



May 21, 1999

Mr. Scott Seery, CHMM
Environmental Protection Division, Suite 250
Alameda County Environmental Health Department
1131 Harbor Bay Parkway
Alameda, California 94502

Dear Mr. Seery:

Re: Critical Area Investigation Work Plan

On behalf of Ingersoll-Rand Equipment Sales, Capsule Environmental Engineering has prepared the enclosed letter-type work plan for the critical area and anomalies investigation called for in the March 10, 1999 Alameda County letter to Mr. Robert Heindl. As a follow-up to our recent telephone discussions regarding the scope of the critical area investigation, this work plan outlines the investigation techniques, boring locations and sampling targets that we discussed.

Ingersoll-Rand and Capsule are prepared to begin work on this project following your review and approval of the work plan. If you have questions or comments, please call me at 1-800-328-8246.

Sincerely,

CAPSULE ENVIRONMENTAL ENGINEERING, INC.

A handwritten signature in black ink, appearing to read "John J. McDermott", with a long horizontal line extending to the right.

John J. McDermott
Hydrogeologist

JJM: cen
Enclosure

ENVIRONMENTAL
PROTECTION

99 MAY 25 PM 5:01

Kevin Graves/ Regional Water Quality Control Board, Oakland, CA
Robert Heindl/Ingersoll-Rand Equipment Sales, Bethlehem, PA
Tim Tinsley/Ingersoll-Rand Equipment Sales, San Leandro, CA
Michael Bakaldin/San Leandro Fire Department, San Leandro, CA

Critical Area Investigation Work Plan

1.0 Project Background and Objectives

In an Alameda County Environmental Health Department letter dated March 10, 1999, the Ingersoll-Rand Equipment Sales facility (IRES), 1944 Marina Boulevard, San Leandro, was directed to prepare a work plan to address several geophysical anomalies identified in a geophysical investigation at the facility and evaluate ground water conditions in a general area identified as critical.

The geophysical anomalies were areas identified in a Subtronic geophysical survey report conducted in October 1998. For the purposes of this work, an anomaly is considered to be the surface expression of a geophysically surveyed subsurface condition that indicated measurements, generally magnetic, which varied significantly from surrounding measurements.

Since the March 10, 1999 letter, Alameda County, Ingersoll-Rand Equipment Sales and Capsule Environmental Engineering have discussed the overall scope of the project, the areal extent of the investigation (Critical Area), the number of borings and their locations.

On the basis of the March 10, 1999 letter and the discussions with Alameda County, Capsule has developed the following project objectives:

- Evaluate the subsurface character of the geophysical anomalies
- Assess the ground water quality conditions in the shallow subsurface within the Critical Area

2.0 Scope of Work

To accomplish the project objectives, a series of investigation activities has been developed to investigate the anomalies and the ground water in the Critical Area. The activities include:

- Field identify anomaly boundaries
- Advance direct push probes within geophysical anomalies
- Advance direct push probes to water table in Critical Area and collect water samples
- Analyze water samples for gasoline constituents
- Prepare and submit report of field activities

2.1 Field Identification of Anomaly Boundaries and Finalize Probe Locations

The Capsule representative and the Subtronic geophysicist will locate and mark the boundaries of the geophysical anomalies identified in the geophysical report (Subtronic, 1999) report. The boundaries will be marked with surveyor's flagging. The approximate boundaries of the anomalies and probe locations are identified in Figure 1. Once the anomaly boundaries have been marked in the field, hydraulic push-type sampling (probe) locations will be staked within the boundaries.

2.2 Advance Direct Push Probes Within Anomalies

Boring permits will be obtained prior to the start of work. Capsule will coordinate with the selected drilling firm to obtain the permits.

A truck mounted hydraulic direct push-type sampling rig will be used to investigate the geophysical anomalies. The general boundaries of the anomalies are shown on Figure 1.

The probe will be advanced. If resistance to advancing the probe tool is encountered, the probe hole will be stopped, the depth of the obstruction recorded, and an attempt will be made to identify the nature of the obstruction. If the obstruction is identified as metallic, probe holes will be advanced, offset radially two feet to three feet from the original hole in three directions. If the obstruction is still encountered and depending on the depth to the obstruction, additional offset holes may be installed to help identify the character of the obstruction.

The proposed probing locations, 1 through 6, are listed in Table 1. Probe location number 3 is a contingency location. Locations 4, 5, and 6 will be installed earlier in the program. If there is no indication of gasoline constituents at these locations, location 3 will not be probed. The Anomaly C at Location 3 was identified in the Subtronic report as possibly being reinforcing steel in concrete. Probes 4, 5 and 6 are hydraulically downgradient of location 3. If probes, 4, 5 and 6 are not impacted with gasoline constituents, there is no reason to investigate this anomaly.

All downhole equipment will be decontaminated prior to the probing equipment arriving on site. Between probe locations, the downhole equipment will be scraped clean of any soil and debris, cleaned with an Alcanox solution, rinsed with distilled water, and allowed to air dry.

Probe holes will be abandoned with slurried Portland cement through the length of the probe hole.

2.3 Collect Ground Water Samples in Critical Area

A truck mounted hydraulic direct push-type sampling rig will be used to collect ground water samples in the Critical Area. The general locations of the probe holes in the Critical Area are shown on Figure 1. As a note, some holes will be used to both investigate the anomalies and the ground water within the Critical Area.

The probe will be advanced to the water table. From past investigations, the water table is anticipated to be 18 feet below land surface. Once the water table is reached, the probe rods will be removed and perforated 0.75 inch PVC pipe will be inserted. Once sufficient water is available, a small diameter bailer will be lowered to collect ground water samples. The sample handling and analytical procedures are identified in Section 2.4.

Probe holes will be abandoned with slurried Portland cement through the length of the probe hole. Any PVC casing will be retrieved from the hole as it is grouted.

The proposed probing and ground water sample locations are listed in Table 1.

All downhole equipment will be decontaminated prior to the probing equipment arriving on site. Between probe locations, the downhole equipment will be scraped clean of any soil and debris, cleaned in an Alcanox solution, rinsed with distilled water, and allowed to air dry.

2.4 Analyze Samples for Gasoline Constituents

The chemical analyses for the project will be performed by Clayton Environmental Consultants (Pleasanton, CA).

Ground water samples will be collected in appropriate containers, labeled, placed in an iced cooler and transported to the laboratory by the Capsule representative. A chain of custody will be prepared and will accompany the samples.

The water samples will be analyzed by EPA methods 8015/8020 as gasoline and 8010. Method 8015/8020 includes MTBE.

3.0 Report Preparation

Capsule will prepare and submit a report, summarizing the field and laboratory work. The report will include conclusions, data tables and figures as necessary to describe the activities and results.

4.0 Schedule

Upon authorization to proceed with the implementation of the work plan, the following schedule is proposed.

<u>Activity</u>	<u>Working Days from Authorization to Proceed</u>
Conduct field work	twenty-one days
Receive laboratory results	thirty-five days
Report completion and submittal	forty-nine days

5.0 Site Safety

Capsule and Ingersoll-Rand Equipment Sales will arrange for the access to each probe location and have utility locating performed.

Work will be performed under the existing Site Safety Plan.

The level of personnel protection is Level D.

The work zone will be monitored by the Capsule representative with an Hnu 101 photoionization detector or equivalent. If the instrument reading goes above 5 ppm, work will cease until the source of the elevated reading dissipates. For readings that stay above 5 ppm, the Capsule representative will be responsible for determining the need for a higher level of personnel protection or stopping work.

6.0 References

Subtronic, 1998. Geophysical Subsurface Investigation for Ingersoll-Rand Equipment Sales at 1944 Marina Boulevard, prepared by Pierre Armand, dated October 3, 1998

Table 1

Probe Location List
Critical Area Investigation
Ingersoll-Rand Equipment Sales
May, 1999

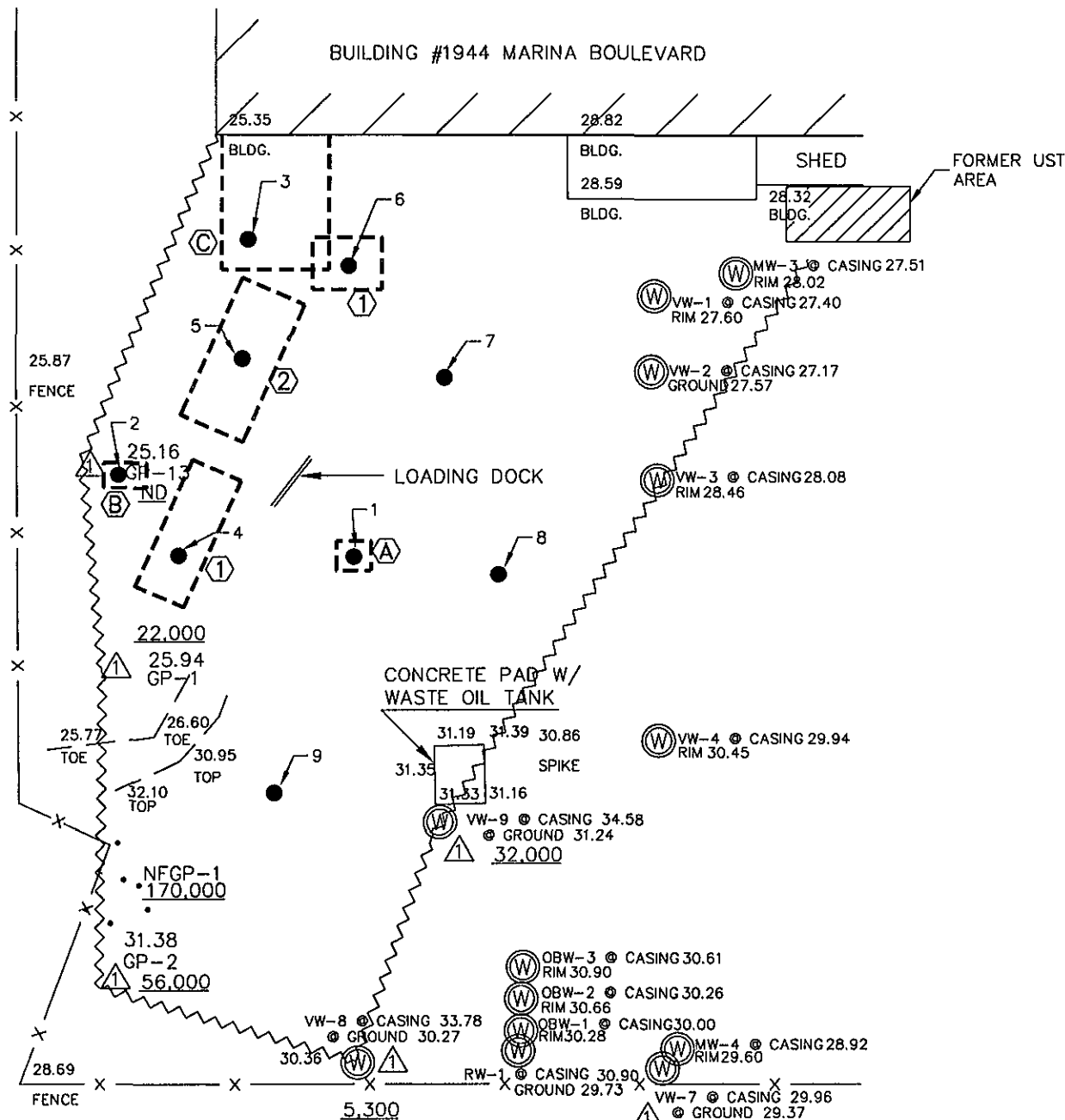
Boring Number	Target Depth (ft)	Purpose	Ground Water Sample
1	20	Evaluate magnetic locator anomaly A	Yes
2	10	Evaluate magnetic locator anomaly B (B)	No
3	10	Evaluate magnetic locator anomaly C (contingency) (B)	No (A)
4	20	Evaluate magnetometer anomaly 1	No
5	20	Evaluate magnetometer anomaly 2	Yes
6	20	Evaluate magnetometer anomaly 3	No
7	20	Evaluate groundwater in critical area	Yes
8	20	Evaluate groundwater in critical area	Yes
9	20	Evaluate groundwater in critical area	Yes

Remarks:

(A) Assumes that no probe is necessary at Location 3

(B) Borings 2 - 3 to 10 feet (Geophysical instrument that detected anomaly has an investigation depth of 8 feet.)

Anomaly numbering/lettering scheme is the same as Subtronic composite map.



LEGEND:

T.C.	TOP OF CURB
—/—	BUILDING LINE
T/W	TOP OF WALL
B/W	BASE OF WALL
-x-	FENCE LINE
⊙	WELL
E.P.	EDGE OF PAVEMENT
TOP	TOP OF BANK
TOE	TOE OF SLOPE
~~~~~	CRITICAL AREA BOUNDARY
56,000	TPH AS GASOLINE (ugl.) IN WATER SAMPLE
●	PROPOSED BORING LOCATION
⊙	GEOPHYSICAL ANOMALY
[---]	APPROXIMATE ANOMALY BOUNDARY

GRAPHIC SCALE



( IN FEET )  
1 INCH = 40 FEET



**CAPSULE**

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ST. PAUL, MINNESOTA 55113  
(612) 636-2644

*TITLE:* CRITICAL AREA INVESTIGATION  
BORING LOCATIONS  
INGERSOLL-RAND COMPANY  
SAN LEANDRO, CALIFORNIA

DRAWN BY:	CHECKED BY:	DATE:	PROJECT NO.:	DRAWING NO.:	FIGURE:
TCD	JJM	5/18/99	001-327	C00599N	1