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13 January 1990

90 FEB -8 PM 2:05

Kevin McNelis
Ingersoll-Rand Incorporated
942 Memorial Parkway
Phillipsburg, New Jersey 08865

RE: PROBLEM ASSESSMENT REPORT
1944 Marina Boulevard
San Leandro, California
ITES Job # 148025

Dear Mr. McNelis,

International Technology Environmental Services (ITES) was retained by Ingersoll-Rand Corporation on 08 August 1989 to remove three underground storage tanks from their property located at 1944 Marina Boulevard in San Leandro, California. Following the tank removal activities of 10 October through 12 October 1989, ITES prepared a Preliminary Report (Workplan) for initial site assessment. This resulted in the production the enclosed Problem Assessment Report signed by a California Registered Geologist. The Problem Assessment Report delineates the extent of any contaminant plumes in the soil and/or groundwater and proposes a potential remediation methodology.

ITES appreciates Ingersoll-Rand business and assures the client a quality product. If you have any questions or concerns, please do not hesitate to call ITES at (415) 372-9100.

Sincerely,

Gregory R. Millikan

Gregory R. Millikan
Project Hydrogeologist

INTERNATIONAL TECHNOLOGY CORPORATION

PROBLEM ASSESSMENT REPORT
INGERSOLL-RAND INCORPORATED
1944 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA

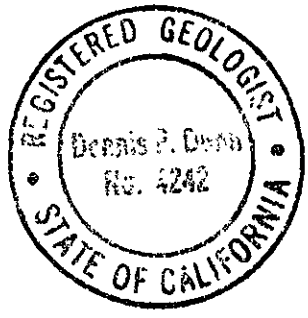
PREPARED FOR:
INGERSOLL-RAND INCORPORATED

BY:
IT Environmental Services Inc.
4575 Pacheco Boulevard
Martinez, California 94553
20 December 1989
ITES Job #148025

California Registered Geologist,

D. P. Dunn

D. P. Dunn R.G.
IT Corporation



EXECUTIVE SUMMARY

International Technology Environmental Services (ITES) was retained by Ingersoll-Rand Corporation to prepare a Problem Assessment Report, based on previous ITES efforts at their site located at 1944 Marina Boulevard in San Leandro, California.

The site contained three underground storage tanks, a 500 gallon waste oil, a 5000 gallon gasoline and a 10000 gallon diesel fuel tank. All tanks were removed by ITES 10 October through 12 October 1989. No visually apparent leaks, stains or free product were encountered.

Soil sample analysis revealed the presence of contaminants in the vent end, fill end, perimeter and overburden samples collected from the gasoline tank excavation and only in the overburden samples from the waste oil and diesel tank excavations.

ITES drilled and installed three monitoring wells on 10 November 1989, and drilled seven exploratory boreholes on 15 - 16 November 1989 to yield information regarding geology, hydrogeology and subsurface contamination.

All boreholes exhibited the presence of petroleum contaminants, ranging from 40 - 150 ppm, when screened with a photoionization detector.

Soil analysis revealed the presence of petroleum contaminants in the samples from boreholes BO01 and BO05 and monitoring well MW-3. No detectable petroleum hydrocarbons were encountered in the samples from monitoring wells MW-1 and MW-2.

Groundwater analysis revealed no detectable levels of petroleum contaminants in the samples from monitoring wells MW-1 and MW-2. Monitoring well MW-3 could not be sampled due to the presence of 3mm of free product floating on the water table.

Upon review of geologic, hydrogeologic and analytical data, ITES examined the feasibility of remedial options for addressing soil and groundwater contamination. ITES recommends installation of recovery wells for removal of free product, soil venting with carbon filtration for addressing site soil contamination, and carbon filtration for dissolved product extraction.

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I. INTRODUCTION

International Technology Environmental Services (ITES) was retained by Ingersoll-Rand Corporation to prepare a Problem Assessment Report, complete with remedial options and mandated diagrams, based on previous ITES efforts at their site located at 1944 Marina Boulevard in San Leandro, California (Figure 1).

II. SITE CHARACTERISTICS

A. SITE LOCATION

The site is located at 1944 Marina Boulevard in San Leandro, California, approximately 2.5 miles east of the San Francisco Bay. The surrounding area is mainly commercial/industrial in character and is bounded on the east by Highway 880. The Metropolitan Oakland International Airport is located approximately 1.5 miles to the northwest of the site, with the Estudillo Flood Canal lying an estimated 2.3 miles to the south. The site is situated at an estimated 27 feet above mean sea level (USGS San Leandro 7.5' Topographic Sheet, dated 1959 - photorevised 1980).

B. SITE HISTORY

The site contained three steel underground storage tanks, a 500 gallon waste oil, a 5000 gallon gasoline and a 10000 gallon diesel fuel tank. The tanks were approximately twenty years old and were located in the west parking lot.

The tanks passed an integrity test conducted by Dames and Moore Tank Testing Service on 17 February 1987.

Subsequent integrity tests, conducted on 28 March 1989 by Paradiso Construction Company, revealed the gasoline tank had undergone failure. An UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK)/ CONTAMINATION SITE REPORT was filed with the San Leandro Fire Department in May 1989, and the tank was emptied and closed by the owner.

Tank excavation and removal activities were executed by ITES 10 October through 12 October 1989. A complete report of activities and analytical results is contained in Appendix A.

III. SITE INVESTIGATION

The site assessment was initiated to examine the extent of soil/groundwater contamination, discovered upon removal of three underground storage tanks in October 1989 from the Ingersoll-Rand

property, at 1944 Marina Boulevard in San Leandro, California. The investigation concentrated on the area surrounding the gasoline tank excavation where contamination was initially encountered. The scope of work included drilling of exploratory boreholes and the installation of monitoring wells to yield information regarding hydrogeology and contamination of soil and/or groundwater.

METHODOLOGY

ITES drilled and installed three monitoring wells on 10 November, and drilled seven exploratory boreholes on 15 and 16 November 1989 (Figure 2). All drilling and well installation methods conformed to California Regional Water Quality Control Board, San Francisco Bay Region Guidelines For Addressing Fuel Leaks, September 1985. Monitoring well MW-1 was drilled north of the tankfield in the suspected upgradient direction. Monitoring wells MW-2 and MW-3 were drilled to the southeast of the gasoline tank excavation in the suspected down gradient direction, with MW-3 situated immediately adjacent to the tank excavation and MW-2 near the property line. Boreholes were drilled adjacent to the gasoline tank excavation to the depth of 15 feet below grade (Appendix B).

Drilling was executed utilizing a steam cleaned, 11 inch OD, continuous flight hollow stem auger. Test holes were logged and samples were obtained by using a split spoon sampler under the direction of a field geologist. Sampling methods included grab samples for soil description and examination as well as split spoon samples in decontaminated brass tubes for laboratory analysis. Grab samples were obtained intermittently, placed in zip-loc bags and security sealed. The split spoon samples were extracted every five feet beginning five feet below grade.

The sampler was decontaminated prior to each sampling run with a non-phosphate detergent scrubbing, water rinse, methanol rinse and a final distilled water rinsing. Upon sample extraction, tube ends were immediately sealed with aluminum foil and fitted with end caps to prevent the loss of volatile compounds. Each tube was placed in a separate zip-loc bag and security sealed. Samples were stored in a refrigerated ice chest and hand delivered to Precision Analytical Laboratory for analysis. Samples submitted for analysis were the deepest and/or most contaminated from each borehole. Signed chain of custody forms accompanied the samples at all times (Appendix C). Samples were analyzed for Total Petroleum Hydrocarbons (TPH) as diesel and as gasoline, and Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) by modified EPA methods 5030 and 8020.

no! only 1 sample from wells MW-1 → 3, and from boring 3 Bad and BOOG submitted!

Wells were constructed using 4 inch diameter schedule 40, threaded PVC casing and threaded PVC 0.020 inch slotted screen. Ten feet of screen was installed which extended five feet above the saturation zone to accommodate seasonal groundwater fluctuations. Screen extended five feet below the water table into a clay aquitard greater than five feet thick. Each well was fitted with a friction end cap. The annulus was filled with clean, #3 phi graded Lonestar sand from the well base to two feet above the perforation zone. The annular seal extended from the top of the gravel pack to the surface and was constructed of two feet of bentonite pellets overlain by cement grout. Each well was labeled, fitted with a locking cap and enclosed within a G-5 Christy Box (Appendix D).

The well locations were surveyed on 17 November 1989. The fire hydrant on Marina Boulevard near the southern corner of the site was used as a benchmark, with its top being arbitrarily defined as 24 feet above mean sea level. This approximate elevation was identified based on the San Leandro California 7.5' USGS Topographic Sheet.

The wells were developed by hand bailing two to three well volumes (purged until dry) of water from each well on 17 November 1989 (Table 1). The wells were sampled on that date with one disposable bailer per well. Water samples were placed directly from the bailer into 40 ml bottles supplied by the laboratory. Samples were taken from MW-1 and MW-2 however MW-3 could not be sampled due to presence of 3mm of free product (measured using a clear graduated acrylic bailer).

IV. SITE GEOLOGY/HYDROGEOLOGY

The site is underlain by two distinct soil units. The upper unit consists of a laterally discontinuous, well graded sand Fill, containing gravel and silt. This fill extends from 0.25 feet to 3.0 feet below grade, and is thicker in the general vicinity of the gasoline tank excavation. The lower unit consists of sandy to silty inorganic clay with a local sand lens located at about 12 to 15 feet below grade. Characteristics of the clay unit vary from brown to dark blue gray in color, soft to medium stiff, loose to dense, however soils are homogeneously moist and moderately plastic. The clay unit was encountered from 0.20 feet to 3.0 feet below grade, with the base being as yet undetermined. (Figures 3-5).

Ground water was encountered from 14.01 feet to 17.13 feet below the wellheads. Free product was discovered in monitoring well MW-3 (located southeast of the tankfield, in the suspected downgradient direction). The groundwater gradient calculated from wells MW-1

to MW-2 is .00044 ft/ft, and from MW-1 to MW-3 is .003 ft/ft to the south-southeast (Figure 6). Water level data is contained in Tables 1 and 2.

V. RESULTS

All soil borings exhibited the presence of petroleum hydrocarbons in concentrations ranging from 40 - 150 ppm at the depths of 7 - 15 feet, when screened with the photoionization detector.

Analysis of the soil samples obtained from soil borings BO01 and BO05, beneath the adjacent building and bordering the gasoline tank excavation respectively, revealed the following petroleum contaminant concentrations expressed in parts per million (ppm):

Boring number	BO01	BO05
Total Petroleum Hydrocarbons (as Gasoline)	400	1000
Benzene	13	4.9
Toluene	53	28
Ethyl Benzene	13	13
Xylene	75	75

Analysis of the soil sample collected from monitoring well MW-3 revealed contaminant concentrations of: Benzene at .23 ppm, Toluene at 1.6 ppm, Ethyl Benzene at .49 ppm and Xylene at 4.1 ppm. No detectable contaminant levels were encountered in the soil samples obtained from monitoring wells MW-1 and MW-2. All soil analytical results are listed in Table 3 and mapped as Figure 7.

Groundwater sample analysis from monitoring wells MW-1 and MW-2 revealed no detectable petroleum contaminants (Table 4 and Figure 8). Monitoring well MW-3 could not be sampled due to the presence of 3mm of free floating product (Figure 9). All laboratory reports are contained in Appendix E.

VI. REMEDIAL OPTIONS EXAMINATION

Feasibility of remedial options is based on the following observations and considerations:

- soil and groundwater contamination has been discovered
- contamination is present beneath the existing building
- free product was encountered in monitoring well MW-3
- the site is underlain by 0-3 feet of gravelly sandy Fill which overlies an inorganic clay layer of undetermined thickness

- clay typically has a hydraulic conductivity of .0001 m/day, with a low permeability
- clean sand typically has a hydraulic conductivity of 100 m/day, with high permeability
- the fill layer is areally limited, concentrated near the gasoline tank excavation.
- Taking into account site specific conditions, State Water Resources Control Board, Leaking Underground Fuel Tank (LUFT) Field Manual (Appendix F) lists clean up levels as:

B/T/E/X ppb	300/300/1000/1000
TPH as Gas ppm	100
TPH as diesel ppm	1000

Soil

A. SOIL REMEDIATION

1. EXCAVATION - This method entails removal of contaminated soil followed by treatment or disposal (approximately $200 - $500/cubic yard of contaminated soil). The effectiveness of excavating is limited by access to the contaminated soil.

FEASIBILITY

Due to the fact that petroleum contaminants were discovered beneath the existing building, excavation in this case is not a feasible option.

2. ON-SITE SOIL AERATION - The Bay Area Air Quality Management District (BAAQMD) emissions limit for gaseous organic compounds is 15 pounds (lbs) / day.

FEASIBILITY

Because the BAAQMD limit would most likely be exceeded, this option is not recommended.

3. OFF-SITE SOIL TREATMENT - See incineration.

FEASIBILITY

Incineration is not recommended in this instance due to cost considerations.

4. LANDFILLING - This remedial method consists of removing the contaminated soil and transporting it to an approved disposal facility. Approved facilities, with the capacity to receive this type of waste, are available at an approximate cost of $200 - $500/cubic yard.

FEASIBILITY

Due to the amount of contaminated soil present and the fact that this method can not address the contamination beneath the building, this option would be costly and ineffective.

5. SOIL VENTING - Soil venting is a remediation technology which removes volatile chemical materials from the soil without excavation. The process creates a circulation of air through the soil, in the area of contamination, which vaporizes the contaminant liquid. The contaminated air is then removed through a series of wells to a vacuum system on the surface (Figure 10). Bay Area Air Quality Management District (BAAQMD) requires treatment of the air prior to discharge to the atmosphere which will increase the cost. This technology is very effective when the soil permeability is high, contaminant to be extracted is highly volatile and access to the contaminated soil inhibits excavation.

FEASIBILTY

The layer in which the contamination appears to be concentrated is highly permeable, the contaminants present are highly volatile and access to the effected soil is limited due to fact that the plume apparently extends beneath the existing building, therefore soil vapor extraction is recommended for soil remediation. A carbon filtration system will be installed, to accomodate BAAQMD's emission policies.

B. GROUNDWATER REMEDIATION

1. FREE PHASE PRODUCT COLLECTION

a. TRENCHES - This product collection method involves the excavation of trenches to a level below the water table, and skimming the free product from the waters surface.

FEASIBILITY

Trenching is a method generally employed when shallow groundwater is encountered and contamination is areally limited. Groundwater at the site occurs at approximately 14 feet below grade. Trenches deep enough for recovery would require massive shoring, have a limited range of influence and would be dangerous to use. This method is not recommended.

b. RECOVERY WELLS - The first step in this strategy is to contain the free separate phase material to keep it from migrating. This is accomplished by drilling wells and installing a pumping system to lower the water table, creating a cone of depression. Most hydrocarbons are less dense than water and will float on the water table. When the water table is drawn down, the free product will tend to pool in the depressed zone, where it may be brought to the surface using a secondary pump (Figure 11).

FEASIBILITY

Unlike trenches, recovery wells are effective when groundwater occurs at medium to great depths and they exert a much greater realm of influence. Monitoring wells that currently exist on the site can be modified to serve as recovery wells. This method is recommended for immediate use at the site.

2. DISSOLVED PRODUCT EXTRACTION

a. NO ACTION - Upon review of clean up levels, designated in the State Water Resource Control Boards, Leaking Underground Fuel Tank (LUFT) Field Manual, the site possesses soil and groundwater degradation which surpasses acceptable limits. Remedial action is required.

b. BIODEGRADATION - Bioreactors are used to microbiologically degrade hydrocarbons in a liquid or slurry, by creating an environment suited to the maximum degree of biodegradation possible. Indigenous or imported organisms may be added to improve the degradation. Nutrients and oxygen are inserted into the reactor with the process stream and mixed intensively to speed the bioreaction. In addition to the reactor and its utility requirements, equipment to feed and unload the reactor and to separate the liquid and solid components of the output are required.

FEASIBILITY

This process requires a large capitol investment and is best utilized when all alternate possibilities have been exhausted. Although feasible, it is not recommended in this situation.

c. PHYSICAL CONTAINMENT - Zones of contaminated groundwater may be contained by various barrier systems or hydraulic control systems.

i. Containment barriers such as bentonite slurry walls, grout curtains, vibratory beams/asphalt walls, or steel sheet piles are vertical walls that prevent the migration of contaminated water out of an area. These types of barriers are utilized in soil layers that transmit water horizontally.

ii. Hydraulic control systems are used to reverse the flow of groundwater and to recover product/contaminated water. These systems are typically employed in areas where soils are highly permeable.

FEASIBILITY

Due to the low flow rate and relative impermeability of the sites underlying soils, physical containment barriers are deemed unnecessary, however hydraulic control systems will be implemented in conjunction with other remedial efforts (see soil remediation).

d. OXIDATION - Hydrogen peroxide or ozone can be used to oxidize hydrocarbons in solution breaking them down into carbon dioxide and water. The process entails injecting the peroxide or ozone into the water then passing the solution over ultraviolet lamps to initiate oxidation. Pretreatment of the water is often required to remove suspended solids which could plate the lamps.

FEASIBILITY

This method works slowly and is cost prohibitive, requiring a large initial capital investment sustained by high operation costs. Oxidation is not recommended in this situation.

e. INCINERATION - This remedial method involves directly burning contaminated soils or liquids to produce carbon dioxide and water from hydrocarbons. Incineration can not be performed on site due to high installation cost and stringent air emission guidelines. Contaminated soils or liquids can be transported to an incineration facility (nearest location - Texas) and disposed of for an approximate cost of $2000/ton (1 cubic yard of in situ soils weighs approximately 1.7 tons).

FEASIBILITY

Although incineration facilities exist the cost of transport and disposal is extremely high, thus this option is not recommended in this situation.

f. AERATION - Air stripping is a technique used to remove hydrocarbons from water by transferring the contaminants to an air stream. The water stream is introduced at the top of a stripping tower and air is blown in from the bottom at pressure and volume great enough to induce thorough mixing with the falling water. During this mixing, hydrocarbons are transferred to the air which leaves through the top of the stripper.

FEASIBILITY

Due to stringent air quality regulations, release of the contaminated air is not an option. A carbon bed or catalytic combuster would be necessary to clean the contaminated air thus increasing the unit cost. This option is not recommended in this situation.

g. CHEMICAL NEUTRALIZATION - Acidic and alkaline plant effluents are characteristic of many manufacturing and processing operations. Most regulatory codes specify that the pH of any effluent discharge should not be lower than 6 or higher than 9. Neutralization is accomplished by addition of alkali to acids or acids to alkalies as required to effect the desired pH adjustment.

FEASIBILITY

Neutralization is applicable to any contaminated groundwater containing acidic or alkaline materials and is therefore inappropriate for petroleum contaminated groundwater.

h. NEW TECHNOLOGY - IN SITU BIOREMEDIATION - This new technology is used to clean up hydrocarbon contamination in groundwater and soils below the water table. A series of injection and recovery wells are installed to control the expansion of the contaminant plume. A flow pattern is established and nutrients and oxygen are introduced through the injection wells to enhance microbial degradation of hydrocarbons in soil and water (Figure 12).

FEASIBILITY

This option is efficient, rapid and treats the soil beneath the water table, however it is expensive to install, relatively expensive to maintain and would require further investigations prior to installation. Bioremediation is the second choice of ITES for remediation in this instance.

i. CARBON FILTRATION - Carbon adsorbtion beds are used to remove hydrocarbons from air or water streams and are capable of high removal efficiencies. The carbon is packed in a canister or tank with the water flowing from bottom to top. The high surface area and pore volume of the carbon trap the hydrocarbons from the carrier stream (Figure 13). When all of the active sites on the carbon surface have been filled, hydrocarbon removal decreases and breakthrough occurs. Usually, two or more beds are installed in series with a sample port to indicate when breakthrough has occurred. Saturated beds may be regenerated using steam or very hot air.

FEASIBILITY

Carbon filtration (liquid) proves to be the optimum site-specific remedial alternative. Installation costs are low, low contaminant levels can be achieved and emission levels are not exceeded.

3. TREATED WATER RELEASE

a. DISCHARGE TO SURFACE WATER - Treated water may be released to surface water supplies.

FEASIBILITY

This option requires a holding public hearing to obtain a permit. This could be a lengthy process and is not recommended.

b. REINTRODUCTION TO AQUIFER - Injection wells are used to return water to the aquifer from which the contaminated water was removed after above ground treatment.

FEASIBILITY

Although the carbon filtration method will result in very low levels of remaining contamination in the groundwater, reintroduction may be difficult due to the high water table and relatively impermeable soils. Reintroduction is not recommended in this instance.

c. PUMP TO SEWER - Once the water has been carbon filtered, it will be purified sufficiently to be introduced to the sanitary sewer for further treatment.

FEASIBILITY

According to Water Pollution Control representative, Paul Zolfarelli, carbon treated water can be accepted to the sanitary sewer in the San Leandro area. This option is recommended due to the ease of disposal and low cost involved.

VII. CONCLUSIONS

1. Groundwater ranges in elevation from 10.20 feet to 10.77 feet above mean sea level.

2. The sites average hydraulic gradient is .0017 ft/ft to the south-southeast.

3. The site is underlain by a layer of sandy fill extending to a maximum thickness of three feet below grade. This fill overlies an inorganic clay layer, with occasional sand interbeds beginning 0 - 3 feet below grade, with the base being undefined.

4. Soil and groundwater samples from monitoring wells MW-1 and MW-2 revealed no detectable hydrocarbon contaminants.

5. Soil samples from monitoring well MW-3 and soil borings BO01 and BO05, all drilled adjacent to the gasoline tank excavation, revealed the presence of petroleum hydrocarbon constituents.

6. The occurence of contaminants appears to correspond to a local sand lens, occurring 12 - 15 feet below grade.

7. Free product (3mm) was encountered in monitoring well MW-3, therefore a sample could not be obtained.

8. Groundwater recovery wells are recommended for addressing the free phase contamination, discovered in the groundwater, since pre-existing wells can be utilized in the process.

9. Soil venting is recommended for remediation of the soil because it is cost effective, the contaminants present are highly volatile, soil permeability is high in the area where contamination appears to be concentrated and contamination encountered beneath the existing building can be addressed.

10. Carbon adsorption is recommended for groundwater remediation following the removal of free product. Carbon filtration is cost effective, does not exceed emission limits and can achieve low level contamination results.

TABLE 1
WELL DEVELOPMENT DATA
INGERSOLL - RAND CORPORATION
1944 MARINA BOULEVARD - SAN LEANDRO CALIFORNIA
17 NOVEMBER 1989

Monitoring Well # - MW-1
Begin purging - 0915
End purging - 0930

Initial water level - 14.26
Well depth - 19.17
Well volume (gallons) - 3.20

Total purge volume (gallons) - 7.0
Purged dry

==========

Monitoring Well # - MW-2
Begin purging - 0857
End purging - 0908

Initial water level - 14.74
Well depth - 20.34
Well volume (gallons) - 3.65

Total purge volume (gallons) - 12.0
Purged dry

==========

Monitoring Well # - MW-3
Begin purging - 0942
End purging - 0958

Initial water level - 17.23
Well depth - 21.61
Well volume (gallons) - 2.86

Total purge volume (gallons) - 6
Purged dry

TABLE 2
WATER LEVEL MONITORING
INGERSOLL - RAND CORPORATION
1944 MARINA BOULEVARD - SAN LEANDRO CALIFORNIA
13 DECEMBER 1989

WELL NUMBER	TIME	WELL ELEVATION	WATER LEVEL	WATER ELEVATION
MW-1	1249	24.78	14.01	10.77
MW-2	1244	24.70	14.57	10.53
MW-3	1252	27.33	17.13	10.20

TABLE 3 - SOIL SAMPLE ANALYSIS (ppm)

DATE	WELL/ BORING #	SAMPLE #	TPH GAS	TPH DIESEL	B	T	E	X
11/10	MW-1 16'	1110MW1SS3	BDL	BDL	BDL	BDL	BDL	BDL
11/10	MW-2 15'	1110MW2SS3	BDL	BDL	BDL	BDL	BDL	BDL
11/10	MW-3 15'	1110MW3SS3	BDL	BDL	0.23	1.6	0.49	4.1
11/15	BH-1 depth?	BO01SS1	400	NA	13.0	53.0	13.0	75.0
11/15	BH-5 depth?	BO05SS1	1000	NA	4.9	28.0	13.0	75.0

==========

TABLE 4 - [redacted] SAMPLE ANALYSIS (ppb)

DATE	WELL/ BORING #	SAMPLE #	TPH GAS	TPH DIESEL	B	T	E	X
11/17	MW-1	1117 MW-1	BDL	BDL	BDL	BDL	BDL	BDL
11/17	MW-2	1117 MW-2	BDL	BDL	BDL	BDL	BDL	BDL

NOTE: Trichloroethene was encountered in the water samples extracted from MW-1 and MW-2 at 29 ppb and 10 ppb respectively.

ppb = parts per billion
ppm = parts per million
BDL = below detection limit
NA = not analyzed
B = benzene
T = toluene
E = ethyl benzene
X = xylene
TPH = total petroleum hydrocarbons

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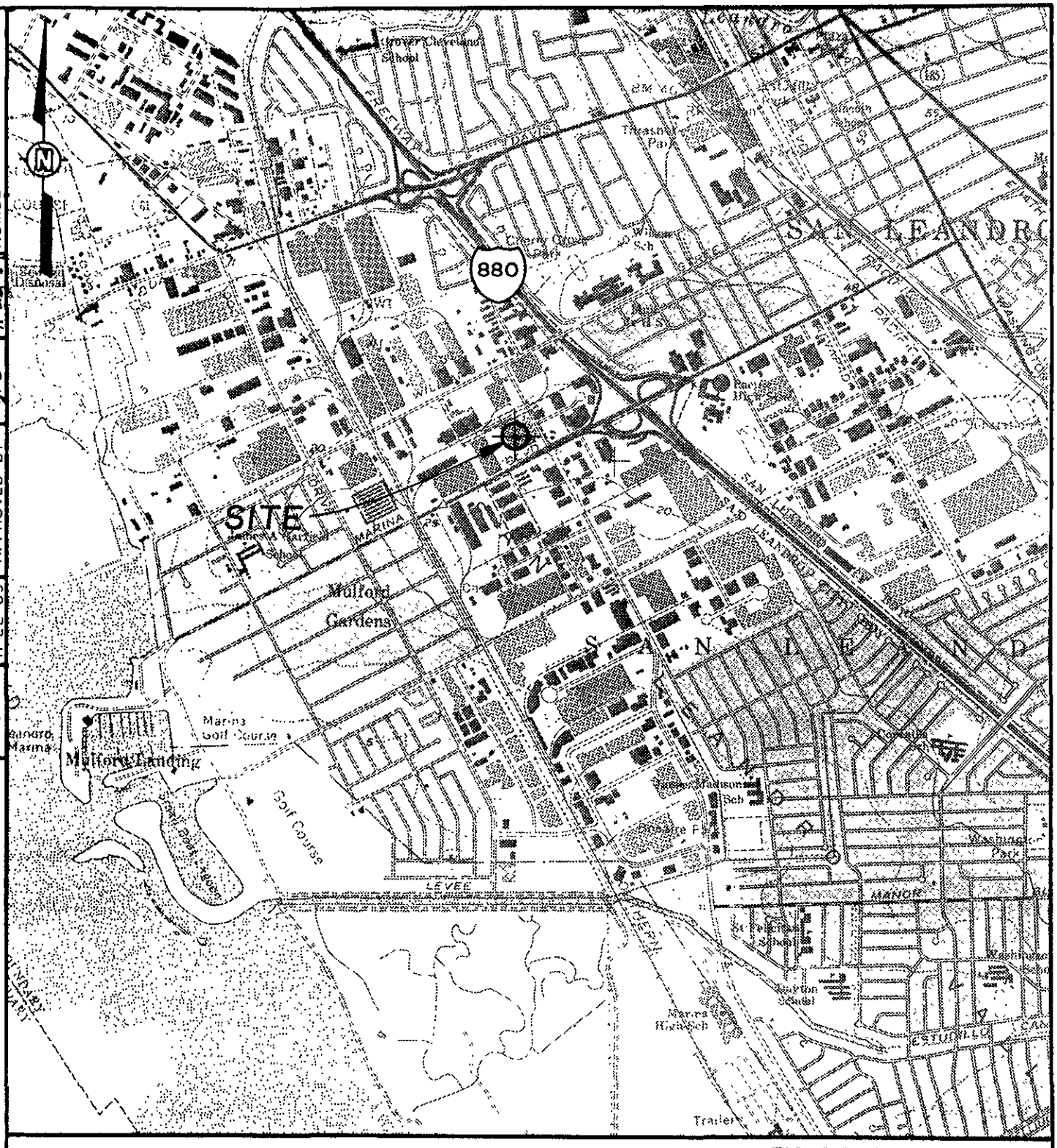

SCALE

0 2000 4000 FEET

FIGURE 1

SITE VICINITY MAP

PREPARED FOR

INGERSOLL - RAND
1944 MARINA BLVD.
SAN LEANDRO, CALIFORNIA

REFERENCE

U.S.G.S. 7.5' MIN. TOPOGRAPHY, SAN LEANDRO, CALIFORNIA QUADRANGLE; DATED 1959 PHOTOREVISED 1980
SCALE = 1:24000

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Do Not Scale This Drawing

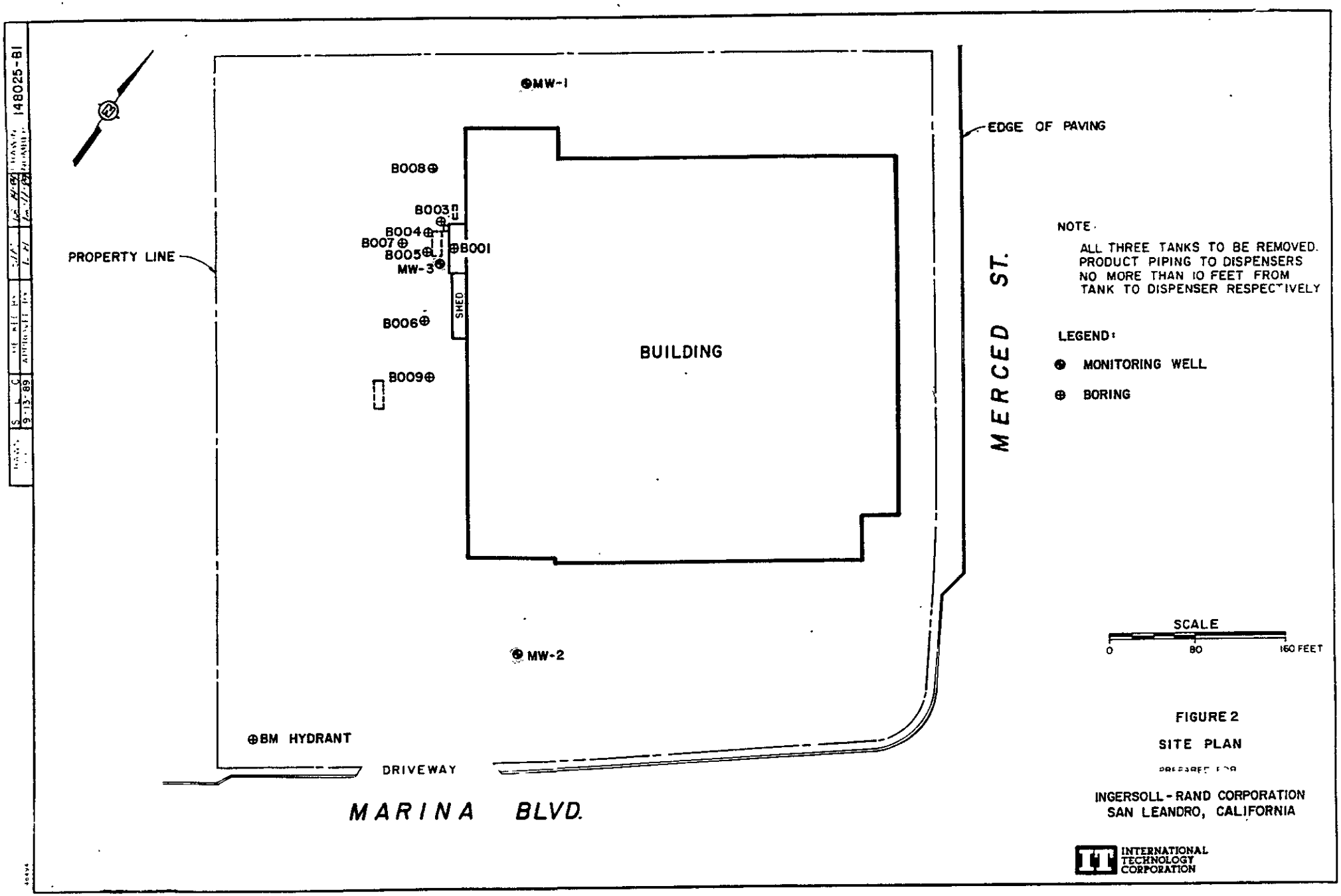

FIGURE 2

SITE PLAN

PREPARED FOR

INGERSOLL-RAND CORPORATION
SAN LEANDRO, CALIFORNIA

INTERNATIONAL TECHNOLOGY CORPORATION

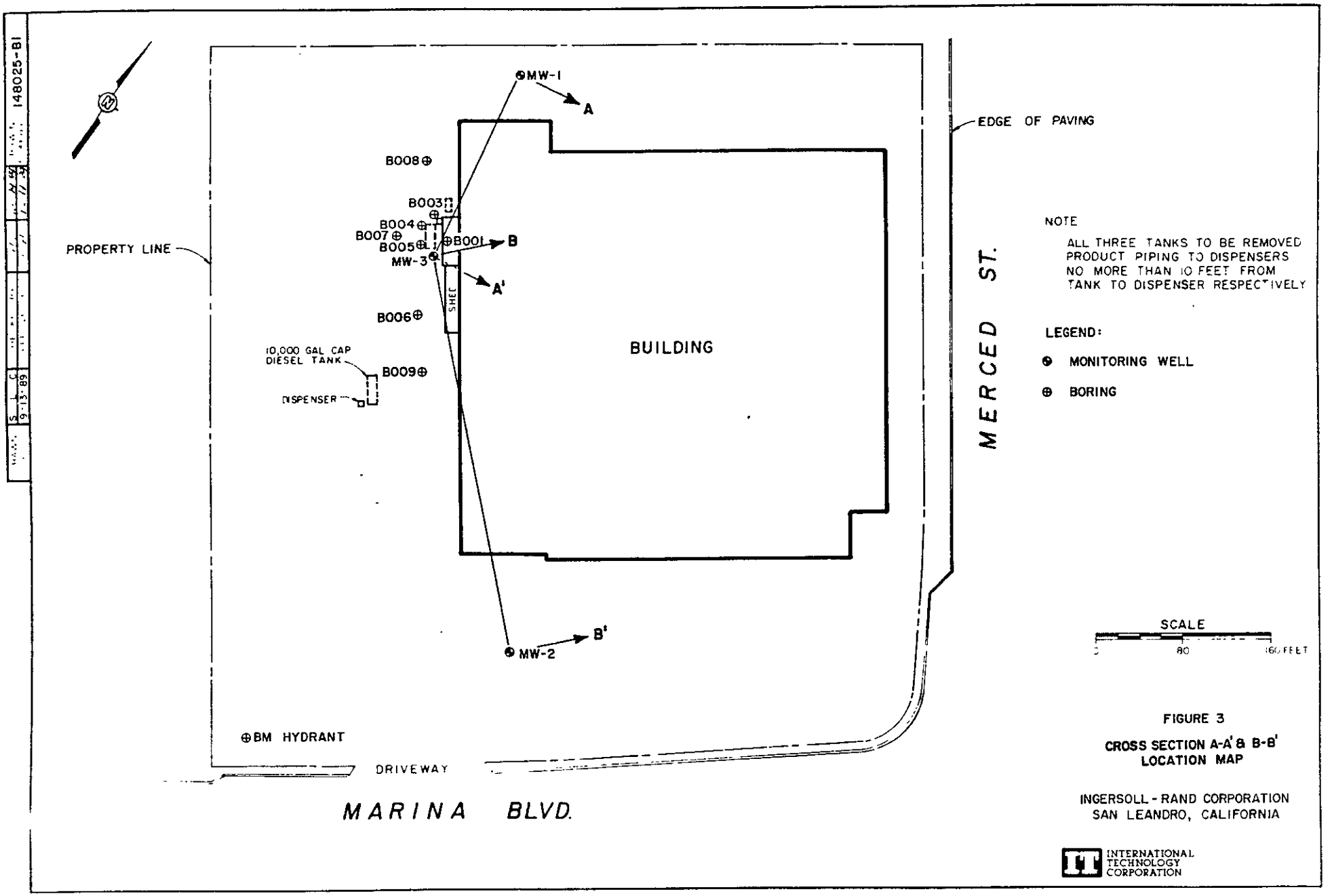

FIGURE 3

CROSS SECTION A-A' & B-B'
LOCATION MAP

INGERSOLL-RAND CORPORATION
SAN LEANDRO, CALIFORNIA

INTERNATIONAL TECHNOLOGY CORPORATION

DRAWN BY	CHECKED BY	DRAWING NUMBER
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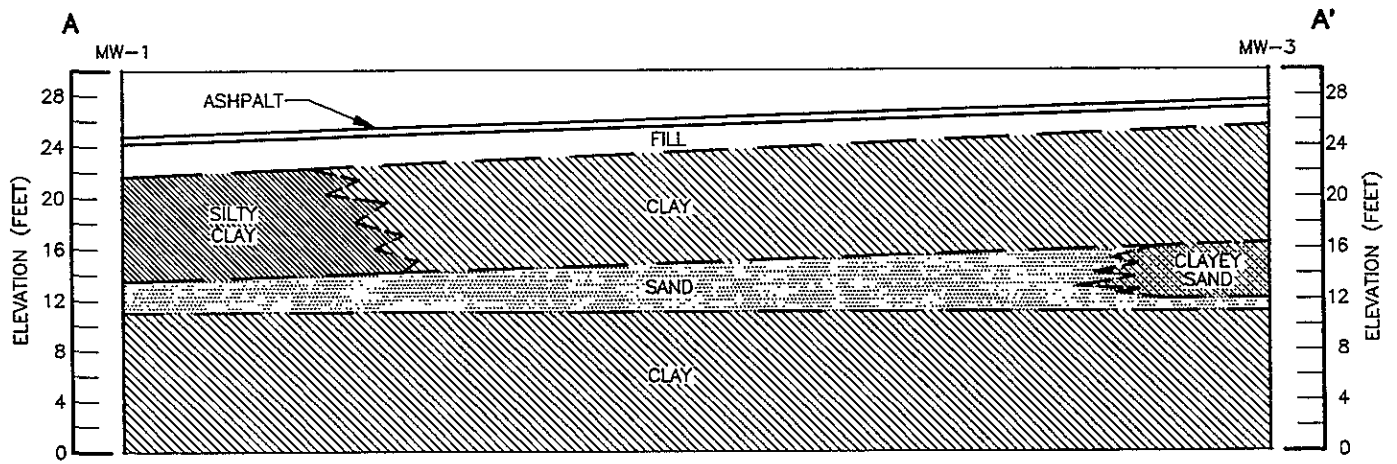

NOTES:

1. VERTICAL EXAGGERATION 2:1
2. ELEVATIONS ARE ABOVE MEAN SEA LEVEL BASED ON AN ARBITRARY BM OF 24 FEET.
3. FOR PLAN LOCATION OF SECTION A–A', SEE FIGURE 2.

HORIZONTAL SCALE
0 20 40 FEET

VERTICAL SCALE
0 10 20 FEET

FIGURE 4

CROSS SECTION A–A'

PREPARED FOR

INGERSOLL–RAND CORPORATION
SAN LEANDRO, CALIFORNIA

INTERNATIONAL TECHNOLOGY CORPORATION

XSECA–A(IR1)

DRAWN BY	CHECKED BY	DRAWING NUMBER
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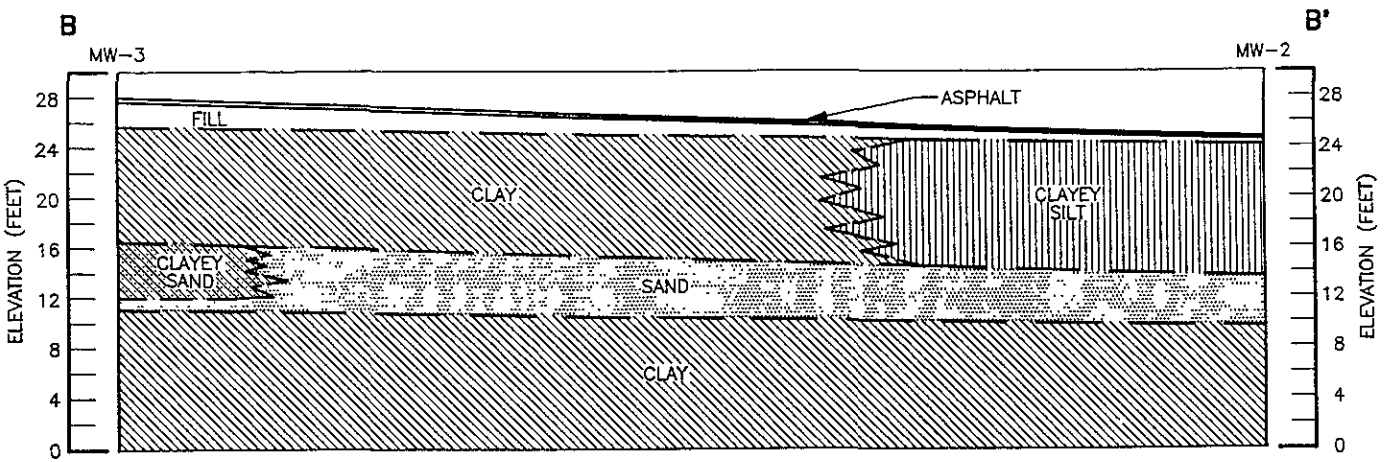

NOTES:

1. VERTICAL EXAGGERATION 4:1
2. ELEVATIONS ARE ABOVE MEAN SEA LEVEL BASED ON AN ARBITRARY BM OF 24 FEET.
3. FOR PLAN LOCATION OF SECTION B-B' SEE FIGURE 2.

HORIZONTAL SCALE
0 40 80 FEET

VERTICAL SCALE
0 10 20 FEET

FIGURE 5

CROSS SECTION B-B'

PREPARED FOR

INGERSOLL-RAND CORPORATION
SAN LEANDRO, CALIFORNIA

INTERNATIONAL TECHNOLOGY CORPORATION

XSECB-B(IR1)

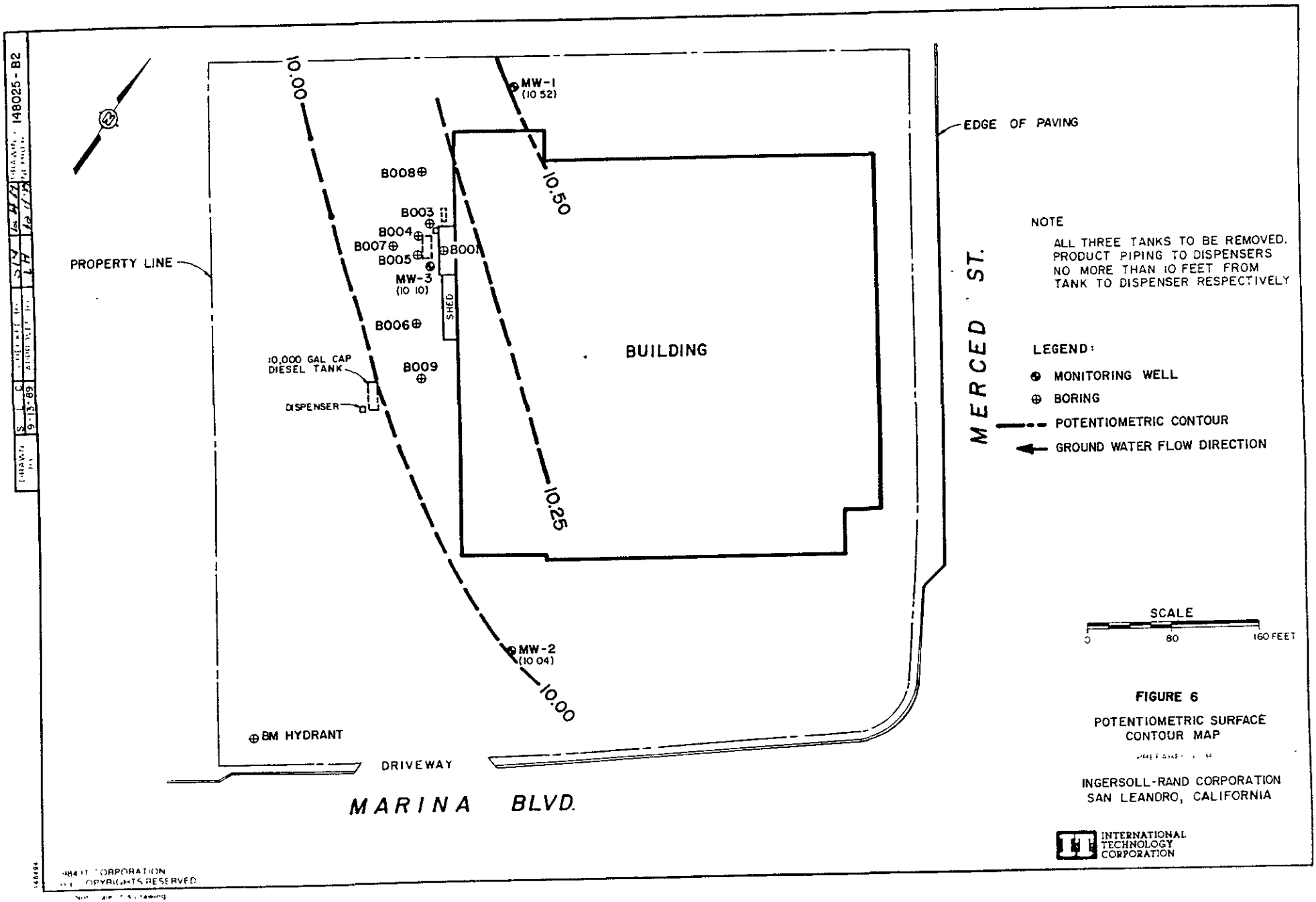

FIGURE 6

POTENTIOMETRIC SURFACE
CONTOUR MAP

INGERSOLL-RAND CORPORATION
SAN LEANDRO, CALIFORNIA

INTERNATIONAL
TECHNOLOGY
CORPORATION

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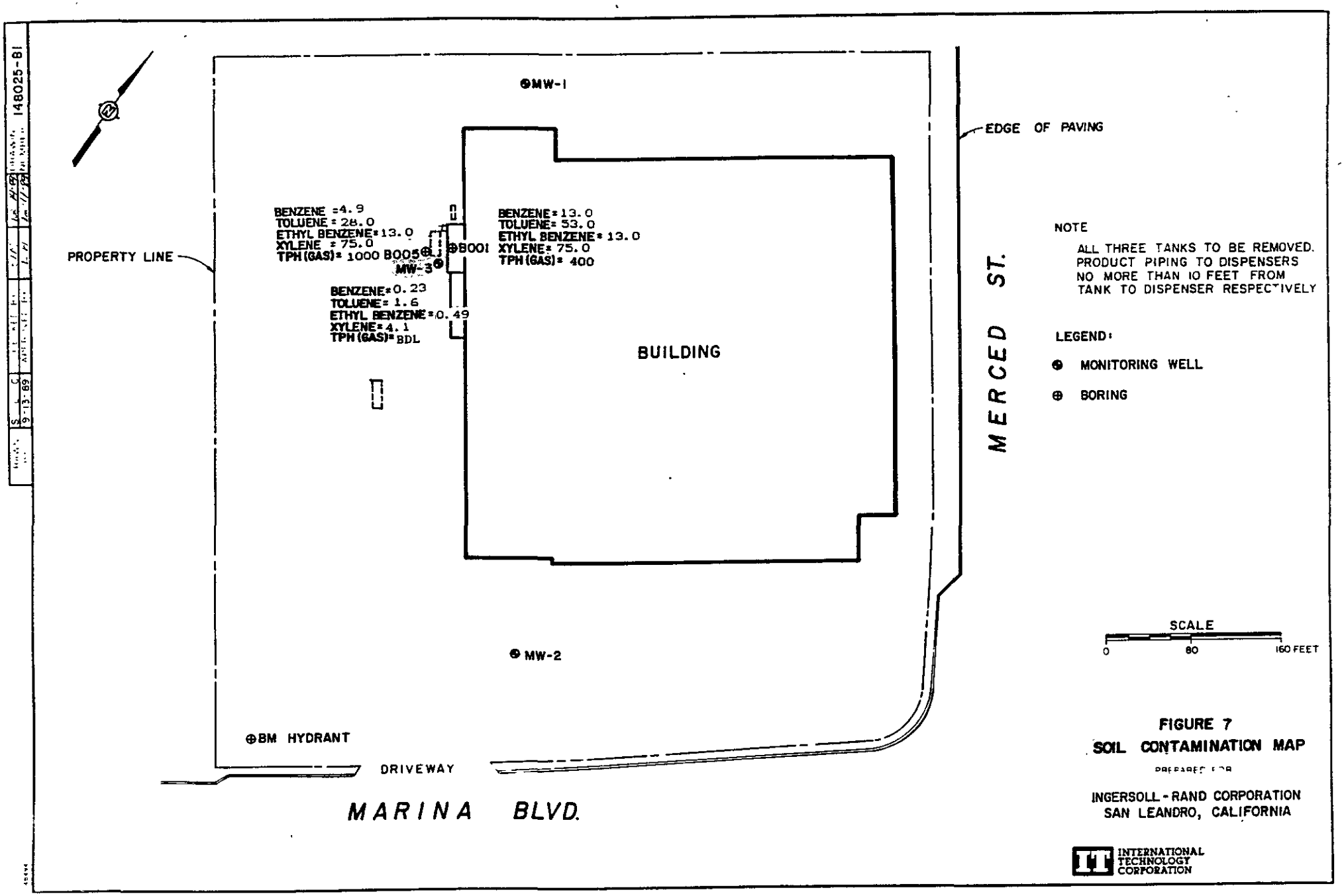


FIGURE 7
SOIL CONTAMINATION MAP

PREPARED FOR

INGERSOLL-RAND CORPORATION
SAN LEANDRO, CALIFORNIA

INTERNATIONAL TECHNOLOGY CORPORATION

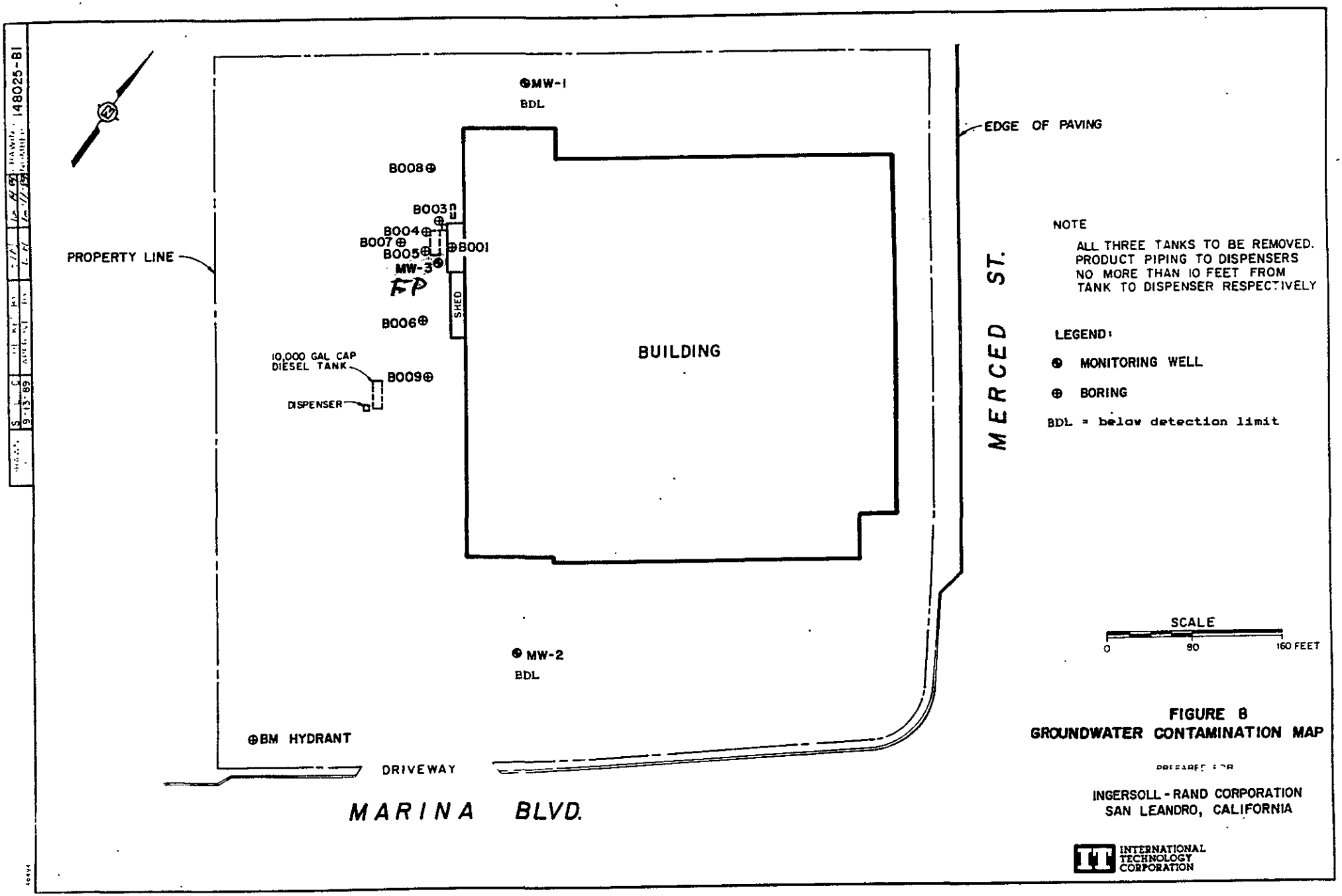


FIGURE 8
GROUNDWATER CONTAMINATION MAP

PREPARED FOR

INGERSOLL-RAND CORPORATION
SAN LEANDRO, CALIFORNIA

INTERNATIONAL TECHNOLOGY CORPORATION

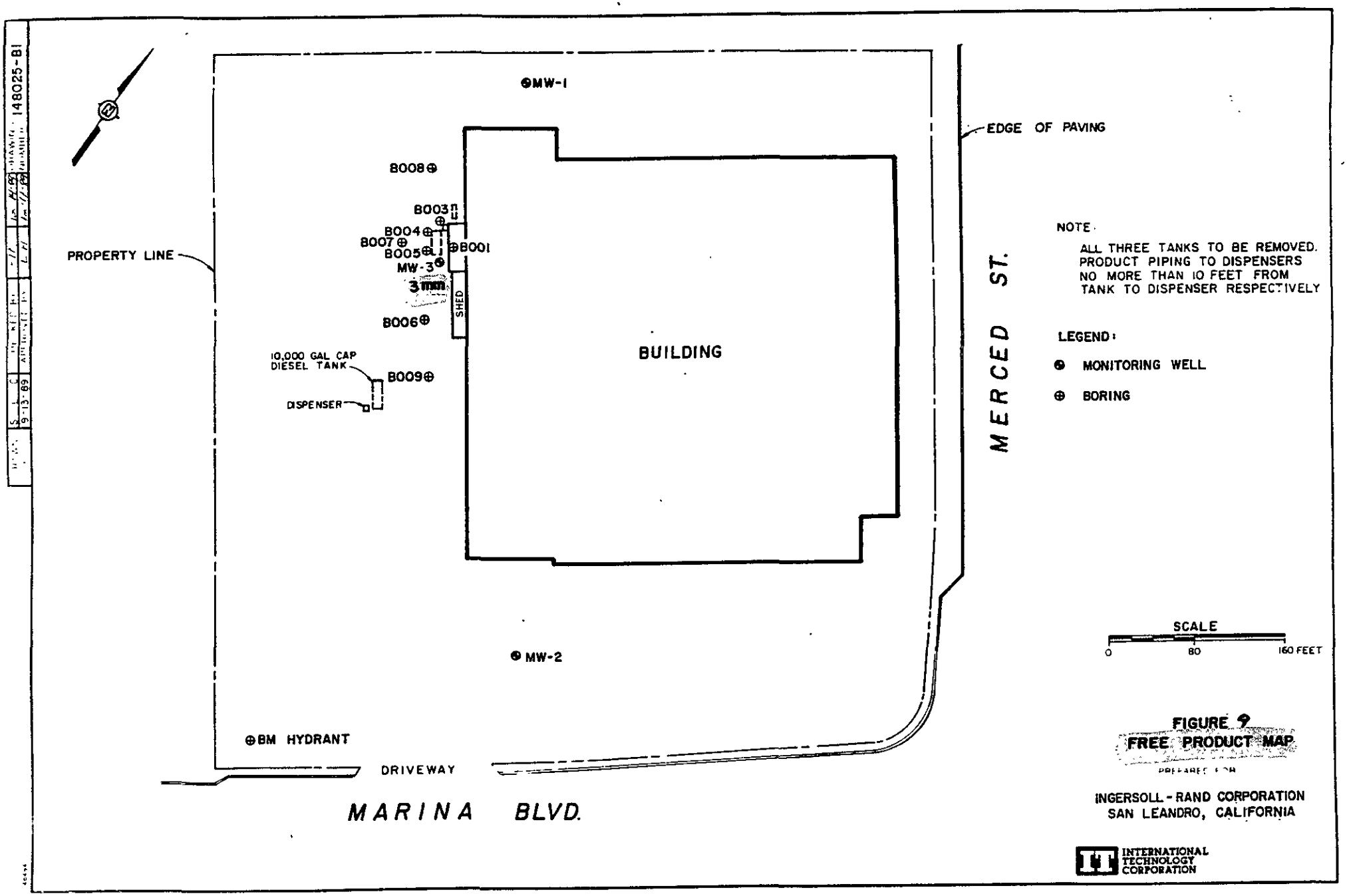
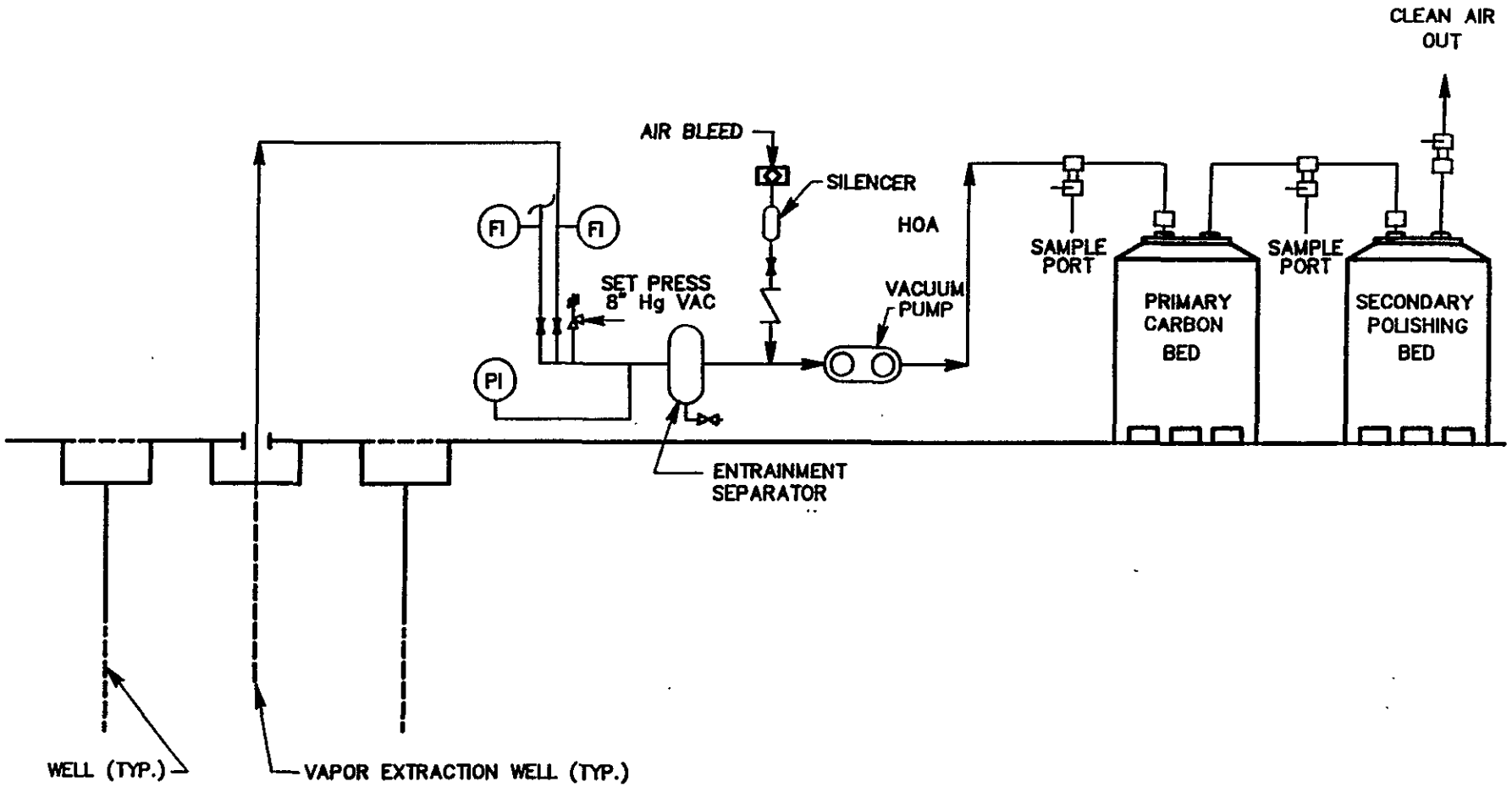


FIGURE 9
FREE PRODUCT MAP

INGERSOLL-RAND CORPORATION
SAN LEANDRO, CALIFORNIA

INTERNATIONAL TECHNOLOGY CORPORATION



LEGEND

FI FLOW INDICATOR

PI PRESSURE INDICATOR

FIGURE 10

SOIL VENTING
SCHEMATIC DIAGRAM

INTERNATIONAL
TECHNOLOGY
CORPORATION

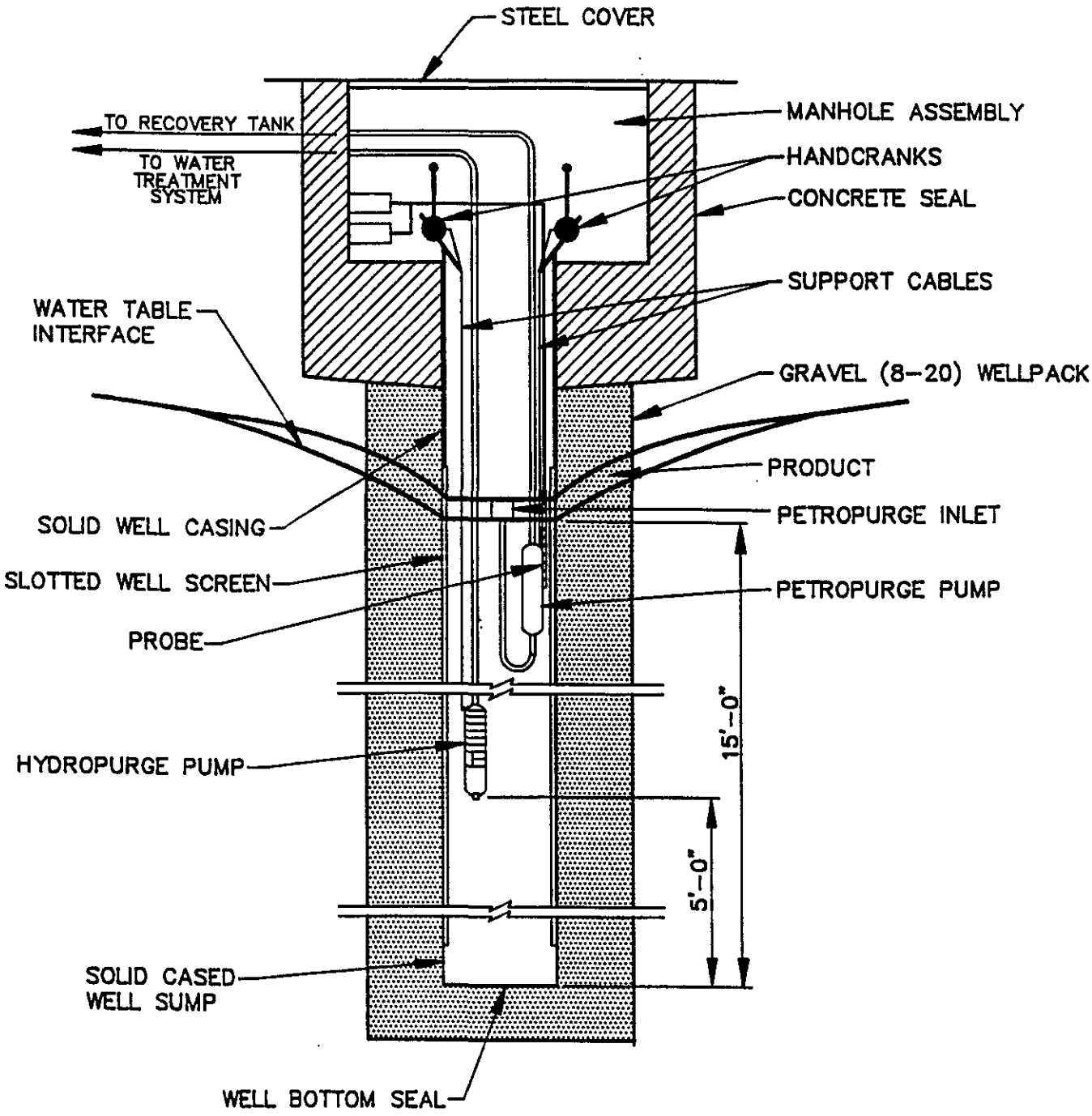
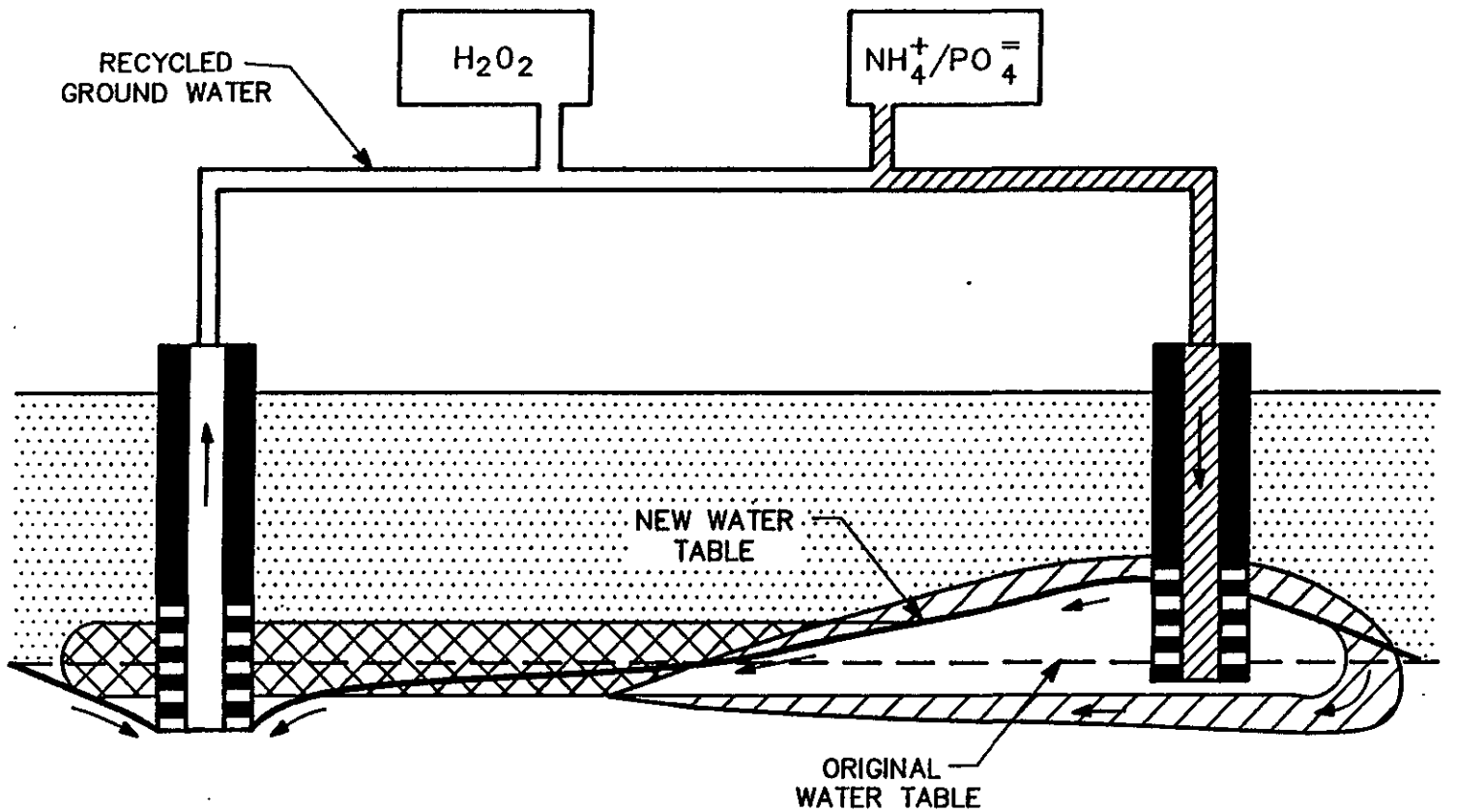


FIGURE 11
HYDROPURGE/PETROPURGE
PUMP SYSTEM



LEGEND

- NUTRIENT FLOW
- BIOACTIVE AREA
- CONTAMINANT

FIGURE 12
ENHANCED BIORECLAMATION

INTERNATIONAL TECHNOLOGY CORPORATION

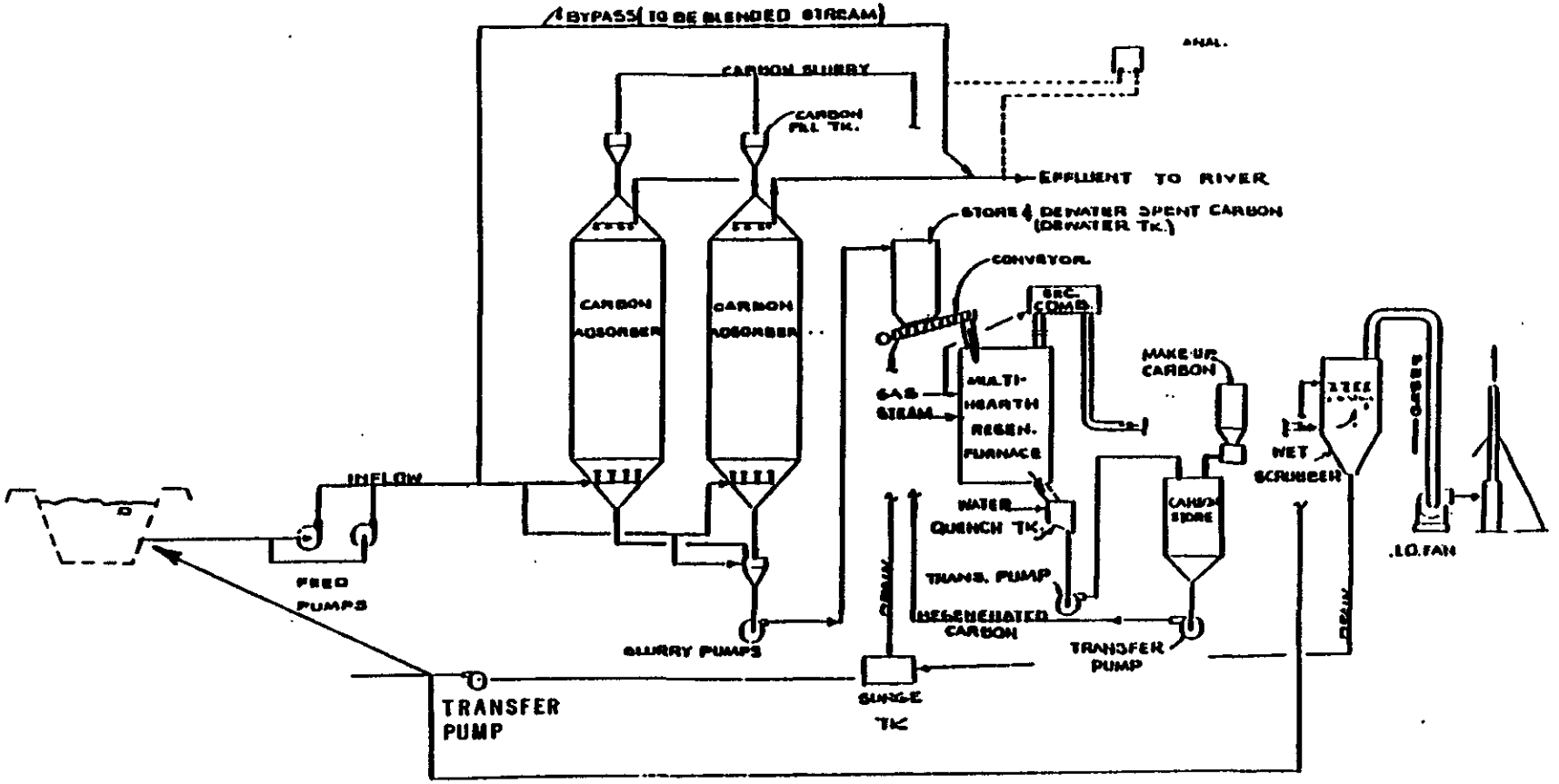


FIGURE 13

CARBON ADSORPTION
W/REGENERATION FLOW DIAGRAM

INTERNATIONAL TECHNOLOGY CORPORATION

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131009

INTERNATIONAL TECHNOLOGY CORPORATION

2 November 1989

Kevin McNelis
Ingersoll-Rand Inc.
942 Memorial Parkway
Phillipsburg, New Jersey 08865

REFERENCE: UNDERGROUND STORAGE TANK REMOVAL
Ingersoll-Rand Inc.
1944 Marina Boulevard
San Leandro, California 94577
ITES Job# 141640

Dear Mr. McNelis,

International Technology Environmental Services (ITES) was retained by Ingersol Rand on 8 August 1989, to remove three underground storage tanks from their site located at 1944 Marina Boulevard in San Leandro, California. The scope of work included obtaining all necessary permits, executing tank removal procedures, differentiating of soils accumulated during tank excavation, and soil sampling upon tank removal. The following is a summary of activities and observations on 10 October through 12 October 1989.

The site contained three approximately twenty year old steel underground storage tanks, 500, 5000 and 10000 gallons respectively (Figure 1). The 500 gallon waste oil tank was fitted with a vent line which ran from the center of the tank easterly to the adjacent building and extended approximately 20 feet above grade. A fill port was mounted on the east end of the tank, with attached piping which ran northeasterly and entered the adjacent building. The piping was connected to a funnel used for shop waste disposal. The 5000 gallon gasoline tank's piping system was comprised of two (2) four (4") fill ports located on the south end. Two (2) lines, a 1.5 inch vent line and a two (2") product line, extended 15 feet northeast from the north end of the tank to a dispenser. The 10000 gallon diesel tank's piping system consisted of a four (4") fill pipe affixed to the north end. Suction and vent lines (1.25") extended southwest ten (10) feet from the center of the tank to a dispenser (Figure 2).

Tank removal procedures commenced 10 October 1989 with ITES crews freeing the tanks and piping of remaining product and removing the concrete pads and dispensers overlying the tanks. ITES laid out triple layered visqueen on which to temporarily store the excavated soils. The upper layer of sandy fill (app. 3.5 feet) was removed from each tank excavation along with all piping. All tank piping appeared to be sound. The soils were screened with an Hnu brand photo-ionization detector (PID) for the presence of contaminants, then stockpiled near each of the excavations. Soil contaminant levels registered 3 - 4 parts per million (ppm) in the overburden soils of the waste oil and diesel tanks, with the gasoline tank's overburden soils registering 200 - 300 ppm.

Activities resumed 11 October 1989 as ITES crews excavated the remaining soil from the sides of each tank and placed it in separate stockpiles from those of the previous day. Upon PID analysis, the diesel and waste oil tank excavation soils exhibited contaminant concentrations of 3 - 4 ppm with the gasoline tank excavation soil levels reaching 500 - > 2000 ppm. Soils from the gasoline tank excavation exhibited a strong "gasoline" odor however, no stains or free product were noticed.

On 12 October 1989, dry ice (150 lbs/ 100 gal) was inserted through each tanks fill end port to guarantee vapor stability prior to removal. Investigation of the vapor concentrations was conducted with a Gas Tech brand combustible gas indicator by an ITES representative. City of San Leandro Fire Prevention Inspector, Guy Pelham, was on site to verify that the required level of stability within the tanks had been achieved. The tanks registered <10% of the lower explosive limit (LEL) and <10% oxygen, the mandated levels for tank removal in the City of San Leandro. Upon removal and inspection, the tanks were determined to be sound. The tanks were removed from the site by a licensed hazardous waste hauler and transported to Erickson Corporation in Richmond California for cleaning and destruction. Tank closure data is enclosed as Appendix D.

Soil samples were obtained from each tank excavation by an ITES representative, under the direction of the San Leandro Fire Inspector. A backhoe was used to remove native soil (clay) from both ends of the 5000 and 10000 gallon tank excavation at approximately 12.5 feet below grade. Composite side wall samples, at a depth of six (6) feet below grade, were also taken with the backhoe in order to determine whether lateral migration of contaminants had occured. The backhoe was also used to obtain soil samples from the center of the 500 gallon tank excavation, approximately seven (7) feet below grade. For each sample point,

the backhoe bucket was brought immediately to the surface and approximately three inches of soil were scraped away. A decontaminated brass tube was driven into the soil with a wooden mallet. Tube ends were immediately sealed with aluminum foil and fitted with end caps to prevent the loss of volatile organic compounds (Appendix A). Samples tubes were labeled and placed in a refrigerated chest until delivery at the Precision Analytical Laboratory in Richmond, California. Samples were analyzed for benzene, ethyl benzene, toluene, xylene (BTEX) - EPA method 8020, total petroleum hydrocarbons (TPH) as gasoline and total petroleum hydrocarbons (TPH) as diesel - DHS method (LUFT). Samples from the waste oil excavation, piping and overburden were also analyzed for Halogenated Volatile Organics by EPA method 8010, Cyanide by EPA method 9010, Polychlorinated Biphenyls by EPA methods 8080, and ICAP Metals by EPA method 6010. Signed chain of custody forms accompanied the samples at all times (Appendix B).

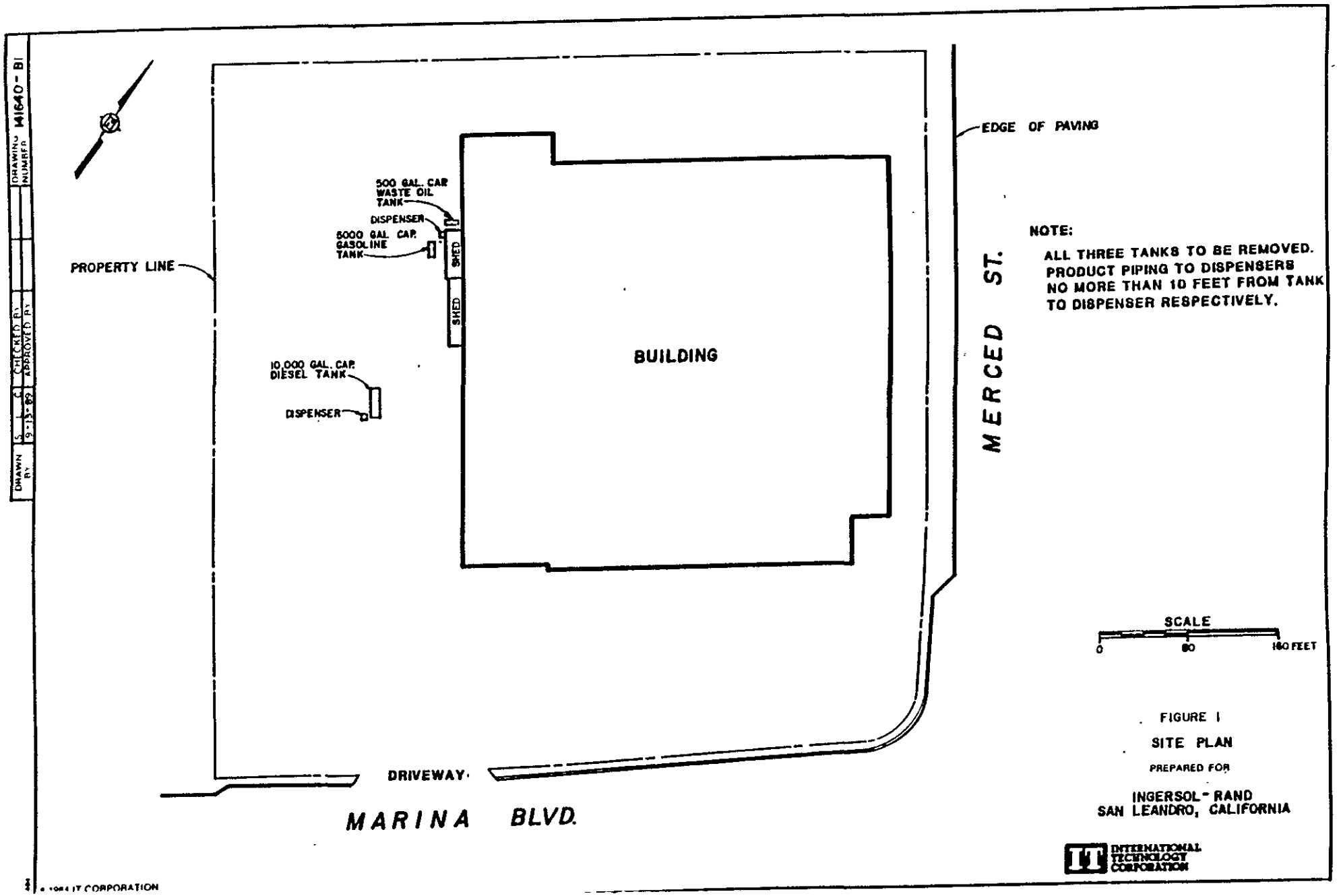
Sample tubes were driven directly into the soil beneath the waste oil and gasoline tank piping, and the overburden stockpiles. Duplicates of all samples were obtained for quality assurance.

Upon completion of sampling activities, the 500 gallon tank pit was backfilled with native soil and a top layer of new 3/4 aggregate sub-base. The 10000 gallon tank pit was backfilled with clean pea gravel with an overlying three foot layer of 3/4 aggregate sub-base. The 5000 gallon tank pit was surrounded by barricades to isolate it from the general public. The soil piles were covered with a layer of visqueen, pending waste characterization analysis results required for disposal. Soils were removed from the site on 1 and 2 November 1989 by GSX services, subsequent to characterization, and transported to Buttonwillow California.

Laboratory analyses revealed the presence of contaminants in all of the samples from the gasoline tank excavation and only in the overburden samples from the waste oil and diesel tank excavations. Laboratory reports are enclosed as Appendix C.

Sincerely,

Larry Hudson
Project Manager



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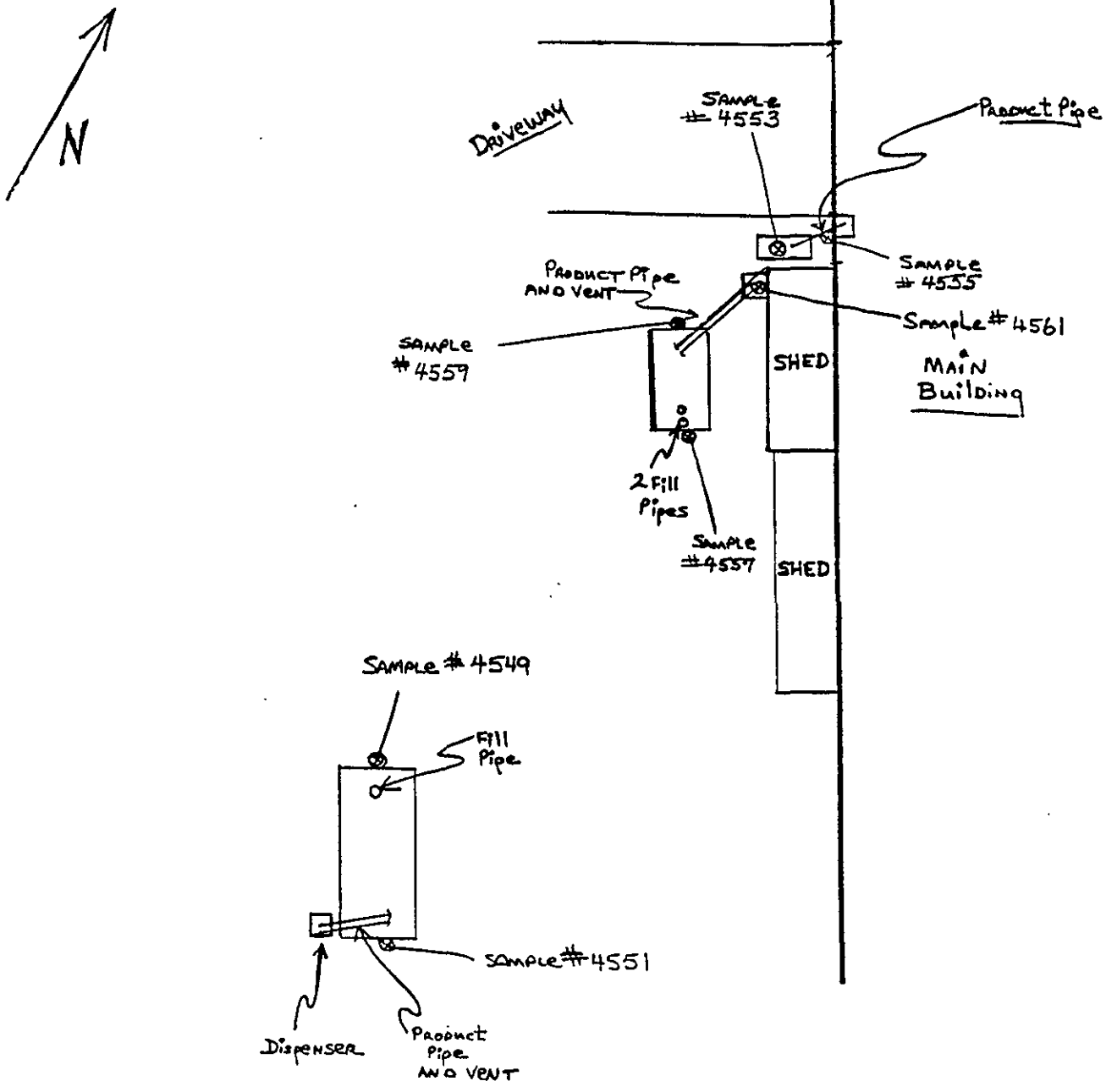
INTERNATIONAL TECHNOLOGY CORPORATION

H. Date 11-1-89 Subject Ingersol-Rand Sheet No. 1 of 1

By Date Proj. No. 141640

Piping and Sampling Point Locations



1" = 27'

Figure 2

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 84511

C/C Control No. A 81128

PROJECT NAME/NUMBER Ingersoll-Rand

LAB DESTINATION Pace

SAMPLE TEAM MEMBERS Larry Hudson

CARRIER/WAYBILL NO.

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
4549	North END 10K TANK	10/12/89 1125	Soil	Brass Tube		
4551	South END 10K TANK	10/12/89 1145				
4553	500Gal Waste Oil TANK	10/12/89 1150				
4555	6" woden Pipe to Waste oil TANK	10/12/89 1245				
4557	South end of 5KGAS TANK	10/12/89 1315				
11559	North end of 5K GAS TANK	10/12/89 1300				
4561	5K TANK Dispenser	10/12/89 1325				
4563	Overburden 10K TANK	10/12/89 1415				
4565	overburden 5K TANK	10/12/89 1425				
4567	overburden Waste oil TANK	10/12/89 1435				

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Larry Hudson 10-13-89 1030

   Received By: Donna Caliguiri 10/13 10:30

2. Relinquished By:

   Received By:

3. Relinquished By:

   Received by:

4. Relinquished By:

   Received By:

IT INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

A C[illegible]l No. B 84511

C/C Control No. 81128

PROJECT NAME Ingersol Rand

PROJECT NUMBER 141620

PROJECT MANAGER Larry Brown

BILL TO

PURCHASE ORDER NO.

DATE SAMPLES SHIPPED

LAB DESTINATION

LABORATORY CONTACT

SEND LAB REPORT TO

DATE REPORT REQUIRED

PROJECT CONTACT

PROJECT CONTACT PHONE NO.

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
4549	Soil	Brass Tube	N/A	TPH-D, BTEX	
4551				TPH-D BTEX	
4553				TPH D&G, BTEX, CL HC, ICAP (CR, Pb, Cd, ZN), PCB	
4555				TPH D&G, BTEX, CL HC, ICAP (CR, Pb, Cd, ZN), PCB	
4557				TPH-G, BTEX	
4559				TPH-G, BTEX	
4561				TPH-G, BTEX	
4563				TPH-D, BTEX	
4565				TPH-G, BTEX	
4567	↓	↓	↓	TPH D&G, BTEX, CL HC, ICAP (CR, Pb, Cd, ZN), PCB	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal _____ Rush ✓ 5 DAY TAT (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other _____ (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client _____ Disposal by Lab _____

FOR LAB USE ONLY

Received By: Deborah Gillin Date/Time 10/13/89 10:27 AM

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. [illegible]

C/C Control No. 021034

PROJECT NAME/NUMBER: Ingersoll-Rand

LAB DESTINATION: Precision Analytical

SAMPLE TEAM MEMBERS: Larry Hill

CARRIER/WAYBILL NO.:

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
4569	Perimeter 6' Level at 5K Tank	10/12/89 1520	Soil	Brass Tube		
4571	Perimeter 3' Level at W.O. Tank	10/12/89 1530				
4573	Perimeter 5' Level at 10K Tank	10/12/89 1540				
4575	Background	10/12/89 1610				

COPY

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Larry Hill 10-13-89 1030

   Received By: Donna Calinguin 10/13/89 10:30

2. Relinquished By:

   Received By:

3. Relinquished By:

   Received by:

4. Relinquished By:

   Received By:

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

Con[redacted] No. [redacted] 8[redacted]1U

C/C Control No. 021034

PROJECT NAME: Ingersol-Rand
PROJECT NUMBER: 141640
PROJECT MANAGER: Larry Thoson
BILL TO: IT Services
4575 Pacheco Blvd
Martinez, CA 94553

PURCHASE ORDER NO.:

DATE SAMPLES SHIPPED: 10-12-89
LAB DESTINATION: Precision Analytical
LABORATORY CONTACT: Janie Chow
SEND LAB REPORT TO: Larry Thoson
IT

DATE REPORT REQUIRED: 10-19-89
PROJECT CONTACT: Larry Thoson
PROJECT CONTACT PHONE NO.: 415-372-9100

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
4569	Soil	Brass Tube	N/A	TPH-G, BTEX	
4571	Soil	↓	↓	TPH-G&D, BTEX, CL HC, TCAP(Cr, Pb, Cd, Zn), PCB	
4573	Soil			TPH-D, BTEX	
4575	Soil			TPH G&D, BTEX	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)
Normal _____ Rush ✓ 5 DAY TAT (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)
Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other _____ (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)
Return to Client _____ Disposal by Lab _____

FOR LAB USE ONLY
Received By Donna Calingasan Date/Time 10/13/89 10:27 AM

SUMMARY TABLE OF ANALYTICAL RESULTS

INGERSOL-RAND, SAN LEANDRO

Sample Location	Sample #	Benzene	Ethyl Benzene	Toluene	Xylene	TPH (D)	TPH (G)	All Halogenated Volatile Organics	
10,000 gal Diesel Tank	4549	ND <.03	ND <.03	ND <.03	ND <.03	ND< 10	ND< 10	ND <.03	
	4551	ND <.03	ND <.03	ND <.03	ND <.03	ND < 10	ND< 10	ND <.03	
500 gal Waste Oil	4553	ND <.03	ND <.03	ND <.03	ND <.03	ND < 10	ND< 10	ND <.03	Metals (See COA)
Waste Oil Product Pipe	4555	ND <.03	ND <.03	ND <.03	ND <.03	ND< 10	ND < 10	ND <.03	Metals (See COA)
5,000 gal Gas Tank	4557	39	83	240	470	ND< 1000	7,770		
	4559	16	35	110	200	ND 500	3,200		
5,000 Gas Dispenser	4561	ND <.03	ND <.03	ND <.03	ND <.03	20	ND <10		
Overburden 10K	4563	ND <.03	ND <.03	ND <.03	ND <.03	320	10		
Overburden 5K	4565	ND <.3	7.6	14	110	ND< 500	3,100		
Overburden Waste Oil	4567	ND <.03	.08	.12	1.1	40	ND< 10	ND< .03	Metals (See COA)
Perimeter 5K Tank	4569	.84	39	71	440	ND< 1000	6,550		
Perimeter Waste Oil	4571	ND< .03	ND< .03	ND< .03	ND< .03	ND< 10	ND< 10	ND< .03	Metals (See COA)
Perimeter 10K Tank	4573	ND< .03	ND< .03	ND< .03	ND< .03	ND< 10	ND< 10		
Background	4575	ND< .03	ND< .03	ND< .03	ND< .03	ND< 10	ND< 10		

Precision Analytical Laboratory, Inc.
4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 10/14/89
Reported: 10/19/89
Job No. #: 71125

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Ingersoll Rand
Matrix: Soil

Aromatic Volatil Hydrocarbon Analysis:
EPA Method 8020
mg/kg

Lab ID	Client ID	Benzene	Ethyl-benzene	Toluene	Xylene	MDL
71125-1	#4549	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-2	#4551	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-3	#4553	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-4	#4555	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-5	#4557	39	83	240	470	3.0
71125-6	#4559	16	35	110	200	3.0
71125-7	#4561	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-8	#4563	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-9	#4565	ND<0.30	7.6	14	110	0.30
71125-10	#4567	ND<0.03	0.08	0.12	1.1	0.03
71125-11	#4569	0.84	39	71	440	0.30
71125-12	#4571	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-13	#4573	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-14	#4575	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03

QA/QC: Spike Recovery for Benzene: 91.5%
Spike Recovery for Benzene: 85.5%
Spike Recovery for Toluene: 113%
Spike Recovery for Toluene: 94%
Spike Recovery for O-Xylene: 136%

MDL: Method detection limit: Compound below this level would not be detected.

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.
4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 10/14/89
Reported: 10/18/89
Job No. #: 71125

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Ingersoll Rand

Total Petroleum Hydrocarbon Analysis
By DHS Method (LUFT)
mg/kg

Lab ID	Client ID	Diesel	Gasoline	MDL
71125-1	#4549	ND<10	ND<10	10
71125-2	#4551	ND<10	ND<10	10
71125-3	#4553	ND<10	ND<10	10
71125-4	#4555	ND<10	ND<10	10
71125-5	#4557	ND<1000	7770	1000
71125-6	#4559	ND<500	3200	500
71125-7	#4561	20	ND<10	10
71125-8	#4563	320	ND<10	*
71125-9	#4565	ND<500	3100	500
71125-10	#4567	40	ND<10	10
71125-11	#4569	ND<1000	6550	1000
71125-12	#4571	ND<10	ND<10	10
71125-13	#4573	ND<10	ND<10	10
71125-14	#4575	ND<10	ND<10	10

* Detection limits for Sample #8: Gasoline = 10, Diesel = 100.

MDL: Method detection limit: Compound below this level would not be detected.

QA/QC: Spike Recovery for Diesel: 102%
Spike Recovery for Gasoline: 102%
Spike Recovery for Diesel: 101%
Spike Recovery for Gasoline: 109%

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.
4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

State License No. 211

Received: 10/14/89
Reported: 10/19/89
Job No #: 71125

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Ingersoll Rand
Matrix: Soil

Halogenated Volatile Organics Analysis:
EPA Method 8010
mg/kg

Lab ID	Client ID	Methylene Chloride	1,1-dichloro-ethene	1,1-dichloro-ethane	Trans-1,2 dichloro-ethene	MDL
71125-3	#4553	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-4	#4555	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-10	#4567	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-12	#4571	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03

Lab ID	Client ID	Chloro-form	1,2-Dichloro-ethane	1,1,1-Trichloro-ethane	Carbon tetra-chloride	MDL
71125-3	#4553	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-4	#4555	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-10	#4567	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-12	#4571	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03

QA/QC: Spike Recovery Average: 87%
Spike Recovery Average: 89.5%

MDL: Method detection limit; Compound below this level would not be detected.

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.
4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

International Technology
Job No. 71125

Lab ID	Client ID	Bromo-dichloro-methane	1,2-dichloro-propene	Tri-Chloro-ethene	Dibromo-chloro-methane	MDL
71125-3	#4553	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-4	#4555	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-10	#4567	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-12	#4571	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03

Lab ID	Client ID	1,1,2-Trichloro-ethane	Trans-1,3 dichloro-propene	2-chloro-ethyl vinyl ether	Bromo-form	MDL
71125-3	#4553	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-4	#4555	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-10	#4567	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-12	#4571	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03

Lab ID	Client ID	Tetra-chloro-ethane	1,1,2,2 Tetra-chloro-ethane	Chloro-benzene	1,3 Dichloro-benzene	MDL
71125-3	#4553	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-4	#4555	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-10	#4567	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-12	#4571	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03

Lab ID	Client ID	1,2-Dichloro-benzene	1,4-Dichloro-benzene	Dichloro-difluoro methane	Trichloro-fluoro-methane	MDL
71125-3	#4553	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-4	#4555	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-10	#4567	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03
71125-12	#4571	ND<0.03	ND<0.03	ND<0.03	ND<0.03	0.03

Lab ID	Client ID	Freon 113	MDL
71125-3	#4553	ND<0.03	0.03
71125-4	#4555	ND<0.03	0.03
71125-10	#4567	ND<0.03	0.03
71125-12	#4571	ND<0.03	0.03

Precision Analytical Laboratory, Inc.
4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 10/14/89
Reported: 10/24/89
Job No. #: 71125

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Ingersoll Rand

Polychlorinated Biphenyls Analysis
EPA Method 8080
mg/kg

Lab ID	Client ID	PCB's	MDL
71125-3	#4553	ND<0.2	0.2
71125-4	#4555	ND<0.2	0.2
71125-10	#4567	ND<0.2	0.2
71125-12	#4571	ND<0.2	0.2

MDL: Method detection limit: Compound below this level would not be detected.

QA/QC: Spike Recovery for Ar-1248: 113%

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.
4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 10/14/89
Reported: 10/19/89
Job #: 71125

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Ingersoll Rand
Matrix: Soil

Analysis Method EPA 6010
Prep Method EPA 3050
mg/kg

Lab ID:	71125-1	71125-2	71125-3	71125-4		
Client ID:	#4553	#4555	#4567	#4571	MDL	% SPIKE RECOVERY
Zn	24.3	2700	41	20.4	0.15	78
Cd	2.1	1.0	2.0	1.6	0.3	80
Pb	10.4	10.2	8.8	8.3	1.1	76
Cr	15.1	13.5	13.2	12.5	0.15	82

MDL: Method detection Limit: Compound below this level would not be detected.

Jaime Chow
Laboratory Director

SAN LEANDRO FIRE DEPARTMENT
UNDERGROUND TANK CLOSURE PERMIT

PERMISSION IS HEREBY GRANTED TO REMOVE UNDERGROUND STORAGE TANKS AS INDICATED BELOW. TANK CLOSURE SHALL CONFORM TO THE INFORMATION PROVIDED IN UNDERGROUND TANK CLOSURE PLAN SUBMITTED TO THE FIRE DEPARTMENT AND TO ANY ADDITIONAL REQUIREMENTS ATTACHED TO THIS PERMIT. TANK REMOVAL SHALL COMPLY WITH ALL APPLICABLE STATE AND FEDERAL LAWS AND REGULATIONS.

FACILITY NAME: ENG 26

ADDRESS: 6402 [illegible]

DESCRIPTION OF TANKS TO BE REMOVED:

FIRE DEPARTMENT REPRESENTATIVE TO BE PRESENT DURING REMOVAL OF ALL TANKS. TANK REMOVALS AND BACKFILLING MUST BE DONE DURING NORMAL WORKING HOURS. IN ADVANCE IN ORDER TO ARRANGE FOR INSPECTION.

FEES PAID: $30.00 ($25.00)

DATE: 7-23-87

FIRE DEPARTMENT REPRESENTATIVE

...l California—Health and Welfare Agency
...pproved OMB No. 2050—0039 (Expires 9-30-91)
...print or type. (Form designed for use on elite (12-pitch typewriter).

SB 141690

Department of Health Servic
Toxic Substances Control Divisi
Sacramento, Califor

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CAL000019718 | Manifest Document No.: 00101 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: INGERSOL-RAND
1944 MARINA BLVD
SAN LEANDRO, CA 94577

A. State Manifest Document Number: 88519835

4. Generator's Phone: (415) 357-9131

B. State Generator's ID: BOE

5. Transporter 1 Company Name: STAMCO | 6. US EPA ID Number: CAD063547969 | C. State Transporter's ID: 00630 | D. Transporter's Phone: 800-259-9211

7. Transporter 2 Company Name | 8. US EPA ID Number | E. State Transporter's ID | F. Transporter's Phone

9. Designated Facility Name and Site Address: ERICKSON
255 PARR BLVD.
RICHMOND, CA. 94801 | 10. US EPA ID Number: CAD009466392 | G. State Facility's ID | H. Facility's Phone: 415 235 1393

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. WASTE EMPTY STORAGE TANK CALIFORNIA Regulated Only	001	TP	08500	P	State 512 / EPA/Other Exempt
b.					State / EPA/Other
c.					State / EPA/Other
d.					State / EPA/Other

J. Additional Descriptions for Materials Listed Above: 11a = EMPTY 10,000 GAL. DIESEL FUEL TANK
TANK # 2276

K. Handling Codes for Wastes Listed Above: a. | b. | c. | d.

15. Special Handling Instructions and Additional Information: TANK CONTAINS DRY ICE AND CO_2 VAPOR

16.

GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Ye
TODD COURTNEY	Todd Courtney	10	12	8

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Ye
Paul Bell	Paul Bell	10	12	8

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Ye

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name	Signature	Month	Day	Ye

...2 A (1/88)
...)—22
...B) Previous editions are obsolete

Do Not Write Below This Line

Blue: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30

Approved OMB No. 2050—0039 (Expires 9-30-91)

Toxic Substances Control Divis
Sacramento, Califor

Please print or type. (Form designed for use on elite (12-pitch typewriter).

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CAL000019718 | Manifest Document No. 00012 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: INGERSOL RAND, 1944 MARINA BLVD-, SAN LEANDRO, CA 94577

4. Generator's Phone 415 357 9131

A. State Manifest Document Number: 88519836

B. State Generator's ID: HAHQ36-033052

5. Transporter 1 Company Name: STANCO | 6. US EPA ID Number: CAD063547969 | C. State Transporter's ID: 06630

D. Transporter's Phone: 800-759-4211

7. Transporter 2 Company Name | 8. US EPA ID Number | E. State Transporter's ID | F. Transporter's Phone

9. Designated Facility Name and Site Address: ERICKSON, 255 PARR BLVD, Richmond, CA 94801 | 10. US EPA ID Number: CAD009461639 2 | G. State Facility's ID | H. Facility's Phone: 415-235 1393

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. WASTE EMPTY STORAGE TANK California Regulated Only	001	TP	06000	P	State 512 / EPA/Other Exempt
b. WASTE EMPTY STORAGE TANK "CALIFORNIA REGULATED WASTE ONLY"	001	TP	00700	P	State 512 / EPA/Other EXEMPT
c.					State / EPA/Other
d.					State / EPA/Other

J. Additional Descriptions for Materials Listed Above
+ 11a = Empty 5000gal. GASOLINE TANK # 2275
+ 11b = Empty 500gal. WASTE OIL TANK # 2277

K. Handling Codes for Wastes Listed Above
a. | b. | c. | d.

15. Special Handling Instructions and Additional Information
TANKS CONTAIN DRY ICE AND CO_2 VAPOR

16.

GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: TODD COURTNEY | Signature: Todd Courtney | Month Day Ye: 1 0 1 2 8

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Paul Bell | Signature: Paul Bell | Month Day Ye: 1 0 1 2 8

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Ye

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name | Signature | Month Day Ye

022 A (1/88)
700—22
9-88) Previous editions are obsolete

Do Not Write Below This Line

Blue: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30

To: P.O. Box 400 Sacramento, CA 95812-0400

PROJECT NAME: INGERSOLL-RAND

PROJECT NUMBER: 148025

DATE: 15-16 NOVEMBER 1989

GEOLOGIST: DONALD A. KUBIK JR.

METHODOLOGIES: Boreholes drilled with a Mobile B-24 rig by Kvilhaug Drilling and Pump Co., Inc.

Soil was screened with a Hnu'" photo-ionization detector.

==========

BORING NUMBER: B001

DATE: 11/15/89

DEPTH (FEET)	DESCRIPTION	USCS	PID ppm
0.0 - 0.7	CONCRETE		
0.7 - 1.2	FILL-SAND; brown, moist, loose, medium, subangular, well graded.	SM	0
1.2 - 3.0	FILL-SANDY GRAVEL; brown, moist, fine - coarse, subangular, well graded.	GW	0
3.0 - 15.0	SANDY, SILTY CLAY; brown, moist, soft, moderately plastic. Contains some GRAVEL and root fragments. *PID detects hydrocarbons at 12 to 15 feet with readings reaching [illegible] ppm at 15 feet.	CL	*

==========

BORING NUMBER: B003

DATE: 11/16/89

DEPTH (FEET)	DESCRIPTION	USCS	PID ppm
0.0 - 0.1	ASPHALT		
0.1 - 3.0	FILL-SANDY GRAVEL; brown, moist, fine - coarse, subangular, well graded.	GW	0
3.0 - 15.0	SANDY, SILTY CLAY; brown, moist, soft, moderately plastic. Contains some GRAVEL and root fragments. *PID detects hydrocarbons at 12 to 15 feet with readings reaching [illegible] ppm at 15 feet.	CL	*

==========

BORING NUMBER: B004

DATE: 11/16/89

DEPTH (FEET)	DESCRIPTION	USCS	PID ppm
0.0 - 0.5	ASPHALT		
0.5 - 2.0	FILL-SAND; brown, moist, loose, medium, subangular well graded.	SW	0
2.0 - 15.0	CLAY; brown, moist, firm, moderately plastic interbedded with SAND; brown, moist, medium, subangular, well graded. *PID detected hydrocarbons at 11 to 15 feet with readings reaching [redacted] ppm at 15 feet.	SC-CL	*

==========

BORING NUMBER: B005

DATE: 11/16/89

DEPTH (FEET)	DESCRIPTION	USCS	PID ppm
0.0 - 0.25	ASPHALT		
0.25 - 2.0	FILL-GRAVEL, brown, moist, loose, fine, well graded.	GW	0
2.0 - 15.0	CLAY; brown, moist, firm, moderately plastic interbedded with SAND; brown, moist, medium, subangular, well graded. *PID detected hydrocarbons 15 feet with readings of [redacted] ppm.	SC-CL	*

==========

BORING NUMBER: B006

DATE: 11/16/89

DEPTH (FEET)	DESCRIPTION	USCS	PID ppm
0.0 - 0.2	ASPHALT		
0.2 - 2.0	FILL-GRAVEL; brown, moist, loose, fine, subangular, well graded.	GW	
2.0 - 15.0	CLAY; brown, moist, firm, moderately plastic interbedded with SAND; brown, moist, medium, subangular, well graded. *PID detected hydrocarbons at 13 to 15 feet with readings reaching [redacted] ppm at 15 feet.	SC-CL	*

==========

BORING NUMBER: B007

DATE: 11/16/89

DEPTH (FEET)	DESCRIPTION	USCS	PID ppm
0.0 - 0.25	ASPHALT		
0.25 - 15.0	CLAY; brown, moist, firm, moderately plastic interbedded with SAND; brown, moist, medium, subangular, well graded. *PID detected hydrocarbons at 7 to 15 feet with readings reaching [illegible] ppm at 15 feet.	SC-CL	*

BORING NUMBER: B008

DATE: 11/16/89

DEPTH (FEET)	DESCRIPTION	USCS	PID ppm
0.0 - 0.2	ASPHALT		
0.2 - 2.0	CLAY; blue gray, moist, firm, moderately plastic.	CL	0
2.0 - 15.0	CLAY; brown, moist, firm, moderately plastic interbedded with SAND; brown, moist, medium, subangular, well graded. *PID detected hydrocarbons at 8 to 11 feet with readings reaching 40 ppm at 11 feet.	SC-CL	*

BORING NUMBER: B009

DATE: 11/16/89

DEPTH (FEET)	DESCRIPTION	USCS	PID ppm
0.0 - 0.2	ASPHALT		
0.2 - 1.5	FILL-SAND; brown, moist, loose, medium, subangular well graded.	SW	0
1.5 - 2.5	CLAY; dark gray, moist, firm, plastic.	CH	0
2.0 - 15.0	CLAY; brown, moist, firm, moderately plastic interbedded with SAND; brown, moist, medium, subangular, well graded. *PID detected hydrocarbons at 5 to 15 feet with readings reaching 40 ppm at 15 feet.	SC-CL	*

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. B 81516
C/C Control No. A81129

PROJECT NAME Ingersoll Rand
PROJECT NUMBER 141640
PROJECT MANAGER Larry Hudson
BILL TO ITES

PURCHASE ORDER NO. 141640 1480025

DATE SAMPLES SHIPPED 11/16/89
LAB DESTINATION Precision Labs
LABORATORY CONTACT Jamie Chan
SEND LAB REPORT TO Larry Hudson
4585 Pacheco Blvd
Mtz CA 94553

DATE REPORT REQUIRED 12/4/89
PROJECT CONTACT Larry Hudson
PROJECT CONTACT PHONE NO. 372-9100

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
B001551	Soil	Brass tube	—	TPH(G) BTEX	
B001552	↓	↓	—	TPH(G) BTEX	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal X Rush ____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard ____ Flammable ____ Skin Irritant ____ Highly Toxic ____ Other ____ (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client ____ Disposal by Lab X

FOR LAB USE ONLY

Received By Donna Calingasan Date/Time 11/16 4:50

WHITE - Original, to accompany samples

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. B84516

C/C Control No. A 81129

PROJECT NAME/NUMBER Ingersoll Rand 141640

LAB DESTINATION [redacted] Precision Labs

SAMPLE TEAM MEMBERS D. Kubik Jr

CARRIER/WAYBILL NO. Hand delivered

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No
B001551	B001	11/15/89	Soil	brass tube		
B005551	B005	11/15/89	Soil	" "		

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: [signature] ITES 11/16/89 0650

   Received By: [signature] 11/16/89 0650

2. Relinquished By: [signature] 11/16/89 1650

   Received By: [signature] 4:52

3. Relinquished By:

   Received by:

4. Relinquished By:

   Received By:

WHITE - To accompany samples

YELLOW - Field copy

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. B 81160
C/C Control No. ~~A 81127~~ 61

PROJECT NAME Ingersoll-Rand
PROJECT NUMBER 148025
PROJECT MANAGER Larry Hudson
BILL TO ITES
4575 Pacheco Blvd
Martinez, Ca 94553

PURCHASE ORDER NO.

DATE SAMPLES SHIPPED 11·13·89
LAB DESTINATION Precision Analytical
LABORATORY CONTACT Jaime Chow
SEND LAB REPORT TO Larry Hudson
4575 Pacheco Blvd
Martinez, Ca. 94553
DATE REPORT REQUIRED 11·28·89
PROJECT CONTACT Larry Hudson
PROJECT CONTACT PHONE NO. (415) 372-9100

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
1110MW1SS3	soil	2"x6" brass	none	TPH as Gas, BTEX	
1110MW2SS3	soil	2"x6" brass	none	TPH as Gas, BTEX	
1110MW3SS3	soil	2"x6" brass	none	TPH as Gas, BTEX	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal X **Rush** _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard X **Flammable** _____ **Skin Irritant** _____ **Highly Toxic** _____ **Other** _____ (Please Specify)

SAMPLE DISPOSAL (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client _____ **Disposal by Lab** X

FOR LAB USE ONLY

Received By _____ **Date/Time** 11/13/89 13.30

WHITE - Original, to accompany samples
YELLOW - Field copy

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. B84460

C/C Control No. 61543

PROJECT NAME/NUMBER Ingersoll Road 148025

LAB DESTINATION Precision Analytical

SAMPLE TEAM MEMBERS DK, JK

CARRIER/WAYBILL NO. hand deliver

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
1110MW1553	MW #1 SS #3	11.10.89 1634	soil	2"x6" brass		
1110MW2553	MW #2 SS #3	11.10.89 1120	soil	2"x6" brass		
1110MW3553	MW #3 SS #3	11.10.89 1225	soil	2"x6" brass		

Special Instructions:

Possible Sample Hazards: none

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Donald Kubik, IT Corp, 11.13.89, 0700

   Received By: IT 11/13/89 0700

2. Relinquished By: IT 11/13/89 1330

   Received By: 11/13/89 13.30

3. Relinquished By:

   Received by:

4. Relinquished By:

   Received By:

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. B84518

C/C Control No. A 81129

PROJECT NAME/NUMBER Ingersoll Rand

LAB DESTINATION Precision Analytical

SAMPLE TEAM MEMBERS PKubiak

CARRIER/WAYBILL NO. Hand Deliver

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No
1117mw1	MW1	11/17/89 1254	GW	3 x 40 ml VOA		
1117mw2	MW2	11/17/89 1304	GW	"		

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Donald Kubiak ITES 11/17/89 1850

   Received By: Rudy Maranan 11/17/89 1400

2. Relinquished By:

   Received By:

3. Relinquished By:

   Received by:

4. Relinquished By:

   Received By:

WHITE - To accompany samples

YELLOW - Field copy

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. B 84518
C/C Control No. A 81129

PROJECT NAME Ingersoll Rand
PROJECT NUMBER 141640
PROJECT MANAGER Larry Hudson
BILL TO ITES

PURCHASE ORDER NO. 141640

DATE SAMPLES SHIPPED 11/17/89
LAB DESTINATION Precision A. L.
LABORATORY CONTACT Jaime Chan
SEND LAB REPORT TO Larry Hudson
4585 Pacheco Blvd
Mtz CA 94553
DATE REPORT REQUIRED 12/15/89
PROJECT CONTACT Larry Hudson
PROJECT CONTACT PHONE NO. 372 9100

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
1117mw1	GW	3 x 40ml	HCl	TPH(G) BTEX	
1117mw2	GW	3 x 40ml	HCl	TPH(G) BTEX	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal X Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____ Flammable _____ Skin Irritant _____ Highly Toxic _____ Other _____ (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis Lab will charge for packing, shipping, and disposal.) 11/17/89 1400

Return to Client _____ Disposal by Lab X

FOR LAB USE ONLY

Received By _____ Date/Time 11/17/89 1351

WHITE - Original, to accompany samples
[redacted]

FIELD ACTIVITIES LOG
INGERSOLL-RAND CORPORATION
1944 MARINA BOULEVARD - SAN LEANDRO CALIFORNIA
10 NOVEMBER 1989

0745 ITES representative, Don Kubik arrives on site, Kvilhaug Well Drilling and Pump Company Inc. employees had arrived earlier. Kubik begins paperwork and drilling preparations.

0840 Kvilhaug representatives begin drilling monitoring well MW-2.

0850 ITES representative Jim Knott arrives on site.

1030 Kvilhaug representatives begin drilling monitoring well MW-1.

1150 Kvilhaug representatives begin drilling monitoring well MW-3.

1315 All well drilling procedures have been completed.

1345 The Kvilhaug crew breaks for lunch.

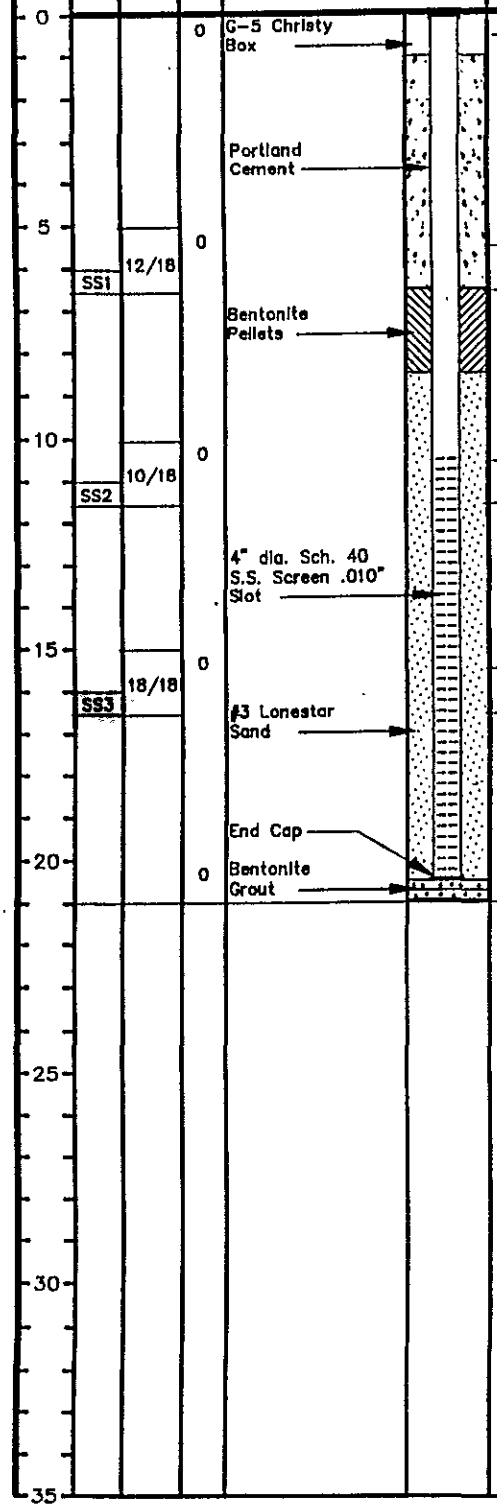
1405 The Kvilhaug crew returns from lunch and begins decon and well completion procedures.

1645 Kubik makes a final examination of the site, releases the drilling crew, and returns to the dispatch yard.

BORING NO. MW-1

FIELD GEOLOGIST D. Kubik Jr.
EDITED BY D. Kubik Jr.
CHECKED BY S. Mills
TOTAL DEPTH 21 feet

COORDINATES N ____ E ____
DATE BEGAN 11-10-89
DATE FINISHED 11-10-89
GROUND SURFACE EL. 24.78 ft.



ASPHALT.
SANDY GRAVEL; brown, moist, loose, fine-coarse, angular well-graded.
2.5'
SILTY CLAY; brown, moist, firm, slightly plastic. Contains calcareous nodules and some coarse sands.
11'
SAND; light brown, moist, dense, fine-medium, sub-angular, poorly graded.
13.5'
CLAY; *brown, moist, soft, moderately plastic, contains less* than 1% fine sand.
▽ Ground water encountered at 15 feet.

TOTAL DEPTH 21 FEET

DRILLING CO.: Kvilhaug Well Drilling and Pump Co., Inc.
DRILL METHOD: Hollow Stem Auger; Mobile B-61
SAMPLING METHOD: Split Spoon Sampler

PROJECT NO.: 148025
CLIENT: Ingersoll-Rand Corporation
LOCATION: 1944 Marina Blvd.
San Leandro, California

SEE LEGEND FOR LOGS AND TEST PITS
FOR EXPLANATION OF SYMBOLS AND TERMS

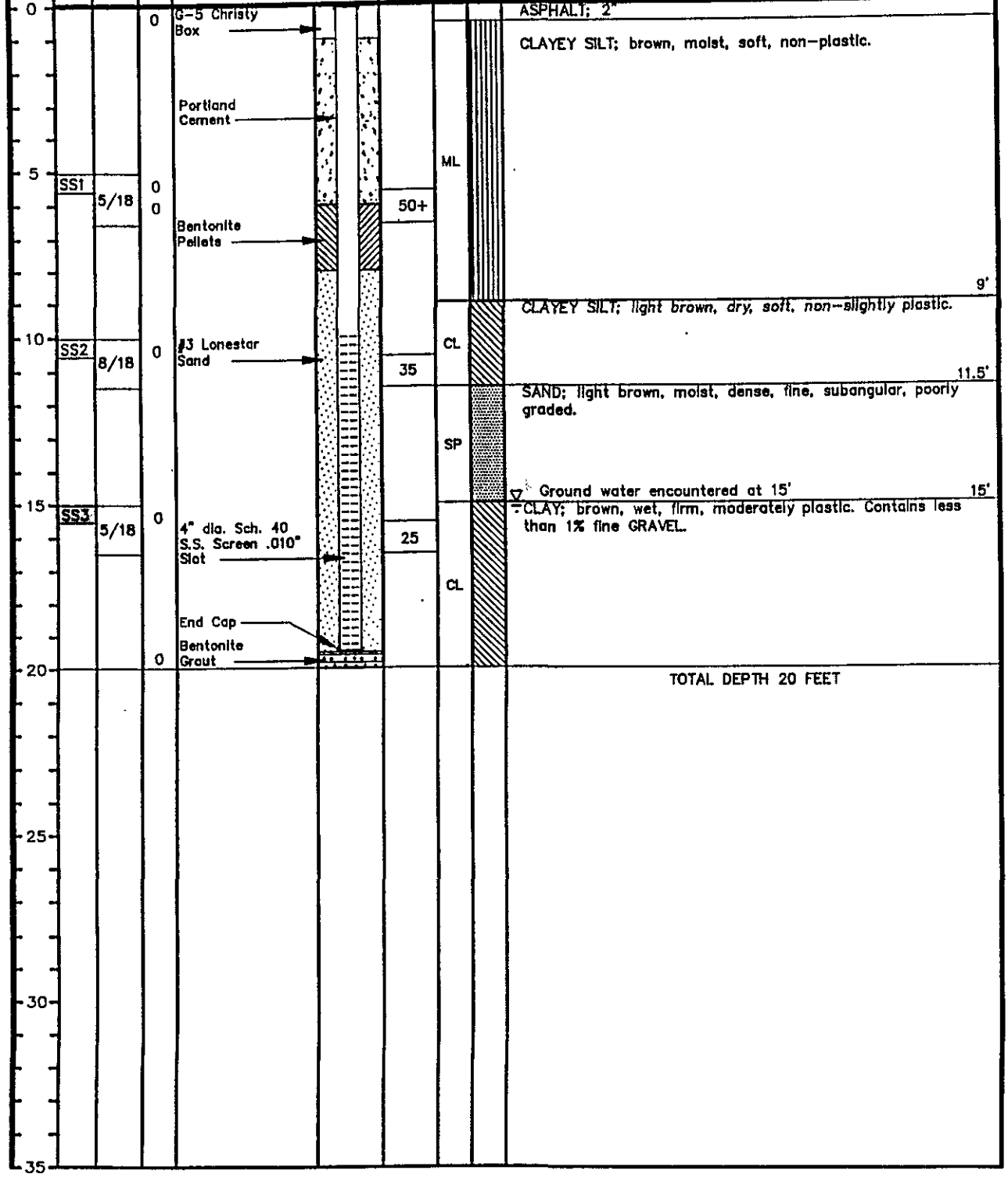
IR-MW1

INTERNATIONAL TECHNOLOGY CORPORATION

BORING NO. MW-2

FIELD GEOLOGIST D. Kubik Jr.
EDITED BY D. Kubik Jr.
CHECKED BY S. Mills
TOTAL DEPTH 20 feet

COORDINATES N ____ E ____
DATE BEGAN 11-10-89
DATE FINISHED 11-10-89
GROUND SURFACE EL. 24.70 ft.



DRILLING CO.: Kvilhaug Well Drilling and Pump Co., Inc.
DRILL METHOD: Hollow Stem Auger; Mobile B-61
SAMPLING METHOD: Split Spoon Sampler

PROJECT NO.: 148025
CLIENT: Ingersoll-Rand Corporation
LOCATION: 1944 Marina Blvd
San Leandro, California

SEE LEGEND FOR LOGS AND TEST PITS
FOR EXPLANATION OF SYMBOLS AND TERMS

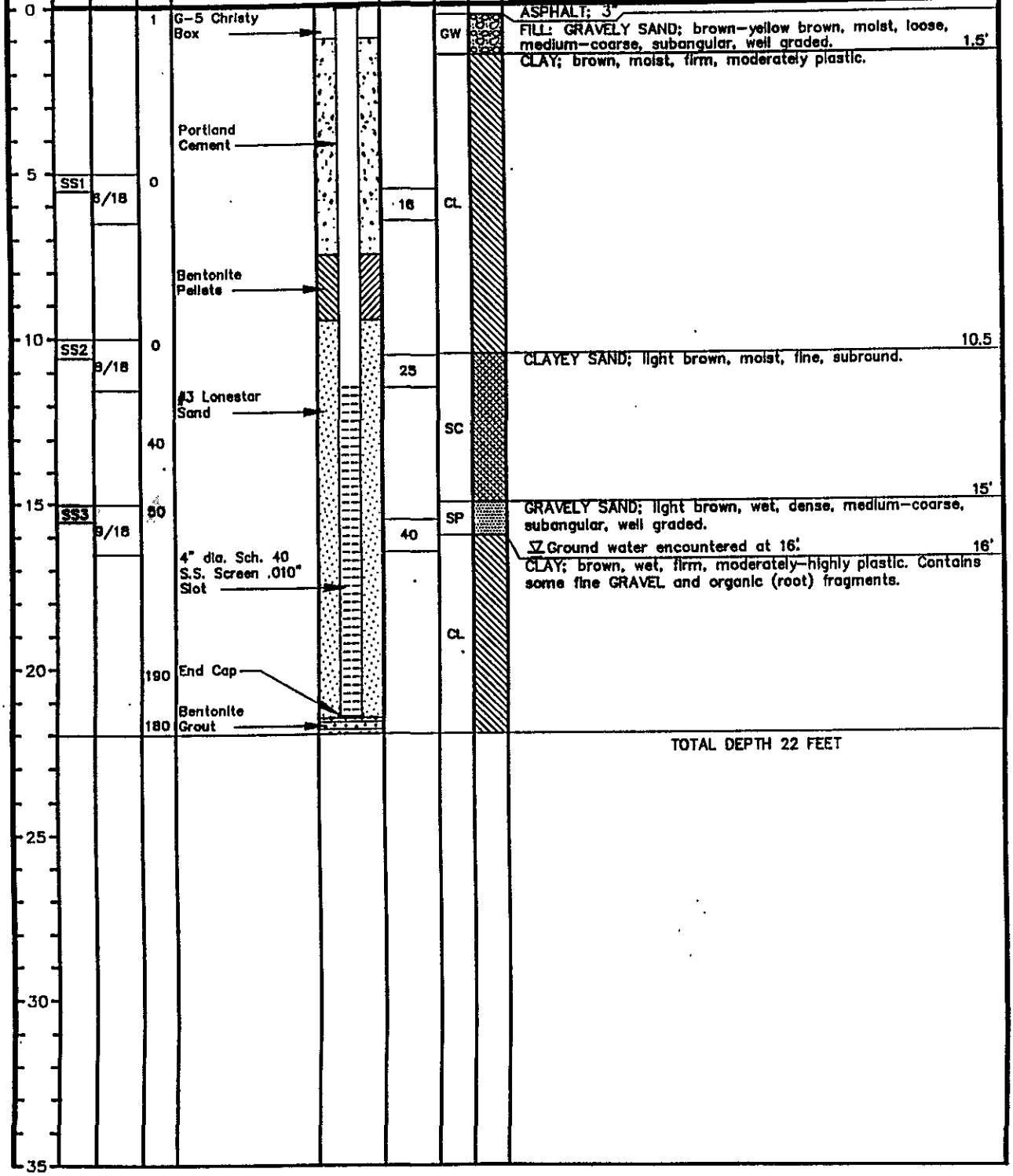
IR-MW2

INTERNATIONAL TECHNOLOGY CORPORATION

BORING NO. MW-3

FIELD GEOLOGIST D. Kubik Jr.
EDITED BY D. Kubik Jr.
CHECKED BY S. Mills
TOTAL DEPTH 22 feet

COORDINATES N ____ E ____
DATE BEGAN 11-10-89
DATE FINISHED 11-10-89
GROUND SURFACE EL. 27.33 ft.



DRILLING CO.: Kvilhaug Well Drilling and Pump Co., Inc.
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INTERNATIONAL TECHNOLOGY CORPORATION

IR-MW3

Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 11/16/89
Reported: 11/28/89
Job No. #: 71173

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Ingersoll Rand
Matrix: Soil

Aromatic Volatil Hydrocarbon Analysis:
EPA Method 8020
mg/kg

Lab ID	Client ID	Benzene	Toluene	MDL
71173-1	B001551	13	53	0.06
71173-2	B005551	4.9	28	0.06

Lab ID	Client ID	Ethyl-benzene	Xylene	MDL
71173-1	B001551	13	75	0.06
71173-2	B005551	13	75	0.06

QA/QC: Spike Recovery for Benzene: 90.5%
Spike Recovery for Toluene: 85.5%
Spike Recovery for O-Xylene: 84.5%

MDL: Method detection limit: Compound below this level would not be detected.

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.

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Received: 11/16/89
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Job No. #: 71173

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Ingersoll Rand

Total Petroleum Hydrocarbon Analysis
By DHS Method (LUFT)
mg/kg

Lab ID	Client ID	Gasoline	MDL
71173-1	BOO1551	400	50
71173-2	BOO5551	1000	200

MDL: Method detection limit: Compound below this level would not be detected.

QA/QC: Spike Recovery for Gasoline: 102%

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 11/13/89
Reported: 11/21/89
Job No. #: 71166

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA

Aromatic Volatile Hydrocarbon Analysis:
EPA Method 8020
mg/kg

Lab ID	Client ID	Benzene	Toluene	MDL
71166-1	1110 MW 1553 MW#1	ND<0.03	ND<0.03	0.03
71166-2	1110 MW 2553 MW#2	ND<0.03	ND<0.03	0.03
71166-3	1110 MW 3553 MW#3	0.23	1.6	

Lab ID	Client ID	Ethylbenzene	Xylene	MDL
71166-1	1110 MW 1553 MW#1	ND<0.03	ND<0.03	0.03
71166-2	1110 MW 2553 MW#2	NC<0.03	ND<0.03	0.03
71166-3	1110 MW 3553 MW#3	0.49	4.1	0.03

QA/QC: Spike Recovery for Benzene: 73%
Spike Recovery for Toluene: 84%
Spike Recovery for O-Xylene: 92%

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 11/13/89
Reported: 11/21/89
Job No. #: 71166

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA

Total Petroleum Hydrocarbon Analysis
By DHS Method (LUFT)
mg/kg

Matrix: Soil

Lab ID	Client ID	Gasoline	Diesel	MDL
71166-1	1110 MW 1553 MW#1	ND<10	ND<10	10
71166-2	1110 MW 2553 MW#2	ND<10	ND<10	10
71166-3	1110 MW 3553 MW#3	ND<10	ND<10	10

QA/QC: Spike Recovery for Gasoline: 103%
Spike Recovery for Diesel: 92%

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 11/17/89
Reported: 11/29/89
Job No. #: 71177

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Ingersoll Rand
Matrix: Water

Aromatic Volatile Hydrocarbon Analysis:
EPA Method 8020
ug/l

Lab ID	Client ID	Benzene	Toluene	MDL
71177-1	1117 MW-1	ND<0.3	ND<0.3	0.3
71177-2	1117 MW-2	ND<0.3	ND<0.3	0.3

Lab ID	Client ID	Ethyl-benzene	Xylene	MDL
71177-1	1117 MW-1	ND<0.3	ND<0.3	0.3
71177-2	1117 MW-2	ND<0.3	ND<0.3	0.3

* Please note - TCE in sample / see report on Method 8010

QA/QC: Spike Recovery for Benzene: 116%
Spike Recovery for Toluene: 108%
Spike Recovery for O-Xylene: 111%

MDL: Method detection limit: Compound below this level would not be detected.

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.

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CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 11/17/89
Reported: 11/29/89
Job No. #: 71177

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Ingersoll Rand

Total Petroleum Hydrocarbon Analysis
By EPA 5030
mg/l

Lab ID	Client ID	Gasoline	MDL
71177-1	1117 MW-1	ND<0.5	0.5
71177-2	1117 MW-2	ND<0.5	0.5

MDL: Method detection limit: Compound below this level would not be detected.

QA/QC: Spike Recovery for Gasoline: 125.8%

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.

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CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 11/17/89
Reported: 11/29/89
Job No. #: 71177

Attn: Larry Hudson
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Ingersoll Rand
Matrix: Water

Halogenated Volatile Organics Analysis:
EPA Method 8010
ug/l

Lab ID	Client ID	Trichloroethene	MDL
71177-1	1117 MW-1	29	0.3
71177-2	1117 MW-2	10	0.3

QA/QC: Spike Recovery for Carbon Tetrachloride: 128%
Spike Recovery for Tetrachloroethene: 117%

MDL: Method detection limit: Compound below this level would not be detected.

Jaime Chow
Laboratory Director

LEAKING UNDERGROUND FUEL TANK FIELD MANUAL:

GUIDELINES FOR SITE ASSESSMENT, CLEANUP, AND UNDERGROUND STORAGE TANK CLOSURE

MAY 1988

STATE OF CALIFORNIA
LEAKING UNDERGROUND FUEL TANK TASK FORCE

Table 2-1
Leaching Potential Analysis for Gasoline and Diesel
Using Total Petroleum Hydrocarbons(TPH)
and Benzene, Toluene, Xylene and Ethylbenzene (BTX&E)

The following table was designed to permit estimating the concentrations of TPH and BTX&E that can be left in place without threatening ground water. Three levels of TPH and BTX&E concentrations were derived (from modeling) for sites which fall into categories of low, medium or high leaching potential. To use the table, find the appropriate description for each of the features. Score each feature using the weighting system shown at the top of each column. Sum the points for each column and total them. Match the total points to the allowable BTX&E and TPH levels.

SITE FEATURE	SCORE	SCORE 10 PTS IF CONDITION IS MET	SCORE	SCORE 9 PTS IF CONDITION IS MET	SCORE	SCORE 5 PTS IF CONDITION IS MET
Minimum Depth to Ground Water from the Soil Sample (feet)		>100		51-100	5	25-50\1
Fractures in subsurface (applies to foothills or mountain areas)	10	None		Unknown		Present
Average Annual Precipitation (inches)		<10	9	10-25		26-40\2
Man-made conduits which increase vertical migration of leachate		None	9	Unknown		Present
Unique site features: recharge area, coarse soil, nearby wells, etc		None	9	At least one		More than one
COLUMN TOTALS→TOTAL PTS	10	+	27	+	5	= 42

RANGE OF TOTAL POINTS		49pts or more	41 - 48 pts	40pts or less
MAXIMUM ALLOWABLE B/T/X/E LEVELS (PPM)		1/50/50/50	.3/.3/1/1	NA\3
MAXIMUM ALLOWABLE TPH LEVELS (PPM)	GASOLINE	1000	100	10
	DIESEL	10000	1000	100

\1 If depth is greater than 5 ft. and less than 25 ft., score 0points.
If depth is 5 ft. or less, this table should not be used.
\2 If precipitation is over 40 inches, score 0 points.
\3 Levels for BTX&E are not applicable at a TPH concentration of 10ppm (gasoline) or 100ppm (diesel)