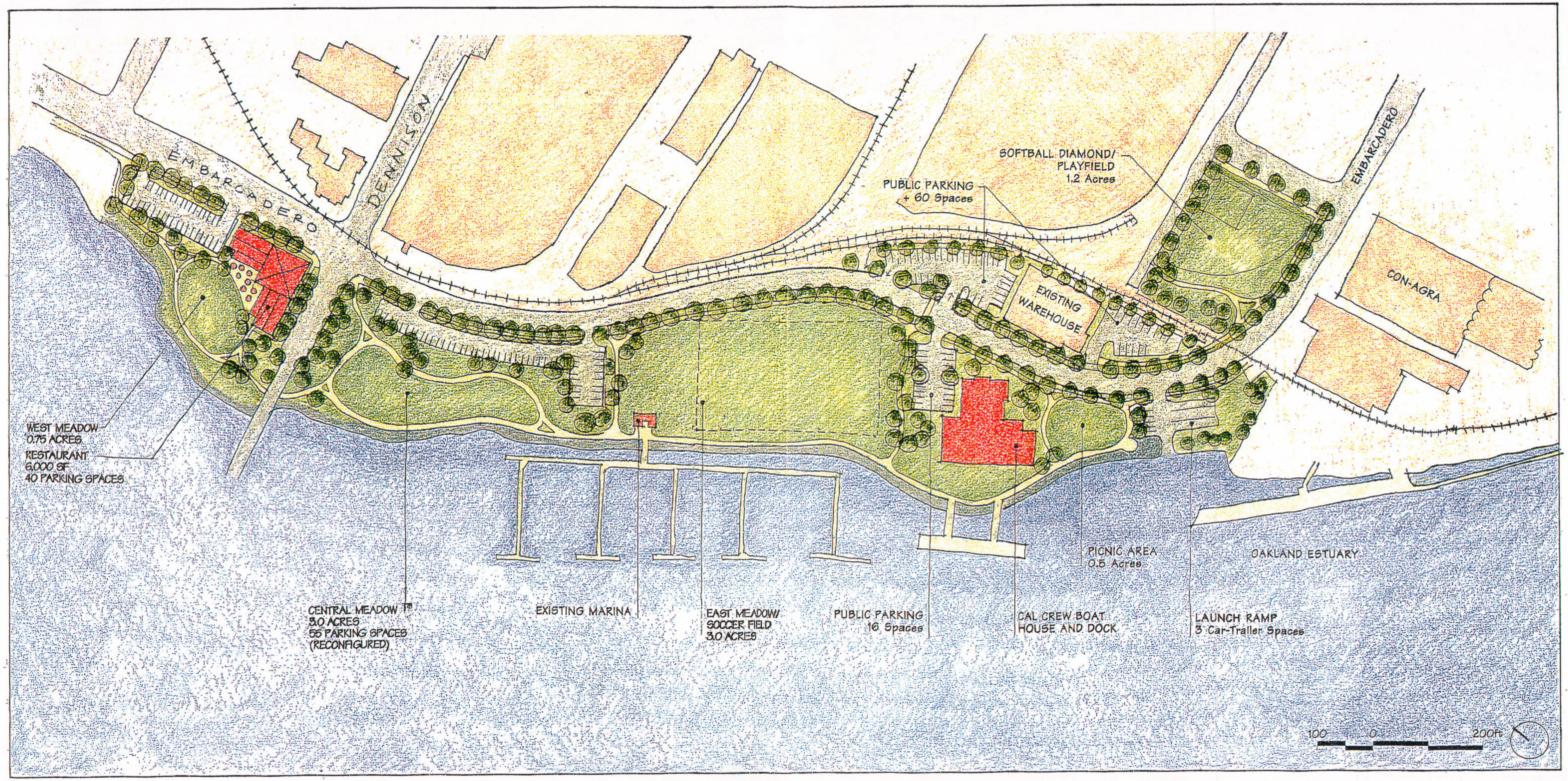
6.0 RISK ASSESSMENT METHODOLOGY

As required by Alameda County, the Port will use the existing data and the data to be collected under this workplan to perform a screening risk assessment to assess potential human health risks and ecological concerns associated with the site. After completion of the supplemental investigation, the Port will develop site-specific human health screening levels based on the proposed future use. Site-wide concentrations of chemicals will be compared to screening levels to identify any areas that may pose concerns. Cumulative risks from multiple chemicals at the same location will also be evaluated. Ecological concerns will be evaluated by comparing detected concentrations of chemicals to existing (RWQCB-approved) screening levels. A preliminary analysis of exposure pathways is provided below.

The proposed reuse for the site is a park (part of Estuary Park). The current plan (see Figure 6) calls for a soccer field covering most of the existing site area. Groundwater will not be used at the site. The future receptors are likely to be child and adult users of the park. Finally, construction workers may also potentially be exposed while demolition and park construction are occurring.

Potential exposures will vary for each of these types of receptors. Construction workers will have the most direct exposures. Children are expected to use the park frequently, whether as part of an organized soccer league, or simply for casual play. A daycare center is located within approximately three blocks of the proposed site; thus the park will likely be used regularly by children from the daycare center. Finally, landscape and other maintenance workers will likely be required to work at the park at least on a weekly basis. Table 5 presents the exposure assumptions that will be used to develop human health screening levels.

Ecological concerns are potentially associated with two sources of exposures: run-off of contaminated soil into the Bay, and transport of contaminated groundwater into the Bay.



UNION POINT PARK/CAL CREW CONCEPT

DRAFT

Oakland Waterfront Initiatives: Estuary Plan

Figure 6

DRAFT ESTUARY PLAN

FORMER CRYER BOAT YARD

Prepared for the Port of Oakland and the City of Oakland by Roma Design Group in association with Gabriel Roche Inc, Hausrath Economics Group, Hansen/Murakami/Eshima Inc.

May 1997

REFERENCES

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GeoSolv, LLC. 1997. Letter Report for a Limited Subsurface Environmental Investigation at the Former Cryer Boat Yard for: Steve Cowley, 98 Hegenberger Loop, Oakland, CA. June.

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Steam Valve. 1996. Superior Analytical Laboratory Report for Sample Collected October 14, 1996. October.

Subsurface Consultants, Inc. (SCI). 1991. Status Report, Preliminary Contamination Assessment, Former Cryer Boatyard, Oakland, California. March.

War Department, U.S. Army Corps of Engineers and U.S. Shipping Board, Port Series No. 12, 1927. Map: "Ports of San Francisco, Oakland, Alameda, Richmond, etc.". Similar maps were also reviewed for 1939, 1943, and 1955.

DATA SUMMARY TABLES

FORMER CRYER BOAT YARD

TABLE 1
METALS AND PETROLEUM COMPOUNDS IN SOIL
FORMER CRYER BOAT YARD

DATE		2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	3/5/93	3/5/93	3/5/93	3/16/93
SAMPLE NUMBER		1	1	2	2	2	3	4	5	5	6	Composite:1@1.0,	Composite:2@1.0,	B-1	B-1	B-4	B-1
DEPTH (FT)		1	3.5	1	3.5	6	1.5	1.5	1	4	10	3@1.5, & 4@1.5	5@1.0, & 6@1.0	2.0-2.5	4.0-4.5	2.5-3.0	2.0-2.5
OWNER		Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve
MATRIX		Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil	Soil	Soil	Soil
COMPOUND	UNITS																
Antimony	(mg/kg)	<5	<5	<5	<5	–	14	<5	<5	<5	<5	–	–	<5	<5	<5	<5
Arsenic	(mg/kg)	2.8	<2.5	<2.5	<2.5	–	5.9	3.1	4.9	<2.5	5.8	–	–	8	7	result pending	1
Barium	(mg/kg)	36	55	100	57	–	50	62	120	100	77	–	–	32	60	14	270
Beryllium	(mg/kg)	<0.5	<0.5	<0.5	<0.5	–	<0.5	<0.5	<0.5	<0.5	<0.5	–	–	<0.5	<0.5	<0.5	<0.5
Cadmium	(mg/kg)	2	1.4	2.1	1	–	4.2	2.3	3.4	1.1	5.1	–	–	<1	<1	<1	<1
Chromium	(mg/kg)	36	27	27	30	–	39	47	26	33	31	–	–	40	41	38	16
Cobalt	(mg/kg)	5.7	3.4	9	7	–	10	7.7	7.5	7.7	10	–	–	<10	<10	<10	<10
Copper	(mg/kg)	20	24	75	31	–	1700	230	770	25	490	–	–	18	17	21	18
Lead	(mg/kg)	<2.5	<2.5	24	<2.5	–	550	21	190	2.9	190	–	–	9	6	<5	7
Mercury	(mg/kg)	<0.1	<0.1	0.2	0.2	–	0.6	2.3	0.5	<0.1	<0.1	–	–	<0.05	<0.05	<0.05	<0.05
Molybdenum	(mg/kg)	<0.5	<0.5	<0.5	<0.5	–	<0.5	<0.5	<0.5	<0.5	<0.5	–	–	<10	<10	<10	<10
Nickel	(mg/kg)	19	23	32	34	–	65	35	33	54	22	–	–	23	36	21	17
Selenium	(mg/kg)	<2.5	<2.5	<2.5	<2.5	–	<2.5	<2.5	<2.5	<2.5	<2.5	–	–	<2	<2	result pending	<1
Silver	(mg/kg)	16	<1	<1	<1	–	<1	5.8	<1	<1	<1	–	–	<5	<5	<5	<5
Thallium	(mg/kg)	<5	<5	<5	<5	–	<5	<5	<5	<5	<5	–	–	<5	<5	<5	<5
Vanadium	(mg/kg)	20	14	15	11	–	25	22	19	9.7	25	–	–	29	29	26	30
Zinc	(mg/kg)	42	69	120	50	–	220	120	350	45	130	–	–	41	44	41	41
Benzene	(mg/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Diesel Range	(mg/kg)	–	3600	5000	–	2	–	–	–	3	–	–	–	–	–	–	–
Ethyl Benzene	(mg/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Gasoline	(mg/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hydrocarbon (oil and grease)	(mg/kg)	–	640	840	–	<50	–	–	–	<50	–	–	–	–	–	–	–
Kerosene Range	(mg/kg)	–	<10	<100	–	<1	–	–	–	<1	–	–	–	–	–	–	–
Toluene	(mg/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Xylenes	(mg/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Unknown Hydrocarbons	(mg/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

TABLE 1
METALS AND PETROLEUM COMPOUNDS IN SOIL
FORMER CRYER BOAT YARD

DATE		3/16/93	3/16/93	9/27/93	9/27/93	9/27/93	9/27/93	9/27/93	9/27/93	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95
SAMPLE NUMBER		B-1	B-4	Boring 1	Boring 2	Boring 3	Boring 4	Boring 5	Boring 6	SB-1	SB-1	SB-2	SB-2	SB-3	SB-3	SB-4	SB-5
DEPTH (FT)		4.0-4.5	2.5-3.0							5	2.5	5	2.5	5	2.5	4	1.5
OWNER		Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Port	Port	Port	Port	Port	Port	Port	Port
MATRIX		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	SOIL	SOIL	SOIL	SOIL
COMPOUND	UNITS																
Antimony	(mg/kg)	<5	11	–	<5	<5	–	<5	<5	9	3	6	3	24	14	2	3
Arsenic	(mg/kg)	2	3	–	3	4	–	<1	5	10	<1	6	<1	5	6	<1	2
Barium	(mg/kg)	280	120	–	56	54	–	34	54	190	110	280	61	170	130	160	24
Beryllium	(mg/kg)	<0.5	<0.5	–	<0.5	<0.5	–	<0.5	<0.5	0.2	0.3	0.5	0.2	0.2	0.1	0.4	<0.1
Cadmium	(mg/kg)	<1	<1	–	<0.5	0.6	–	<0.5	<0.5	5.5	<0.5	2.1	<0.5	2.6	0.6	<0.5	<0.5
Chromium	(mg/kg)	18	23	–	52	77	–	38	51	280	54	150	47	410	94	59	26
Cobalt	(mg/kg)	<10	10	–	12	11	–	7	12	32	11	42	10	27	16	8	6
Copper	(mg/kg)	18	23	–	18	30	–	6	12	3900	49	9100	110	3100	1300	34	51
Lead	(mg/kg)	9	7	–	<5	8	–	<5	<5	530	29	230	59	520	300	13	33
Mercury	(mg/kg)	<0.05	<0.05	–	<0.05	0.13	–	<0.05	0.3	2.3	<0.1	2.1	0.1	1.1	0.5	<0.1	0.4
Molybdenum	(mg/kg)	<10	<10	–	<5	<5	–	<5	<5	5	<1	3	1	2	<1	<1	<1
Nickel	(mg/kg)	17	22	–	76	84	–	33	68	110	50	87	30	140	58	67	20
Selenium	(mg/kg)	<1	<1	–	<1	<1	–	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver	(mg/kg)	<5	<5	–	<5	<5	–	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	(mg/kg)	<5	<5	–	<5	<5	–	<5	<5	5	<1	9	<1	4	<1	<1	<1
Vanadium	(mg/kg)	30	32	–	36	36	–	37	26	45	39	73	37	39	37	37	25
Zinc	(mg/kg)	42	54	–	51	64	–	23	42	1600	93	1200	120	1700	520	69	220
Benzene	(mg/kg)	–	–	0.14	0.013	<0.003	<0.003	<0.003	<0.003	–	–	–	–	–	–	–	–
Diesel Range	(mg/kg)	–	–	89	<10	<10	<10	<10	26	–	18	–	18	–	460	24	530
Ethyl Benzene	(mg/kg)	–	–	0.38	0.021	<0.003	<0.003	<0.003	<0.003	–	–	–	–	–	–	–	–
Gasoline	(mg/kg)	–	–	17	<1	<1	<1	<1	<1	–	–	–	–	–	–	–	–
Hydrocarbon (oil and greas	(mg/kg)	–	–	<50	73	<50	<50	<50	<50	–	–	–	–	–	–	–	–
Kerosene Range	(mg/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toluene	(mg/kg)	–	–	1.1	0.075	<0.003	<0.003	<0.003	<0.003	–	–	–	–	–	–	–	–
Total Xylenes	(mg/kg)	–	–	1.6	0.084	<0.009	<0.009	<0.009	<0.009	–	–	–	–	–	–	–	–
Unknown Hydrocarbons	(mg/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

TABLE 1
METALS AND PETROLEUM COMPOUNDS IN SOIL
FORMER CRYER BOAT YARD

DATE		3/30/95	3/30/95	3/30/95	10/14/96	10/14/96	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	6/12/97
SAMPLE NUMBER		SB-6	SB-7	SB-8	WELL #1	WELL #2	SB-9	SB-9	SB-10	SB-10	SB-11	SB-11	SB-12	SB-12	SB-13	SB-13
DEPTH (FT)		1.5	5	3.5	3.5	3.5	0.5	3	0.5	3	0.4	3	0.5	3	0.5	3
OWNER		Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COMPOUND	UNITS															
Antimony	(mg/kg)	12	12	14	<5	<5	–	–	–	–	–	–	–	–	–	–
Arsenic	(mg/kg)	14	26	5	6.1	<5	–	–	–	–	–	–	–	–	–	–
Barium	(mg/kg)	75	66	99	41	37	–	–	–	–	–	–	–	–	–	–
Beryllium	(mg/kg)	<0.1	<0.1	0.2	0.28	0.28	–	–	–	–	–	–	–	–	–	–
Cadmium	(mg/kg)	1.5	7.5	<0.5	<0.25	<0.25	–	–	–	–	–	–	–	–	–	–
Chromium	(mg/kg)	16	240	48	28	24	–	–	–	–	–	–	–	–	–	–
Cobalt	(mg/kg)	12	9	13	7.4	7.1	–	–	–	–	–	–	–	–	–	–
Copper	(mg/kg)	1100	6500	500	10	14	164	108	1130	1140	95.6	74.9	49.4	394	136	5250
Lead	(mg/kg)	220	720	280	3.9	5	308	27.7	321	1740	196	1.96	7.53	513	164	138
Mercury	(mg/kg)	20	25	0.6	0.29	0.42	0.286	0.0764	0.638	0.378	0.17	0.286	0.138	5.76	0.726	1.78
Molybdenum	(mg/kg)	<1	2	<1	<1	<1	–	–	–	–	–	–	–	–	–	–
Nickel	(mg/kg)	45	29	79	51	49	–	–	–	–	–	–	–	–	–	–
Selenium	(mg/kg)	<1	<1	<1	<5	<5	–	–	–	–	–	–	–	–	–	–
Silver	(mg/kg)	<0.5	<0.5	<0.5	<1	<1	–	–	–	–	–	–	–	–	–	–
Thallium	(mg/kg)	<1	<1	<1	<10	<10	–	–	–	–	–	–	–	–	–	–
Vanadium	(mg/kg)	18	9	48	18	16	–	–	–	–	–	–	–	–	–	–
Zinc	(mg/kg)	780	1300	200	33	30	–	–	–	–	–	–	–	–	–	–
							–	–	–	–	–	–	–	–	–	–
Benzene	(mg/kg)	–	–	–	0.15	<0.005	–	–	–	–	–	–	–	–	–	–
Diesel Range	(mg/kg)	240	360	84	<1	<1	–	8	–	29	–	23	–	8300	–	7.7
Ethyl Benzene	(mg/kg)	–	–	–	0.78	<0.005	–	–	–	–	–	–	–	–	–	–
Gasoline	(mg/kg)	–	–	–	5.9	<1	–	–	–	–	–	–	–	–	–	–
Hydrocarbon (oil and greas	(mg/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kerosene Range	(mg/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toluene	(mg/kg)	–	–	–	0.01	<0.005	–	–	–	–	–	–	–	–	–	–
Total Xylenes	(mg/kg)	–	–	–	0.43	<0.005	–	–	–	–	–	–	–	–	–	–
Unknown Hydrocarbons	(mg/kg)	–	–	–	10	5	–	–	–	–	–	–	–	–	–	–

TABLE 2
SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICDES/PCBs IN SOIL
FORMER CRYER BOAT YARD

DATE		2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	3/5/93	3/5/93	3/5/93	9/27/93	9/27/93
SAMPLE NUMBER		1	1	2	2	2	3	4	5	5	6	Composite:1@1.0,	Composite:2@1.0,	B-1	B-1	B-4	Boring 1	Boring 2
DEPTH (FT)		1	3.5	1	3.5	6	1.5	1.5	1	4	10	3@1.5, & 4@1.5	5@1.0, & 6@1.0	2.0-2.5	4.0-4.5	2.5-3.0		
CONSULTANT		Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve
MATRIX		Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil	Soil	Soil	Soil	Soil
COMPOUND	UNITS																	
Semivolatile Organic Compounds																		
1,2,4-Trichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
1,2-Dichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
1,3-Dichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
1,4-Dichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
2,4,5-Trichlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
2,4,6-Trichlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
2,4-Dichlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
2,4-Dimethylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
2,4-Dinitrophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
2,4-Dinitrotoluene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
2,6-Dinitrotoluene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
2- Chlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
2-Chloronaphthalene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
2-Methylnaphthalene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	380	–	–	–	–	–
2-Methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
2-Nitroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
2-Nitrophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
3,3'-Dichlorobenzidine	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
3-Nitroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
4,6-Dinitro-2-methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
4-Bromophenyl-phenylether	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
4-Chloro-3-methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
4-Chloroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
4-Chlorophenyl-phenylether	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
4-Methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
4-Nitroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
4-Nitrophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
Acenaphthene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Acenaphthylene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Aniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Anthracene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Azobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Benzidine	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Benzo(a)anthracene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Benzo(a)pyrene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Benzo(b)fluoranthene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	Detected (240)	–	–	–	–	–
Benzo(g,h,i)perylene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Benzo(k)fluoranthene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Benzoic Acid	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
Benzyl Alcohol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Bis(2-chloroethoxy)methane	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Bis(2-chloroethyl)ether	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Bis(2-chloroisopropyl)ether	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Bis(2-ethylhexy1)phthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Butylbenzylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Chrysene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Di-n-octylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Dibenzo(a,h)anthracene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Dibenzofuran	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–

TABLE 2

SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICDES/PCBs IN SOIL

FORMER CRYER BOAT YARD

DATE		2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	2/13/91	3/5/93	3/5/93	3/5/93	9/27/93	9/27/93
SAMPLE NUMBER		1	1	2	2	2	3	4	5	5	6	Composite:1@1.0,	Composite:2@1.0,	B-1	B-1	B-4	Boring 1	Boring 2
DEPTH (FT)		1	3.5	1	3.5	6	1.5	1.5	1	4	10	3@1.5, & 4@1.5	5@1.0, & 6@1.0	2.0-2.5	4.0-4.5	2.5-3.0		
CONSULTANT		Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve
MATRIX		Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil/Waste	Soil	Soil	Soil	Soil	Soil
COMPOUND	UNITS																	
Dimethylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Dithylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Fluoranthene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	Detected (240)	–	–	–	–	–
Fluorene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	Detected (190)	–	–	–	–	–
Hexachlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Hexachlorobutadiene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Hexachlorocyclopentadiene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Hexachloroethane	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Indeno(1,2,3,-cd)pyrene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Isophorone	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
N-Nitroso-di-n-propylamine	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
N-Nitrosodimethylamine	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
N-Nitrosodiphenylamine	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Naphthalene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Ni-n-butylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Nitrobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Pentachlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
Phenanthrene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	Detected (260)	–	–	–	–	–
Phenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Pyrene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	Detected (180)	–	–	–	–	–
Pesticides/PCBs																		
4,4'-DDD	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
4,4'-DDE	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
4,4'-DDT	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Aldrin	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
alpha-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Aroclor 1016	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
Aroclor 1221	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
Aroclor 1232	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
Aroclor 1242	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
Aroclor 1248	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
Aroclor 1254	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
Aroclor 1260	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
beta-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Chlordane	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
delta-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Dieldrin	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Endosulfan I	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Endosulfan II	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Endosulfan Sulfate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Endrin	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Endrin Aldehyde	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
gamma-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Heptachlor	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Heptachlor Epoxide	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<330	<330	–	–	–	–	–
Methoxychlor	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–
Toxaphene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	<1650	<1650	–	–	–	–	–

TABLE 2
SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICDES/PCBs IN SOIL
FORMER CRYER BOAT YARD

DATE		9/27/93	9/27/93	9/27/93	9/27/93	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	10/14/96	10/14/96
SAMPLE NUMBER		Boring 3	Boring 4	Boring 5	Boring 6	SB-1	SB-1	SB-2	SB-2	SB-3	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	WELL #1	WELL #2
DEPTH (FT)						5	2.5	5	2.5	5	2.5	4	1.5	1.5	5	3.5	3.5	3.5
CONSULTANT		Steam Valve	Steam Valve	Steam Valve	Steam Valve	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port
MATRIX		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
COMPOUND	UNITS																	
Semivolatile Organic Compounds																		
1,2,4-Trichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,3-Dichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,4-Dichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4,5-Trichlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4,6-Trichlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-Dichlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-Dimethylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-Dinitrophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-Dinitrotoluene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,6-Dinitrotoluene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2- Chlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Chloronaphthalene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Methylnaphthalene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Nitroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Nitrophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3,3'-Dichlorobenzidine	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3-Nitroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,6-Dinitro-2-methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Bromophenyl-phenylether	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Chloro-3-methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Chloroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Chlorophenyl-phenylether	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Nitroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Nitrophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acenaphthene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acenaphthylene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Anthracene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Azobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benzidine	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benzo(a)anthracene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benzo(a)pyrene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benzo(b)fluoranthene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benzo(g,h,i)perylene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benzo(k)fluoranthene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benzoic Acid	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benzyl Alcohol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bis(2-chloroethoxy)methane	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bis(2-chloroethyl)ether	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bis(2-chloroisopropyl)ether	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bis(2-ethylhexy1)phthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Butylbenzylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chrysene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Di-n-octylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dibenzo(a,h)anthracene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dibenzofuran	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

TABLE 2
SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICDES/PCBs IN SOIL
FORMER CRYER BOAT YARD

DATE		9/27/93	9/27/93	9/27/93	9/27/93	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	3/30/95	10/14/96	10/14/96
SAMPLE NUMBER		Boring 3	Boring 4	Boring 5	Boring 6	SB-1	SB-1	SB-2	SB-2	SB-3	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	WELL #1	WELL #2
DEPTH (FT)						5	2.5	5	2.5	5	2.5	4	1.5	1.5	5	3.5	3.5	3.5
CONSULTANT		Steam Valve	Steam Valve	Steam Valve	Steam Valve	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port	Port
MATRIX		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
COMPOUND	UNITS																	
Dimethylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dithylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Fluoranthene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Fluorene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hexachlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hexachlorobutadiene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hexachlorocyclopentadiene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hexachloroethane	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Indeno(1,2,3,-cd)pyrene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Isophorone	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
N-Nitroso-di-n-propylamine	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
N-Nitrosodimethylamine	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
N-Nitrosodiphenylamine	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Naphthalene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ni-n-butylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nitrobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pentachlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Phenanthrene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Phenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pyrene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pesticides/PCBs																		
4,4'-DDD	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,4'-DDE	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,4'-DDT	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aldrin	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
alpha-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aroclor 1016	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aroclor 1221	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aroclor 1232	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aroclor 1242	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aroclor 1248	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aroclor 1254	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aroclor 1260	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
beta-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chlordane	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
delta-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dieldrin	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan I	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan II	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan Sulfate	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin Aldehyde	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
gamma-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Heptachlor	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Heptachlor Epoxide	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methoxychlor	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toxaphene	(ug/kg)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

TABLE 2
SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICDES/PCBs IN SOIL
FORMER CRYER BOAT YARD

DATE		5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	6/12/97
SAMPLE NUMBER		SB-9	SB-9	SB-10	SB-10	SB-11	SB-11	SB-12	SB-12	SB-13	SB-13
DEPTH (FT)		0.5	3	0.5	3	0.4	3	0.5	3	0.5	3
CONSULTANT		Port	Port	Port	Port	Port	Port	Port	Port	Port	Port
MATRIX		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COMPOUND	UNITS										
Semivolatile Organic Compounds											
1,2,4-Trichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
1,3-Dichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
1,4-Dichlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2,4,5-Trichlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2,4,6-Trichlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2,4-Dichlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2,4-Dimethylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2,4-Dinitrophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2,4-Dinitrotoluene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2,6-Dinitrotoluene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2- Chlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2-Chloronaphthalene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2-Methylnaphthalene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2-Methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2-Nitroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–
2-Nitrophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
3,3'-Dichlorobenzidine	(ug/kg)	–	–	–	–	–	–	–	–	–	–
3-Nitroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–
4,6-Dinitro-2-methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
4-Bromophenyl-phenylether	(ug/kg)	–	–	–	–	–	–	–	–	–	–
4-Chloro-3-methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
4-Chloroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–
4-Chlorophenyl-phenylether	(ug/kg)	–	–	–	–	–	–	–	–	–	–
4-Methylphenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
4-Nitroaniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–
4-Nitrophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Acenaphthene	(ug/kg)	–	–	–	–	–	–	–	1500	–	<1700
Acenaphthylene	(ug/kg)	–	–	–	–	–	–	–	<3300	–	<3300
Aniline	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Anthracene	(ug/kg)	–	–	–	–	–	–	–	1400	–	<1700
Azobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Benzidine	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Benzo(a)anthracene	(ug/kg)	–	–	–	–	–	–	–	1400	–	<1700
Benzo(a)pyrene	(ug/kg)	–	–	–	–	–	–	–	950	–	670
Benzo(b)fluoranthene	(ug/kg)	–	–	–	–	–	–	–	930	–	<1700
Benzo(g,h,i)perylene	(ug/kg)	–	–	–	–	–	–	–	560	–	<330
Benzo(k)fluoranthene	(ug/kg)	–	–	–	–	–	–	–	1400	–	<1700
Benzoic Acid	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Benzyl Alcohol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Bis(2-chloroethoxy)methane	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Bis(2-chloroethyl)ether	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Bis(2-chloroisopropyl)ether	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Bis(2-ethylhexy1)phthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Butylbenzylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Chrysene	(ug/kg)	–	–	–	–	–	–	–	2800	–	<1700
Di-n-octylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Dibenzo(a,h)anthracene	(ug/kg)	–	–	–	–	–	–	–	<3300	–	<670
Dibenzofuran	(ug/kg)	–	–	–	–	–	–	–	–	–	–

TABLE 2
SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICDES/PCBs IN SOIL
FORMER CRYER BOAT YARD

DATE		5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	5/1/97	6/12/97
SAMPLE NUMBER		SB-9	SB-9	SB-10	SB-10	SB-11	SB-11	SB-12	SB-12	SB-13	SB-13
DEPTH (FT)		0.5	3	0.5	3	0.4	3	0.5	3	0.5	3
CONSULTANT		Port	Port	Port	Port	Port	Port	Port	Port	Port	Port
MATRIX		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COMPOUND	UNITS										
Dimethylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Dithylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Fluoranthene	(ug/kg)	–	–	–	–	–	–	–	5600	–	5900
Fluorene	(ug/kg)	–	–	–	–	–	–	–	1300	–	1600
Hexachlorobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Hexachlorobutadiene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Hexachlorocyclopentadiene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Hexachloroethane	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Indeno(1,2,3,-cd)pyrene	(ug/kg)	–	–	–	–	–	–	–	360	–	<170
Isophorone	(ug/kg)	–	–	–	–	–	–	–	–	–	–
N-Nitroso-di-n-propylamine	(ug/kg)	–	–	–	–	–	–	–	–	–	–
N-Nitrosodimethylamine	(ug/kg)	–	–	–	–	–	–	–	–	–	–
N-Nitrosodiphenylamine	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Naphthalene	(ug/kg)	–	–	–	–	–	–	–	<3300	–	<1700
Ni-n-butylphthalate	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Nitrobenzene	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Pentachlorophenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Phenanthrene	(ug/kg)	–	–	–	–	–	–	–	4700	–	8700
Phenol	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Pyrene	(ug/kg)	–	–	–	–	–	–	–	5100	–	4400
Pesticides/PCBs											
4,4'-DDD	(ug/kg)	–	–	–	–	–	–	–	–	–	–
4,4'-DDE	(ug/kg)	–	–	–	–	–	–	–	–	–	–
4,4'-DDT	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Aldrin	(ug/kg)	–	–	–	–	–	–	–	–	–	–
alpha-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Aroclor 1016	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Aroclor 1221	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Aroclor 1232	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Aroclor 1242	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Aroclor 1248	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Aroclor 1254	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Aroclor 1260	(ug/kg)	–	–	–	–	–	–	–	–	–	–
beta-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Chlordane	(ug/kg)	–	–	–	–	–	–	–	–	–	–
delta-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Dieldrin	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Endosulfan I	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Endosulfan II	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Endosulfan Sulfate	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Endrin	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Endrin Aldehyde	(ug/kg)	–	–	–	–	–	–	–	–	–	–
gamma-BHC	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Heptachlor	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Heptachlor Epoxide	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Methoxychlor	(ug/kg)	–	–	–	–	–	–	–	–	–	–
Toxaphene	(ug/kg)	–	–	–	–	–	–	–	–	–	–

TABLE 3
METALS IN GROUNDWATER
FORMER CRYER BOAT YARD

DATE		2/13/91	2/13/91	2/13/91	10/14/96	10/14/96	10/14/96	10/14/96	5/13/97
SAMPLE NUMBER		BORING 1	BORING 2	BORING 3	Well #1	Well #2	Well #3	Well #4	2AD
DEPTH (FT)									
OWNER		Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve
MATRIX		Water	Water	Water	Water	Water	Water	Water	Water
COMPOUND	UNITS								
Antimony	(mg/L)	--	--	--	--	--	--	--	--
Arsenic	(mg/L)	--	--	--	--	--	--	--	--
Barium	(mg/L)	--	--	--	--	--	--	--	--
Beryllium	(mg/L)	--	--	--	--	--	--	--	--
Cadmium	(mg/L)	--	--	--	--	--	--	--	--
Chromium	(mg/L)	--	--	--	--	--	--	--	--
Cobalt	(mg/L)	--	--	--	--	--	--	--	--
Copper	(mg/L)	--	--	--	--	--	--	--	--
Lead	(mg/L)	--	--	--	--	--	--	--	--
Mercury	(mg/L)	--	--	--	--	--	--	--	--
Molybdenum	(mg/L)	--	--	--	--	--	--	--	--
Nickel	(mg/L)	--	--	--	--	--	--	--	--
Selenium	(mg/L)	--	--	--	--	--	--	--	--
Silver	(mg/L)	--	--	--	--	--	--	--	--
Thallium	(mg/L)	--	--	--	--	--	--	--	--
Vanadium	(mg/L)	--	--	--	--	--	--	--	--
Zinc	(mg/L)	--	--	--	--	--	--	--	--

TABLE 3
METALS IN GROUNDWATER
FORMER CRYER BOAT YARD

DATE		5/13/97	5/13/97	5/13/97	5/13/97	5/13/97	6/12/97	6/12/97	6/12/97
SAMPLE NUMBER		1AB	2AB	1AD	3A17	6A17	SB-9	SB-10	SB-12
DEPTH (FT)									
OWNER		Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Port	Port	Port
MATRIX		Water	Water	Water	Water	Water	Water	Water	Water
COMPOUND	UNITS								
Antimony	(mg/L)	--	--	--	<0.05	0.059	--	--	--
Arsenic	(mg/L)	--	--	--	0.025	0.015	--	--	--
Barium	(mg/L)	--	--	--	0.072	0.07	--	--	--
Beryllium	(mg/L)	--	--	--	<0.004	<0.004	--	--	--
Cadmium	(mg/L)	--	--	--	<0.005	<0.005	--	--	--
Chromium	(mg/L)	--	--	--	<0.005	<0.005	--	--	--
Cobalt	(mg/L)	--	--	--	<0.05	<0.05	--	--	--
Copper	(mg/L)	--	--	--	<0.05	<0.05	<0.01	<0.01	<0.01
Lead	(mg/L)	--	--	--	<0.005	<0.005	<0.01	<0.02	<0.01
Mercury	(mg/L)	--	--	--	<0.0008	<0.0008	<0.0002	<0.0002	<0.0002
Molybdenum	(mg/L)	--	--	--	<0.05	<0.05	--	--	--
Nickel	(mg/L)	--	--	--	0.077	0.09	--	--	--
Selenium	(mg/L)	--	--	--	<0.005	<0.005	--	--	--
Silver	(mg/L)	--	--	--	<0.01	<0.01	--	--	--
Thallium	(mg/L)	--	--	--	<0.001	<0.001	--	--	--
Vanadium	(mg/L)	--	--	--	<0.05	<0.05	--	--	--
Zinc	(mg/L)	--	--	--	<0.05	<0.05	--	--	--

TABLE 4
ORGANIC COMPOUNDS IN GROUNDWATER
FORMER CRYER BOATYARD

DATE		2/13/91	2/13/91	2/13/91	10/14/96	10/14/96	10/14/96	10/14/96	5/13/97	5/13/97	5/13/97	5/13/97
SAMPLE NUMBER		BORING 1	BORING 2	BORING 3	Well #1	Well #2	Well #3	Well #4	1AD	2AD	1AB	2AB
DEPTH (FT)												
OWNER		Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve
MATRIX		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
COMPOUND	UNITS											
Petroleum Hydrocarbons												
Diesel Range	(ug/L)	–	–	–	20000	3400	–	–	<50	<50	–	–
Gasoline Range	(ug/L)	–	–	–	450	220	<50	<50	–	–	–	–
Unknown Hydrocarbons	(ug/L)	–	–	–	NA	NA	–	–	–	–	–	–
Volatile Organic Compounds												
1,1,1,2-Tetrachloroethane	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,1,1-Trichloroethane	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
1,1,2,2-Tetrachloroethane	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
1,1,2-Trichloroethane	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
1,1-Dichloroethane	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
1,1-Dichloroethene	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
1,1-Dichloropropane	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,2,3-Trichlorobenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,2,3-Trichloropropene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,2,4-Trichlorobenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,2,4-Trimethylbenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,2-Dibromo-3-chloropropene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
1,2-Dichloroethane	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
1,2-Dichloroethene(total)	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
1,2-Dichloropropane	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
1,3,5-Trimethylbenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,3-Dichlorobenzene	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
1,3-Dichloropropane	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,4-Dichlorobenzene	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
2,2-Dichloropropane	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2-Chloroethylvinyl ether	(ug/L)	<2.0	<2.0	<2.0	–	–	–	–	–	–	–	–
2-Chlorotoluene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
4-Chlorotoluene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Acetone	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Benzene	(ug/L)	<1.0	<1.0	<1.0	55	25	<0.5	0.5	–	–	<0.5	<0.5
Bromobenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Bromochloromethane	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Bromodichloromethane	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Bromoform	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Bromomethane	(ug/L)	<2.0	<2.0	<2.0	–	–	–	–	–	–	–	–
Carbon Disulfide	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Carbon tetrachloride	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Chlorobenzene	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Chloroethane	(ug/L)	<2.0	<2.0	<2.0	–	–	–	–	–	–	–	–
Chloroform	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Chloromethane	(ug/L)	<2.0	<2.0	<2.0	–	–	–	–	–	–	–	–
cis-1,2-Dichloroethene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
cis-1,3-Dichloropropene	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Dibromochloromethane	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Dibromomethane	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Dichlorofluoromethane	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Ethyl Benzene	(ug/L)	<1.0	<1.0	<1.0	2.1	1.1	<0.5	<0.5	–	–	<0.5	<0.5
Ethylene Dibromide	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Freon 113	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Hexachlorobutadiene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Idenoethane	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Isopropylbenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Methyl Ethyl Ketone	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Methyl Isobutyl Ketone	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Methylbutylketone	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Methylene Chloride	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
MTBE	(ug/L)	–	–	–	–	–	–	–	–	–	<5	<5
n-Butylbenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
n-Propylbenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
p-Isopropyltoluene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
sec-Butylbenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Styrene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
tert-Butylbenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Tetrachloroethene	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Toluene	(ug/L)	<1.0	<1.0	<1.0	0.9	0.6	<0.5	0.7	–	–	0.92	0.79
trans-1,2-Dichloroethene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
trans-1,3-Dichloropropene	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Trichloroethylene	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Trichlorofluoromethane	(ug/L)	<1.0	<1.0	<1.0	–	–	–	–	–	–	–	–
Vinyl Acetate	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Vinyl Chloride	(ug/L)	<2.0	<2.0	<2.0	–	–	–	–	–	–	–	–
Xylenes, Total	(ug/L)	<1.0	<1.0	<1.0	4.2	2.4	<0.5	0.6	–	–	1.4	1.5

TABLE 4
ORGANIC COMPOUNDS IN GROUNDWATER
FORMER CRYER BOATYARD

DATE		2/13/91	2/13/91	2/13/91	10/14/96	10/14/96	10/14/96	10/14/96	5/13/97	5/13/97	5/13/97	5/13/97
SAMPLE NUMBER		BORING 1	BORING 2	BORING 3	Well #1	Well #2	Well #3	Well #4	1AD	2AD	1AB	2AB
DEPTH (FT)												
OWNER		Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve	Steam Valve
MATRIX		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
COMPOUND	UNITS											
Semivolatile Organic Compounds												
1,2-Dichlorobenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,3-Dichlorobenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,4-Dichlorobenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
1,2,4-Trichlorobenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2,4,5-Trichlorophenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2,4,6-Trichlorophenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2,4-Dichlorophenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2,4-Dimethylphenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2,4-Dinitrophenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2,4-Dinitrotoluene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2,6-Dinitrotoluene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2- Chlorophenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2-Chloronaphthalene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2-Methyl-4,6-Dinotrophenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2-Methylnaphthalene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2-Methylphenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2-Nitroaniline	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
2-Nitrophenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
3,3'Dichlorobenzidine	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
3-Nitroaniline	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
4-Bromophenyl phenyl ether	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
4-Chloro-3-methylphenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
4-Chloroaniline	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
4-Chlorophenyl-phenylether	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
4-Methylphenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
4-Nitroaniline	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
4-Nitrophenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Acenaphthene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Acenaphthylene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Anthracene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Benzo(a)anthracene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Benzo(a)pyrene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Benzo(b)fluoranthene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Benzo(g,h,i)perylene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Benzo(k)fluoranthene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Benzoic Acid	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Benzyl Alcohol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Bis(2-chloroethoxy)methane	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Bis(2-chloroethyl)ether	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Bis(2-chloroisopropyl)ether	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Bis(2-ethylhexy1)phthalate	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Butylbenzylphthalate	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Chrysene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Di-N-Butyl Phthalate	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Di-n-octylphthalate	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Dibenzo(a,h)anthracene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Dibenzofuran	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Diethylphthalate	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Dimethylphthalate	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Fluoranthene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Fluorene	(ug/L)	–	–	–	–	–	–	–	<5.2	–	–	–
Hexachlorobenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Hexachlorobutadiene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Hexachlorocyclopentadiene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Hexachloroethane	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Indeno(1,2,3,-cd)pyrene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Isophorone	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
N-Nitroso-Di-N-Phenylamine	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
N-Nitroso-di-n-propylamine	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Naphthalene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Nitrobenzene	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Pentachlorophenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Phenanthrene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–
Phenol	(ug/L)	–	–	–	–	–	–	–	–	–	–	–
Pyrene	(ug/L)	–	–	–	–	–	–	–	<2.1	–	–	–

TABLE 4

ORGANIC COMPOUNDS IN GROUNDWATER

FORMER CRYER BOATYARD

DATE		5/13/97	5/13/97	5/13/97	6/12/97	6/12/97	6/12/97
SAMPLE NUMBER		3A17	3AK	6AK	SB-9	SB-10	SB-12
DEPTH (FT)							
OWNER		Steam Valve	Steam Valve	Steam Valve	Port	Port	Port
MATRIX		Water	Water	Water	Water	Water	Water
COMPOUND	UNITS						
Petroleum Hydrocarbons							
Diesel Range	(ug/L)	–	–	–	ND	ND	0.3
Gasoline Range	(ug/L)	–	–	–	–	–	–
Unknown Hydrocarbons	(ug/L)	–	–	–	–	–	–
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	(ug/L)	–	<1	<1	–	–	–
1,1,1-Trichloroethane	(ug/L)	–	<1	<1	–	–	–
1,1,2,2-Tetrachloroethane	(ug/L)	–	<1	<1	–	–	–
1,1,2-Trichloroethane	(ug/L)	–	<1	<1	–	–	–
1,1-Dichloroethane	(ug/L)	–	<1	<1	–	–	–
1,1-Dichloroethene	(ug/L)	–	<1	<1	–	–	–
1,1-Dichloropropane	(ug/L)	–	<1	<1	–	–	–
1,2,3-Trichlorobenzene	(ug/L)	–	<18	<1	–	–	–
1,2,3-Trichloropropene	(ug/L)	–	<1	<1	–	–	–
1,2,4-Trichlorobenzene	(ug/L)	–	<2.0	<1	–	–	–
1,2,4-Trimethylbenzene	(ug/L)	–	<5.2	<1	–	–	–
1,2-Dibromo-3-chloropropene	(ug/L)	–	<1	<1	–	–	–
1,2-Dichlorobenzene	(ug/L)	–	<1	<1	–	–	–
1,2-Dichloroethane	(ug/L)	–	<1	<1	–	–	–
1,2-Dichloroethene(total)	(ug/L)	–	–	–	–	–	–
1,2-Dichloropropane	(ug/L)	–	<1	<1	–	–	–
1,3,5-Trimethylbenzene	(ug/L)	–	<1	<1	–	–	–
1,3-Dichlorobenzene	(ug/L)	–	<1	<1	–	–	–
1,3-Dichloropropane	(ug/L)	–	<1	<1	–	–	–
1,4-Dichlorobenzene	(ug/L)	–	<1	<1	–	–	–
2,2-Dichloropropane	(ug/L)	–	<1	<1	–	–	–
2-Chloroethylvinyl ether	(ug/L)	–	<1	<1	–	–	–
2-Chlorotoluene	(ug/L)	–	<1	<1	–	–	–
4-Chlorotoluene	(ug/L)	–	<1	<1	–	–	–
Acetone	(ug/L)	–	<1	<1	–	–	–
Benzene	(ug/L)	–	<1	<1	–	–	–
Bromobenzene	(ug/L)	–	<1	<1	–	–	–
Bromochloromethane	(ug/L)	–	<1	<1	–	–	–
Bromodichloromethane	(ug/L)	–	<1	<1	–	–	–
Bromoform	(ug/L)	–	<1	<1	–	–	–
Bromomethane	(ug/L)	–	<1	<1	–	–	–
Carbon Disulfide	(ug/L)	–	<1	<1	–	–	–
Carbon tetrachloride	(ug/L)	–	<1	<1	–	–	–
Chlorobenzene	(ug/L)	–	<1	<1	–	–	–
Chloroethane	(ug/L)	–	<1	<1	–	–	–
Chloroform	(ug/L)	–	<1	<1	–	–	–
Chloromethane	(ug/L)	–	<1	<1	–	–	–
cis-1,2-Dichloroethene	(ug/L)	–	<1	<1	–	–	–
cis-1,3-Dichloropropene	(ug/L)	–	<1	<1	–	–	–
Dibromochloromethane	(ug/L)	–	<1	<1	–	–	–
Dibromomethane	(ug/L)	–	<1	<1	–	–	–
Dichlorofluoromethane	(ug/L)	–	<1	<1	–	–	–
Ethyl Benzene	(ug/L)	–	<1.8	<1	–	–	–
Ethylene Dibromide	(ug/L)	–	<1	<1	–	–	–
Freon 113	(ug/L)	–	–	–	–	–	–
Hexachlorobutadiene	(ug/L)	–	<1	<1	–	–	–
Idenoethane	(ug/L)	–	<1	<1	–	–	–
Isopropylbenzene	(ug/L)	–	<1	<1	–	–	–
Methyl Ethyl Ketone	(ug/L)	–	<1	<1	–	–	–
Methyl Isobutyl Ketone	(ug/L)	–	<1	<1	–	–	–
Methylbutylketone	(ug/L)	–	<1	<1	–	–	–
Methylene Chloride	(ug/L)	–	<1	<1	–	–	–
MTBE	(ug/L)	–	<1	<1	–	–	–
n-Butylbenzene	(ug/L)	–	<1	<1	–	–	–
n-Propylbenzene	(ug/L)	–	<1	<1	–	–	–
p-Isopropyltoluene	(ug/L)	–	<1	<1	–	–	–
sec-Butylbenzene	(ug/L)	–	<1	<1	–	–	–
Styrene	(ug/L)	–	<1	<1	–	–	–
tert-Butylbenzene	(ug/L)	–	<1	<1	–	–	–
Tetrachloroethene	(ug/L)	–	<1	<1	–	–	–
Toluene	(ug/L)	–	<1	<1	–	–	–
trans-1,2-Dichloroethene	(ug/L)	–	<1	<1	–	–	–
trans-1,3-Dichloropropene	(ug/L)	–	<1	<1	–	–	–
Trichloroethylene	(ug/L)	–	<1	<1	–	–	–
Trichlorofluoromethane	(ug/L)	–	<1	<1	–	–	–
Vinyl Acetate	(ug/L)	–	<1	<1	–	–	–
Vinyl Chloride	(ug/L)	–	<1	<1	–	–	–
Xylenes, Total	(ug/L)	–	<8	<1	–	–	–

TABLE 4
ORGANIC COMPOUNDS IN GROUNDWATER
FORMER CRYER BOATYARD

DATE		5/13/97	5/13/97	5/13/97	6/12/97	6/12/97	6/12/97
SAMPLE NUMBER		3A17	3AK	6AK	SB-9	SB-10	SB-12
DEPTH (FT)							
OWNER		Steam Valve	Steam Valve	Steam Valve	Port	Port	Port
MATRIX		Water	Water	Water	Water	Water	Water
COMPOUND	UNITS						
Semivolatile Organic Compounds							
1,2-Dichlorobenzene	(ug/L)	<2.5	–	–	–	–	–
1,3-Dichlorobenzene	(ug/L)	<2.5	–	–	–	–	–
1,4-Dichlorobenzene	(ug/L)	<2.5	–	–	–	–	–
1,2,4-Trichlorobenzene	(ug/L)	<2.5	–	–	–	–	–
2,4,5-Trichlorophenol	(ug/L)	<2.5	–	–	–	–	–
2,4,6-Trichlorophenol	(ug/L)	<2.5	–	–	–	–	–
2,4-Dichlorophenol	(ug/L)	<2.5	–	–	–	–	–
2,4-Dimethylphenol	(ug/L)	<2.5	–	–	–	–	–
2,4-Dinitrophenol	(ug/L)	<12	–	–	–	–	–
2,4-Dinitrotoluene	(ug/L)	<2.5	–	–	–	–	–
2,6-Dinitrotoluene	(ug/L)	<6.2	–	–	–	–	–
2- Chlorophenol	(ug/L)	<2.5	–	–	–	–	–
2-Chloronaphthalene	(ug/L)	<2.5	–	–	–	–	–
2-Methyl-4,6-Dinotrophenol	(ug/L)	<12	–	–	–	–	–
2-Methylnaphthalene	(ug/L)	<2.5	–	–	–	–	–
2-Methylphenol	(ug/L)	<2.5	–	–	–	–	–
2-Nitroaniline	(ug/L)	<12	–	–	–	–	–
2-Nitrophenol	(ug/L)	<2.5	–	–	–	–	–
3,3'Dichlorobenzidine	(ug/L)	<6.2	–	–	–	–	–
3-Nitroaniline	(ug/L)	<12	–	–	–	–	–
4-Bromophenyl phenyl ether	(ug/L)	<6.2	–	–	–	–	–
4-Chloro-3-methylphenol	(ug/L)	<6.2	–	–	–	–	–
4-Chloroaniline	(ug/L)	<2.5	–	–	–	–	–
4-Chlorophenyl-phenylether	(ug/L)	<2.5	–	–	–	–	–
4-Methylphenol	(ug/L)	<2.5	–	–	–	–	–
4-Nitroaniline	(ug/L)	<12	–	–	–	–	–
4-Nitrophenol	(ug/L)	<12	–	–	–	–	–
Acenaphthene	(ug/L)	<2.5	–	–	<1	<1	<1
Acenaphthylene	(ug/L)	<2.5	–	–	<2	<2	<2
Anthracene	(ug/L)	<2.5	–	–	<0.1	<0.1	<0.1
Benzo(a)anthracene	(ug/L)	<2.5	–	–	<0.1	<0.1	<0.1
Benzo(a)pyrene	(ug/L)	<2.5	–	–	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	(ug/L)	<2.5	–	–	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	(ug/L)	<2.5	–	–	<0.2	<0.2	<0.2
Benzo(k)fluoranthene	(ug/L)	<2.5	–	–	<0.1	<0.1	<0.1
Benzoic Acid	(ug/L)	<12	–	–	–	–	–
Benzyl Alcohol	(ug/L)	<6.2	–	–	–	–	–
Bis(2-chloroethoxy)methane	(ug/L)	<6.2	–	–	–	–	–
Bis(2-chloroethyl)ether	(ug/L)	<2.5	–	–	–	–	–
Bis(2-chloroisopropyl)ether	(ug/L)	<2.5	–	–	–	–	–
Bis(2-ethylhexy1)phthalate	(ug/L)	<6.2	–	–	–	–	–
Butylbenzylphthalate	(ug/L)	<6.2	–	–	–	–	–
Chrysene	(ug/L)	<2.5	–	–	<0.1	<0.1	<0.1
Di-N-Butyl Phthalate	(ug/L)	<6.2	–	–	–	–	–
Di-n-octylphthalate	(ug/L)	<6.2	–	–	–	–	–
Dibenzo(a,h)anthracene	(ug/L)	<2.5	–	–	<0.4	<0.4	<0.4
Dibenzofuran	(ug/L)	<2.5	–	–	–	–	–
Diethylphthalate	(ug/L)	<6.2	–	–	–	–	–
Dimethylphthalate	(ug/L)	<6.2	–	–	–	–	–
Fluoranthene	(ug/L)	<2.5	–	–	<0.1	<0.1	<0.1
Fluorene	(ug/L)	<6.2	–	–	<0.2	<0.2	<0.2
Hexachlorobenzene	(ug/L)	<2.5	–	–	–	–	–
Hexachlorobutadiene	(ug/L)	<2.5	<1	<1	–	–	–
Hexachlorocyclopentadiene	(ug/L)	<2.5	–	–	–	–	–
Hexachloroethane	(ug/L)	<2.5	–	–	–	–	–
Indeno(1,2,3,-cd)pyrene	(ug/L)	<2.5	–	–	<0.1	<0.1	<0.1
Isophorone	(ug/L)	<2.5	–	–	–	–	–
N-Nitroso-Di-N-Phenylamine	(ug/L)	<2.5	–	–	–	–	–
N-Nitroso-di-n-propylamine	(ug/L)	<2.5	–	–	–	–	–
Naphthalene	(ug/L)	<2.5	–	–	< 1	< 1	< 1
Nitrobenzene	(ug/L)	<2.5	–	–	–	–	–
Pentachlorophenol	(ug/L)	<12	–	–	–	–	–
Phenanthrene	(ug/L)	<2.5	–	–	<0.1	<0.1	<0.1
Phenol	(ug/L)	<2.5	–	–	–	–	–
Pyrene	(ug/L)	<2.5	–	–	<0.1	<0.1	<0.1