BLAINE
TECH SERVICES INC.

1370 TULLY RD., SUITE 505
SAN JOSE, CA 95122
(408) 995-5535

June 13, 1988

Chevron USA, Inc.
2410 Camino Ramon
San Ramon, CA 94583

Attn: Bill Barnard

SITE:
CHEVRON SERVICE STATION NO.1026
3701 BROADWAY
OAKLAND, CALIFORNIA

PROJECT:
FULL SERVICE STATION DEMOLITION
WITH REMOVAL OF ALL ABOVE GROUND
AND SUBSURFACE INSTALLATIONS

SAMPLED ON:
MAY 4, 1988

ADDITIONAL EXCAVATION SAMPLING REPORT 88125-C-2

SUMMARY OF RECENT SAMPLING

	DATE	REPORT #	ACTIVITY
SECTION ONE	4/22/88	88113-M-1	Tank removal sampling
>SECTION TWO	5/4/88	88125-C-2	Additional excavation sampling in the waste oil pit. Product line and stockpile sampling.

This report is SECTION TWO within the chronological Cumulative Report which contains all relevant materials for work done on this project at the subject site.

THE SCOPE OF THE MOST RECENT SAMPLING ACTIVITY

In accordance with your request, field personnel were dispatched to the site to collect samples, arrange the proper analyses of the samples, and maintain adequate documentation resulting in the issuance of a formal Sampling Report. Three distinct types of samples were requested:

1. Following the removal of soil along the south wall of the main tank pit excavation, samples were to be taken that would establish the levels of gasoline remaining in the ground at the completion of the excavation work.

2. Confirming samples were to be taken at the furthest extent of the cleanup excavation which was being undertaken below the waste oil tank. Unacceptably high levels of contamination had been detected by laboratory procedures. This soil was to be collected so that the laboratory could establish the levels of residual waste oil product remaining in the soil at the completion of the excavation work.

3. Samples were to be taken of the stockpiled material from this waste oil investigation.

EXECUTION OF THE MOST RECENT ACTIVITY

Samples were taken on both sides of an extensive cleanup excavation conducted along the southeast wall of the main tank pit. Samples #1 and #2 indicate the location of these confirming samples.

The waste oil pit was extensively excavated. Affected material was found in strata that led away from the tank. Excavation followed this seepage and removed all the soil that had characteristics typical of soil which has been contaminated by waste oil. The cleanup excavation extended away from the tank pit and a sample was taken at the point where no further affected soil appeared to be present. This was sample #3.

Following completion of the cleanup excavation, representative soil samples were taken from the stockpile generated by the cleanup effort. These samples were designated #4 and #5.

Information on the exact location of a particular sampling point can be found on DIAGRAM TWO-B, DIAGRAM TWO-C, and the TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS. The SAMPLING METHODOLOGY section of this report contains a description of the procedures used.

After completion of the field work, the sample containers were delivered to Anametrix Incorporated in San Jose, California. Anametrix Incorporated is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #151.

D I A G R A M S & T A B L E S

Graphic and Tabular presentation of all samples

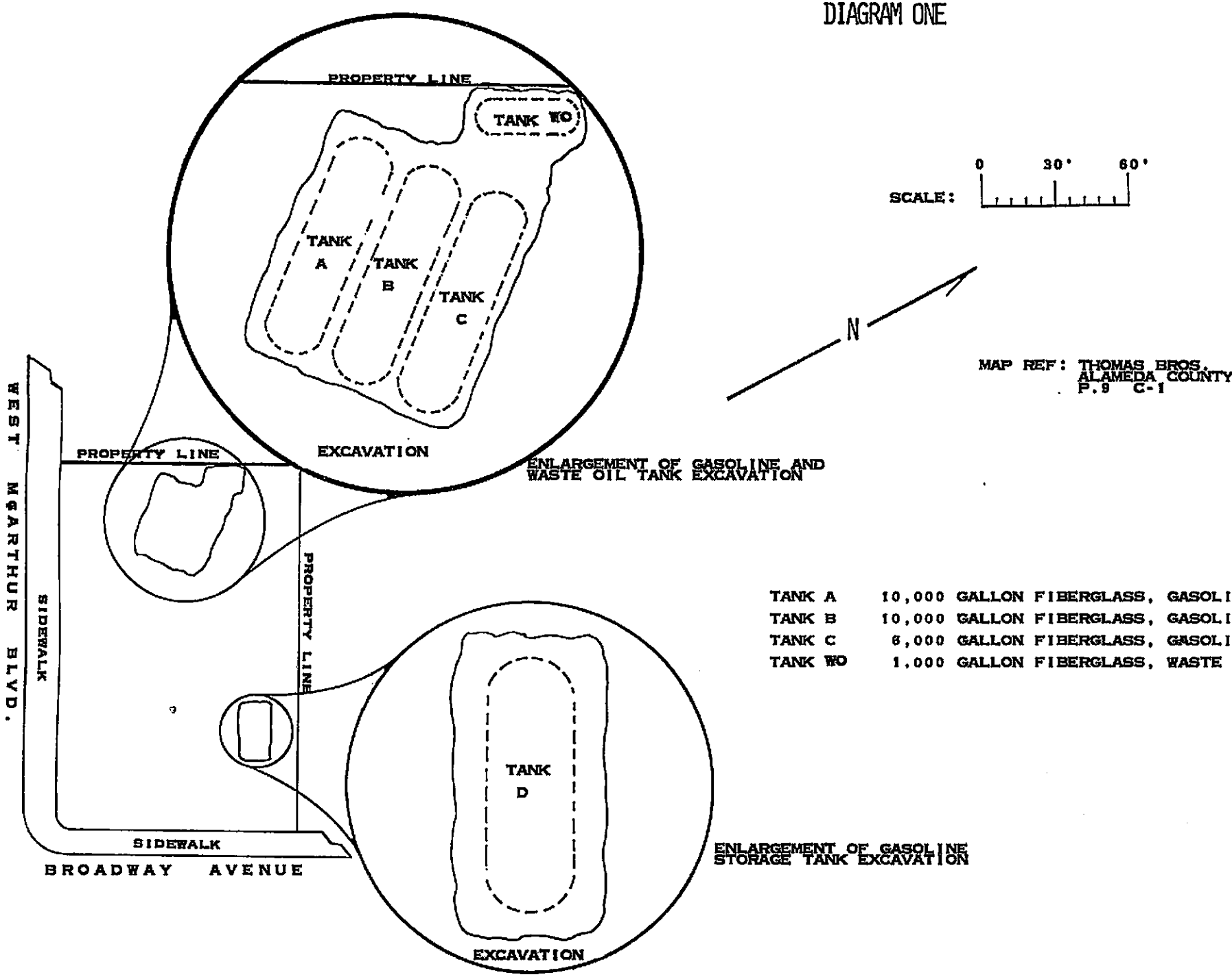
The TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS relies on a system of designated SAMPLING AREAS which are specific locations on the site which correspond to the fuel dispensing fixtures that were originally in place there. Briefly, the tanks are assigned a letter and a suffix which comprise a descriptive identification. Even when the tanks have been removed, all samples taken in that area of the site are referenced to that particular SAMPLING AREA which can be cross referenced to construction blueprints, permit drawings and similar documents.

DIAGRAM ONE shows the location of key features of the site including streets, property lines, and the location of underground storage tanks. The diagram shows that each tank has been assigned an arbitrary letter designation (Tank A, Tank B etc.). This simplifies communications concerning a particular tank by providing a nomenclature that does not rely on descriptions by size and tank contents.

DIAGRAM TWO shows a finer level of detail. A descriptive suffix is added to the tank identification letter, in order to designate a SAMPLING AREA at that particular end of that tank. For example, Tank A is given an F suffix to indicate the fill pipe end and AF is used to define the area in which samples are taken. The opposite end of the tank from the fill pipe is given an OP suffix, and that SAMPLING AREA is, thereafter, referred to as Aop. The approximate midpoint of the tank is given an M suffix if a sample is taken from that location. The location of stockpiled material and the individual sampling points is also shown on Diagram Two.

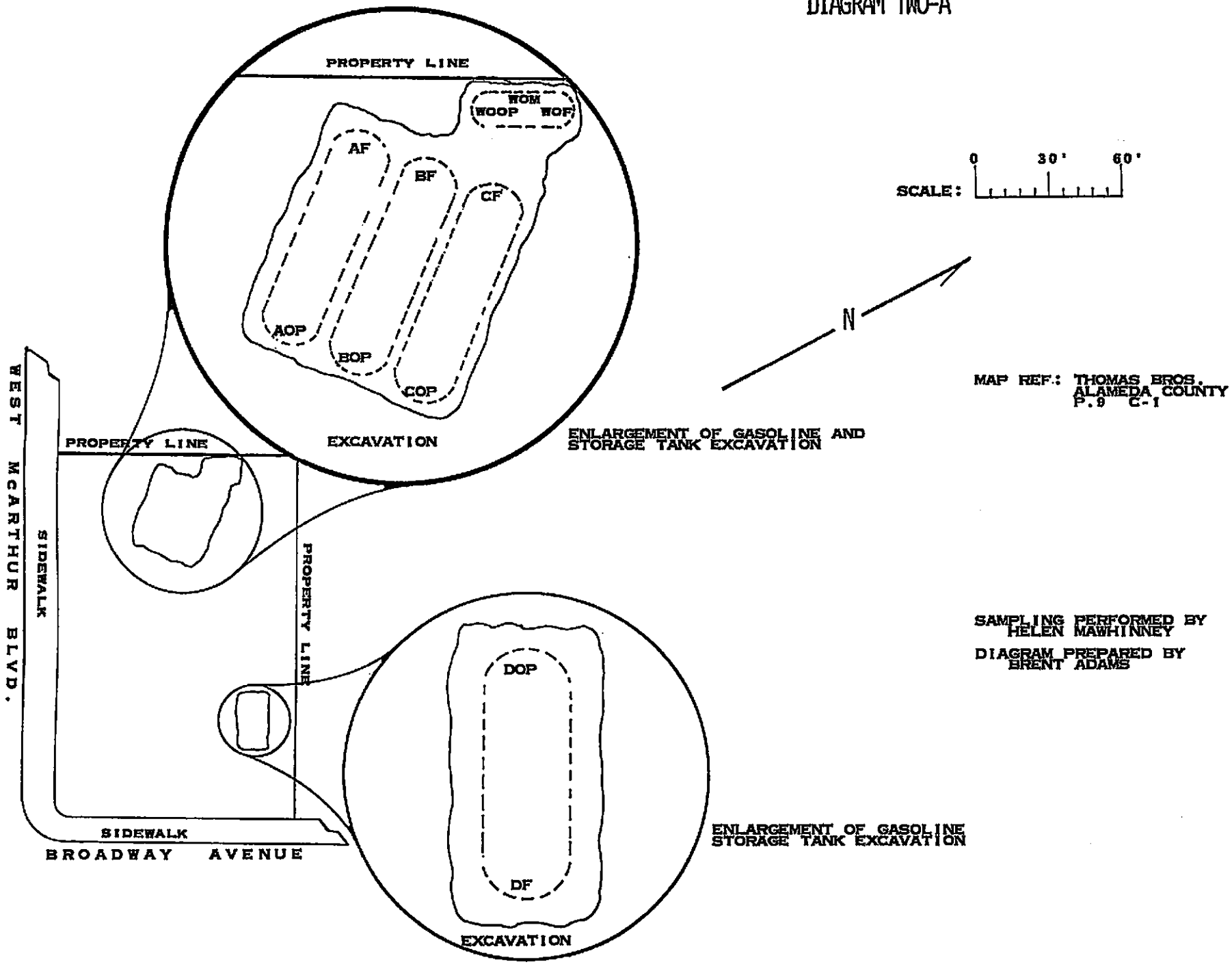
The relationship between a given tank and its sample collection points is more precisely illustrated in the UNDERGROUND STORAGE TANK REMOVAL AND SAMPLING LOGS. A log sheet is filled out for each of the tanks that was removed from the site. The log sheets contain end views and cross sections of each tank which graphically depict the SAMPLING AREAS at each end of that tank. Whenever holes are discovered in a tank during either removal or a post-removal inspection, the location of the holes is indicated on the TSR projection.

DIAGRAM ONE



TANK A	10,000	GALLON FIBERGLASS, GASOLINE TANK
TANK B	10,000	GALLON FIBERGLASS, GASOLINE TANK
TANK C	6,000	GALLON FIBERGLASS, GASOLINE TANK
TANK WO	1,000	GALLON FIBERGLASS, WASTE OIL TANK

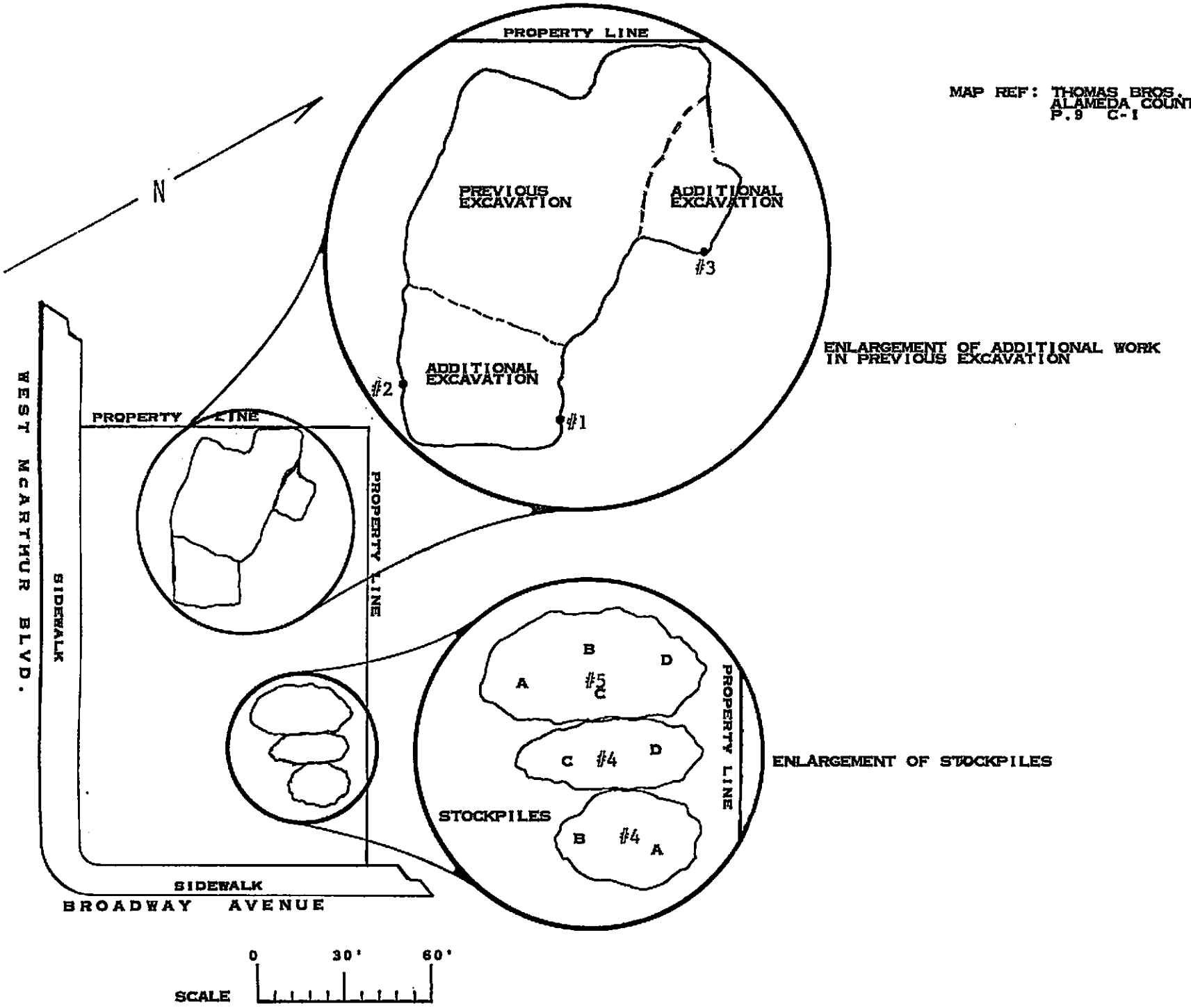
DIAGRAM TWO-A



SAMPLING PERFORMED BY
HELEN MAWHINNEY

DIAGRAM PREPARED BY
BRENT ADAMS

DIAGRAM TWO-B



MAP REF: THOMAS BROS. ALAMEDA COUNTY P.9 C-1

ENLARGEMENT OF ADDITIONAL WORK IN PREVIOUS EXCAVATION

ENLARGEMENT OF STOCKPILES

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	ANALYTICAL RESULTS IN PARTS PER MILLION -- PPM TPH AS GAS	BEN-ZENE	TOL-UENE	XY-LENES	ETHYL BEN-ZENE
AF	14.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#3	ANAMETRIX	8804118-03	890	3.3	9.5	110	8.9
Aop	14.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#2	ANAMETRIX	8804118-02	88	ND	0.3	12	1.2
Bop	14.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#1	ANAMETRIX	8804118-01	260	1.6	12	16	4.4
CF	14.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#5	ANAMETRIX	8804118-05	34	0.4	ND	0.2	ND
Cop	14.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#4	ANAMETRIX	8804118-04	480	0.8	1.4	19	8.3
DF	12.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#8	ANAMETRIX	8804118-08	ND	ND	ND	ND	ND
Dop	12.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#7	ANAMETRIX	8804118-07	ND	ND	ND	ND	ND
PRODUCT LINES														
#1	4.0	HANDRIVE	INTERFACE	SOIL	5/4/88	88125-C-2	#1	ANAMETRIX	8805026-01	50	0.7	0.5	3.1	0.6
#2	4.0	HANDRIVE	INTERFACE	SOIL	5/4/88	88125-C-2	#2	ANAMETRIX	8805026-02	60	1.0	0.8	8.1	9.8

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS RMTL LABORATORY	LABORATORY SAMPLE I.D.	ANALYTICAL RESULTS (PARTS PER BILLION) PPM TPH-HBP DIESEL	PPM TOTAL OIL & GREASE	PPB EPA 8240 COMPOUNDS
WoW	10.0	STANDARD	INTERFACE	SOIL	4/22/88	88113-M-1	#6	ANAMETRIX	8804118-06	4300	14,000	SEE LAB REPORT
ADDITIONAL EXCAVATION AREA												
#3	8.0	ELECTIVE	CONFIRM	SOIL	5/4/88	88125-C-2	#3	ANAMETRIX	8805026-03	ND	ND	SEE LAB REPORT
STOCK	1.0	SURVEY	BAAQMD MODIFD	SOIL	5/4/88	88125-C-2	#4A-D	ANAMETRIX	8805026-04	--	2,600	--
	1.0	SURVEY	BAAQMD MODIFD	SOIL	5/4/88	88125-C-2	#5A-D	ANAMETRIX	8805026-05	--	870	--

P R O C E D U R E S

Methodologies and Conventions

GENERAL PRACTICES WITHIN A MULTIPLE AGENCY HIERARCHY

U.S. Environmental Protection Agency standards serve as the foundation for all field sampling operations performed by our firm. The EPA SW 846 is the primary publication from which procedures are derived, though there are additional EPA sources such as training films and verbal communications. Sampling related to underground storage tanks and tank related threats to groundwater are governed by the California Water Resources Control Board and their Regional Water Quality Control Boards. While some aspects of field and laboratory work may be delegated to the California Department of Health Services, the CWRCB and the nine Regional Water Quality Control Boards establish the general and specific criteria for sampling performed in connection with underground storage tanks. This is done through the publication of guidance documents, the issuance of memoranda and verbal announcements.

Other agencies, such as Air Pollution Control Districts, may require additional samples, but these are usually in addition to samples required by the RWQCB. Local implementing agency (LIA) inspectors are frequently present during the tank removal phase of a project and either direct or request that samples be taken according to RWQCB specifications. Additional samples may, and frequently are, taken at the request of the LIA inspector.

Based on field conditions directly observable by the LIA inspector, our field personnel may be asked to collect samples that are tailored to the specific situation and which the inspector judges will provide substantial information about the site. Quite often these directions or suggestions coincide with the sampling areas established by the RWQCB as the proper collection points for samples which will be used as the Primary Criteria for a Regulatory Agency Determination on whether additional exploration or remediation will be required at a particular site. Similarly, there are instances when the LIA inspector's judgements do not coincide with Board specifications.

Two common examples of this are as follows:

1. A local implementing agency inspector notes that soil dug up from the correct RWQCB interface sampling point is relatively clean, but observes that there is quite obviously contaminated backfill underlying the center of the tank. The inspector directs that the contaminated backfill should be taken instead of the clean interface soil so as to provide information about the "worst case" conditions within the tank pit.

2. The soil at the specified interface sampling depth is found to be slightly contaminated, but much less so than the soil only a few inches above. Noting the relatively dense soil, the local implementing agency inspector decides not to have the interface soil sampled and has the backhoe dig deeper to see

if the contamination diminishes to acceptable levels. This exploration saves the property owner the cost of running two samples at that location, and enables the inspector to directly observe the condition of the deeper soil.

In both examples, different material is collected in lieu of a standard RWQCB interface sample. Further, the material collected is substantially different from what would have been obtained by taking representative soil at the Board specified sampling location. Note that both of these samples were taken at the direction of the local implementing agency inspector who was present at the site and elected to select alternative sampling locations. Note too, that these alternative samples may provide more information about the site than standard Board specified samples. However, as the LIA elected samples do not accurately reflect soil conditions at the sampling points specified by the RWQCB, the decision making process may be hampered.

Clearly there is no advantage in limiting the ability of the regulator in the field to make prudent judgements. Likewise, regulatory personnel and consultants who will review the reports without benefit of having been present at the site need to know that the samples taken were not obtained at the standard locations. A simple resolution to these situations is a brief notation indicating that the sampling was elective rather than in accordance with a standard Board specification. These notations appear in the third column of the TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS. By referring to the notations in column three and four in the TABLE, any party reviewing the report should be able to determine if something other than Board standard samples were obtained, and when variant sampling was performed, clarify whether it was elected by the LIA inspector, elected by our field personnel, or the result of some physical condition at the site that made it impossible to obtain material from the correct sampling location.

SAMPLING METHODOLOGIES USED ON THIS PROJECT

CAPILLARY ZONE SOIL SAMPLE: The capillary zone is the soil horizon immediately above the surface of standing groundwater into which moisture is drawn by capillary action. Capillary zone sampling is most often requested in open pit and open trench situations where lost petroleum products are evident or suspected. In these cases, it is reasoned that a sample of the capillary zone will demonstrate whether or not fuel has been drawn up into the soil above the groundwater and, thereby, provide a rough indication of the volume and duration of the lost fuel condition.

Engineers of the Region 2 RWQCB staff have specified the correct sampling area as being from zero to six inches above the surface of the standing perched water and no more than twelve inches back into the native soil from the lateral backfill/native soil interface.

There are two weaknesses which tend to invalidate capillary zone sampling on the basis of inconsistent results. First, is the difficulty encountered in locating the true surface of the perched water above which the capillary zone

resides. The removal of the tank and backfill material tends to artificially lower the water in the immediate vicinity of the tank pit below the true standing water level and mislead observers attempting to evaluate where the capillary zone is located. Second, the zone itself is a narrow horizon which is bordered on the top and bottom by soil which would not be expected to contain nearly the concentration of fuel hydrocarbons as the capillary zone proper. Collecting the correct material is complicated by conditions at the site which usually consist of a broad excavation, with vertical walls descending into a water filled pit. Because of these conditions, direct approach to the sampling area is difficult, dangerous, or impossible.

Assuming that the true and original surface of the perched water can be determined, samples can be safely obtained by one of the following methods. The backhoe bucket can be used to dig up a segment of the pit wall that contains the capillary zone and bring it up for inspection and sampling. An alternative method is to use sections of light weight drill rod and a drive shoe which contains a brass sample liner. This train can be extended across the pit, positioned, and used to drive an undisturbed soil sample.

STANDARD RWQCB INTERFACE SAMPLE: The tank removal sampling followed the standard protocol for obtaining interface samples. These samples fall into the category of samples which are known to be of primary concern to the interested regulatory agencies for determining if additional action will be required at a site and the methodology has been closely defined in State and RWQCB publications, supplements, and presentations. These specify both the acceptable depth and lateral situation of sample collection points. In accordance with these specifications, sample collection is executed as close as possible to the center line (longitudinal axis) of the tank and on a vertical axis with the fill pipe. A corresponding location is also found at the opposite end of the tank whenever standard interface samples are being collected.

Briefly, the method consists of digging up native soil from directly below the fill pipe and the corresponding opposite end of the tank and obtaining a sample from the backfill/native soil interface or a short distance below the interface. In the case of tanks less than 1,000 gallons in capacity, only one sample from beneath the tank is required. A short distance has been defined by Region 2 Board engineers as not greater than twenty-four inches below the backfill/native soil interface and is generally taken to be one foot below the the backfill/native soil interface. This soil is brought up in the backhoe bucket. A shovel or trowel is used to cut away surface soil and backfill material which may have been included in the bucket, and the sample is taken by pushing or driving a brass sample liner into the newly exposed soil from the designated depth and location. Additional clarifications by Region 2 Board engineers have indicated that when there is an obvious difference in the relative contamination of soil brought up from the interface depth, then it is the relatively more contaminated soil that should be selected for inclusion in the sample.

HAND DRIVEN CORE SAMPLING: This is another term for the sampling methodology that is often called undisturbed soil sampling. This is the generally preferred sampling method for both geotechnical and environmental

investigations because the method captures a relatively undisturbed cylinder of soil which can be retained in its sealed brass liner during transport to a laboratory for very precise examination. Whether driven by a drill rig or a much smaller hand operated slide hammer, the principle attributes of the methodology remain the same.

Because of the tons of force which can be exerted by a drill rig, the samplers, drill rod and hammers are, necessarily, quite massive. Apparatus used in hand augered borings is usually much lighter and more subject to wear and breakage. Specialized hand tools that enable a person to drive samples consist of a sampling shoe (which contains the brass liners), light weight drill rod, and a small slide hammer. These hand operated drive samplers collect samples in the same two inch diameter brass liners used in many drill rig samplers, but collect only a four or six inch long core rather than twelve to twenty four inches of soil commonly obtained by drilling apparatus.

Common uses for hand operated drive samplers include all those applications where an undisturbed soil sample is desired. Typical applications include the collection of soil samples from the bottom of a hand augered boring, capillary zone sampling where drill rod is used to extend the sampler across an open pit to a selected location on the wall of the excavation, and when sampling soil from the backhoe bucket that is too hard to allow a brass sample liner to be pushed into the soil by hand.

In practice, the sampler is usually overdriven and then retracted. Then the sampler is removed from the drill rods and hammer, opened, and the sample contained in the brass sample liners removed. Samples to be analyzed for environmental hazards are treated according the same sample handling protocol as all other environmental samples.

STOCKPILE SURVEY MODIFIED BAAQMD PROTOCOL: This sampling follows a survey pattern, but uses a modified BAAQMD protocol for sampling stockpiles of material that have been newly removed from a tank pit excavation. This protocol calls for a discrete sample container to be collected for every 12.5 cubic yards of material. The survey includes opposite sides of the stockpile. Strict observance of the BAAQMD protocol (for purposes of evaluating the levels of fuel vapor likely to be discharged from a stockpile) calls for inclusion of the surface material in the brass liner which is driven into the pile at a right angle (to the angle of repose) until the liner is full. Unless specifically asked to follow the BAAQMD protocol, our personnel routinely modify the procedure to exclude the surface soil and collect soil from a depth of eight to eighteen inches. While this prejudices the sample in the direction of yielding higher results than would a strict BAAQMD sample, it is more representative of the levels of fuel hydrocarbons present in the soil and is not likely to mislead the client or contractor into offhauling or backfilling with soil stockpiles that are relatively clean at the surface, but unacceptably contaminated through the remainder of their volume.

ELECTIVE CONFIRMING SAMPLES FOLLOWING ADDITIONAL EXCAVATION: In cases where, as a precaution, excavation is continued in order to remove soil which may be contaminated, it is customary to obtain one or more samples of the

soil at the furthest extent of excavation. These samples provide information on the condition of the soil remaining after the excavation effort was completed.

As the precautionary excavation is completed, the backhoe is used to dig up soil representative of the material which remains in the bottom of the pit. The sample material is collected and handled according to the same procedures used with other backhoe assisted sampling methodologies.

SAMPLE CONTAINERS

Our firm uses new sample containers of the type specified by either EPA or the RWQCB for the collection of samples at sites where underground storage tanks are involved. Water samples are contained in 40 ml volatile organic analysis vials (VOAs) when analysis for gasoline and similar light volatile compounds is intended. These containers are prepared according to EPA SW 846 and will contain a small amount of preservative when the analysis is for TPH as gasoline or EPA 602. Vials intended for EPA 601 analysis and EPA 624 GCMS procedures are not preserved. Closure is accomplished with an open headed (syringe accessible) plastic screw cap brought down on top of a Teflon faced septum which is used to seal the sample without headspace.

Water samples intended for semivolatile and nonvolatile analysis such as total oil and grease (TOG) and diesel (TPH HBF) are collected and transported in properly prepared new glass liter bottles. Dark amber glass is used in the manufacture of these bottles to reduce any adverse effect on the sample by sunlight. Antimicrobial preservative may be added to the sample liquid if a prolonged holding time is expected prior to analysis. Closure is accomplished with a heavy plastic screw cap.

Soil samples for volatile, semivolatile and nonvolatile analyses are all collected in properly prepared new brass liners which are 2 inches in diameter by 4 inches in length. Closure is accomplished with press fit plastic end caps which are fitted to the open ends of brass tube after a sheet of aluminum foil is wrapped over the exposed sample material. A non-contributing/nonsubtractive tape is wrapped completely around the joint areas where the plastic caps meet the outer wall of the brass tube. No preservative other than cold storage is used on samples captured in sample containers of this type.

SAMPLE HANDLING PROCEDURES

Solid sample material is captured by advancing the liner into the soil. This may be done by pushing the liner into soft soils or by containing the liner in a drive shoe which can be advanced and then retracted by means of a slide hammer. The open ends of the sample liner are covered with aluminum foil and plastic end caps. Excess aluminum foil is removed and the edge of the plastic end caps is tightly sealed against the outer surface of the brass liner with an unbroken wrap made with a tape which has been tested to confirm that it does not contribute compounds that would be detected in the type of

analyses intended for the sample contained inside of the brass liner. The brass liner is then labeled with the appropriate identification numbers which specify the sampling activity designation number, sample collection area, depth etc. that apply to that particular sample. The sample liner is then placed in an ice chest which contains pre-frozen blocks of an inert ice substitute such a Blue Ice or Super Ice.

Water samples are collected in any of several appropriate devices such as bailers, Coliwasas, Middleburg sampling pumps etc. which are described in detail only as warranted by their employment at a given site. Sample liquid is decanted into new sample containers in a manner which reduces the loss of volatile constituents and follows the applicable EPA procedures for handling volatile organic and semi-volatile compounds. Only two variations from the EPA methods are generally employed. First, preservative is added to the sample container prior to addition of the sample liquid. This method was pioneered by Stoner Laboratories in 1982 and subsequently adopted by laboratories and environmental consulting firms as a practical means of reducing the time that a liquid is allowed to aerate prior to closure of the sampling container. Second, because tests have shown that the preservative readily mixes with sample liquid, glass stirring rods are not used to agitate the sample/preservative mixture.

SAMPLE DESIGNATIONS

All samples containers are identified with both an activity number and a discrete sample identification. Please note that the activity number is the number that appears on our chain of custody. It is roughly equivalent to a job number, but applies only to work done on a particular day of the year rather than spanning several days as an actual activity often does. This is followed by the sample I.D. number which is usually a simple number such as #1, #2, #3.

CHAIN OF CUSTODY

Samples are continuously maintained in either a chilled ice chest, refrigerator, or freezer from the time of collection until acceptance by the State certified Hazardous Materials Testing Laboratory selected to perform the analytical procedures. If the samples are taken charge of by a different party (such as another person from our office, a courier etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

LABORATORY IDENTIFICATION NUMBERS

Following receipt of the samples and completion of the Chain of Custody form, the laboratory then assigns their own identification numbers to the samples. Different laboratories use different numbering systems and, according to

their own internal conventions, may or may not assign sequential numbers to samples which are placed on temporary "hold", pending the results of other analyses. Laboratory identification numbers (if assigned and available) are included in the TABLE, and will be found on the certified analytical report by the analytical laboratory.

CERTIFIED ANALYTICAL REPORT

The certified analytical report (CAR) generated by the laboratory is the official document in which they issue their findings. The Results of Analyses section of the TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS should correspond exactly with the laboratory's CAR. Any discrepancy between analytical values should be decided in favor of the CAR, for while it may, itself, be in error with regard to a particular number, the CAR remains the recognized document until such time as it is amended with a corrected report.

The certified analytical report should also be reviewed when samples are taken from below waste oil tanks as <u>any</u> detection of the EPA halogenated and purgeable aromatic compounds may be grounds for requiring further action. Also the TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS is insufficiently spacious to allow anything more that a simple listing of the detected compounds. The TABLE does not include such information as the detection limits at which other compounds were not detected. The full text of the laboratory report will be found in Section Four of this report.

GENERAL ADVISORY ON POSITIVE RESULTS

Though our firm specializes in sampling, monitoring and documentation, rather than interpretation and remediation, we have been asked by the engineering staff of the Regional Water Quality Control Board to include in our reports an advisory section outlining the general type of additional actions which may be required when contamination is found. This advisory is not intended to characterize conditions at this particular site or replace the services of a consulting firm specializing in the investigation, characterization and remediation of such conditions as may exist. Rather, it is intended to advise you that such additional actions may be required even though some time may elapse before you are contacted by one of the interested regulatory agencies.

In Region 2 (which is regulated by the San Francisco Regional Water Quality Control Board,) the thresholds are readily defined in the Board's publication, <u>Guidelines For Addressing Fuel Leaks</u>. According to this document, soil which has less than 100 parts per million total petroleum fuel hydrocarbon (TPH) contamination does not generally require immediate additional action. Board engineers emphasize that this does not mean that some action might not be required in the future. Still, the site is assigned a low priority unless it is situated in an area of high hydrogeologic concern.

The detection of more than 100 ppm TPH in the native soil beneath a tank is generally considered grounds for requiring an additional investigation in the form of soil borings and installation of at least one groundwater monitoring well followed by periodic monitoring. The detection of 1000 ppm TPH is usually viewed by the Board as an unacceptable level of fuel saturation which will mandate excavation of the effected ground down to the furthest practicable reach of conventional excavating machinery followed by soil borings and installation of groundwater monitoring wells.

Other regions use different standards for determining when a groundwater investigation will be required. For example benzene is often used in lieu of TPH. Even very low levels of benzene are often seen as grounds for requiring a subsurface investigation. This criteria may be relaxed or stiffened depending on the location of the site in relation to different groundwater systems, the depth to water, type of soil, and the concentrations of benzene involved.

The above standards apply only to fuels. When samples taken in connection with a waste oil tank or a solvent tank are found to contain even small amounts of any of the EPA priority pollutants (such as TCE, PCE, DCE etc. which are detected by EPA methods 8010, 8020, and 8240) more stringent standards are often applied. In these cases, soil borings and monitoring well installation may be required if there is any detectable amount of any of the EPA priority pollutant compounds.

When contaminants are found to have reached the water underlying a site, the Board customarily requires that additional work be undertaken in order to define the extent of the contamination.

REPORTAGE

Submission to the Regional Water Quality Control Board and the local implementing agency should include copies of the sampling report, the chain of custody, and the certified analytical report issued by the Hazardous Materials Testing Laboratory. The property owner should attach a cover letter and submit all documents together in a package.

The following addresses have been listed here for your convenience:

Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street
Room 6040
Oakland, CA 94607
ATTN: Greg Zentner

Alameda County Health
Hazardous Materials Management
420 27th Street
Oakland, Ca 94612
ATTN: Storm Goranson

Please call if we can be of any further assistance.

Sincerely,

Richard C. Blaine

RCB/ral

attachments: supporting documents

L A B O R A T O R Y R E S U L T S

Supporting documents

This section contains the following:

CHAIN OF CUSTODY
ANAMETRIX ANALYTICAL REPORTS
TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

BLAINE TECH SERVICES INC.

1370 TULLY ROAD, SUITE 505
SAN JOSE, CA 95122
(408) 995-5535

CHAIN OF CUSTODY # 88125-C-2

SITE SPECIFICATION Chevron #1026
3701 Broadway
Oakland, CA

( ) Bill BLAINE TECH SERVICES, Inc.
(X) Bill Chevron
Bill Barnard

SPECIAL INSTRUCTIONS

Anametrix release # 154920

SAMPLE I.D.	QUANTITY	TYPE	OK	ANALYSIS TO DETECT	STATUS	RESULTS	WORK ORDER # LAB NUMBER
1	1	Soil		TPH(gas), BTX	4 to lab		8805026
2	1	"		TPH(gas), BTX	"		
3	1	"		TPH (high boiling), TOG, 8240	"		
4A-D	4	"		TOG	"		
5A-D	4	"		TOG	"		

Field sampling was performed by Stephen C. Carter

Sampling was completed at 15:04 AM/PM 5-4-1988

RELEASE OF SAMPLES FROM (name,time,date) ---->>>>> INTO THE CUSTODY OF (name,time,date)

from S. Carter @ 16:34 AM/PM 5/4 -88 -> to Tyler Norwood @ 16:34 AM/PM 5-4 -88

from _____ @ : AM/PM -88 -> to _____ @ : AM/PM -88

from _____ @ : AM/PM -88 -> to _____ @ : AM/PM -88

The laboratory designated to perform these analyses is: Anametrix DHS HMTL # 151
NOTE: Procedures and detection limits must confrom to RWQCB Region 2 specifications.
Please include chain of custody number and site specification on reports and invoices.

ANAMETRIX, INC.
LABORATORY SERVICES
ENVIRONMENTAL • ANALYTICAL CHEMISTRY
2754 AIELLO DRIVE • SAN JOSE, CA 95111 • (408) 629-1132

May 6, 1988
Work Order Number 8805026
Date Received 05/04/88
Release #18
3701 Broadway Oakland, CA
Chevron Project #9-1026

Bill Barnard
Chevron U.S.A Inc.
2 Annabel Ln., Ste. 200
San Ramon, CA 94583

Five soil samples were received for analysis of volatiles by GC/MS, BTEX plus total volatile hydrocarbons as gasoline by gas chromatography and total oil and grease by gravimetric analysis, using the following method(s):

ANAMETRIX I.D.	SAMPLE I.D.	METHOD(S)
8805026-01	9-1026 1	8015/8020
-02	" 2	"
-03	" 3	8015/8240/503E
-04	" 4A,4B,4C,4D COMP	503E
-05	" 5A,5B,5C,5D COMP	"

RESULTS

See enclosed data sheets, Pages 2-7.

EXTRA COMPOUNDS

None Detected.

QUALITY ASSURANCE REPORTS

See enclosed data sheet, Page 8.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

Burt Sutherland

Burt Sutherland
Laboratory Manager

BWS/lm

cc: Blaine Tech Services Inc.

ORGANIC ANALYSIS DATA SHEET - EPA METHOD 624/8240
ANAMETRIX, INC. (408) 629-1132

Sample I.D. : 9-1026 3
Matrix : SOIL
Date sampled : 05-04-88
Date analyzed: 05-05-88
Dilut. factor: NONE

Anametrix I.D. : 8805026-03
Analyst : TC
Supervisor : PG
Date released : 05-06-88
Instrument ID : F1

CAS #	Compound Name	Reporting Limit (ug/Kg)	Amount Found (ug/Kg)
74-87-3	* Chloromethane	10	BRL
75-01-4	* Vinyl Chloride	10	BRL
74-83-9	* Bromomethane	10	BRL
75-00-3	* Chloroethane	10	BRL
75-69-4	* Trichlorofluoromethane	5	BRL
75-35-4	* 1,1-Dichloroethene	5	BRL
76-13-1	# Trichlorotrifluoroethane	5	BRL
67-64-1	**Acetone	20	57
75-15-0	**Carbondisulfide	5	BRL
75-09-2	* Methylene Chloride	5	BRL
156-60-5	* Trans-1,2-Dichloroethene	5	BRL
75-34-3	* 1,1-Dichloroethane	5	BRL
78-93-3	**2-Butanone	20	BRL
156-59-2	* Cis-1,2-Dichloroethene	5	BRL
67-66-3	* Chloroform	5	BRL
71-55-6	* 1,1,1-Trichloroethane	5	BRL
56-23-5	* Carbon Tetrachloride	5	BRL
71-43-2	* Benzene	5	BRL
107-06-2	* 1,2-Dichloroethane	5	BRL
79-01-6	* Trichloroethene	5	BRL
78-87-5	* 1,2-Dichloropropane	5	BRL
75-27-4	* Bromodichloromethane	5	BRL
110-75-8	* 2-Chloroethylvinylether	5	BRL
108-05-4	**Vinyl Acetate	10	BRL
10061-02-6	* Trans-1,3-Dichloropropene	5	BRL
108-10-1	**4-Methyl-2-Pentanone	10	BRL
108-88-3	* Toluene	5	10
10061-01-5	* cis-1,3-Dichloropropene	5	BRL
79-00-5	* 1,1,2-Trichloroethane	5	BRL
127-18-4	* Tetrachloroethene	5	BRL
591-78-6	**2-Hexanone	10	BRL
124-48-1	* Dibromochloromethane	5	BRL
108-90-7	* Chlorobenzene	5	BRL
100-41-4	* Ethylbenzene	5	BRL
1330-20-7	**Total Xylenes	5	BRL
100-42-5	**Styrene	5	BRL
75-25-2	* Bromoform	5	BRL
79-34-5	* 1,1,2,2-Tetrachloroethane	5	BRL
541-73-1	* 1,3-Dichlorobenzene	5	BRL
106-46-7	* 1,4-Dichlorobenzene	5	BRL
95-50-1	* 1,2-Dichlorobenzene	5	BRL

CAS #	Surrogate Compounds	Limits	% Recovery
17060-07-0	1,2-Dichloroethane-d4	84-132%	113%
2037-26-5	Toluene-d8	76-131%	105%
460-00-4	p-Bromofluorobenzene	74-116%	74%

* A Method 624 priority pollutant compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)
# A compound added by Anametrix, Inc. BRL : Below reporting limit.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 629-1132

Sample I.D.	: 9-1026 1	Anametrix I.D.	: 8805026-01
Matrix	: SOIL	Analyst	: [illegible]
Date sampled	: 05-04-88	Supervisor	: [illegible]
Date anl. TVH	: 05-05-88	Date released	: 05-06-88
Date ext. TEH	: NA	Date ext. TOG	: NA
Date anl. TEH	: NA	Date anl. TOG	: NA

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	200	700
108-88-3	Toluene	200	500
100-41-4	Ethylbenzene	200	600
1330-20-7	Total Xylenes	200	3100
	TVH as Gasoline	5000	50000

BRL - Below reporting limit.
TVH - Total Volatile Hydrocarbons is determined by modified EPA 8015 with either headspace or purge and trap.
TEH - Total Extractable Hydrocarbons is determined by modified EPA 8015 with direct injection.
TOG - Total Oil & Grease is determined by Standard Method 503E.
BTEX- Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow CRWQCB Region 2 guidelines.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 629-1132

Sample I.D.	: 9-1026 2	Anametrix I.D.	: 8805026-02
Matrix	: SOIL	Analyst	: sk
Date sampled	: 05-04-88	Supervisor	: BJS
Date anl. TVH	: 05-05-88	Date released	: 05-06-88
Date ext. TEH	: NA	Date ext. TOG	: NA
Date anl. TEH	: NA	Date anl. TOG	: NA

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	200	1000
108-88-3	Toluene	200	800
100-41-4	Ethylbenzene	200	9800
1330-20-7	Total Xylenes	200	8100
	TVH as Gasoline	5000	60000

BRL - Below reporting limit.
TVH - Total Volatile Hydrocarbons is determined by modified EPA 8015 with either headspace or purge and trap.
TEH - Total Extractable Hydrocarbons is determined by modified EPA 8015 with direct injection.
TOG - Total Oil & Grease is determined by Standard Method 503E.
BTEX- Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow CRWQCB Region 2 guidelines.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 629-1132

Sample I.D.	: 9-1026 3	Anametrix I.D.	: 8805026-03
Matrix	: SOIL	Analyst	:
Date sampled	: 05-04-88	Supervisor	:
Date anl. TVH	: NA	Date released	: 05-06-88
Date ext. TEH	: 05-04-88	Date ext. TOG	: 05-04-88
Date anl. TEH	: 05-05-88	Date anl. TOG	: 05-05-88

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
	TEH as Diesel	10000	BRL
	Total Oil & Grease	30000	BRL

BRL - Below reporting limit.
TVH - Total Volatile Hydrocarbons is determined by modified EPA 8015 with either headspace or purge and trap.
TEH - Total Extractable Hydrocarbons is determined by modified EPA 8015 with direct injection.
TOG - Total Oil & Grease is determined by Standard Method 503E.
BTEX- Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow CRWQCB Region 2 guidelines.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 629-1132

Sample I.D.	: 9-1026 4A,4B,4C,4D COMP	Anametrix I.D.	: 8805026-04
Matrix	: SOIL	Analyst	: JL
Date sampled	: 05-04-88	Supervisor	: RS
Date anl. TVH:	NA	Date released	: 05-06-88
Date ext. TEH:	NA	Date ext. TOG	: 05-04-88
Date anl. TEH:	NA	Date anl. TOG	: 05-05-88

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
	Total Oil & Grease	30000	2600000

BRL - Below reporting limit.
TVH - Total Volatile Hydrocarbons is determined by modified EPA 8015 with either headspace or purge and trap.
TEH - Total Extractable Hydrocarbons is determined by modified EPA 8015 with direct injection.
TOG - Total Oil & Grease is determined by Standard Method 503E.
BTEX- Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow CRWQCB Region 2 guidelines.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 629-1132

Sample I.D.	: 9-1026 5A,5B,5C,5D COMP	Anametrix I.D.	: 8805026-05
Matrix	: SOIL	Analyst	:
Date sampled	: 05-04-88	Supervisor	:
Date anl. TVH:	NA	Date released	: 05-06-88
Date ext. TEH:	NA	Date ext. TOG	: 05-04-88
Date anl. TEH:	NA	Date anl. TOG	: 05-05-88

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
	Total Oil & Grease	30000	870000

BRL - Below reporting limit.
TVH - Total Volatile Hydrocarbons is determined by modified EPA 8015 with either headspace or purge and trap.
TEH - Total Extractable Hydrocarbons is determined by modified EPA 8015 with direct injection.
TOG - Total Oil & Grease is determined by Standard Method 503E.
BTEX- Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow CRWQCB Region 2 guidelines.

ORGANIC ANALYSIS DATA SHEET - EPA METHOD 624/8240

ANAMETRIX, INC. (408) 629-1132

Sample I.D. : METHOD BLANK
Matrix : SOIL
Date sampled : NA
Date analyzed: 05-05-88
Dilut. factor: NONE

Anametrix I.D. : 1CB0505V001
Analyst : TC
Supervisor : PG
Date released : 05-06-88
Instrument ID : F1

CAS #	Compound Name	Reporting Limit (ug/Kg)	Amount Found (ug/Kg)
74-87-3	* Chloromethane	10	BRL
75-01-4	* Vinyl Chloride	10	BRL
74-83-9	* Bromomethane	10	BRL
75-00-3	* Chloroethane	10	BRL
75-69-4	* Trichlorofluoromethane	5	BRL
75-35-4	* 1,1-Dichloroethene	5	BRL
76-13-1	# Trichlorotrifluoroethane	5	BRL
67-64-1	**Acetone	20	BRL
75-15-0	**Carbondisulfide	5	BRL
75-09-2	* Methylene Chloride	5	BRL
156-60-5	* Trans-1,2-Dichloroethene	5	BRL
75-34-3	* 1,1-Dichloroethane	5	BRL
78-93-3	**2-Butanone	20	BRL
156-59-2	* Cis-1,2-Dichloroethene	5	BRL
67-66-3	* Chloroform	5	BRL
71-55-6	* 1,1,1-Trichloroethane	5	BRL
56-23-5	* Carbon Tetrachloride	5	BRL
71-43-2	* Benzene	5	BRL
107-06-2	* 1,2-Dichloroethane	5	BRL
79-01-6	* Trichloroethene	5	BRL
78-87-5	* 1,2-Dichloropropane	5	BRL
75-27-4	* Bromodichloromethane	5	BRL
110-75-8	* 2-Chloroethylvinylether	5	BRL
108-05-4	**Vinyl Acetate	10	BRL
10061-02-6	* Trans-1,3-Dichloropropene	5	BRL
108-10-1	**4-Methyl-2-Pentanone	10	BRL
108-88-3	* Toluene	5	BRL
10061-01-5	* cis-1,3-Dichloropropene	5	BRL
79-00-5	* 1,1,2-Trichloroethane	5	BRL
127-18-4	* Tetrachloroethene	5	BRL
591-78-6	**2-Hexanone	10	BRL
124-48-1	* Dibromochloromethane	5	BRL
108-90-7	* Chlorobenzene	5	BRL
100-41-4	* Ethylbenzene	5	BRL
1330-20-7	**Total Xylenes	5	BRL
100-42-5	**Styrene	5	BRL
75-25-2	* Bromoform	5	BRL
79-34-5	* 1,1,2,2-Tetrachloroethane	5	BRL
541-73-1	* 1,3-Dichlorobenzene	5	BRL
106-46-7	* 1,4-Dichlorobenzene	5	BRL
95-50-1	* 1,2-Dichlorobenzene	5	BRL

CAS #	Surrogate Compounds	Limits	% Recovery
17060-07-0	1,2-Dichloroethane-d4	84-132%	115%
2037-26-5	Toluene-d8	76-131%	80%
460-00-4	p-Bromofluorobenzene	74-116%	104%

* A Method 624 priority pollutant compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)
# A compound added by Anametrix, Inc. BRL : Below reporting limit.

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HNTL LABORATORY	LABORATORY SAMPLE I.D.	ANALYTICAL RESULTS IN PARTS PER MILLION -- PPM TPH AS GAS	BEN-ZENE	TOL-UENE	XY-LENES	ETHYL BEN-ZENE
AF	14.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#3	ANAMETRIX	8804118-03	890	3.3	9.5	110	8.9
Aop	14.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#2	ANAMETRIX	8804118-02	88	ND	0.3	12	1.2
Bop	14.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#1	ANAMETRIX	8804118-01	260	1.6	12	16	4.4
CF	14.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#5	ANAMETRIX	8804118-05	34	0.4	ND	0.2	ND
Cop	14.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#4	ANAMETRIX	8804118-04	480	0.8	1.4	19	8.3
DF	12.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#8	ANAMETRIX	8804118-08	ND	ND	ND	ND	ND
Dop	12.5	STANDARD	CAPILLAR	SOIL	4/22/88	88113-M-1	#7	ANAMETRIX	8804118-07	ND	ND	ND	ND	ND
PRODUCT LINES														
#1	4.0	HANDDRIVE	INTERFACE	SOIL	5/4/88	88125-C-2	#1	ANAMETRIX	8805026-01	50	0.7	0.5	3.1	0.6
#2	4.0	HANDDRIVE	INTERFACE	SOIL	5/4/88	88125-C-2	#2	ANAMETRIX	8805026-02	60	1.0	0.8	8.1	9.8

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	ANALYTICAL RESULTS (PARTS PER BILLION) PPM TPH-HBF DIESEL	PPM TOTAL OIL & GREASE	PPB EPA 8240 COMPOUNDS
WoH	10.0	STANDARD	INTERFACE	SOIL	4/22/88	88113-M-1	#6	ANAMETRIX	8804118-06	4300	14,000	SEE LAB REPORT
ADDITIONAL EXCAVATION AREA												
#3	8.0	ELECTIVE	CONFIRM	SOIL	5/4/88	88125-C-2	#3	ANAMETRIX	8805026-03	ND	ND	SEE LAB REPORT
STOCK	1.0	SURVEY	BAAQMD MODIFD	SOIL	5/4/88	88125-C-2	#4A-D	ANAMETRIX	8805026-04	--	2,600	--
	1.0	SURVEY	BAAQMD MODIFD	SOIL	5/4/88	88125-C-2	#5A-D	ANAMETRIX	8805026-05	--	870	--