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ENVIRONMENTAL ENGINEERING, INC

January 5, 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:

On behalf of Ingersoll-Rand Equipment Sales, Capsule Environmental Engineering (Capsule) is submitting the enclosed report, Geophysical Subsurface Investigation, (Geophysical Investigation) for the facility at 1944 Marina Boulevard, San Leandro, California. Additionally, this letter includes information that expands on the Geophysical Investigation findings.

Background

For the period of September 23 to 25, 1998, Subtronic Corporation (Concord, California) performed a geophysical survey of a portion of the Ingersoll-Rand Equipment Sales (IRES) facility, San Leandro. Alameda County required the survey as part of activities described in their April 13, 1998 letter.

Subtronic Corporation issued a report of their findings on October 3, 1998 that identified several geophysical anomalies.

This letter was prepared by Capsule after reviewing the report, discussing the findings with the Subtronic geophysicist who conducted the work and prepared the report, and reviewing the anomalies in relation to other facility information.

General Facility Background

The building that houses the IRES offices and shop was constructed in 1955. Ingersoll-Rand leased a portion of the building and equipment storage yard in 1973. Prior to 1973, Westinghouse Air Brakes occupied the building. The property had a railroad siding that went into a bay of the building. Portions of the siding track are still visible. IRES provides sales and service of construction equipment, ranging from trailer-mounted air compressors to large track-mounted drills. Since its occupancy in 1973,

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IRES has not installed any outside buried structures except for monitoring wells and soil vapor extraction points.

As part of facility assessment activities in the late 1980s, three underground storage tanks were identified. The tanks were apparently installed with the building in 1955. The tanks contained gasoline, diesel and waste (used) oil. As reported previously, the tanks were removed in 1989.

Anomaly Discussion

The following sections describe the anomalies and incorporate general facility information into a discussion of each anomaly. The anomaly numbers refer to an enclosed marked-up map from the Subtronic report.

Anomaly 1 - Northwest Corner of Main Service Building

This area is located at the entry to a large service bay that had railroad tracks leading into it. The concrete apron to this bay is likely steel reinforced concrete.

While the Geophysical Investigation states that all anomalies could not be accounted for, the likelihood of a tank being buried directly below such a high traffic, heavy load area is remote. Additionally, there are no surficial indications of tanks beneath the apron. Since Ingersoll-Rand has leased the property, there has been no underground construction in this area. All known underground tanks were removed in 1989 and none were identified in this area.

It is highly likely that the anomaly is the result of steel used in construction of the apron and building.

Anomaly 2 - First 4' by 10' Area

This trapezoidal area appeared as an anomaly with the M-scope and locator.

While not readily apparent from the site map, the trapezoidal area is in the same location as the rectangular feature centered at coordinates x = 120 ft., y = 100 ft. on the vertical gradient of total field magnetometer data.

This feature is proximal to the linear dark area, the railroad tracks. The tracks date from the building construction. It is very unlikely that a tank would have been installed so close to the siding tracks. A more likely explanation for the feature would be track-related metal.

Anomaly 3 - Second 4' by 10' Area

The M-Scope, but not the magnetometer identified the rectangular area southwest of the "abandoned loading docks".

According to Subtronic, this anomaly likely represents a shallow buried piece of metal, such as sheet metal (from verbal discussion with Subtronic geophysicist).

Anomaly 4 - Storm Drain

The rectangular area on the vertical gradient map at whose southwest corner is at coordinates x=180 ft. and y = 40 ft.

Anomaly 4 is directly south of the storm drain identified on the site map. The Subtronic geophysicist posited that the anomaly could likely be related to a pipe tying the storm drain into the municipal system under Marina Blvd.

Anomaly 5 - Pipe Trending North-South

The M-Scope locator and metal detector detected a pipe trending north south ending near the northwest corner of the facility. Anomaly 5 is not shown in the figure, but is referenced in the Subtronics report text. Previous Capsule work identified this pipe as an out-of-service PG&E natural gas line.

Conclusions

The geophysical survey identified several anomalies.

The identification of anomalies is not unusual. As an example, the literature cites a Bay Area geophysical investigation (DeReamer and Pierce) that identified 1,086 anomalies over a 100-acre site. The purpose of the investigation was to identify drums. Excavation showed that 990 anomalies were due to a large variety of magnetic materials. 36 were due to drums or drum fragments, and 60 had no apparent source.

Taken in isolation, additional subsurface investigation might be necessary to absolutely confirm that the anomalies do not represent the signatures of buried tanks. However, in the context of existing facility information, including the removal of underground storage tanks, the proximity of anomalies to the railroad tracks, the likely use of reinforcing steel in concrete, and no surficial or geophysical expressions of piping or vents, the anomalies are less of a concern.

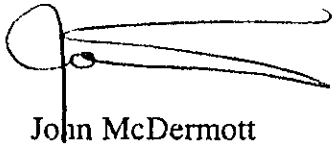
Recommendation

Subtronic recommended excavation in several areas. They did so as a conservative measure to confirm their findings without the context of the property history. Given the known conditions regarding Ingersoll-Rand's use of the property and tank removal activities, there is little likelihood that tanks are associated with the identified anomalies and no further investigation of the anomalies is recommended.

If you have any questions regarding this evaluation or the Geophysical Investigation, please call me at 1-800-328-8246.

Sincerely,

CAPSULE ENVIRONMENTAL ENGINEERING, INC.



John McDermott
Hydrogeologist

JJM:dmh
Enclosure

cc Kevin Graves/ Regional Water Quality Control Board, Oakland, CA
Robert Heindl/Ingersoll-Rand Equipment Sales, Bethlehem, PA (2 copies)
Tim Tinsley/Ingersoll-Rand Equipment Sales, San Leandro, CA
Michael Bakaldin/San Leandro Fire Department, San Leandro, CA

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Monday, October 03, 1998

Robert Heindl
Ingersol Rand Equipment Sales
1495 Valley Center Parkway
Bethlehem, PN 18017

GEOPHYSICAL SUBSURFACE INVESTIGATION
for
INGERSOL RAND EQUIPMENT SALES
at
1944 Marina Boulevard
San Leandro, California

Subject
Geophysical subsurface investigation for underground storage tanks (USTs).

Site Location and Description
On September 23 through 25, 1998, Subtronic conducted a subsurface geophysical survey at 1944 Marina Boulevard in San Leandro, California. The area being investigated consists of the northwest portion of the storage yard. The site surveyed is soil covered and its dimensions are approximately 130 feet by 220 feet.

Geophysical Equipment
The specialized equipment used at the site includes an RD 400, TW-6 M-Scope, a magnetic locator (the Schonstedt GA-72CV) and the 858G Magmapper (magnetometer).

Magnetic Locator
The Schonstedt Instrument Company GA-72CV is a hand-held magnetic locator designed to detect magnetic objects made of iron and steel buried up to a depth of eight feet below the surface.

Primary applications of the magnetic locator are locating UST's, buried drums and underground pipes.

Radiodetection RD 400 Cable and Pipe Tracer
The RD 400 cable locator is a hand-held instrument used to detect buried utilities. The primary application of the RD 400 is to pinpoint the path of electric lines and other power conductors such as CATV and telephone cables. Pipes made of steel or copper and pipes with tracer wire are also easily traced.

TW-6 M-Scope
The Fisher TW-6 M-Scope is a split box inductive locator and metal detector mounted on a four foot rod. The split box locator can detect metal lines "inductively". The M-Scope is also used to detect buried metallic objects such as manhole covers, underground storage tanks, etc...

858G Magmapper
The 858G Magmapper is a magnetometer which records magnetic readings as fast a 10 per second. The 858G uses the cesium vapor laser technology to accomplish this. Another advantage besides the high number of readings is that magnetometer still provides reliable readings in an area with a lot of metal.

Survey Methodology

First, a visual inspection was conducted at this site. Underground utilities, vaults, boxes, exposed piping and UST-related features such as vent pipes, product lines, fill ports, topographic mounds and depressions were noted. Any UST fill ports found were physically probed to determine size, orientation and depth.

Exposed piping or risers found on the site were energized, traced out and the surface location was spray painted on the ground. The site was then scanned with both the M-Scope and the magnetic locator for piping and possible buried UST's along traverses spaced approximately five feet apart. Magnetometer data using the 858G Magmapper was also collected along the same grid. Data is stored on the 858G and then downloaded to a laptop computer for processing. The data is then contoured and analysed for anomalies. Special note is taken to anomalies which cannot be associated to a visible cultural feature.

Results of the Subsurface Investigation

The visual inspection for USTs did not reveal any indications of UST type features on the ground. The magnetic locator and the M-SCOPE detected two anomalies with approximate dimensions of 10 feet by 4 feet (see site sketch). Using the M-SCOPE, a pipe trending north south ending approximately 10 feet from the northwest corner of the property was also detected. High readings were detected in a square shaped area at the northwest corner of the main service building. The cause of some of the high readings could be attributed to some steel piping and railroad tracks, however due to the large amounts of buried steel in the area it is not known if all of the anomalies in this square area are accounted for. Two areas highlighted on the site sketch warrant further investigation.
The results from the magnetometer (858G) show anomalies either caused by objects known to be buried (i.e. railroad tracks) or objects visible at the surface (i.e. above ground tanks). Three areas are highlighted on the magnetometer contour map which warrant further investigation.

Recommendations:
There are some buried metallic objects that deserve a closer look, we recommend excavating in those areas indicated on the drawings.

Limitations

The subsurface geology, object size and composition, burial depth, and surface interference are all major factors as to whether the object will be detected by surface geophysical methods. These are all factors beyond Subtronic's control. The results of geophysical surveys may not represent unique solutions. Apparently similar anomalies may be created by different subsurface phenomena.

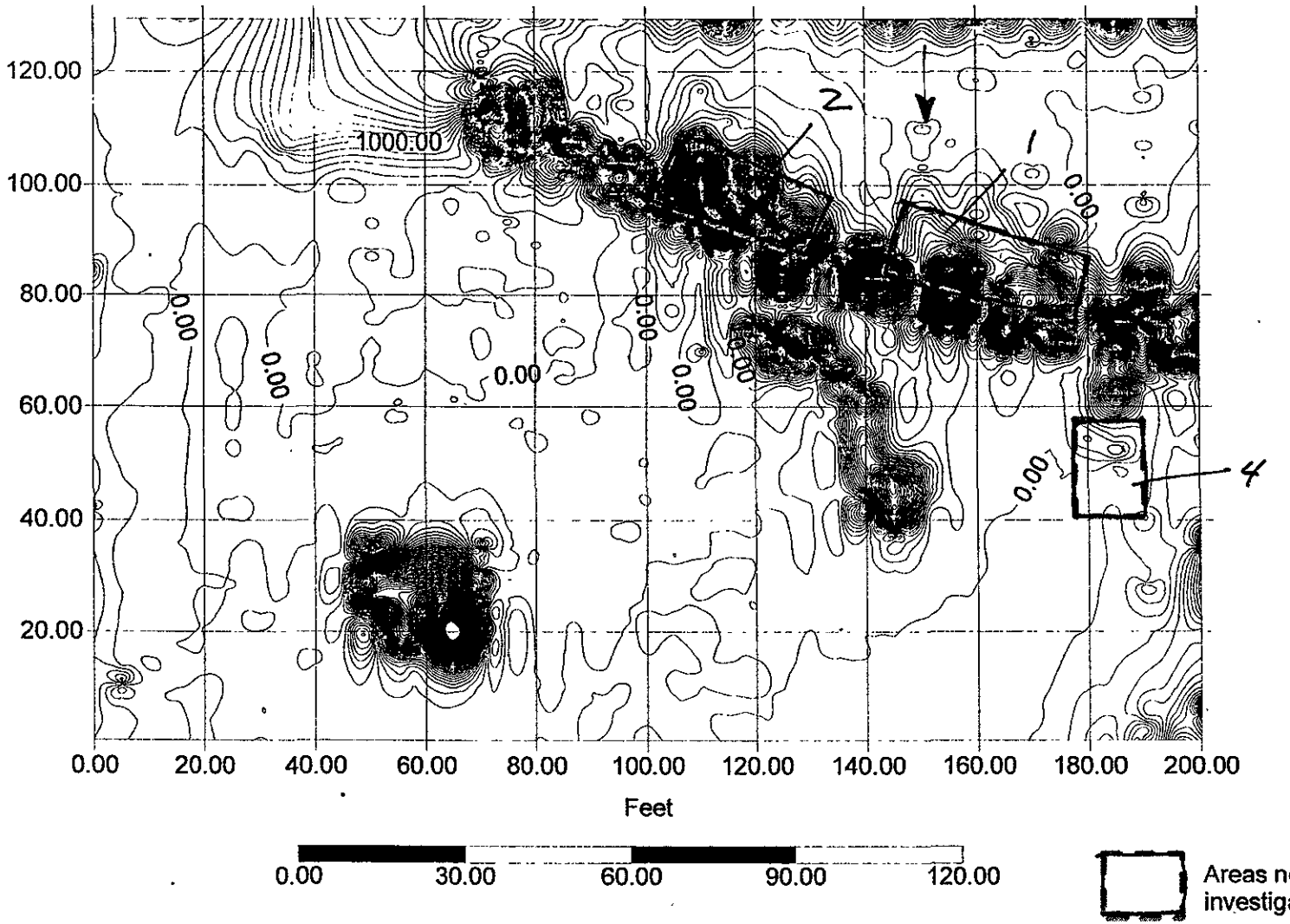
The limits of discernment of this survey are estimated to be objects less than two cubic feet, or fifteen gallons, objects buried greater than ten feet and areas within ten feet of metal fences, buildings and vehicles.

Report Prepared By: Pierre S. Armand, MS
License No. GP 1021

Report Checked By: Jon Taylor CA

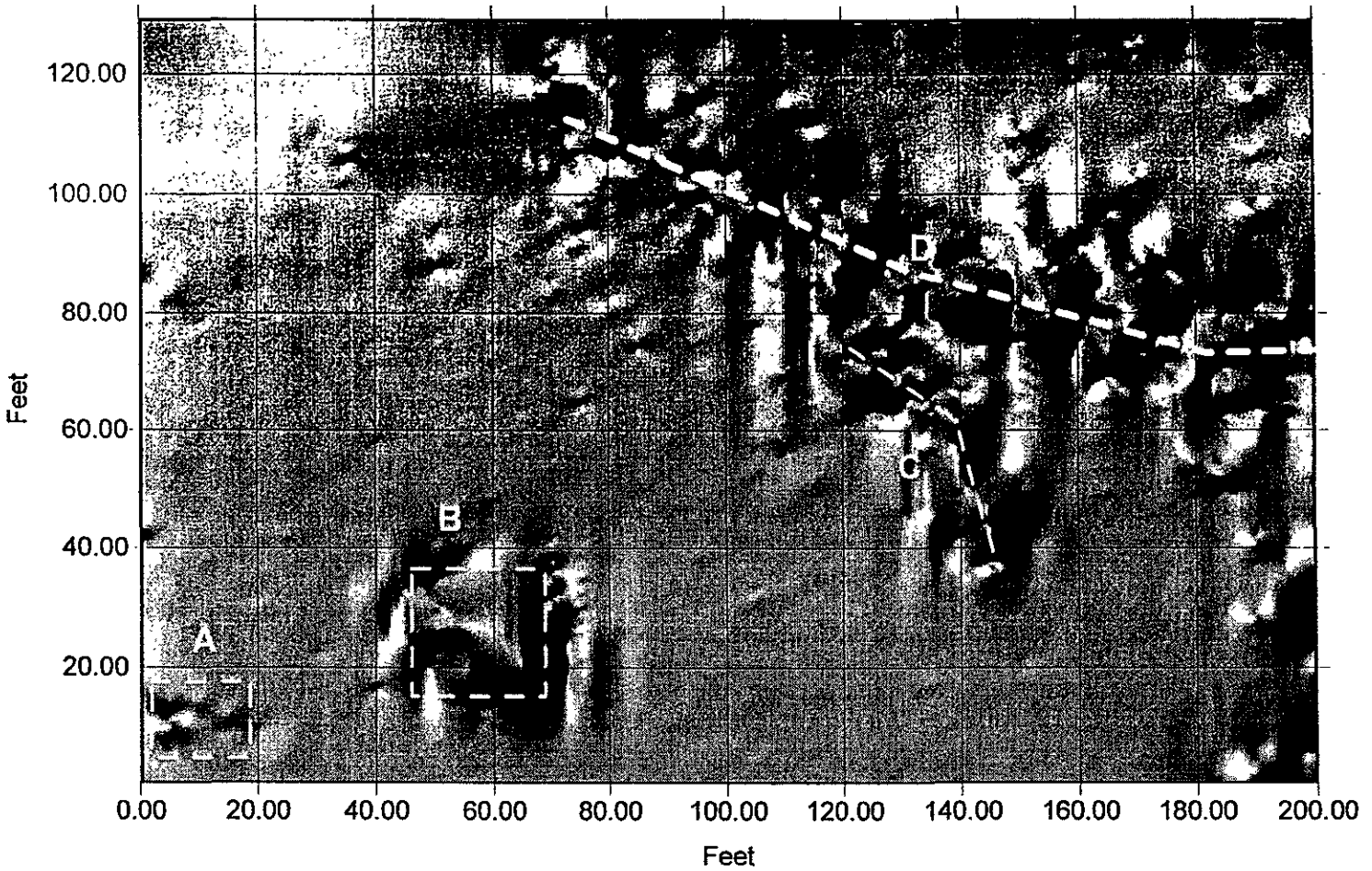
Vertical Gradient of Total Field Magnetometer Data -- Mininum Curvature Contouring

Site -- Northwest Portion of Property Located at 1944 Marina Boulevard in the City of San Leandro

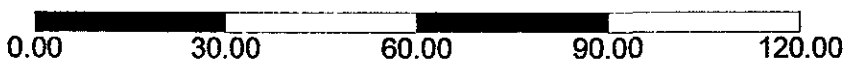


Vertical Gradient of the Total Field Magnetometer Data

Site -- Northwest Portion of Property Located at 1944 Marina Boulevard, San Leandro, California



A -- steel monitoring well covers
B -- above ground storage tanks
C -- steel structure for loading dock
D -- anomaly from buried railroad tracks.



Site Map for Northwest Portion of Property
1944 Marina Boulevard, San Leandro California