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ALAMEDA NAVAL AIR STATION
ALAMEDA, CALIFORNIA

WEST BEACH LANDFILL AND RUNWAY AREAS INTERIM DATA REPORT

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1.0 INTRODUCTION

This Interim Data Report documents field and laboratory methods, and presents the data generated by James M. Montgomery, Consulting Engineers Inc. (JMM) as part of Contract Task Order (CTO) No. 0085. Phase 5 of the Remedial Investigation/Feasibility Study (RI/FS) at Alameda Naval Air Station (NAS) involves performing site investigation activities in and around the West Beach Landfill and the 1943-1956 Landfill located beneath the western ends of the principal runways. This report is termed "interim" because only a portion of the Phase 5 activities (installation of 12 wells) was undertaken. In the first quarter of 1991, JMM will begin work on the remaining, larger portion of Phase 5, the RI/FS (the drilling of an additional 58 monitoring wells) for Alameda NAS.

Following the completion of Phase 5 activities, the data from both portions of the investigation will be combined into a single Solid Waste Water Quality Assessment Test (SWAT) report which is included in Phase 6. The Phase 6 site investigation report will be prepared to comply with California Water Code, Section 13273, for SWAT requirements. The SWAT report will contain a complete description of the field activities performed and a thorough analysis of all data produced from the investigations.

Except where modified by the PRC Team (JMM and PRC Environmental Management, Inc. (PRC)) addenda, all activities performed during this study were conducted in accordance with the RI/FS (SWAT) Sampling Plan, Volume 1A (Canonie, 1990a); Quality Assurance Project Plan, Volume 3 (Canonie, 1990b); and Health and Safety Plan (Canonie, 1990c) prepared by Canonie Environmental (Canonie) for the Navy. Much of the general information used in this interim report is based on the above mentioned documents.

This report is organized as follows:

- Section 1 - Introduction
- Section 2 - Site Description
- Section 3 - Monitoring Wells
- Section 4 - Chemical Analytical Results
- Section 5 - Geotechnical Analytical Results
- Section 6 - Summary and Recommendations
- Appendix A - References
- Appendix B - Geologic Logs
- Appendix C - JMM Addendum to Sampling Plan

- Appendix D - Laboratory Analytical Reports
- Appendix E - Laboratory Data Quality Assessment
- Appendix F - Geotechnical Laboratory Reports

Included in Appendix B are boring logs of 12 monitoring wells (six shallow depth, and six intermediate depth); results of chemical analyses of ten soil samples; and results of geotechnical analyses of five soil samples.

2.0 SITE DESCRIPTION

Alameda NAS is located in the west end of the Alameda Island in Alameda and San Francisco Counties, California (Figure 2-1).

2.1 GEOGRAPHIC SETTING

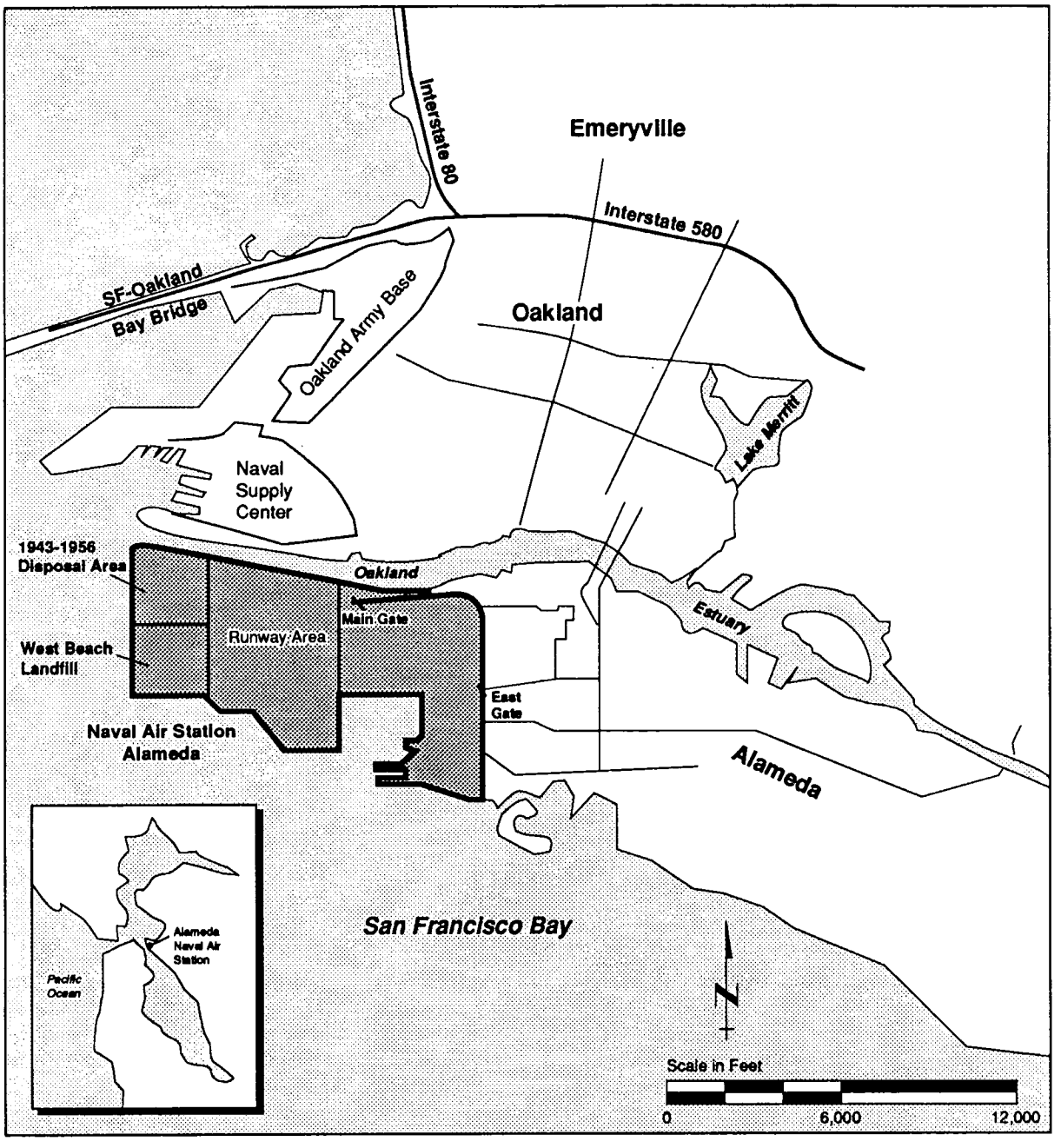
Alameda Island lies along the eastern side of San Francisco Bay, adjacent to and southwest of the city of Oakland. Alameda NAS occupies approximately 2,634 acres and is about 2 miles long and 1 mile wide. The Alameda NAS is essentially flat, with typical relief from 10 feet to 15 feet above sea level.

Most of the Alameda NAS, including all of the western portion, is constructed on reclaimed marshes or on open water areas filled in with dredge spoils. Much of the dredge spoils used to reclaim the open water areas came from the dredging of the San Francisco Bay and the Oakland Estuary, which separate Alameda Island from the mainland.

2.2 GENERAL GEOLOGY

The Alameda NAS lies adjacent to the San Francisco Bay and is underlain by a sequence of sedimentary formations of relatively young age. Five of the uppermost natural sedimentary formations, from oldest to youngest, are the Alameda, San Antonio, Posey, Merritt sand, and Young Bay mud formations. The Alameda, San Antonio and Posey formations are marine deposits and consist mainly of stiff clays interbedded with silts and sands. These three formations are collectively referred to as the Old Bay mud. Following deposition of the Old Bay mud, the sea level dropped and the Old Bay mud was exposed and eroded in places. The Merritt sand, a nearshore marine and beach sand, was deposited over the Old Bay mud. The Merritt sand grades laterally eastward into alluvial fan deposits and westward into fine-grained San Francisco Bay deposits. Erosional channels were cut into the Merritt sand. As the sea level gradually rose to its present elevation, flooding the San Francisco Bay, the Young Bay mud was deposited on the Merritt sand, filling the erosional channels. The Young Bay mud is still being deposited today and covers much of the Bay basin.

At the site, Artificial fill has been placed on top of the Young Bay mud. This Artificial fill consists of refuse and dredge spoils composed of silty clays and sand derived from the Young Bay mud and Merritt sand. The composition of the fill material varies and it is often difficult to distinguish the fill from the in-place, native Young Bay mud or the Merritt sand formations.



SITE LOCATION MAP
ALAMEDA NAVAL AIR STATION

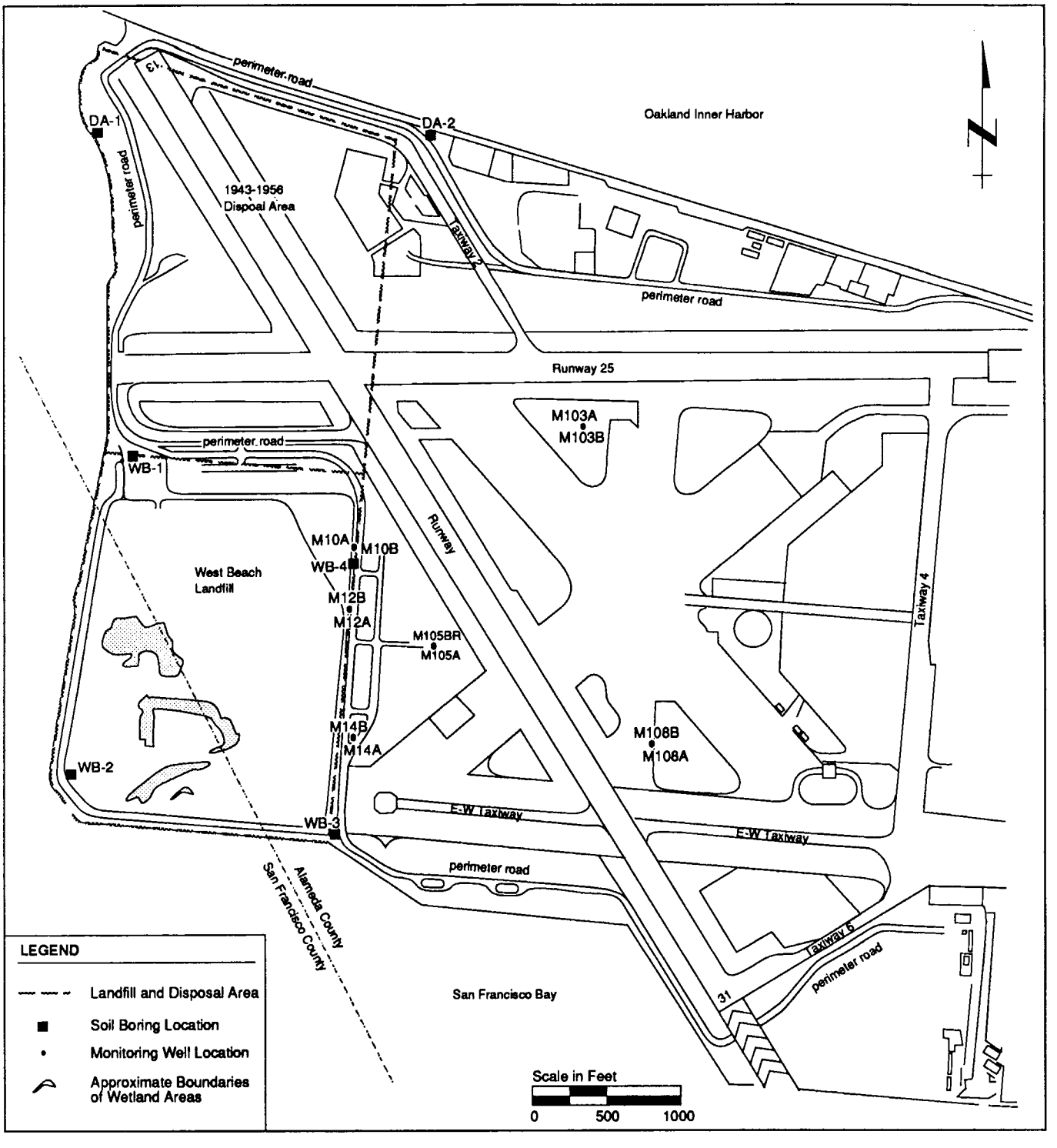
FIGURE 2-1

2.3 SITE GEOLOGY: VICINITY OF THE WEST BEACH LANDFILL

In this investigation, 12 monitoring wells were drilled in clusters of two at six sites (Figure 2-2). Six of these wells (one of each site) were drilled and installed at intermediate depths, and six of the wells were drilled and installed at shallow depths. The intermediate depth wells were installed first using conductor casings seated in the Young Bay mud, as described in Subsection 3.2.1 of this report. The intermediate depth wells are intended to monitor ground-water in the upper portion of the second water-bearing zone beneath the site. The shallow wells were then installed to monitor the uppermost water-bearing zone beneath the site. Drilling methods are described in Subsection 3.2 of this report; soil sampling and logging methods are described in Subsection 3.4 of this report. The geological boring logs for each borehole are presented in Appendix B. Soils were classified using the Unified Soil Classifications System (USCS), which is also presented in Appendix B.

Based on descriptions provided in previous investigations (Canonie, 1990a), the sediments encountered in this investigation were tentatively grouped into the following expected formations: Artificial fill, Young Bay mud, Merritt sand, and Old Bay mud. Designations and formational contacts are preliminary at this point and will be reevaluated as the remaining wells for Phase 5 of the RI/FS are drilled and logged. The following is a generalized description of the expected formations:

- ***Artificial Fill*** - sand to silty sand; tan to green-brown; loose to medium dense; dry to wet; fine to medium sand; moderate to high estimated hydraulic permeability;
- ***Young Bay Mud*** - interbedded silty sand, clayey sand, and silty clay; gray-green, dark gray-green, olive green; very loose to medium dense (sand portions) and soft to stiff (clay portions); wet; *silty clay*: 30-45% silt; *silty sand*: 0-10% clay, 30-45% silt, very fine to fine sand; *clayey sand*: 30-45% clay, 5-15% silt, very fine to medium sand; low to moderate estimated hydraulic permeability. The Young Bay mud typically contained 5-25% shell fragments and had a mild to strong hydrogen sulfide odor.
- ***Merritt Sand*** - silty sand; orange/yellow-brown, green-orange brown, mottled orange-brown and green; medium dense to very dense; moist to wet; 0-20% clay; 30-45% silt; very fine to fine sand; moderate estimated hydraulic permeability. In some locations the Merritt sand exhibited rust colored laminations and mottling.
- ***Old Bay Mud*** - interbedded clayey sand, silty sand, silty clay and clay; gray-green; loose to medium dense (sand portions)/stiff (clay portions); wet; *clayey sand*: 30-50% clay, 10-25% silt, very fine to fine sand, 0-20% shell fragments; *silty sand*: 5-10% clay, 30-50% silt, fine to medium sand, 0-2% shell fragments; *silty clay*: 30-50% silt, 5-10% fine sand, 0-30% shell fragments; *clay*: 10-25% silt, 10-15% plant material, organic



ALAMEDA NAVAL STATION
ALAMEDA, CALIFORNIA
SITE LOCATION MAP

FIGURE 2-2

stringers; low to moderate estimate of hydraulic permeability. The Old Bay mud unit typically had a medium to very strong hydrogen sulfide odor.

At four of the monitoring wells under the current investigation (M-12, M-14, M-105, and M-108) the expected stratigraphy was encountered. At the remaining two well sites (M-10 and M-103) the Merritt sand was not encountered during drilling of the intermediate depth wells. At these locations, the sediments underlying the Young Bay mud consist of stiff clay, stiff silty clay, and clayey sand and are believed to be part of the Old Bay mud formation.

Based on the results of field work for this portion of Phase 5 of the RI/FS, the Merritt sand seems to be discontinuous across the site. The discontinuity in the Merritt sand is interpreted as a channel cut by an old stream into the Merritt sand and underlying Old Bay mud prior to deposition of the Young Bay mud deposits. The paleochannel appears to trend east-west, but the exact configuration of the paleochannel in the vicinity of the landfills cannot be determined based on the available data. An east-west trending paleochannel was identified in the Merritt sand underlying the north-central portion of the island in previous geologic studies of the area (Radburch, 1957). Geologic data obtained during the execution of the remaining portion of Phase 5 of the RI/FS will aid in further defining the stratigraphy beneath the study areas at Alameda NAS.

3.0 MONITORING WELLS

In this investigation, 12 monitoring wells were drilled in clusters of two at six sites. Six of these wells were drilled and installed at intermediate depths, and six of the wells were drilled and installed at shallow depths.

3.1 LOCATIONS

The complete monitoring well network that will be installed at Alameda NAS is designed to accomplish the following objectives: a) detect contaminant plumes emanating from the landfills, b) characterize the background ground-water quality near the landfills, and c) characterize the hydrogeologic regime beneath the study area. The rationale for determining the locations of the monitoring wells and the objectives of the drilling program were presented in Canonie's Sampling Plan (Canonie, 1990a).

The monitoring wells that are designed to detect contaminants migrating from the landfills form a ring around the landfill areas and are designated M-1 through M-29. Monitoring wells for three of these sites (M-10, M-12, and M-14) were installed in November 1990, and December 1990. The background ground-water quality wells are located in the estimated upgradient direction from the landfills and are designated M-100 through M-111. Monitoring wells for three of these sites (M-103, M-105, and M-108) were also installed in November 1990, and December 1990.

The remaining wells to be installed for Phase 5 of the RI/FS include 34 shallow wells screened in the upper portion of the landfill material, 14 intermediate depth wells screened in the lower portion of the "Bay Mud Sand", 4 intermediate depth wells screened in the upper portion of the Merritt sand and 6 deep wells screened in the lower portion of the Merritt sand. This is 16 fewer intermediate wells and 2 additional deep wells than indicated in the Work Plan (Canonie, 1990a). The Navy, PRC, and Department of Health Services agreed to the Work Plan modifications in a mid-February 1991 meeting, and in subsequent correspondence.

Locations of wells installed in this investigation are illustrated on Figure 2-2. Shallow depth wells are designated "A" and intermediate depth wells are designated "B". Due to a damaged casing, one of the intermediate wells (M-105B) was redrilled and has an "r" after the general designation. The purpose of installing the shallow wells is to monitor the hydrogeologic and water quality conditions in the upper portion of the Artificial fill, whereas the intermediate wells are intended to monitor the same conditions in the upper portion of the Merritt sand.

Well locations were surveyed by John Koch Land Surveyor, California State License No. LS4811, of Oakland, California. All wells were surveyed relative to United States Coast and Geodetic Survey (USC&GS) Bench Mark A477, located on hangar No. 20, 0.7 feet south of the northeast corner, 3.1 feet above ground. The top of casing and ground surface elevation of each well was surveyed to the nearest 0.01 foot. Well locations were surveyed accurately to the nearest 0.1 foot, horizontally, relative to the California Coordinate system. Table 3-1 summarizes the well survey data.

3.2 DRILLING METHODS

All the monitoring wells, except for M-105Br, were drilled with a GEFCO CF-15 truck-mounted mud rotary drilling operated rig by Exploration Drilling Services (EDS) under subcontract to Water Development Corporation (WDC). Well M-105Br was installed by WDC using a Mobile B-53 truck-mounted hollow stem auger drilling rig.

3.2.1 Intermediate Wells

Based on previous investigations, it was assumed that the Artificial fill and Merritt sand act as distinct water-bearing zones separated by the Young Bay mud aquitard. Because of this relationship, the intermediate wells were drilled in two stages.

In the first stage, conductor casings were installed through the Artificial fill to prevent ground-water in the fill material from mixing with ground-water in the Merritt sand during the second stage. Placement of the conductor casing minimizes possible cross-contamination between two water-bearing zones. The borings were initially was advanced by augering with an 8-inch outside diameter (OD) solid stem auger to approximately 13 feet to 20 feet. When a low permeability unit was identified, a 12-1/4-inch drill bit was installed and the borehole was reamed to the top of the unit. After reaming the hole, an 8-inch inside diameter (ID) steel conductor casing was placed in the borehole and pushed with the rig approximately one foot into the clay unit. The annular space between the conductor casing and the borehole walls was then backfilled with neat cement placed from bottom to top with a tremie pipe. The grout was allowed to set for at least 48 hours before the second stage of drilling began.

The second stage of drilling in the intermediate wells involved tripping back down the conductor cased boreholes with the 7-7/8-inch roller cone drill bit and resuming drilling with mud rotary drilling. The drill bit was advanced 15 to 20 feet into the upper portion of the Merritt sand formation. Continuous sediment samples were collected using either a stainless steel split-spoon sampler or a 5-foot long core barrel. Typically, soil samples were collected, every two-foot to five-foot intervals. Again, a continuous

TABLE 3-1

SUMMARY OF WELL ELEVATION SURVEY DATA

Well No.	TOC Elevation (feet above MSL)	Ground Elevation (feet above MSL)	Measuring Point Orientation Relative to Well	Northing	Easting
M-10A	6.20	6.61	N	473,749.443	1,473,000.967
M-10B	6.58	7.12	N	473,732.510	1,472,999.143
M-12A	9.06	9.31	N	473,270.434	1,472,956.149
M-12B	8.89	9.28	N	473,284.873	1,472,957.346
M-14A	8.45	9.14	N	472,285.429	1,472,972.114
M-14B	8.50	9.04	N	472,302.710	1,472,976.267
M-103A	8.66	9.20	NNE	474,624.952	1,474,572.690
M-103B	8.89	9.45	NNE	474,610.542	1,474,574.052
M-105A	9.00	9.60	N	472,990.018	1,473,508.927
M-105B	9.58	10.15	N	473,004.740	1,473,509.517
M-108A	9.81	10.36	NNE	472,302.421	1,475,081.887
M-108B	10.15	10.48	N	472,318.907	1,475,083.128

Notes:

TOC - top of casing
MSL - mean sea level

lithologic log of the sediments encountered during drilling was kept by the JMM site geologist. The well completion depth was selected by the site geologist. The driller would then circulate the drilling mud to clear cuttings from the borehole. Prior to the installation of the monitoring well, the total depth of the borehole was sounded to determine if caving had occurred. If caving was detected, the slough material was removed. Fresh water was then circulated to displace the drilling mud before construction of the well.

Boreholes M-10B and M-103B were drilled to greater depths than the other intermediate monitoring wells in an attempt to intercept the Merritt sand. After confirming that the Merritt sand was not present at these locations and that the deeper unit was the Old Bay mud, the site geologist halted drilling operations. At both of these boring locations, the geologist reviewed the lithology of the boring and discussed the situation with JMM's Project Manager and Field Team Leader. Following these discussions at each location, it was decided to complete the wells across sandy portions of the Young Bay mud. The borehole was then completed after the section below the Young Bay mud was backfilled with bentonite.

The drilling program detailed in the Sampling Plan (Canonie, 1990a) indicated that before drilling proceeded below the top of the Young Bay mud, conductor casings must be installed as described in Subsection 3.2.1 of this report. Based on the available descriptions of the Young Bay mud, it was expected that a fairly thick clay layer would be present. However, at the locations of M-105 and M-108, the unit encountered below the Artificial fill contained only a few one-foot to three-foot thick clay layers and was mostly a silty or clayey fine sand. Hence, in an attempt to locate a thick low permeability unit in the Young Bay mud formation, the unit determined to be the Young Bay mud was drilled through. Consequently the Merritt sand was penetrated at monitoring wells M-108B and M-105B before the conductor casing was installed. At this point, the lithologic logs were reviewed and the decision was made to install the conductor casings in the one-foot to three-foot thick clay layers near the top of the Young Bay mud.

3.2.2 Replacement Well

During development of monitoring well M-105B, sand pack material was brought up in the bailer in increasing quantities. The presence of sand pack material in the bailer indicated the well casing or screen had been ruptured and the sand pack was freely entering the well. Because of this, WDC redrilled the well with a Mobile B-53 truck-mounted hollow stem auger rig. The original borehole containing the damaged well was reamed with 7-7/8 inch OD augers, removing the damaged well. The replacement well was then constructed in the reamed borehole.

3.2.3 Shallow Wells

The six shallow monitoring well borings were drilled with a solid stem auger of approximately 8-inch OD attached with a kelly bar to the rotary drill stem. Sediment grab samples were collected for lithologic logging from the borehole cuttings as the auger was advanced. The well logs for the shallow wells were prepared from cuttings removed from the tip of the auger. these logs were then compared with logs from the adjacent intermediate well in which continuous sediment samples were collected.

If a hole collapsed after reaching the targeted depth, a length of mud rotary drill pipe was placed in the borehole and clean water was pumped through the pipe to circulate the slough material out of the boring. The pressure head in the borehole due to the added water kept the sidewalls of the boring stabilized until well installation was complete.

3.3 MONITORING WELL CONSTRUCTION

Both the shallow and intermediate monitoring wells were constructed with 2-inch diameter, flush threaded, schedule 40 polyvinyl chloride (PVC) casing. Typically, the wells were constructed using a 10-foot screen interval with 0.010-inch slots with an end cap and a riser constructed of either 10-foot or 5-foot sections of blank casing. Stainless steel centralizers were attached to the top and bottom of the screen and midway along the riser. All well materials were decontaminated by steam cleaning prior to installation. Specific well construction details are shown on the respective geologic field logs and are summarized in Table 3-2.

Monitoring wells M-103B and M-10B were intended to have 10-foot screen intervals. However, because the Merritt sand was not encountered in these boreholes, the wells were screened in sandy sections of the Young Bay mud. Monitoring wells M-103B and M-10B were completed with a 6-foot and an 8-foot screen interval, respectively, to match the length of the selected interval in the Young Bay mud.

Wells were constructed by placing casing and screen in the open borehole. A sand pack consisting of clean No. 2/16 sand was poured from the surface into the annular space between the screen and the borehole wall. The level of the sand pack in the annulus was continuously monitored with a weighted tagline. In the intermediate wells, the sand pack extends from 0 to 5 feet above the top of the screened interval. In shallow wells, the sand pack extends from 0.5 to 2.5 feet above the top of the screened interval.

After the sand pack was placed to the desired height above the screen interval, a bentonite seal was placed in the borehole annulus above the sand pack. The seal was installed by pouring 1/4- or 1/8-inch

TABLE 3-2

WELL CONSTRUCTION SUMMARY

Well No.	Total Borehole Depth (feet below G.S.)	Well Completion Depth (feet below G. S.)	Screen Interval (feet below G.S.)	Sand Pack Interval (feet below G.S.)	Bentonite Seal Interval (feet below G.S.)	Conductor Casing Interval
M-10A	16	15.8	5.8 - 15.8	3 - 16	2 - 3	NA
M-10B	86	43.4	35.4 - 43.4	31 - 46	29 - 31	0 - 28.5
M-12A	16	15.1	5.1 - 15.1	4 - 16	2 - 4	NA
M-12B	74	73.4	63.4 - 73.4	58 - 74	56 - 58	0 - 30.5
M-14A	15	14.6	4.6 - 14.6	4 - 15	2 - 4	NA
M-14B	61	59.4	49.4 - 59.4	45 - 61	42 - 45	0 - 26.5
M-103A	16	15.6	5.6 - 15.6	3 - 16	2 - 3	NA
M-103B	75	37.5	31.5 - 37.5	31.5 - 40	30 - 31.5	0 - 29
M-105A	17	15.5	5.5 - 15.5	4 - 17	2 - 4	NA
M-105Br	73	68.8	58.8 - 68.8	55 - 73	53 - 55	0 - 30
M-108A	17	15.9	5.9 - 15.9	4 - 17	2 - 4	NA
M-108B	58	57.6	47.6 - 57.6	42 - 58	40 - 42	0 - 30

Notes: G.S. - ground surface
NA - not applicable
All wells constructed in 8-inch diameter boreholes with 2-inch diameter Schedule 40 polyvinyl chloride casing.
Screened intervals have 0.010-inch slots.
All sand pack material composed of No. 2/16 sand.
Wells grouted with neat cement containing 3 to 5% by weight powdered bentonite.

bentonite pellets from the top of the borehole through the water column. The depth of the bentonite seal was monitored continuously with a weighted tagline. Bentonite seal thicknesses range from 1 to 2 feet in shallow wells and 2 to 3 feet in intermediate wells. After the bentonite seal reached the specified thickness and was allowed to hydrate for at least 30 minutes, the remaining annular space was grouted with neat cement containing approximately three to five percent powdered bentonite by weight. The cement slurry was emplaced with a tremie pipe. The cement seal extends from the top of the bentonite seal to the ground surface.

Each wellhead is protected with a traffic rated Christy Box grouted in place over the well casing so that the cast-iron lid is flush with the ground surface. The well casing is enclosed within a 6-inch by 3-feet long section of steel casing. The 2-inch PVC casing is sealed with an expandable, locking well cap. All wells are water-tight to prevent infiltration by precipitation and surface runoff.

3.4 SOIL SAMPLING

Seven surface soil samples were collected for chemical analyses, one from each of the well cluster locations and one duplicate. Three subsurface soil samples were collected for chemical analyses, from the three background well cluster locations. Geotechnical soil samples were collected from the screened intervals in the wells, five of the samples were sent to a laboratory for analysis.

3.4.1 Surface Soil Samples

Seven surface soil samples were collected from 6 inches below ground surface at six intermediate monitoring well locations for chemical analysis (the seventh sample was a duplicate). The procedures followed by JMM in collecting these samples are outlined in JMM's Addendum to the Sampling Plan (Appendix C). The analyses performed on these samples are shown on Table 3-3.

3.4.2 Subsurface Soil Samples

Continuous subsurface soil samples were collected during the drilling of the intermediate wells for the purposes of lithologic logging, chemical analysis, and geotechnical analysis. The following techniques were employed in the collection of these samples:

- ***California Split-Spoon*** - Soil samples were collected continuously using a 2-inch ID California split-spoon soil sampler (CSS) either in the upper 13 feet of drilling (because the driller had to reach a certain depth before mud rotary drilling was possible) or

TABLE 3-3
SUMMARY OF CHEMICAL ANALYSES PERFORMED

Well No.	Lab ID	VOCS	BNA	Pesticide/ PCB	OP Pesticide	Cl Herbicides	Gross Alpha	Gross Beta	Radium 226 & 228	Uranium	TOC	Asbestos	pH	TS	Metals
M-103A	#012146-01	X	X	X	X	X	X	X	X	X	X	X	X	X	X
M-105A	#012132-01	X	X	X	X	X	X	X	X	X	X	X	X	X	X
M-108A	#012132-02	X	X	X	X	X	X	X	X	X	X	X	X	X	X
M-10B	#011322-04		X	X	X	X	X	X	X	X			X	X	X
M-12B	#012010-01		X	X	X	X	X	X	X	X			X	X	X
M-14B	#012010-02		X	X	X	X	X	X	X	X			X	X	X
M-103B	#011322-02		X	X	X	X	X	X	X	X			X	X	X
M-105B	#011322-03		X	X	X	X	X	X	X	X			X	X	X
M-108B	#011322-01		X	X	X	X	X	X	X	X			X	X	X
M-37 (108B)	#011322-05		X	X	X	X	X	X	X	X			X	X	X

Notes:
VOCs - volatile organic compounds
BNA - base/neutral/acid extractable compounds
OP - organophosphorous
CL -chlorinated
TOC - total organic carbon
TS - total solids

where the sediments were very hard and the mud rotary continuous coring sampling was not effective. The CSS sampler collects a maximum of 24 inches of soil at each interval. The sampler was advanced ahead of the drilling bit by blows from a standard 140 pound hammer falling approximately 30 inches.

- ***Mud Rotary Continuous Coring (split-spoon)*** - In intermediate wells, soil samples were collected continuously using mud rotary wireline split-spoon coring unless extremely hard drilling was encountered, at which point CSS sampling was used. This sampling technique was used most often and was the sole method employed in drilling the deeper portion of the intermediate wells. In this method, a 5-foot long, 2-1/2-inch ID split-spoon core barrel was lowered through the drill pipe and attached to the bottom of the mud rotary drill bit. The core barrel extended approximately 5-inches to 6-inches ahead of the rotary drill bit. Samples were collected in 1-foot to 5-foot intervals as the drill bit was advanced. After a core run was complete, the core barrel was retrieved by wireline, opened, and the samples logged.

- ***Solid Stem Auger*** - Grab samples were collected continuously using the solid stem auger. The auger was advanced 1 foot at a time and then raised out of the hole. The sample was then retrieved from the flights of the auger. This technique was used mostly during the drilling of the shallow wells and while in the Artificial fill during the drilling of the intermediate wells.

At each well location, the sediments encountered were lithologically logged by the JMM site geologist who was present for all stages of drilling operations. For each soil boring, a detailed geologic field log was prepared as drilling operations proceeded. All soil samples were described by the site geologist in terms of color, consistency, grain size, and percentages of various constituents. In addition, a record was made of blow counts while driving the CSS sampler and of photoionization detector (PID) readings and general drilling conditions. Geologic logs are included as Appendix B.

3.4.2.1 Chemical Samples. Three soil samples were collected from the vadose zone for chemical analysis at monitoring well sites M-103A, M-105A and M-108A. These samples were collected from the solid stem auger following the procedures outlined in JMM's Addendum to the Sampling Plan (Appendix C). The analyses performed on these samples are also shown on Table 3-3.

3.4.2.2 Geotechnical Samples. Two soil samples were collected from each well (shallow and intermediate) for possible geotechnical analysis. The samples were collected in the depth interval

selected for installation of the well screen. Typically, the soil samples were collected from the top and bottom of the chosen screen interval. These samples were retrieved using the CSS sampler in intermediate wells and the solid stem auger for the shallow wells. Soil samples were placed in 16-oz. sample jars. Five of the samples were submitted for sieve and hydrometer analyses. Table 3-4 summarizes geotechnical sample analyses.

3.5 WELL DEVELOPMENT

After well construction was complete, the monitoring wells were developed as soon as possible. Due to the Christmas and New Year holiday season, however, many of the wells were not developed until 2 to 3 weeks after their completion. The primary method used in developing the wells was swabbing and bailing. This method involves swabbing the screened portion of the well and then bailing with a stainless steel bailer to remove the fine particles forced through the well screen by the swabbing action. Generally, the development procedures were as follows: the monitoring wells were bailed of approximately 20 to 30 gallons, swabbed, then bailed again of about 20 to 30 gallons, swabbed a second time, and then bailed until approximately 110 total gallons of water had been removed. Each period of swabbing lasted approximately 15 minutes.

During development, a record was kept of the pH, electrical conductivity, temperature, and appearance of the bailed water, as well as the quantity of water removed from each well. Additionally, water samples were collected from each well for turbidity analysis. These samples were collected from approximately every tenth gallon of bailed ground-water. Table 3-5 presents a summary of the parameters measured during the development of each well. The monitoring wells were developed until the pH and conductivity stabilized and the water removed from each well was as clear and free from silt and sand as judged possible to achieve within a reasonable time period.

Table 3-6 presents a summary of water level elevation data collected after well development. Water level elevations at each well within a cluster location were measured within minutes of one another. However, a significant amount of time elapsed between the measurements taken at each well cluster location. Thus, the differences in elevations among cluster locations may reflect influence by tidal fluctuations and do not necessarily accurately reflect the ground-water gradient. Ground-water gradient and flow direction information will be further defined from information collected when the remaining wells for Phase 5 of the RI/FS are installed.

TABLE 3-4

SUMMARY OF GEOTECHNICAL ANALYSES

Sample No.	Sample Depth (feet below G.S.)	Sieve Analysis	Hydrometer Analysis
M-10A	4.0	X	X
M-14A	15.0	X	X
M-14B	60.0	X	X
M-103A	15.0	X	X
M-108B	50.0	X	X

Notes:

G.S. - ground surface

Sieve analyses - No. 4 to No. 200 screens, washed

TABLE 3-5
(Sheet 1 of 3)

FIELD MEASUREMENTS DURING MONITORING WELL DEVELOPMENT

Well No.	Date Developed	Screened Interval (feet from TOC)	Water Level (feet above MSL)	Volume Bailed During Development (gallons)	Electrical Conductance (μmhos/cm)	pH	Temperature °F	Turbidity NTU
M-10A	1/8/91	5.8 to15.8	3.0	10	>10,000	5.6	62	310
				60	>10,000	6.2	62	1,200
				110	9,500	6.0	62	120
M-10B	1/9/91	35.4 to 43.4	6.0	10	5,400	6.4	62	1,200
				50	>10,000	6.4	64	1,400
				110	>10,000	6.4	64	600
M-12A	1/18,19,26/91	5.1 to 15.1	3.1	45	900	7.0	60	7,800
				90	1,000	7.0	62	1,300
				100	290	6.7	65	1,800
				145	1,000	6.1	64	2,000
				195	310	6.3	63	1,000
M-12B	1/17,18,27/91	63.4 to 73.4	3.2	76	42,600	6.8	63	1,100
				86	28,000	6.0	64	230
				106	31,000	5.9	64	450
				131	31,000	5.8	64	230
M-14A	1/2/91	4.6 to 14.6	3.1	10	2,300	6.6	64	490
				50	800	6.7	64	2,000
				100	1,400	6.8	64	570

TABLE 3-5
(Sheet 2 of 3)

FIELD MEASUREMENTS DURING MONITORING WELL DEVELOPMENT

Well No.	Date Developed	Screened Interval (feet from TOC)	Water Level (feet above MSL)	Volume Bailed During Development (gallons)	Electrical Conductance (µmhos/cm)	pH	Temperature °F	Turbidity NTU
M-14B	1/3/91	49.4 to 59.4	3.3	10	>10,000	5.2	62	1,557
				50	>10,000	5.8	62	1,217
				100	>10,000	6.0	64	202
M-103A	1/11/91	5.6 to 15.6	6.2	10	620	8.0	62	8,979
				60	660	7.0	62	1,985
				115	980	7.2	62	707
M-103B	1/11/91	5.6 to 15.6	6.2	10	>10,000	6.4	64	1,146
				60	>10,000	6.2	64	1,255
				110	>10,000	6.2	64	520
M-105A	12/19,20,28/90	5.51 to 15.51	4.7	45	440	8.0	64	7,167
				155	520	7.8	63	6,188
				255	420	8.1	64	2,526
				335	440	7.5	64	919
				355	360	7.7	64	1,922
				380	520	7.7	64	1,568

TABLE 3-5
(Sheet 3 of 3)

FIELD MEASUREMENTS DURING MONITORING WELL DEVELOPMENT

Well No.	Date Developed	Screened Interval (feet from TOC)	Water Level (feet above MSL)	Volume Bailed During Development (gallons)	Electrical Conductance (μmhos/cm)	pH	Temperature °F	Turbidity NTU
M-105B	12/28/90	59.5 to 69.5	4.8	20	>10,000	6.4	61	
M-105Br	1/30/91	58.8 to 68.8	2.6	10	1,400	6.6	64	1,261
				50	4,700	6.2	64	728
				90	9,000	5.8	64	531
M-108A	1/7/91	5.9 to 15.9	2.8	10	190	6.2	62	1,815
				60	180	6.3	62	1,980
				110	180	6.4	62	513
M-108B	1/4/91	47.6 to 57.6	1.2	10	>10,000	5.4	64	435
				50	>10,000	5.6	64	528
				100	>10,000	5.8	64	499

Notes:

TOC - top of casing
MSL - mean sea level
NTU - nephelometric turbidity units
A - shallow wells
B - intermediate wells

r - redrilled well
Water levels measured prior to well development
Water levels may be influenced by tidal fluctuations.

TABLE 3-6

GROUND-WATER ELEVATION DATA

Well No.	Date	TOC feet	DTW feet	GW Elev. feet
M-10A	1/15/91	6.20	3.26	2.94
	1/15/91	6.20	3.32	2.88
	2/5/91	6.20	2.71	3.49
	2/20/91	6.20	2.96	3.24
M-10B	1/15/91	6.58	6.09	0.49
	1/15/91	6.58	3.45	3.13
	2/5/91	6.58	3.25	3.33
	2/20/91	6.58	3.22	3.36
M-12A	1/15/91	9.06	5.68	3.38
	2/5/91	9.06	5.48	3.58
	2/20/91	9.06	5.16	3.90
M-12B	1/15/91	8.89	5.91	2.98
	2/5/91	8.89	5.62	3.27
	2/20/91	8.89	5.52	3.37
M-14A	1/15/91	8.45	5.30	3.15
	2/5/91	8.45	4.15	4.30
	2/20/91	8.45	4.90	3.55
M-14B	1/15/91	8.50	6.05	2.45
	2/5/91	8.50	5.79	2.71
	2/20/91	8.50	5.88	2.62
M-103A	1/15/91	8.66	3.06	5.60
	1/15/91	8.66	4.17	4.49
	2/5/91	8.66	1.81	6.85
	2/20/91	8.66	2.62	6.04
M-103B	1/15/91	8.89	5.56	3.33
	1/15/91	8.89	3.03	5.86
	2/5/91	8.89	3.61	5.28
	2/20/91	8.89	3.45	5.44
M-105A	1/15/91	9.00	4.29	4.71
	2/5/91	9.00	4.06	4.94
	2/20/91	9.00	3.64	5.36
M-105B	1/15/91	9.58	2.71	6.87
M-105Br	1/30/91	9.63	7.05	2.58
	2/5/91	9.63	5.87	3.76
	2/20/91	9.63	5.77	3.86
M-108A	1/15/91	9.81	4.08	5.73
	2/5/91	9.81	3.85	5.96
	2/20/91	9.81	4.04	5.77
M-108B	1/15/91	10.15	6.26	3.89
	2/5/91	10.15	6.05	4.10
	2/20/91	10.15	6.13	4.02

NOTES:
TOC-top of casing
DTW-depth to water
GW Elev. - ground-water elevation above mean seal level
A-shallow well
B-intermediate well
r-redrilled well
water levels may be influenced by tidal fluctuations

4.0 CHEMICAL ANALYTICAL RESULTS

As discussed in Subsections 3.2.1, and 3.4.2 of this report, seven surface soil samples from the six intermediate monitoring wells and three subsurface samples from monitoring wells M-103A, M-105A and M-108A were collected for laboratory analysis. Copies of laboratory analytical reports are included in Appendix D. Results are discussed below.

4.1 SURFACE SOIL SAMPLES

Surface samples were analyzed for pH, percent moisture, total solids, 23 metals, organochlorine (CL) pesticides and polychlorinated biphenyls (PCBs), organophosphorus (OP) pesticides, chlorinated herbicides, and semivolatile organics by Analytical Technology Inc. (ATI), of San Diego, California. Controls for Environmental Pollution, Inc., of Santa Fe, New Mexico provided analysis for gross alpha and beta, total uranium, and radium 226 and 228. Analytical results are summarized in Table 4-1.

As indicated in Table 4-1, organochlorine and organophosphorus pesticides, PCBs, chlorinated herbicides, and volatile organics were not detected. Radiochemical analytes were either not detected or were present at levels consistent with previous investigations in the 1943-1956 Landfill area. Results for other constituents are discussed below.

4.1.1 Semivolatile Organic Analyses

Semivolatile organic analyses of soil samples from well location M-108B, and the duplicate sample M-37 identified several tentatively identified compounds. These compounds include aliphatic hydrocarbons and cyclic hydrocarbons, which were identified by semi-quantified methods, at concentrations ranging from 2 milligrams per kilogram (mg/kg) to 10 mg/kg. Samples from well location M-108B and duplicate sample M-37, had relatively high concentrations of semivolatile organics, tentatively identified as "hydrocarbons C9 - C28" at a concentration of 500 mg/kg. Monitoring well cluster M-108 is located in an area covered with asphalt, and was the only well location which required drilling through asphalt in this investigation. Sample M-108B and M-37 were collected from approximately 6-inches below the ground surface. This may indicate that the semivolatile organic compounds found in the site M-108 samples are due to the presence of the asphalt. These compounds in the soil samples may be related to the prime coat (a heavy hydrocarbon sprayed on the ground before application of asphalt). No quantified semivolatile organic compounds were identified.

TABLE 4-1
ANALYTICAL RESULTS

WELL NO.	M-103A	M-105A	M-108A	M-10B	M-12B	M-14B	M-103B	M-105B	M-108B	M-37(DUP)
LAB ID	#012146-01	#012132-01	#012132-02	#011322-04	#012010-01	#012010-02	#011322-02	#011322-03	#011322-01	#011322-05
SAMPLE DEPTH (feet below G.S.)	5.5	5.5	5.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
pH	7.5	8.8	8.6	7.3	7.4	6.3	6.0	7.1	7.2	7.9
Total Solids (%)	82.9	82.4	82.3	95.6	98.4	99.1	98.4	97.5	97.1	97.0
Total Organic Carbon (mg/kg)	222	302	333	NA	NA	NA	NA	NA	NA	NA
INORGANICS (mg/kg)										
Aluminum	3220	3340	3260	4380	3770	3590	3780	4010	6890	7480
Antimony	<2.1	<2.2	<2.2	<1.9	<1.9	<1.8	<1.8	<1.9	<1.9	<1.8
Arsenic	4.5	4.7	5.3	4.5	4.5	4.9	7.4	8.1	15.6	9.4
Barium	35.0	24.3	18.2	34.2	26.3	25.8	32.4	30.6	62.7	64.5
Beryllium	<0.18	<0.19	<0.19	<0.16	<0.17	<0.15	<0.16	<0.16	<0.17	0.17
Calcium	1570	1490	1670	1830	2120	2020	1810	2110	2280	2770
Cadmium	0.94	0.48	2.5	<0.37	<0.37	0.72	<0.35	<0.37	<0.38	<0.36
Chromium	24.0	25.3	25.6	32.1	27.0	27.3	27.7	29.3	56.6	56.7
Cobalt	3.9	3.7	4.3	5.5	4.5	4.4	4.8	4.7	8.0	7.0
Copper	6.4	8.0	6.0	5.7	6.4	7.9	5.5	7.0	13.8	14.1
Iron	6080	6710	6280	8530	7610	6730	7450	7890	13900	13100
Lead	1.5	1.7	1.6	5.9	24.8	48.2	11.6	11.0	4.7	5.0
Magnesium	1980	2040	1990	2620	2370	2070	2320	2220	6270	5980
Manganese	78.7	81.0	79.0	111	111	100	103	116	370	362
Mercury	<0.061	<0.083	<0.083	<0.07	<0.071	<0.067	<0.06	<0.06	0.09	<0.06
Nickel	21.3	21.8	22.0	28.6	22.3	21.8	25.1	23.0	53.2	48.0
Potassium	514	541	429	723	535	489	571	480	968	1000
Selenium	<1.6	<0.30	<0.30	<1.1	<1.0	<1.1	<1.2	<1.3	<2.5	<1.3
Silver	<0.82	<0.87	<0.85	0.90	<0.75	<0.70	<0.70	0.86	<0.76	<0.72
Sodium	218	443	224	381	314	295	266	311	353	450
Thallium	<0.14	<0.13	<0.14	<0.12	<0.12	<0.12	<0.11	<0.11	<0.11	<0.12
Vanadium	12.4	14.1	13.5	18.3	17.3	17.2	16.8	17.8	16.3	16.8
Zinc	13.8	15.8	13.5	24.3	66.4	42.1	21.6	20.2	28.0	26.6
CL PESTICIDES/PCBS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OP PESTICIDES	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLORINATED HERBICIDES	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMIVOLATILE ORGANICS (mg/kg)		ND	ND		ND					
Aliphatic Hydrocarbon						0.7				
Aliphatic Hydrocarbon C12									2	2
Aliphatic Hydrocarbon C12									2	
Aliphatic Hydrocarbon C12									2	
Aliphatic Hydrocarbon C13									3	3
Aliphatic Hydrocarbon C13										3
Aliphatic Hydrocarbon C13									3	2
Aliphatic Hydrocarbon C15										1
Aliphatic Hydrocarbon C24									3	4
Aliphatic Hydrocarbon C24									3	4
Aliphatic Hydrocarbon C24									3	
Aliphatic Hydrocarbon C25									6	6
Aliphatic Hydrocarbon C25							0.2		3	6
Aliphatic Hydrocarbon C25										5
Aliphatic Hydrocarbon C26				0.5			0.4	0.2	8	10
Cylic Hydrocarbon									5	7
Hydrocarbons C9-C28									500	500
Aromatic Ether								0.2		
Branched Alcohol				0.3				0.2		
VOLATILE ORGANICS	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
ASBESTOS	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
Gross Alpha (pCi/g)	0.5+/-0.3	1.1+/-0.7	<0.6	<0.5	<0.6	1.5+/-0.8	1.0+/-0.7	<0.5	1.1+/-0.8	1.6+/-0.9
Gross Beta (pCi/g)	1.6+/-1.0	2.5+/-1.1	2.0+/-1.0	57.2+/-2.9	1.7+/-1.1	1.0+/-0.5	3.8+/-1.2	3.4+/-1.1	4.5+/-1.2	5.0+/-1.2
Total Uranium (ug/g)	0.3	0.3	0.4	0.3	<0.1	0.1	0.5	0.3	0.5	0.5
Radium-226 (pCi/g)	0.31+/-0.10	0.53+/-0.25	0.64+/-0.14	0.6+/-0.2	0.79+/-0.28	0.67+/-0.21	0.5+/-0.1	0.6+/-0.2	0.4+/-0.1	0.4+/-0.1
Radium-228 (pCi/g)	<0.3	<0.3	<0.3	<0.2	<0.3	<0.3	0.6+/-0.2	0.6+/-0.3	<0.2	<0.2

G.S. - ground surface
ND - not detected
NA - not analyzed
DUP - sample M-37 is a duplicate of M-108B

Semivolatile organic analyses for soil samples from M-10B, M-14B, M-103B, M-105B tentatively identified several aliphatic hydrocarbons by semi-quantified methods, at concentrations ranging from 0.2 mg/kg to 0.7 mg/kg. Branched alcohol was detected at concentrations ranging from 0.2 mg/kg to 0.3 mg/kg in soil samples from M-10B and M-105B. Aromatic ether was detected at a concentration of 0.2 mg/kg, in the soil sample from M-105B. No quantified semivolatile organic compounds were identified.

Quality assurance and quality control (QA/QC) data provided by ATI indicate that the semivolatile organic compounds di-butyl phthalate, chrysene, aliphatic hydrocarbon C7 and unknown hydrocarbons were detected in three of ATI's reagent blanks at concentrations ranging from 0.17 to 0.89 mg/kg. The aliphatic and unknown hydrocarbons identified in the reagent blanks may indicate that the aliphatic hydrocarbon compounds detected in site M-10, M-103, and M-105 surface soil samples are due to laboratory error. Aromatic ether was identified at low levels in the sample from well M-105B, and branched alcohol was identified at low levels in the samples from wells M-10B and M-105B. Neither of the compounds were not identified in reagent blanks.

4.1.2 Metals Analyses

No metals were identified at levels that appear to be elevated. However, regulatory action levels that will be applied to the site, and background concentrations for the area have not yet been identified. A thorough interpretation of analytical results with comparisons to regulatory action levels and background concentrations will be included in the SWAT report. The reported detection limits for several metals are variable. The variations are the result of reporting results and detection limits on a dry weight basis.

4.2 SUBSURFACE SOLID SAMPLES

Three subsurface soil samples collected from M-103A, M-105A, and M-108A were analyzed for the constituents listed above plus total organic carbon, volatile organics and asbestos. Results of these analyses are also presented in Table 4-1. No organochlorine or organophosphorus pesticides, chlorinated herbicides, volatile or semivolatile organics or asbestos were detected. Radiochemical results are consistent with those from previous investigations in the 1943-1956 Landfill area. Analytic results for total organic carbon and metals do not indicate elevated levels of these constituents.

4.3 QUALITY ASSURANCE/QUALITY CONTROL

Appendix E presents the data quality assessment for laboratory results on the surface and subsurface soil samples. The holding time for volatile organic analyses on samples M-105A and M-108A were

exceeded by one day (Appendix E). All other holding times were met. No other QC problems that might be expected to significantly affect laboratory data were identified from the data quality assessment.

5.0 GEOTECHNICAL ANALYTICAL RESULTS

Five samples selected from within the screen intervals of wells M-10A, M-14A, M-103A, M-14B and M-108B were analyzed for particle-size distribution by sieve and hydrometer methods. Results are summarized in Table 5-1. Laboratory reports are included as Appendix F. These analyses indicate that shallow fill material (5-foot depth) at well M-10A and M-103A is a silty sand. Shallow fill material at well M-14A is classified as a silty sand to poorly graded sand. Merritt sand samples collected from M-14B and M-108B were classified as silty sand and poorly graded sand to silty sand, respectively. This information will be used to select appropriate slot width and filter pack material for the remaining wells that will be installed under Phase 5 of the RI/FS.

TABLE 5-1

RESULTS OF GEOTECHNICAL ANALYSES

Sample No.	Sample Depth (feet below G.S.)	Description	USCS Symbol
M-10A	4.0	Brown clayey silty sand	SM
M-14A	15.0	Tan clayey silty sand	SM-SP
M-14B	60.0	Tan clayey silty sand	SM
M-103A	15.0	Grey clayey silty sand	SM
M-108B	50.0	Tan clayey silty sand	SM-SP

Notes:
G.S. - ground surface
descriptions and USCS designations were assigned by
Woodward Clyde Consultants geotechnical laboratory

6.0 SUMMARY AND RECOMMENDATIONS

As part of Phase 5 of the RI/FS (SWAT) at Alameda NAS, a limited site investigation was conducted near the runways and West Beach Landfill.

6.1 SUMMARY

In this investigation, 12 ground-water monitoring wells, six shallow and six intermediate in depth, were installed and developed at six sites. Seven surface soil samples were collected from the six intermediate monitoring well locations, and three subsurface soil samples were collected from M-103A, M-105A and M-108A for chemical analysis. Two soil samples were collected from the top and the bottom of the screened portion of each well for future geotechnical analysis.

The monitoring wells were drilled and installed using a mud rotary drilling rig. The sediments encountered during the drilling were tentatively grouped into separate formations based on the expected stratigraphy of the area. The Young Bay mud and Old Bay mud formations appeared to be continuous across the site. The Merritt sand was not encountered in the drilling of boreholes M-10B and M-103B. The discontinuity of the Merritt sand is believed to represent a former channel where the Merritt sand was eroded and later filled with Young Bay mud. However, the discontinuity cannot be completely defined based on currently available data.

Chemical analyses on both the subsurface and surface soil samples did not identify elevated levels of constituents of concern. No organochlorine or organophosphorus pesticides, PCBs, chlorinated herbicides, volatile organics, or asbestos were identified. Aliphatic hydrocarbons, C9 to C28 hydrocarbons, aromatic ether, and branched alcohol were identified by semi-quantified methods in surface soil samples. Their presence may be attributed to incidental contamination due to the presence of asphalt at a sample location (samples M-108B and M-37) or in part to laboratory interferences (samples M-10B, M-103B and M-105B).

6.2 RECOMMENDATIONS

The remainder of the field program, as described in the approved Work Plan for the remaining portion of Phase 5 of the RI/FS and as modified by the reduction in the number of wells (Section 3.1), should be completed. The work will provide the necessary information to complete the SWAT report for the site.

APPENDIX A

REFERENCES

Canonie Environmental, 1990a. Sampling Plan, Remedial Investigation/Feasibility Study, Naval Air Station Alameda, Alameda California. February 1990.

Canonie Environmental, 1990b. Quality Assurance Project Plan, Remedial Investigation/Feasibility Study, Naval Air Station Alameda, Alameda California. February 1990.

Canonie Environmental, 1990c. Health and Safety Plan, Remedial Investigation/Feasibility Study, Naval Air Station Alameda, Alameda California. February 1990.

Radburch, Dorothy H., 1957. Areal and Engineering Geology of the Oakland West Quadrangle, California. U.S. Geological Survey, Washington D.C.

APPENDIX B

GEOLOGIC LOGS

TABLE B-1

SAMPLER TYPE FOR DRILLING

Well No.	Sampler Type	Depth feet
M-10B	Auger	0 - 20
	CSS	20 - 28.5
	94mm	28.5 - 86
M-12B	Auger	0 - 6
	CSS	6 - 13, 18 - 20, 25 - 30.5
	94mm	13 -18, 20 - 25, 30.5 - 74
M-14B	Auger	0 - 20
	CSS	20 - 26.5
	94mm	26.5 - 61
M-103B	Auger	0 - 5
	CSS	5 - 29
	94mm	29 - 75
M-105B	Auger	0 - 4
	CSS	4 - 31
	94mm	31 - 73
M-108B	Auger	0 - 5
	CSS	5 - 13, 20 - 22, 25 - 31
	94mm	13 -20, 22 - 25, 31 - 58

Notes:

CSS - California split-spoon

94mm - 94 millimeter mud rotary continuous coring split-spoon

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	SECONDARY DESCRIPTIONS
COARSE GRAINED SOILS (GRAINS VISIBLE TO NAKED EYE) MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION >.187" (4.75mm)	CLEAN GRAVELS (<15% FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (>15% FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION < .187" (4.75mm)	CLEAN SAND (<15% FINES)		SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (>15% FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS (GRAINS NOT VISIBLE TO NAKED EYE) MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LOW PLASTICITY FINES (Modifiers used at ≥30%)		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OR LOW PLASTICITY
	SILTS AND CLAYS	HIGH PLASTICITY FINES		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

JMM James M. Montgomery
Consulting Engineers Inc.

UNIFIED SOIL CLASSIFICATION SYSTEM

Adopted by Corps of Engineers and Bureau of Reclamation, January, 1952, in collaboration with A. Casagrande, PhD.

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

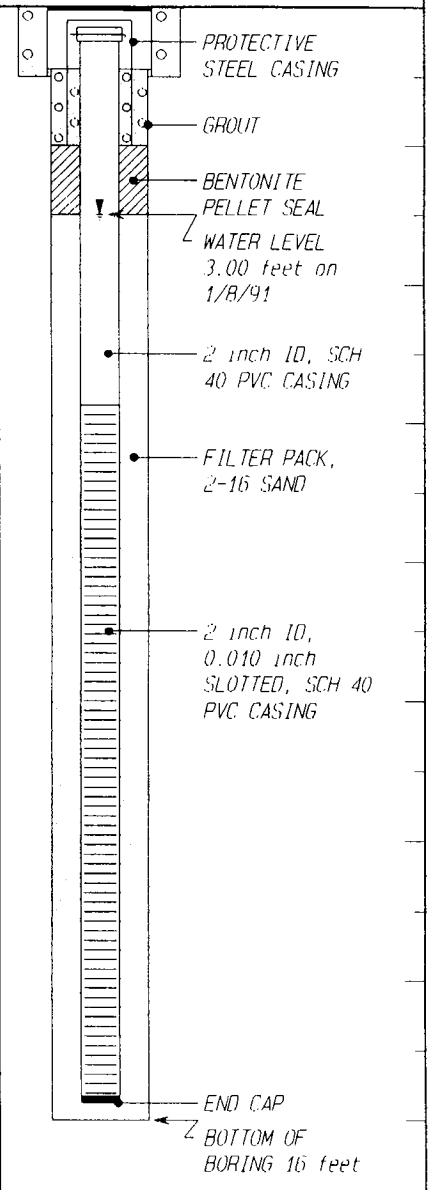
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER *M-10A*
DATE STARTED *12/17/90* COMPLETED *12/17/90*
REF. ELEVATION *6.20 FEET, TOP OF CASING*

CLIENT *PRC/US NAVY*
PROJECT/JMM PROJECT NO. *NAS ALAMEDA/2738.0143*
GEOLOGIST *CRAIG STEVENS*

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SP	SAND (SP), tan, loose, dry, fine sand
2							
						SM	silty SAND (SM), mottled green and brown, loose, wet
4				0			
							@ 5 feet-same as above, green
6							@ 6 feet-same as above, green with some black zones
8							
						SC	clayey SAND (SC), green brown, loose, wet, fine sand
10				0			
12						SM	silty SAND (SM), green brown, loose to medium dense, wet, very fine to fine sand
14				0			
16							TOTAL DEPTH 16 feet
18							

WELL DIAGRAM



DRILLING METHOD/RIG TYPE *AUGER/GEFCO CF-15*
HOLE DIAMETER *7.88 INCHES*
TOTAL DEPTH OF BORING *16 FEET*

DRILLING CONTRACTOR/DRILLER *WATER DEV CORP/D.KRUGER*
BIT TYPE *SOLID STEM AUGER*
WELL COMPLETION DEPTH *15.75 FEET*

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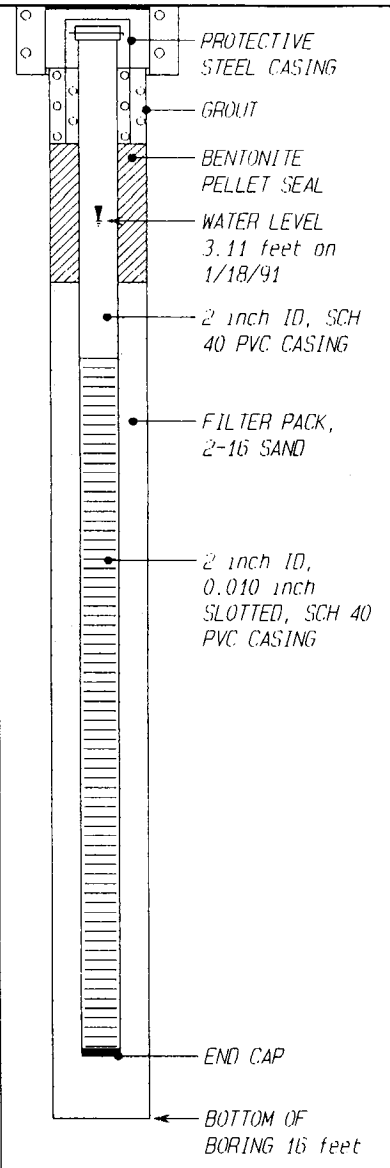
BORING/WELL NUMBER M-12A
DATE STARTED 12/05/90 COMPLETED 12/05/90
REF. ELEVATION 9.06 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
				0		SP	SAND (SP), tan, loose, dry, fine to medium sand
2							@ 2 feet-same as above, damp
4							@ 4 feet-same as above, green brown, loose, moist
6				0			@ 6 feet-same as above, medium dense, wet
8							
10							
							@ 11 feet-same as above, medium dense, some gravel
12							SAND (SP), green brown, medium dense, wet, fine to medium sand
14							
16				0			TOTAL DEPTH 16 feet
18							

WELL DIAGRAM



DRILLING METHOD/RIG TYPE AUGER/GEFCO CF-15
HOLE DIAMETER 7.88 INCHES
TOTAL DEPTH OF BORING 16 FEET
DRILLING CONTRACTOR/DRILLER WATER DEV. CORP/D. KRUGER
BIT TYPE SOLID STEM AUGER
WELL COMPLETION DEPTH 15.1 FEET

JAMES M. MONTGOMERY
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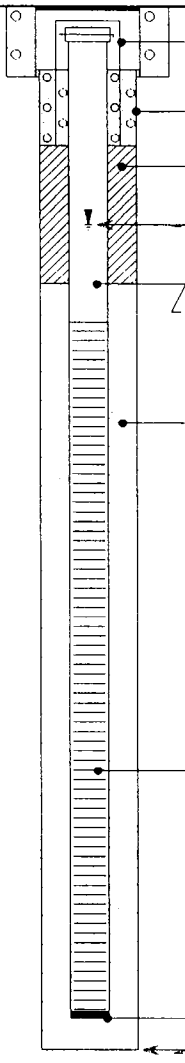
BORING/WELL NUMBER M-14A
DATE STARTED 12/17/90 COMPLETED 12/17/90
REF. ELEVATION 8.45 FEET, TOP OF CASING

CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
				0		SP	SAND (SP), light tan, loose, dry, fine to medium sand
2							@ 2 feet-same as above, damp
							@ 3 feet-same as above, moist
4							@ 4 feet-same as above, green-brown, moist
							@ 5 feet-same as above, green-brown, moist to wet
6							@ 6 feet-same as above, wet
8							@ 8 feet-same as above, light green
				0			
				.7			
10							
				0.5			
				1			
12							@ 12 feet-same as above, 5 to 10% fines
				1			
				2.2			
14							
				2			
							TOTAL DEPTH 15 feet
16							
18							

WELL DIAGRAM



DRILLING METHOD/RIG TYPE AUGER/GEFCO CF-15
HOLE DIAMETER 7.88 INCHES
TOTAL DEPTH OF BORING 15.0 FEET

DRILLING CONTRACTOR/DRILLER WATER DEV CORP/D.KRUGER
BIT TYPE SOLID STEM AUGER
WELL COMPLETION DEPTH 14.55 FEET

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

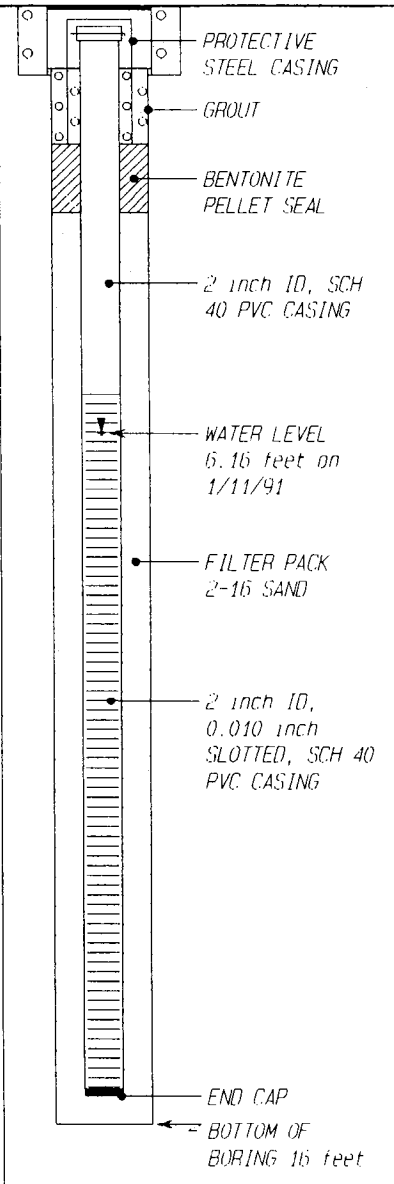
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-103A
DATE STARTED 12/12/90 COMPLETED 12/12/90
REF. ELEVATION 8.66 FEET, TOP OF CASING

CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
				0		SP	SAND (SP), tan, very loose, dry, fine to medium sand
2				0			
				0			
4							
		M103A GRAB		0			@ 5 feet-same as above, medium dense, moist
6							
							@ 7 feet-same as above, brown, moist to wet
8							@ 8 feet-same as above, wet
10							
12				0			SAND (SP), dark gray green, medium dense, wet, very fine to fine sand, trace shell fragments, slight H2S odor
14						SM	silty SAND (SM), dark gray green, loose to medium dense, wet, fine sand, 5 to 15% shell fragments, slight H2S odor, bits of organic matter
				0			
16							TOTAL DEPTH 16 feet
18							

WELL DIAGRAM



DRILLING METHOD/RIG TYPE AUGER/GEFCO CF-15
HOLE DIAMETER 7.88 INCHES
TOTAL DEPTH OF BORING 16 FEET

DRILLING CONTRACTOR/DRILLER WATER DEV CORP/D. KRUGER
BIT TYPE SOLID STEM AUGER
WELL COMPLETION DEPTH 15.6 FEET

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

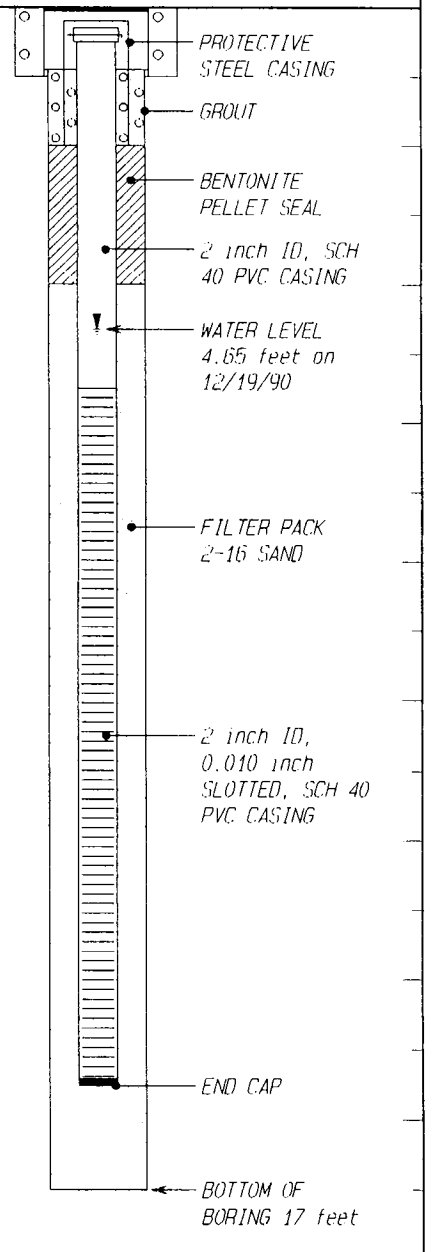
BORING/WELL NUMBER *M-105A* CLIENT *PRC/US NAVY*

DATE STARTED *12/10/90* COMPLETED *12/11/90* PROJECT/JMM PROJECT NO. *NAS ALAMEDA/2738.0143*

REF. ELEVATION *9.00 FEET, TOP OF CASING* GEOLOGIST *CRAIG STEVENS*

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SP	SAND (SP), tan, loose, dry, fine to medium sand, high est. K
							@ 1 foot-same as above, damp
2							
							@ 3 feet-same as above, brown, moist
4							
		GRAB M105A		0			
6							
8							
10							
12				0			
							no sample recovery, possibly due to wet, flowing, fine sand
14							
16							
				0		SP	SAND (SP), brown, loose, wet, fine to medium sand, high est. K
							TOTAL DEPTH 17 feet
18							

WELL DIAGRAM



DRILLING METHOD/RIG TYPE *AUGER/GEFCO CF-15* DRILLING CONTRACTOR/DRILLER *WATER DEV CORP/D.KRUGER*

HOLE DIAMETER *7.88 INCHES* BIT TYPE *SOLID STEM AUGER*

TOTAL DEPTH OF BORING *17 FEET* WELL COMPLETION DEPTH *15.51 FEET*

JAMES M. MONTGOMERY
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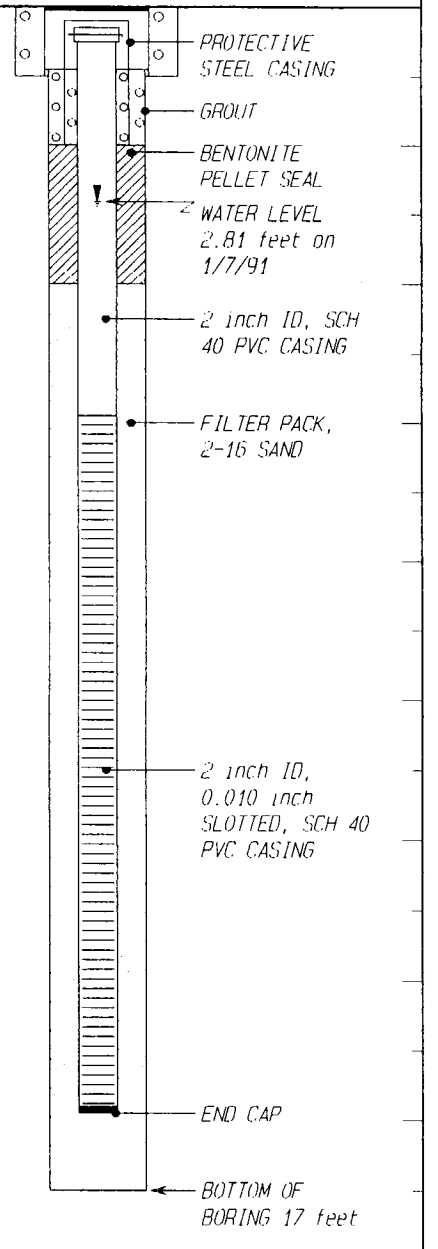
BORING/WELL NUMBER M-108A
DATE STARTED 12/11/90 COMPLETED 12/11/90
REF. ELEVATION 9.81 FEET, TOP OF CASING

CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.014.3
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						GM	silty GRAVEL (GM), brown, 20% silt and sand
						SP	SAND (SP), brown, loose, moist, occasional gravels (to 3 inches)
2							
4							
5		M108A GRAB		0			@ 5 feet-same as above, is moist
6							
8							@ 8 feet-same as above, wet
10						ML	clayey SILT (ML), green brown, dense, wet, fines
						CL	silty CLAY (CL), green brown, soft, wet, fines
12						ML	clayey SILT (ML), green brown, soft, wet, fines
						CL	silty CLAY (CL), green brown, dense, moist, fines
						SP	SAND (SP), black green, loose to medium dense, wet, medium sand, trace shell fragments
14							
16							@ 16 feet-same as above, slight H2S odor
							TOTAL DEPTH 17 feet
18							

WELL DIAGRAM



DRILLING METHOD/RIG TYPE AUGER/GEFCO CF-15
HOLE DIAMETER 7.88 INCHES
TOTAL DEPTH OF BORING 17 FEET

DRILLING CONTRACTOR/DRILLER WATER DEV CORP/D. KRUGER
BIT TYPE SOLID STEM AUGER
WELL COMPLETION DEPTH 15.9 FEET

JAMES M. MONTGOMERY
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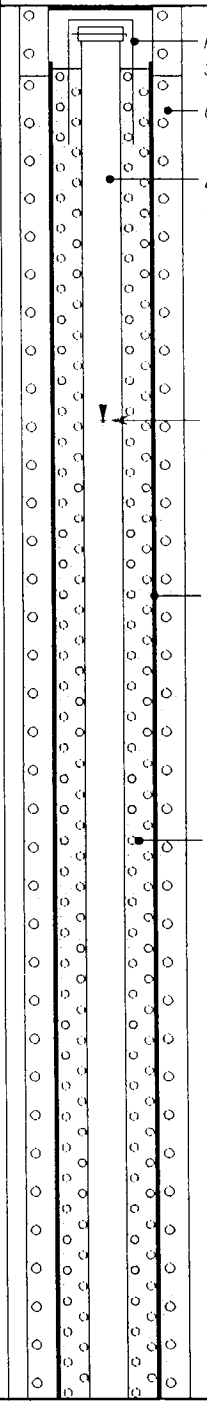
BORING/WELL NUMBER M-10B
DATE STARTED 12/01/90 COMPLETED 12/14/90
REF. ELEVATION 6.58 FEET, TOP OF CASING

CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PIC meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		GRAB M10B				SP	SAND (SP), tan, loose, dry, fine sand
							same as above, moist
2							
						SM	silty SAND (SM), mottled green and brown, loose, wet
4				0			
							@ 5 feet-same as above, green
6							@ 6 feet-same as above, green with some black zones
8							
						SC	clayey SAND (SC), green brown, loose, wet, fine sand
10				0			
12						SM	silty SAND (SM), green brown, loose to medium dense, wet, very fine to fine sand
14				0			
16							
18							
				0			

WELL DIAGRAM



DRILLING METHOD/RIG TYPE MUD ROT./GEFCO CF-15
HOLE DIAMETER 12.25/7.88 INCHES
TOTAL DEPTH OF BORING 86 FEET

DRILLING CONTRACTOR/DRILLER WATER DEV CORP/D.KRUGER
BIT TYPE ROLLER CONE
WELL COMPLETION DEPTH 43.35 FEET

JAMES M. MONTGOMERY
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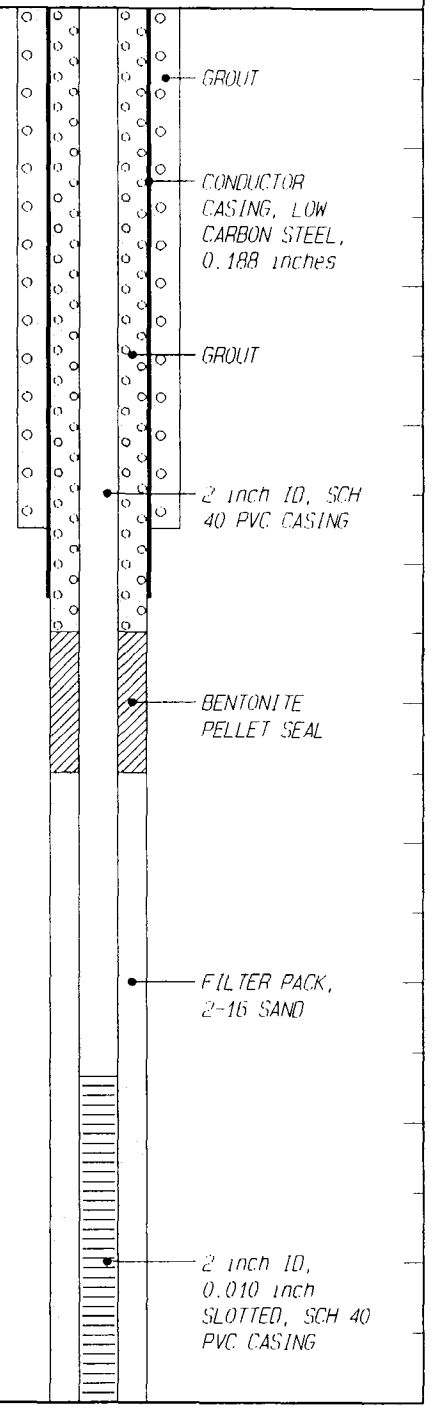
BORING/WELL NUMBER M-10B
DATE STARTED 12/01/90 COMPLETED 12/14/90
REF. ELEVATION 6.58 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SM	silty SAND (SM), green brown, loose to medium dense, wet, fine sand
22				0			
24				0			
26				0			
				0		CL	CLAY (CL), dark gray green, stiff, wet, slight H2S/organic decay odor
28							
							@ 29.2-one foot layer of clayey gravel (rig behavior)
30							@ 30.2-same as above, dark grey
						SM	silty SAND (SM), dark gray, medium dense, wet
32							
						GC	
				0			gravelly CLAY (CL), dark gray, dense, wet, fine gravel (to 1")
34				0			
						SM	silty SAND (SM), dark gray, loose to medium dense, wet, trace shell fragments
36				0			
38				0		SP	gravelly SAND (SP), dark gray, dense, wet, fine sand
						SM	
				0			silty SAND (SM), dark gray, loose to medium dense, wet, trace shell fragments

WELL DIAGRAM



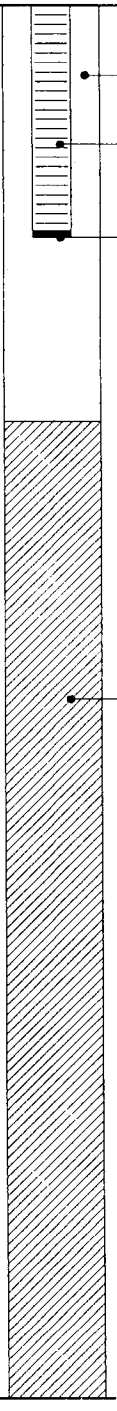
LOG OF WELL M-10B (continued)

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER *M-10B* CLIENT *PRC/US NAVY*
DATE STARTED *12/01/90* COMPLETED *12/14/90* PROJECT/JMM PROJECT NO. *NAS ALAMEDA/2738.0143*
REF. ELEVATION *6.58 FEET, TOP OF CASING* GEOLOGIST *CRAIG STEVENS*

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SM	
				0		SM	silty SAND (SM), dark gray green, loose, wet, fine sand, trace fine gravel
42							
44							
				0		CL	silty CLAY (CL), gray green, soft to medium stiff, wet, fines, trace sand, trace coarse gravel
46				0			
48							from 48 to 51 feet-flowing sand or soft clay (rig behavior)
50							
52							from 52 to 55 feet-soft clay or flowing sand (rig behavior)
54							
				0			
56				0		SC	clayey SAND (SC), gray green, loose to medium dense, wet, 20-45% fines, very fine sand
58							
				0			

WELL DIAGRAM



JAMES M. MONTGOMERY
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BORING/WELL NUMBER M-10B
DATE STARTED 12/01/90 COMPLETED 12/14/90
REF. ELEVATION 6.58 FEET, TOP OF CASING

CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
						SC	clayey SAND (SC), gray green, soft to medium dense, 20 to 45% fines, very fine sand	
						CL	silty CLAY (CL), gray green, stiff, wet, fines	
62								
64				0		SC	clayey SAND (SC), gray green, medium dense, wet, trace shell fragments	
							@ 64.5 and 65.5 feet-one inch layers of clay (CL) gray green, stiff	
66								
68								
70								BENTONITE PELLET SEAL
72								
							@ 73 feet-sandy clay layer	
74						SM	silty SAND (SM), gray green, medium dense, wet, fine to medium sand, trace shell fragments	
76								
78								

LOG OF WELL M-10B (continued)

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER *M-10B*
DATE STARTED *12/01/90* COMPLETED *12/14/90*
REF. ELEVATION *6.58 FEET, TOP OF CASING*

CLIENT *PRC/US NAVY*
PROJECT/JMM PROJECT NO. *NAS ALAMEDA/2738.0143*
GEOLOGIST *CRAIG STEVENS*

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
						SM / CL	silty SAND (SM), gray green, medium dense, wet, fine to medium sand, trace shell fragments	
82							CLAY (CL), gray green, very stiff, moist to wet, fines, 10 to 15% plant material and organic stringers, linear partings (pockets, gaps) in clay, organic stringers are lamelli	BENTONITE PELLET SEAL
84								
86							TOTAL DEPTH 86 feet	BOTTOM OF BORING 86 feet
88								
90								
92								
94								
96								
98								

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

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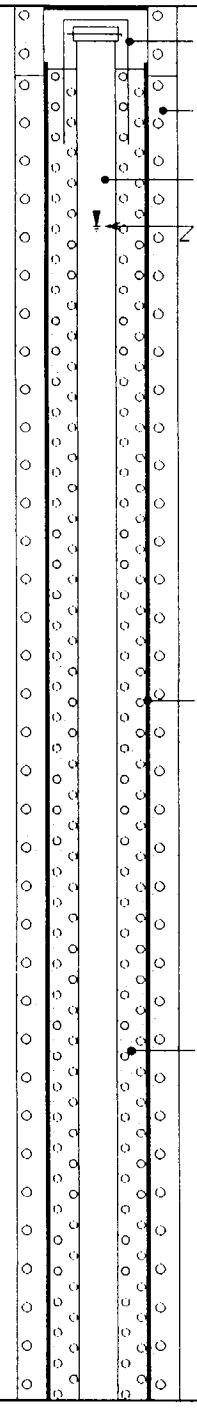
BORING/WELL NUMBER *M-12B* CLIENT *PRC/US NAVY*
DATE STARTED *12/02/90* COMPLETED *12/05/90* PROJECT/JMM PROJECT NO. *NAS ALAMEDA/2738.0143*
REF. ELEVATION *8.89 FEET, TOP OF CASING* GEOLOGIST *CRAIG STEVENS*

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		GRAB M12B		0		SP	SAND (SP), tan, loose, dry, fine to medium sand
2							@ 2 feet-same as above, damp
4							@ 4 feet-same as above, green brown, loose, moist
6			12	0			@ 6 feet-same as above, medium dense, wet
			20				
			44				
			14				
8			18				
			27				
			14				
			25				
10			37				
			7				
			16				@ 11 feet-same as above, medium dense, some gravel
			22				
12			8				SAND (SP), green brown, medium dense, wet, fine to medium sand
			5				
14							
16				0		SP	@ 16 feet-same as above, olive green, trace silt, fine sand
18				0		SC	clayey SAND (SC), olive green, soft, wet, very fine sand
						SM	silty SAND (SM), olive green, loose to medium dense, wet, fine sand

WELL DIAGRAM



DRILLING METHOD/RIG TYPE *MUD ROT./GEFCO CF-15* DRILLING CONTRACTOR/DRILLER *WATER DEV CORP/D.KRUGER*
HOLE DIAMETER *12.25/7.88 INCHES* BIT TYPE *ROLLER CONE*
TOTAL DEPTH OF BORING *74 FEET* WELL COMPLETION DEPTH *73.4 FEET*

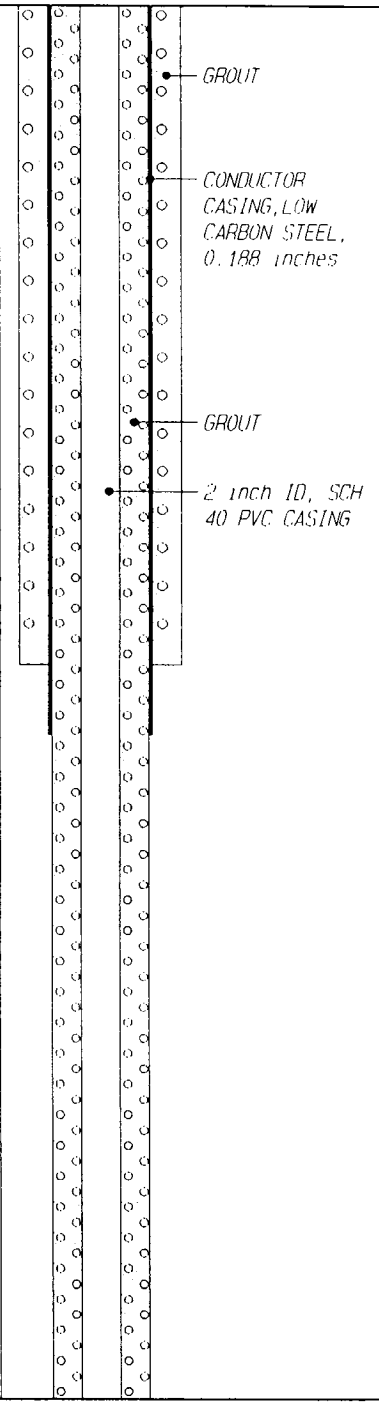
JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-12B
DATE STARTED 12/02/90 COMPLETED 12/05/90
REF. ELEVATION 8.89 FEET, TOP OF CASING

CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
22							
24				0		SM	
							@ 25 feet-gravelly zone (rig behavior)
26							
			12			CL	gravelly CLAY (CL), olive green, soft, wet, coarse gravel (to 2 inches)
28			14 30 28			GC	clayey GRAVEL (GC), olive green, soft, wet, fine gravel (to 1 inch)
			9 28			CL	gravelly CLAY (CL), olive green, soft, wet, fine gravel (to 1 inch)
30			30 9 8			GC SC	clayey GRAVEL (GC), olive green, soft, wet, fine gravel (to 1 inch)
			11			SM	clayey SAND (SC), olive green, medium dense, wet, fine sand
32				0			silty SAND (SM), dark gray green, medium dense, moist to wet, fine to medium sand, trace shell fragments, organic decay odor
34				0			@ 32 feet-same as above, trace shell fragments, slight organic decay odor
							@ 34 feet, same as above, no shell fragments
36							
38							

WELL DIAGRAM



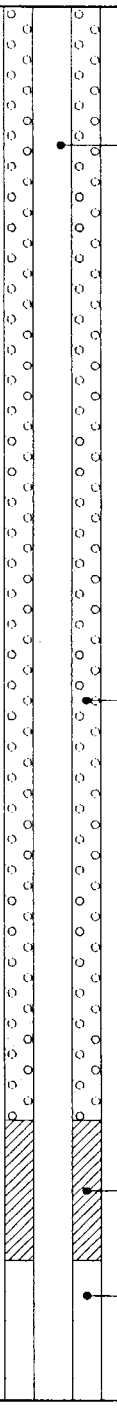
LOG OF WELL M-12B (continued)

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER *M-12B* CLIENT *PRC/US NAVY*
DATE STARTED *12/02/90* COMPLETED *12/05/90* PROJECT/JMM PROJECT NO. *NAS ALAMEDA/2738.0143*
REF. ELEVATION *8.89 FEET, TOP OF CASING* GEOLOGIST *CRAIG STEVENS*

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PIC meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
42				0		SM	silty SAND (SM), dark gray green, medium dense, wet, very fine sand, trace shell fragments
44				0		CL	silty CLAY (CL), dark gray green, soft, wet, fines
						SC	clayey SAND (SC), dark gray green, medium dense, wet, very fine sand, trace shell fragments, slight organic odor
46				0			
48							@ 47.5 feet-same as above, loose
				0			@ 49 feet-same as above, fine to medium sand
50							
52				0			
				0			
54						SM	silty SAND (SM), light gray green, medium dense, wet, medium sand
56							
58				0			
							@ 59.5 feet-same as above, olive green, moist to wet, dense to very dense

WELL DIAGRAM



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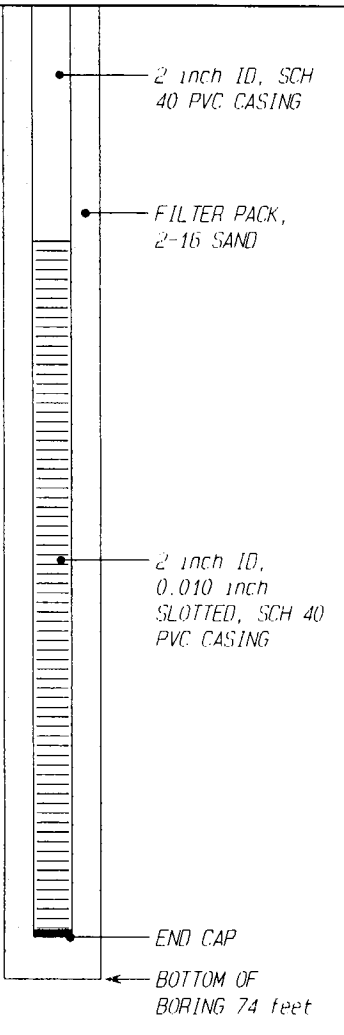
BORING/WELL NUMBER *M-12B* CLIENT *PRC/US NAVY*
DATE STARTED *12/02/90* COMPLETED *12/05/90* PROJECT/JMM PROJECT NO. *NAS ALAMEDA/2738.0143*
REF. ELEVATION *8.89 FEET, TOP OF CASING* GEOLOGIST *CRAIG STEVENS*

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SM	silty SAND (SM), light gray green, medium dense, wet, medium sand
62							@ approximately 62 feet-mottling with orange brown spots
							@ 62.2 feet-same as above, orange brown
64							@ 64.3 feet-same as above, medium dense, wet
66				0			@ 66 feet-rust-red laminations present
68							
				0			@ 69 feet-same as above, very dense, moist, no rust-red laminations
				0			
70							
72							
74							TOTAL DEPTH 74 feet
76							
78							

WELL DIAGRAM



JAMES M. MONTGOMERY
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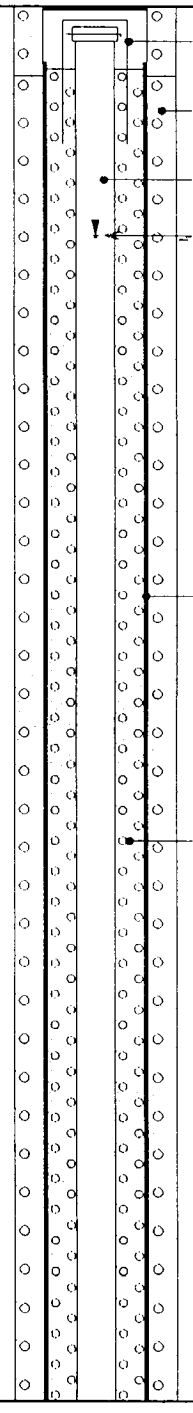
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-14B
DATE STARTED 12/03/90 COMPLETED 12/14/90
REF. ELEVATION 8.50 FEET, TOP OF CASING

CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		GRAB M14B		0		SP	SAND (SP), light tan, loose, dry, fine to medium sand
2							@ 2 feet-same as above, damp
							@ 3 feet-same as above, moist
4							@ 4 feet-same as above, green brown, moist
							@ 5 feet-same as above, green brown, moist to wet
6							@ 6 feet-same as above, wet
8							@ 8 feet-same as above, light green
				0			
10				0.7			
				0.5			
				1			
12							@ 12 feet-same as above, 5 to 10% fines
				1			
14				2.2			
				2			
16				1.9			
				1.2			
18				1.4			
				0			
				0			

WELL DIAGRAM



DRILLING METHOD/RIG TYPE MUD ROT./GEFCO CF-15
HOLE DIAMETER 12.25/7.88 INCHES
TOTAL DEPTH OF BORING 61 FEET

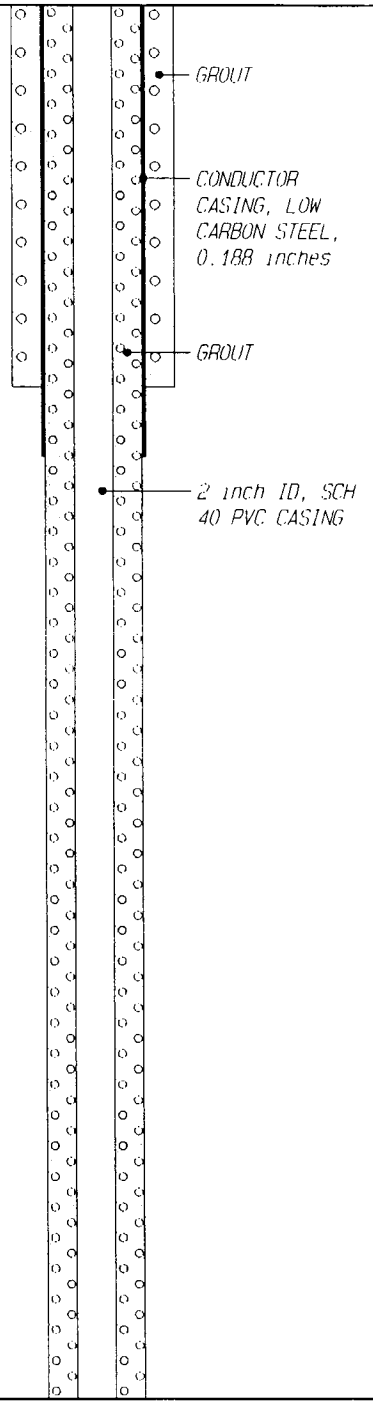
DRILLING CONTRACTOR/DRILLER WATER DEV CORP/D.KRUGER
BIT TYPE ROLLER CONE
WELL COMPLETION DEPTH 59.4 FEET

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER *M-14B* CLIENT *PRC/US NAVY*
DATE STARTED *12/03/90* COMPLETED *12/14/90* PROJECT/JMM PROJECT NO. *NAS ALAMEDA/2738.0143*
REF. ELEVATION *8.50 FEET, TOP OF CASING* GEOLOGIST *CRAIG STEVENS*

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	USCS CLASS	GEOLOGIC DESCRIPTION
				0		SP	@ 20 feet-possible flowing sand (rig behavior)
22				0		SC	clayey SAND (SC), gray green, soft, wet, fines, trace silt, fine sand
						CL	silty CLAY (CL), gray green, soft, wet, slight H2S/organic decay odor
24				0		SM	silty SAND (SM), dark gray green, medium dense, wet, slight H2S odor, trace shell fragments, fine to medium sand
26				0		SC	clayey SAND (SC), dark gray green, soft, wet, very fine sand, 20 to 30% shell fragments, slight H2S odor
28				0		SM	silty SAND (SM), dark gray green, medium dense, wet, fines, fine sand, trace shell fragments
30				0			@ 29.5 feet-3 inch silty clay bed with 1 foot of abundant shells
32				0		SP	SAND (SP), gray green, loose to medium dense, wet, up to 10% fines, fine to medium sand, trace shell fragments
34				0			
36				0		SC	clayey SAND (SC), gray green, medium dense, wet, fines, fine sand, trace shell fragments
38				0			
				0			

WELL DIAGRAM



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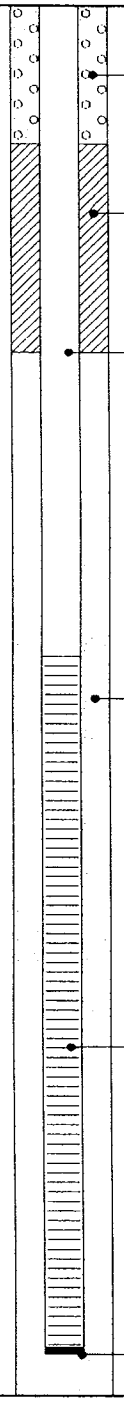
BORING/WELL NUMBER M-14B
DATE STARTED 12/03/90 COMPLETED 12/14/90
REF. ELEVATION 8.50 FEET, TOP OF CASING

CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SC	clayey SAND (SC), gray green, medium dense, wet, fine sand, trace shell fragments
42				0			
44				0			
						SM	silty SAND (SM), bright green, dense to very dense, moist to wet, very fine to fine sand
							@ 45 feet-same as above, yellow brown
46				0			
				0			
48							@ 48 feet-same as above, rust colored mottling
							@ 49 feet-same as above, loose to medium dense
50				0			silty SAND (SM), orange/yellow brown, medium dense, wet, trace clay, fine sand
52				0			@ 52 feet-same as above, solid rust color
54							
				0			
56							
58							

WELL DIAGRAM



LOG OF WELL M-14B (continued)

JAMES M. MONTGOMERY
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365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-14B
DATE STARTED 12/03/90 COMPLETED 12/14/90
REF. ELEVATION 8.50 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
	X					SM	silty SAND (SM), orange/yellow brown, medium dense, wet, trace clay, fine sand	FILTER PACK, 2-16 SAND
							TOTAL DEPTH 61 feet	BOTTOM OF BORING 61 feet
62								
64								
66								
68								
70								
72								
74								
76								
78								

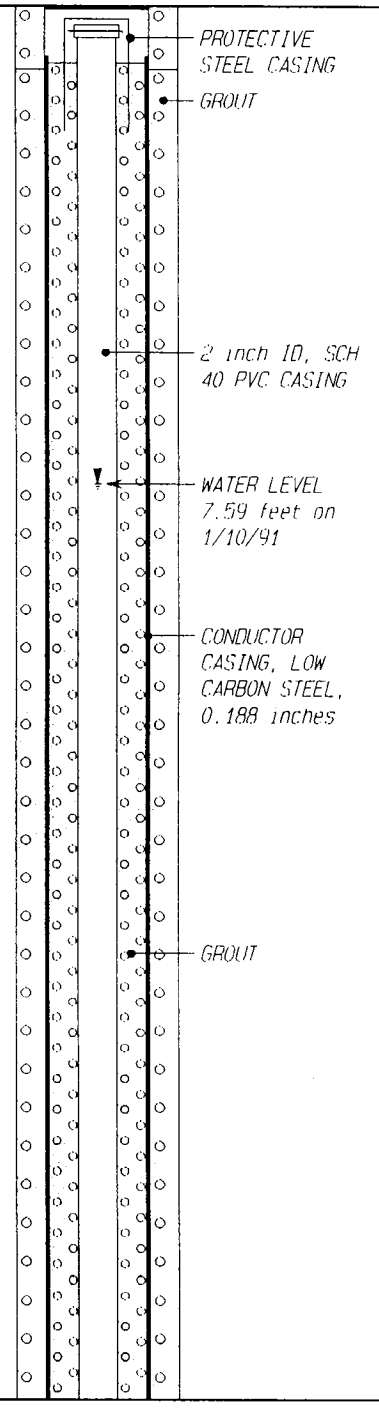
LOG OF WELL M-14B (continued)

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-103B
DATE STARTED 11/28/90 COMPLETED 12/13/90
REF. ELEVATION 8.89 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-FID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		GRAB M103B		0		SP	SAND (SP), tan, very loose, dry, fine to medium sand
2				0			
4				0			
			5	0			@ 5 feet-same as above, medium dense, moist
6			14 21 7				
			18				@ 7 feet-same as above, brown, moist to wet
8			21 7 14				@ 8 feet-same as above, wet
10			20 4 7 8				
12			4 6 7 7	0			SAND (SP), dark gray green, medium dense, wet, very fine to fine sand, trace shell fragments, slight H2S odor
14				0		SM	silty SAND (SM), dark gray green, loose to medium dense, wet, fine sand, 5 to 15% shell fragments, slight H2S odor, bits of organic matter
16							
18						CL	silty CLAY (CL), olive green, very soft, wet, fines, slight H2S odor
						SP	SAND (SP), dark gray green, medium dense, wet, trace fines, fine sand, 5 to 10% shell fragments
20						CL/SP	silty CLAY (CL), black, very soft, wet, fines, slight H2S odor
							SAND (SP), gray green, medium dense, wet, fine sand, trace shell fragments, slight H2S odor

WELL DIAGRAM



DRILLING METHOD/RIG TYPE MUD ROT./GEFCO CF-15
HOLE DIAMETER 12.25/7.88 INCHES
TOTAL DEPTH OF BORING 75 FEET
DRILLING CONTRACTOR/DRILLER WATER DEV CORP/D.KRUGER
BIT TYPE ROLLER CONE
WELL COMPLETION DEPTH 37.5 FEET

JAMES M. MONTGOMERY
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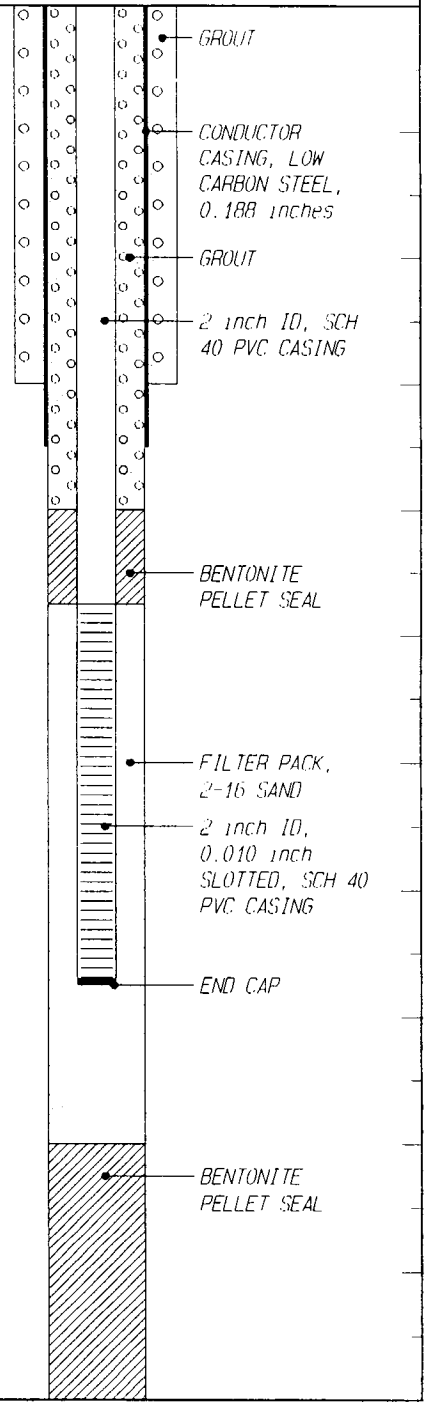
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-103B
DATE STARTED 11/28/90 COMPLETED 12/13/90
REF. ELEVATION 8.89 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SP	SAND (SP), gray green, medium dense, wet, fine sand, trace shell fragments, slight H2S odor
24							@ 23.5 feet-abundant shell fragments
26							@ 26 feet-same as above, 25-40% shell fragments, strong H2S odor
						SM	silty SAND (SM), gray green, medium dense to loose, wet, fine sand, very strong H2S odor, 5 to 15% shell fragments
28						CL	silty sandy CLAY (CL), dark gray green, soft, wet, fines, trace shell fragments, very strong H2S odor
						SM	silty SAND (SM), gray green, loose to medium dense, wet, fines, fine sand, 15 to 30% shell fragments, very strong H2S odor
30						CL	silty CLAY (CL), gray green, stiff, wet, fines, trace sand, trace shell fragments, very strong H2S odor
32				0		SM	silty SAND (SM), gray green, medium dense, wet, 5 to 30% fines, fine sand, 15 to 25% shell fragments, very strong H2S odor
34						SC	clayey SAND (SC), gray green, medium dense, wet, 25 to 45% fines, fine sand, trace shell fragments, very strong H2S odor
36						CL	silty CLAY (CL), gray green, stiff, wet, fines, trace sand, very strong H2S odor
38						SC	clayey SAND (SC), gray green, loose to medium dense, wet, 20 to 30% fines, 15 to 20% shell fragments, very strong H2S odor
40						CL	silty CLAY (CL), gray green, stiff, wet, fines, trace fine sand, 20 to 30% shell fragments, very strong H2S odor
42							

WELL DIAGRAM



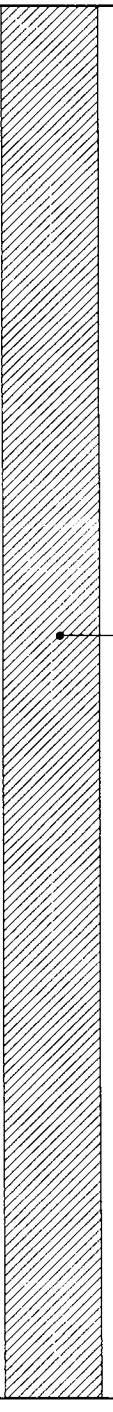
LOG OF WELL M-103B (continued)

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-103B
DATE STARTED 11/28/90 COMPLETED 12/13/90
REF. ELEVATION 8.89 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						CL	silty CLAY (CL), gray green, stiff, wet, fines, trace fine sand, 20 to 30% shell fragments, very strong H2S odor
46							
48							
						SC	clayey SAND (SC), gray green, loose to medium dense, wet, 20 to 30% fines, 15 to 20% shell fragments, very strong H2S odor
						CL	silty CLAY (CL), gray green, stiff, wet, fines, slight H2S odor
50							
						SC	clayey SAND (SC), loose to medium dense, wet, 10 to 15% shells, slight H2S odor
52				0		CL	silty CLAY (CL), gray green, stiff, wet, fines, slight H2S odor
54							
56						SC	clayey SAND (SC), gray green, medium dense, wet, trace shell fragments, slight H2S odor
58							
60						SM	silty SAND (SM), gray green, medium dense, wet
62						SC	clayey SAND (SC), gray green, medium dense, wet, fine sand, trace shell fragments, slight H2S odor
64							

WELL DIAGRAM



LOG OF WELL M-103B (continued)

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-103B
DATE STARTED 11/28/90 COMPLETED 12/13/90
REF. ELEVATION 8.89 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
						SC	clayey SAND (SC), gray green, medium dense, wet, fine sand, trace shell fragments, slight H2S odor	
						CL	silty CLAY (CL), gray green, stiff, wet, fines, slight H2S odor	
68							@ 67.7 feet-6 inch thick clayey sand layer	
70				0				BENTONITE PELLET SEAL
72								
74								
							TOTAL DEPTH 75 feet	BOTTOM OF BORING 75 feet
76								
78								
80								
82								
84								
86								

LOG OF WELL M-103B (continued)

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

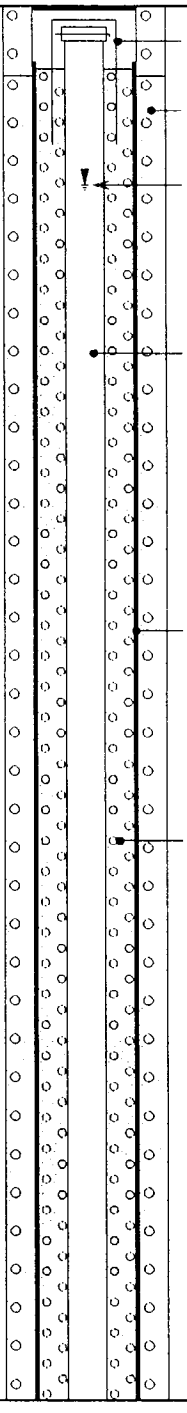
BORING/WELL NUMBER *M-105Br* CLIENT *PRC/US NAVY*

DATE STARTED *1/25/91* COMPLETED *1/25/91* PROJECT/JMM PROJECT NO. *NAS ALAMEDA/2738.0143*

REF. ELEVATION *9.63 FEET, TOP OF CASING* GEOLOGIST *CRAIG STEVENS*

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		GRAB M105Br				SP	SAND (SP), tan, loose, dry, fine to medium sand, high est. K
							@ 1 foot-same as above, damp
2							
							@ 3 feet-same as above, brown, moist
4			7				
			10				
			14				
			7	0			
6			8				
			14				
			5				
			10				
8			16				
			4				
			8				
			17				
10			8				
			17				
			25				
			4				
12			8	0			
			11				
							no sample recovery, possibly due to wet, flowing, fine sand
14							
16							
				0		SP	SAND (SP), brown, loose, wet, fine to medium sand, high est. K
18							
				0		SP	SAND (SP), brown, loose, wet, fine to medium sand
						CL	sandy CLAY (CL), tan, very soft, wet, low est. K

WELL DIAGRAM



DRILLING METHOD/RIG TYPE *AUGER/MOBILE B-53* DRILLING CONTRACTOR/DRILLER *WATER DEV CORP/R. DEIKE*

HOLE DIAMETER *12.25/7.88 INCHES* BIT TYPE *SOLID STEM AUGER*

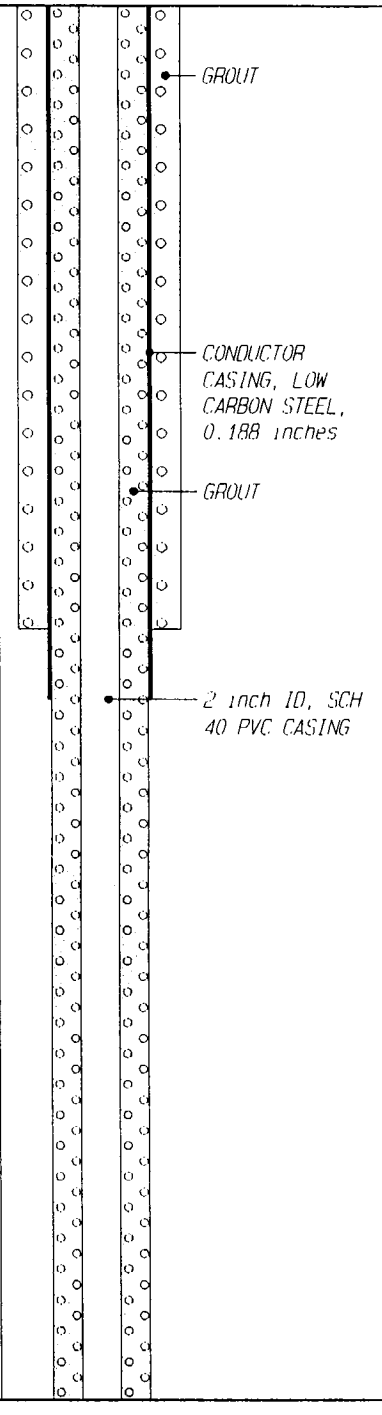
TOTAL DEPTH OF BORING *73 FEET* WELL COMPLETION DEPTH *68.8 FEET*

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-105Br
DATE STARTED 1/25/91 COMPLETED 1/25/91
REF. ELEVATION 9.63 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						CL	sandy CLAY (CL), tan, very soft, wet, low est. K
						SP	SAND (SP), brown, loose to medium dense, wet, trace silt and fine sand, high est. K
22						CL	sandy CLAY (CL), tan, very soft, wet, low est. K
						SP	SAND (SP), brown, loose to medium dense, wet, trace silt and fine sand, high est. K
						SC	clayey SAND (SC), tan, very soft, wet, low est. K
24						SP	SAND (SP), brown, medium dense, wet, fine sand, high est. K
				0.3		CL	CLAY (CL), gray green, soft, wet, low est. K
26							
						SC	clayey SAND (SC), olive green, soft, wet, very fine to fine sand, low est. K
28							
				0.4		CL	CLAY (CL), olive green, stiff, wet, low est. K
30							
32				0			
				0.3		SM	silty SAND (SM), black, medium dense, wet, fine sand, trace shells
34							
				2.7		SP	SAND (SP), dark gray green, medium dense, wet, fine sand, trace silt and shells, high est. K, slight H_2S odor
36							
38							
				1.9		SM	

WELL DIAGRAM

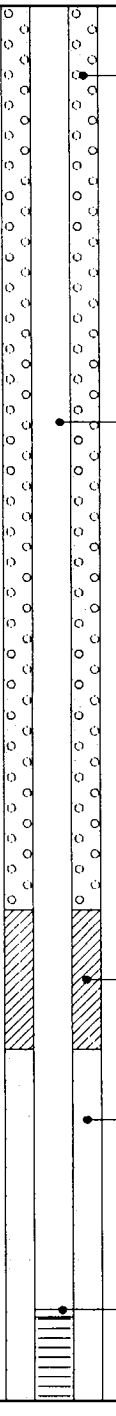


JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-105Br
DATE STARTED 1/25/91 COMPLETED 1/25/91
REF. ELEVATION 9.63 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SM	silty SAND (SM), dark gray green, loose to medium dense, wet, trace clay, very fine sand, low to moderate est. K, slight H2S odor
42							
44				1.4			
46				2.5			
48				1.9			
				2.4			
50				2.1			
				2.7			
52				2.8			
				3.8			
54				4.6		SP	SAND (SP), green brown, medium dense, wet, fine to medium sand, high est. K
				0		SM	silty SAND (SM), orange brown, dense, moist, trace clay, fine sand, some rust-colored laminations, low to moderate est. K
56							
58							

WELL DIAGRAM



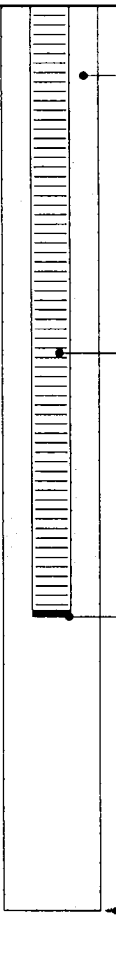
LOG OF WELL M-105Br (continued)

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-105Br
DATE STARTED 1/25/91 COMPLETED 1/25/91
REF. ELEVATION 9.63 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SM	silty SAND (SM), orange brown, dense, moist, trace clay, fine sand, some rust-colored laminations, low to moderate est. K
62							@ 61 feet-same as above, varies to wet and dense, some mottling
64							silty SAND (SM), orange brown, moist to wet, medium dense to dense, trace clay, fine sand, rust-colored mottling, low to moderate est. K
66							
68							silty SAND (SM), green brown, wet, medium dense
70							
72				0			@ approximately 72 feet-some rust colored laminations
							TOTAL DEPTH 73 feet, hole reamed with 7 7/8 inch bit to 71 feet
74							
76							
78							

WELL DIAGRAM



JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

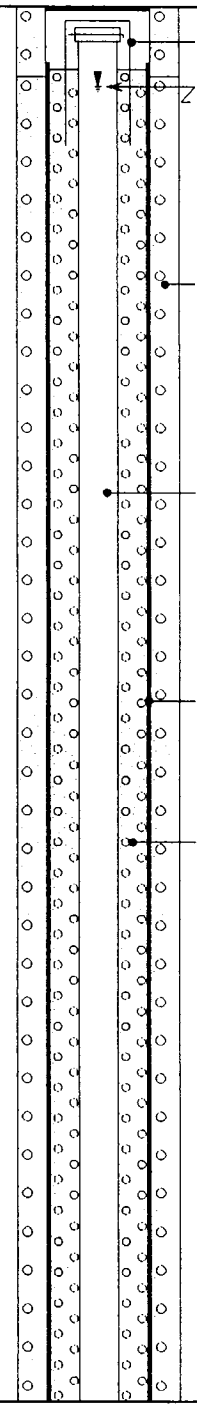
BORING/WELL NUMBER *M-108B* CLIENT *PRC/US NAVY*

DATE STARTED *11/27/90* COMPLETED *12/12/90* PROJECT/JMM PROJECT NO. *NAS ALAMEDA/2738.0143*

REF. ELEVATION *10.15 FEET, TOP OF CASING* GEOLOGIST *CRAIG STEVENS*

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						GM	silty GRAVEL (GM), brown, 20% silt and sand
		GRAB M108B				SP	SAND (SP), brown, loose, moist, occasional gravels (to 3 inches)
2							
4							
			6	0			@ 5 feet-same as above, moist
			6				
6			7				
			5				
			7				
			12				
8			9				@ 8 feet-same as above, wet
			13				
			17				
			4				
10			5				
			3			ML	clayey SILT (ML), green brown, dense, wet, fines
			5			CL	silty CLAY (CL), green brown, soft, wet, fines
			8			ML	
12			14				clayey SILT (ML), green brown, soft, wet, fines
			7			CL	silty CLAY (CL), green brown, dense, moist, fines
						SP	SAND (SP), black green, loose to medium dense, wet, medium sand, trace shell fragments
14							
16							@ 16 feet-same as above, slight H_2S odor
18							
							@ 19 feet-4 inches of clayey sand

WELL DIAGRAM



DRILLING METHOD/RIG TYPE *MUD ROT./GEFCO CF-15* DRILLING CONTRACTOR/DRILLER *WATER DEV CORP/D.KRUGER*

HOLE DIAMETER *12.25/7.88 INCHES* BIT TYPE *ROLLER CONE*

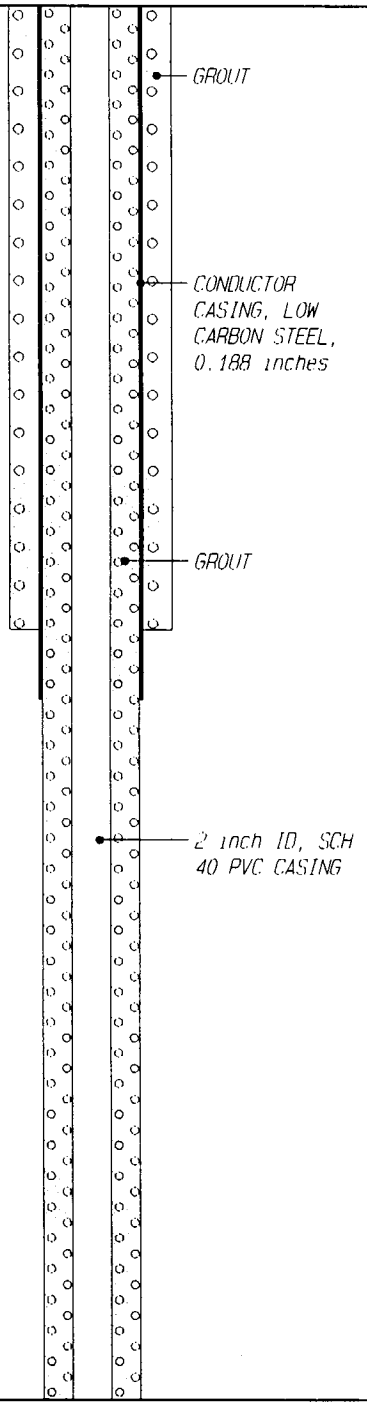
TOTAL DEPTH OF BORING *58 FEET* WELL COMPLETION DEPTH *57.6 FEET*

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-108B
DATE STARTED 11/27/90 COMPLETED 12/12/90
REF. ELEVATION 10.15 FEET, TOP OF CASING
CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SP	SAND (SP), gray green, loose to medium dense, wet, fine sand, trace shell fragments
22						ML	clayey SILT (ML), gray green, very soft, wet, 15 to 25%, shell fragments
24							
						SC	clayey SAND (SC), gray green, very soft, wet, very fine sand, 15 to 25% shell fragments, slight H2S odor
26							@ 26 feet-same as above, fine grained sand, trace shell fragments
28						SM	silty SAND (SM), gray green, medium dense, wet, very fine sand, trace shell fragments
							@ 29 feet-6 inches of abundant shell fragments
30							
32							@ 31.5 feet-same as above, abundant shell fragments
34						SP	SAND (SP), olive green, medium dense, wet, very fine sand, abundant shells
							@ 35 feet-same as above, organic odor
36							
						SM	silty SAND (SM), gray black, very loose, wet, very fine sand, abundant shell fragments
38						SM	silty SAND (SM), green-orange brown, dense, moist, fine to very fine sand
							@ 39 feet-same as above, mottled green and orange brown, some rust-colored spots

WELL DIAGRAM



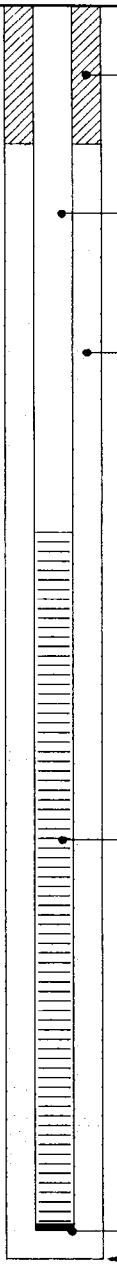
JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
365 LENNON LANE, WALNUT CREEK, CALIFORNIA, 94598 / (415) 975-3400

BORING/WELL NUMBER M-108B
DATE STARTED 11/27/90 COMPLETED 12/12/90
REF. ELEVATION 10.15 FEET, TOP OF CASING

CLIENT PRC/US NAVY
PROJECT/JMM PROJECT NO. NAS ALAMEDA/2738.0143
GEOLOGIST CRAIG STEVENS

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS 6 IN	HNU-PID meter units	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						SM	silty SAND (SM), green-orange brown, dense, moist fine to very fine sand
							@ 41 feet-same as above, less green mottling
42							
44							
46							
48							
50				0			
52				0			
54							
56							@ 55.5 feet-dense zone
58							TOTAL DEPTH 58 feet

WELL DIAGRAM



LOG OF WELL M-108B (continued)

APPENDIX C

ADDENDUM TO SAMPLING PLAN

ADDENDUM
TO
SAMPLING PLAN

REMEDIAL INVESTIGATION/FEASIBILITY STUDY
NAVAL AIR STATION
ALAMEDA, CALIFORNIA
Volume 1A
Original: February 1990
Addendum: November 1990

James M. Montgomery, Consulting Engineers Inc. (JMM) will be performing a limited site investigation at Naval Air Station (NAS) Alameda as part of the Navy CLEAN CTO 0085. This document is an addendum to the above reference document prepared by Canonie Environmental. It reflects minor modifications of procedures.

1. Section 3.1.2.3, Sampling Procedures

a. The surface soil samples will be collected with a shovel from 0.17 to 0.5 foot. The shovel will be decontaminated between samplings. The initial 2 inches will be removed just prior to sample collection. Loose soil in adequate quantities will be collected in appropriate size sample jars supplied by the analytic laboratory for specific analyses. In areas where asphalt covers the drilling/sampling location, the asphalt will be removed and 2 inches of material from below the pavement will be removed prior to collecting the soil sample.

b. Each of the intermediate wells will be continuously sampled and logged. Subsurface soil samples will be collected from above the saturated zone in the capillary fringe from the shallow wells. These wells will be drilled with hollow stem augers, in the vicinity of the runways. The samples will be sent to the laboratory for chemical analysis. Adequate quantities of soil will be collected with a stainless-steel split spoon sampler and transferred to appropriate size sample jars supplied by the analytic laboratory, for specific analyses.

c. Two soil samples will be collected from each well in the proposed screen interval. Adequate quantities of soil will be collected in appropriate size sample jars for possible analyses.

APPENDIX D

LABORATORY ANALYTICAL REPORTS

AnalyticalTechnologies,Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

		ATI I.D.	: 012146
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: N/A
PROJECT #	: 2738-0144	DATE ANALYZED	: 12/26/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CHLOROMETHANE	<0.01
BROMOMETHANE	<0.01
VINYL CHLORIDE	<0.01
CHLOROETHANE	<0.01
METHYLENE CHLORIDE	TR<0.005
ACETONE	<0.1
CARBON DISULFIDE	<0.005
1,1-DICHLOROETHENE	<0.005
1,1-DICHLOROETHANE	<0.005
CHLOROFORM	<0.005
1,2-DICHLOROETHANE	<0.005
2-BUTANONE (MEK)	<0.1
1,1,1-TRICHLOROETHANE	<0.005
CARBON TETRACHLORIDE	<0.005
VINYL ACETATE	<0.050
BROMODICHLOROMETHANE	<0.005
1,1,2,2-TETRACHLOROETHANE	<0.005
1,2-DICHLOROPROPANE	<0.005
CIS-1,3-DICHLOROPROPENE	<0.005
TRICHLOROETHENE	<0.005
DIBROMOCHLOROMETHANE	<0.005
1,1,2 TRICHLOROETHANE	<0.005
BENZENE	<0.005
TRANS-1,3-DICHLOROPROPENE	<0.005
BROMOFORM	<0.005
2-HEXANONE (MBK)	<0.050
4-METHYL-2-PENTANONE (MIBK)	<0.050
TETRACHLOROETHENE	<0.005
TOLUENE	<0.010
CHLOROBENZENE	<0.005
ETHYL BENZENE	<0.005
STYRENE	<0.005
TOTAL XYLENES	<0.005
1,2-DICHLOROETHENE (TOTAL)	<0.005
FREON 113	<0.005

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	89
BFB (%)	94
TOLUENE-D8 (%)	109

TR - Compound detected at an unquantifiable trace level

AnalyticalTechnologies,Inc. GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. ATI I.D. : 012146

UNITS : MG/KG

COMPOUNDS	RESULTS
346 ACETONITRILE	0.1

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

		ATI I.D.	: 012132
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: N/A
PROJECT #	: 2738.0144	DATE ANALYZED	: 12/26/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CHLOROMETHANE	<0.01
BROMOMETHANE	<0.01
VINYL CHLORIDE	<0.01
CHLOROETHANE	<0.01
METHYLENE CHLORIDE	TR<0.005
ACETONE	<0.1
CARBON DISULFIDE	<0.005
1,1-DICHLOROETHENE	<0.005
1,1-DICHLOROETHANE	<0.005
CHLOROFORM	<0.005
1,2-DICHLOROETHANE	<0.005
2-BUTANONE (MEK)	<0.1
1,1,1-TRICHLOROETHANE	<0.005
CARBON TETRACHLORIDE	<0.005
VINYL ACETATE	<0.050
BROMODICHLOROMETHANE	<0.005
1,1,2,2-TETRACHLOROETHANE	<0.005
1,2-DICHLOROPROPANE	<0.005
CIS-1,3-DICHLOROPROPENE	<0.005
TRICHLOROETHENE	<0.005
DIBROMOCHLOROMETHANE	<0.005
1,1,2 TRICHLOROETHANE	<0.005
BENZENE	<0.005
TRANS-1,3-DICHLOROPROPENE	<0.005
BROMOFORM	<0.005
2-HEXANONE (MBK)	<0.050
4-METHYL-2-PENTANONE (MIBK)	<0.050
TETRACHLOROETHENE	<0.005
TOLUENE	<0.010
CHLOROBENZENE	<0.005
ETHYL BENZENE	<0.005
STYRENE	<0.005
TOTAL XYLENES	<0.005
1,2-DICHLOROETHENE (TOTAL)	<0.005
FREON 113	<0.005

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	89
BFB (%)	94
TOLUENE-D8 (%)	109

TR - Compound detected at an unquantifiable trace level

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.

ATI I.D. : 012132

UNITS : MG/KG

COMPOUNDS	RESULTS
346 ACETONITRILE	0.1

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : N/A
DATE ANALYZED : 12/26/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<0.005	0.205	0.155	76	N/A	N/A	N/A
TRICHLOROETHENE	<0.005	0.275	0.241	88	N/A	N/A	N/A
CHLOROBENZENE	<0.005	0.295	0.287	97	N/A	N/A	N/A
TOLUENE	<0.010	0.295	0.303	103	N/A	N/A	N/A
BENZENE	<0.005	0.295	0.256	87	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : N/A
DATE ANALYZED : 12/26/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<0.005	0.205	0.128	62	0.131	64	3
TRICHLOROETHENE	<0.005	0.275	0.228	83	0.236	86	4
CHLOROBENZENE	<0.005	0.295	0.252	85	0.245	83	2
TOLUENE	<0.010	0.295	0.259	88	0.255	86	2
BENZENE	<0.005	0.295	0.245	83	0.235	80	4

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012146

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS-ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : N/A
DATE ANALYZED : 12/26/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<0.005	0.205	0.128	62	0.131	64	3
TRICHLOROETHENE	<0.005	0.275	0.228	83	0.236	86	4
CHLOROBENZENE	<0.005	0.295	0.252	85	0.245	83	2
TOLUENE	<0.010	0.295	0.259	88	0.255	86	2
BENZENE	<0.005	0.295	0.245	83	0.235	80	4

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012146

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : N/A
DATE ANALYZED : 12/26/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<0.005	0.205	0.155	76	N/A	N/A	N/A
TRICHLOROETHENE	<0.005	0.275	0.241	88	N/A	N/A	N/A
CHLOROBENZENE	<0.005	0.295	0.287	97	N/A	N/A	N/A
TOLUENE	<0.010	0.295	0.303	103	N/A	N/A	N/A
BENZENE	<0.005	0.295	0.256	87	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01214601

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/12/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/13/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: N/A
CLIENT I.D.	: M103-A	DATE ANALYZED	: 12/26/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<0.01
BROMOMETHANE	<0.01
VINYL CHLORIDE	<0.01
CHLOROETHANE	<0.01
METHYLENE CHLORIDE	<0.005
ACETONE	<0.1
CARBON DISULFIDE	<0.005
1,1-DICHLOROETHENE	<0.005
1,1-DICHLOROETHANE	<0.005
CHLOROFORM	<0.005
1,2-DICHLOROETHANE	<0.005
2-BUTANONE (MEK)	<0.1
1,1,1-TRICHLOROETHANE	<0.005
CARBON TETRACHLORIDE	<0.005
VINYL ACETATE	<0.050
BROMODICHLOROMETHANE	<0.005
1,1,2,2-TETRACHLOROETHANE	<0.005
1,2-DICHLOROPROPANE	<0.005
CIS-1,3-DICHLOROPROPENE	<0.005
TRICHLOROETHENE	<0.005
DIBROMOCHLOROMETHANE	<0.005
1,1,2 TRICHLOROETHANE	<0.005
BENZENE	<0.005
TRANS-1,3-DICHLOROPROPENE	<0.005
BROMOFORM	<0.005
2-HEXANONE (MBK)	<0.050
4-METHYL-2-PENTANONE (MIBK)	<0.050
TETRACHLOROETHENE	<0.005
TOLUENE	<0.010
CHLOROBENZENE	<0.005
ETHYL BENZENE	<0.005
STYRENE	<0.005
TOTAL XYLENES	<0.005
1,2-DICHLOROETHENE (TOTAL)	<0.005
FREON 113	<0.005

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	97
BFB (%)	103
TOLUENE-D8 (%)	106

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 01214601

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01213201

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/10/90
PROJECT #	: 2738.0144	DATE RECEIVED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: N/A
CLIENT I.D.	: M-105A	DATE ANALYZED	: 12/26/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<0.01
BROMOMETHANE	<0.01
VINYL CHLORIDE	<0.01
CHLOROETHANE	<0.01
METHYLENE CHLORIDE	<0.005
ACETONE	<0.1
CARBON DISULFIDE	<0.005
1,1-DICHLOROETHENE	<0.005
1,1-DICHLOROETHANE	<0.005
CHLOROFORM	<0.005
1,2-DICHLOROETHANE	<0.005
2-BUTANONE (MEK)	<0.1
1,1,1-TRICHLOROETHANE	<0.005
CARBON TETRACHLORIDE	<0.005
VINYL ACETATE	<0.050
BROMODICHLOROMETHANE	<0.005
1,1,2,2-TETRACHLOROETHANE	<0.005
1,2-DICHLOROPROPANE	<0.005
CIS-1,3-DICHLOROPROPENE	<0.005
TRICHLOROETHENE	<0.005
DIBROMOCHLOROMETHANE	<0.005
1,1,2 TRICHLOROETHANE	<0.005
BENZENE	<0.005
TRANS-1,3-DICHLOROPROPENE	<0.005
BROMOFORM	<0.005
2-HEXANONE (MBK)	<0.050
4-METHYL-2-PENTANONE (MIBK)	<0.050
TETRACHLOROETHENE	<0.005
TOLUENE	<0.010
CHLOROBENZENE	<0.005
ETHYL BENZENE	<0.005
STYRENE	<0.005
TOTAL XYLENES	<0.005
1,2-DICHLOROETHENE (TOTAL)	<0.005
FREON 113	<0.005

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	92
BFB (%)	97
TOLUENE-D8 (%)	106

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 01213201

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01213202

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/11/90
PROJECT #	: 2738.0144	DATE RECEIVED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: N/A
CLIENT I.D.	: M-108A	DATE ANALYZED	: 12/26/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<0.01
BROMOMETHANE	<0.01
VINYL CHLORIDE	<0.01
CHLOROETHANE	<0.01
METHYLENE CHLORIDE	<0.005
ACETONE	<0.1
CARBON DISULFIDE	<0.005
1,1-DICHLOROETHENE	<0.005
1,1-DICHLOROETHANE	<0.005
CHLOROFORM	<0.005
1,2-DICHLOROETHANE	<0.005
2-BUTANONE (MEK)	<0.1
1,1,1-TRICHLOROETHANE	<0.005
CARBON TETRACHLORIDE	<0.005
VINYL ACETATE	<0.050
BROMODICHLOROMETHANE	<0.005
1,1,2,2-TETRACHLOROETHANE	<0.005
1,2-DICHLOROPROPANE	<0.005
CIS-1,3-DICHLOROPROPENE	<0.005
TRICHLOROETHENE	<0.005
DIBROMOCHLOROMETHANE	<0.005
1,1,2 TRICHLOROETHANE	<0.005
BENZENE	<0.005
TRANS-1,3-DICHLOROPROPENE	<0.005
BROMOFORM	<0.005
2-HEXANONE (MBK)	<0.050
4-METHYL-2-PENTANONE (MIBK)	<0.050
TETRACHLOROETHENE	<0.005
TOLUENE	<0.010
CHLOROBENZENE	<0.005
ETHYL BENZENE	<0.005
STYRENE	<0.005
TOTAL XYLENES	<0.005
1,2-DICHLOROETHENE (TOTAL)	<0.005
FREON 113	<0.005

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	104
BFB (%)	108
TOLUENE-D8 (%)	113

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 01213202

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

AnalyticalTechnologies,Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

		ATI I.D.	: 012132
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 01/03/91
PROJECT #	: 2738.0144	DATE ANALYZED	: 01/07/91
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17
4-CHLOROPHENYL PHENYL ETHER	<0.17

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Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 012132

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	69
2-FLUOROBIPHENYL (%)	78
TERPHENYL (%)	83
PHENOL-D6 (%)	64
2-FLUOROPHENOL (%)	64
2,4,6-TRIBROMOPHENOL (%)	57

AnalyticalTechnologies,Inc. GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. ATI I.D. : 012132

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

AnalyticalTechnologies,Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	ATI I.D.	: 012010
PROJECT #	: 2738-0144	DATE EXTRACTED	: 12/03/90
PROJECT NAME	: NAS ALAMEDA	DATE ANALYZED	: 12/15/90
CLIENT I.D.	: REAGENT BLANK	UNITS	: MG/KG
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17
4-CHLOROPHENYL PHENYL ETHER	<0.17

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Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 012010

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	0.89
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	48
2-FLUOROBIPHENYL (%)	62
TERPHENYL (%)	62
PHENOL-D6 (%)	33
2-FLUOROPHENOL (%)	45
2,4,6-TRIBROMOPHENOL (%)	40

AnalyticalTechnologies, Inc. GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. ATI I.D. : 012010

UNITS : MG/KG

COMPOUNDS	RESULTS
395 ALIPHATIC HYDROCARBON C7	0.8
1566 ALIPHATIC HYDROCARBON C19	0.2
1992 UNKNOWN HYDROCARBON	0.2

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

		ATI I.D.	: 011322
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/03/90
PROJECT #	: 2738-0144	DATE ANALYZED	: 12/15/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17
4-CHLOROPHENYL PHENYL ETHER	<0.17

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AnalyticalTechnologies,Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 011322

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	0.89
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	48
2-FLUOROBIPHENYL (%)	62
TERPHENYL (%)	62
PHENOL-D6 (%)	33
2-FLUOROPHENOL (%)	45
2,4,6-TRIBROMOPHENOL (%)	40

AnalyticalTechnologies,Inc. GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. ATI I.D. : 011322

UNITS : MG/KG

COMPOUNDS	RESULTS
395 ALIPHATIC HYDROCARBON C7	0.8
1566 ALIPHATIC HYDROCARBON C19	0.2
1992 UNKNOWN HYDROCARBON	0.2

AnalyticalTechnologies,Inc. GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	ATI I.D.	: 011322
PROJECT #	: 2738-0144	DATE EXTRACTED	: 12/05/90
PROJECT NAME	: NAS ALAMEDA	DATE ANALYZED	: 12/16/90
CLIENT I.D.	: REAGENT BLANK	UNITS	: MG/KG
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17
4-CHLOROPHENYL PHENYL ETHER	<0.17

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AnalyticalTechnologies,Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 011322

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	1.0
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	58
2-FLUOROBIPHENYL (%)	68
TERPHENYL (%)	60
PHENOL-D6 (%)	50
2-FLUOROPHENOL (%)	53
2,4,6-TRIBROMOPHENOL (%)	57

AnalyticalTechnologies,Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.

ATI I.D. : 011322

UNITS : MG/KG

COMPOUNDS	RESULTS
397 UNKNOWN HYDROCARBON	0.6

AnalyticalTechnologies, Inc. GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	ATI I.D.	: 012146
PROJECT #	: 2738-0144	DATE EXTRACTED	: 01/03/91
PROJECT NAME	: NAS ALAMEDA	DATE ANALYZED	: 01/07/91
CLIENT I.D.	: REAGENT BLANK	UNITS	: MG/KG
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17
4-CHLOROPHENYL PHENYL ETHER	<0.17

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AnalyticalTechnologies,Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 012146

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	69
2-FLUOROBIPHENYL (%)	78
TERPHENYL (%)	83
PHENOL-D6 (%)	64
2-FLUOROPHENOL (%)	64
2,4,6-TRIBROMOPHENOL (%)	57

AnalyticalTechnologies,Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. ATI I.D. : 012146

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 01/03/91
DATE ANALYZED : 01/07/91
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<0.17	3.3	1.9	58	N/A	N/A	N/A
ACENAPHTHENE	<0.17	3.3	1.7	42	N/A	N/A	N/A
2,4-DINITROTOLUENE	<0.17	3.3	2.4	73	N/A	N/A	N/A
PYRENE	<0.17	3.3	2.7	82	N/A	N/A	N/A
N-NITROSO-DI-N-PROPYLAMINE	<0.17	3.3	1.9	58	N/A	N/A	N/A
1,4-DICHLOROBENZENE	<0.17	3.3	2.0	61	N/A	N/A	N/A
PENTACHLOROPHENOL	<0.85	13.2	10.9	83	N/A	N/A	N/A
PHENOL	<0.17	6.6	3.8	58	N/A	N/A	N/A
2-CHLOROPHENOL	<0.17	6.6	3.7	56	N/A	N/A	N/A
4-CHLORO-3-METHYLPHENOL	<0.17	6.6	3.8	63	N/A	N/A	N/A
4-NITROPHENOL	<0.85	13.2	12.6	95	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012010

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/16/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<0.17	3.3	1.7	52	N/A	N/A	N/A
ACENAPHTHENE	<0.17	3.3	1.7	52	N/A	N/A	N/A
2,4-DINITROTOLUENE	<0.17	3.3	2.0	60	N/A	N/A	N/A
PYRENE	<0.17	3.3	1.9	59	N/A	N/A	N/A
N-NITROSO-DI-N-PROPYLAMINE	<0.17	3.3	1.6	49	N/A	N/A	N/A
1,4-DICHLOROBENZENE	<0.17	3.3	1.8	56	N/A	N/A	N/A
PENTACHLOROPHENOL	<0.85	13.2	8.6	65	N/A	N/A	N/A
PHENOL	<0.17	6.6	1.9	30	N/A	N/A	N/A
2-CHLOROPHENOL	<0.17	6.6	3.5	53	N/A	N/A	N/A
4-CHLORO-3-METHYLPHENOL	<0.17	6.6	2.6	39	N/A	N/A	N/A
4-NITROPHENOL	<0.85	13.2	17.1	129*	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

*** Result is outside CLP limits but within ATI control limits**

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 011322

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/16/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<0.17	3.3	1.7	52	N/A	N/A	N/A
ACENAPHTHENE	<0.17	3.3	1.7	52	N/A	N/A	N/A
2,4-DINITROTOLUENE	<0.17	3.3	2.0	60	N/A	N/A	N/A
PYRENE	<0.17	3.3	1.9	59	N/A	N/A	N/A
N-NITROSO-DI-N-PROPYLAMINE	<0.17	3.3	1.6	49	N/A	N/A	N/A
1,4-DICHLOROBENZENE	<0.17	3.3	1.8	56	N/A	N/A	N/A
PENTACHLOROPHENOL	<0.85	13.2	8.6	65	N/A	N/A	N/A
PHENOL	<0.17	6.6	1.9	30	N/A	N/A	N/A
2-CHLOROPHENOL	<0.17	6.6	3.5	53	N/A	N/A	N/A
4-CHLORO-3-METHYLPHENOL	<0.17	6.6	2.6	39	N/A	N/A	N/A
4-NITROPHENOL	<0.85	13.2	17.1	129*	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

*** Result is outside CLP limits but within ATI control limits**

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012146

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 01/03/91
DATE ANALYZED : 01/07/91
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<0.17	3.3	1.9	58	N/A	N/A	N/A
ACENAPHTHENE	<0.17	3.3	1.7	42	N/A	N/A	N/A
2,4-DINITROTOLUENE	<0.17	3.3	2.4	73	N/A	N/A	N/A
PYRENE	<0.17	3.3	2.7	82	N/A	N/A	N/A
N-NITROSO-DI-N-PROPYLAMINE	<0.17	3.3	1.9	58	N/A	N/A	N/A
1,4-DICHLOROBENZENE	<0.17	3.3	2.0	61	N/A	N/A	N/A
PENTACHLOROPHENOL	<0.85	13.2	10.9	83	N/A	N/A	N/A
PHENOL	<0.17	6.6	3.8	58	N/A	N/A	N/A
2-CHLOROPHENOL	<0.17	6.6	3.7	56	N/A	N/A	N/A
4-CHLORO-3-METHYLPHENOL	<0.17	6.6	3.8	63	N/A	N/A	N/A
4-NITROPHENOL	<0.85	13.2	12.6	95	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01214601

DATE EXTRACTED : 01/03/91
DATE ANALYZED : 01/08/91
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<0.17	3.3	2.4	73	2.3	70	4
ACENAPHTHENE	<0.17	3.3	2.0	61	1.9	58	5
2,4-DINITROTOLUENE	<0.17	3.3	3.1	94*	2.8	85	10
PYRENE	<0.17	3.3	3.5	106	2.9	87	20
N-NITROSO-DI-N-PROPYLAMINE	<0.17	3.3	2.3	70	2.2	67	4
1,4-DICHLOROBENZENE	<0.17	3.3	2.1	64	2.2	67	5
PENTACHLOROPHENOL	<0.85	13.2	12.2	92	10.8	82	11
PHENOL	<0.17	6.6	4.2	64	4.0	61	5
2-CHLOROPHENOL	<0.17	6.6	4.0	61	4.2	64	5
4-CHLORO-3-METHYLPHENOL	<0.17	6.6	4.7	71	4.3	65	9
4-NITROPHENOL	<0.85	13.2	15.5	117*	13.9	105	11

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012010

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01132201

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/15/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<0.17	3.3	2.0	61	2.0	61	0
ACENAPHTHENE	<0.17	3.3	1.6	49	1.8	55	12
2,4-DINITROTOLUENE	<0.17	3.3	2.1	64	2.3	70	9
PYRENE	<0.17	3.3	2.0	61	1.9	58	5
N-NITROSO-DI-N-PROPYLAMINE	<0.17	3.3	1.7	52	1.8	55	6
1,4-DICHLOROBENZENE	<0.17	3.3	1.7	52	1.8	55	6
PENTACHLOROPHENOL	<0.85	13.2	7.4	56	7.7	58	4
PHENOL	<0.17	6.6	3.4	52	3.9	59	13
2-CHLOROPHENOL	<0.17	6.6	3.6	55	3.7	56	2
4-CHLORO-3-METHYLPHENOL	<0.17	6.6	4.3	65	4.4	67	3
4-NITROPHENOL	<0.85	13.2	12.0	91	13.4	102	11

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 011322

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01132201

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/15/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<0.17	3.3	2.0	61	2.0	61	0
ACENAPHTHENE	<0.17	3.3	1.6	49	1.8	55	12
2,4-DINITROTOLUENE	<0.17	3.3	2.1	64	2.3	70	9
PYRENE	<0.17	3.3	2.0	61	1.9	58	5
N-NITROSO-DI-N-PROPYLAMINE	<0.17	3.3	1.7	52	1.8	55	6
1,4-DICHLOROBENZENE	<0.17	3.3	1.7	52	1.8	55	6
PENTACHLOROPHENOL	<0.85	13.2	7.4	56	7.7	58	4
PHENOL	<0.17	6.6	3.4	52	3.9	59	13
2-CHLOROPHENOL	<0.17	6.6	3.6	55	3.7	56	2
4-CHLORO-3-METHYLPHENOL	<0.17	6.6	4.3	65	4.4	67	3
4-NITROPHENOL	<0.85	13.2	12.0	91	13.4	102	11

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012146

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01214601

DATE EXTRACTED : 01/03/91
DATE ANALYZED : 01/08/91
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<0.17	3.3	2.4	73	2.3	70	4
ACENAPHTHENE	<0.17	3.3	2.0	61	1.9	58	5
2,4-DINITROTOLUENE	<0.17	3.3	3.1	94*	2.8	85	10
PYRENE	<0.17	3.3	3.5	106	2.9	87	20
N-NITROSO-DI-N-PROPYLAMINE	<0.17	3.3	2.3	70	2.2	67	4
1,4-DICHLOROBENZENE	<0.17	3.3	2.1	64	2.2	67	5
PENTACHLOROPHENOL	<0.85	13.2	12.2	92	10.8	82	11
PHENOL	<0.17	6.6	4.2	64	4.0	61	5
2-CHLOROPHENOL	<0.17	6.6	4.0	61	4.2	64	5
4-CHLORO-3-METHYLPHENOL	<0.17	6.6	4.7	71	4.3	65	9
4-NITROPHENOL	<0.85	13.2	15.5	117*	13.9	105	11

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

*Result outside CLP limits

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01214601

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/12/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/13/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 01/03/91
CLIENT I.D.	: M103-A	DATE ANALYZED	: 01/08/91
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17

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AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01214601

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
4-CHLOROPHENYL PHENYL ETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	67
2-FLUOROBIPHENYL (%)	68
TERPHENYL (%)	71
PHENOL-D6 (%)	55
2-FLUOROPHENOL (%)	55
2,4,6-TRIBROMOPHENOL (%)	65

Note: Sample was originally extracted on 12/17/90 but had to be reextracted due to low acid surrogate recoveries in the sample and the blank. Reextraction was performed past holding time. Results for the target compounds for both extractions are identical.

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 01214601

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01213201

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/10/90
PROJECT #	: 2738.0144	DATE RECEIVED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 01/03/91
CLIENT I.D.	: M-105A	DATE ANALYZED	: 01/08/91
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17

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AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01213201

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
4-CHLOROPHENYL PHENYL ETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	67
2-FLUOROBIPHENYL (%)	69
TERPHENYL (%)	71
PHENOL-D6 (%)	52
2-FLUOROPHENOL (%)	53
2,4,6-TRIBROMOPHENOL (%)	60

Note: Sample was originally extracted on 12/17/90 but had to be reextracted due to low acid surrogate recoveries in the sample and the blank. Reextraction was performed past holding time. Results for the target compounds for both extractions are identical.

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 01213201

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01213202

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/11/90
PROJECT #	: 2738.0144	DATE RECEIVED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 01/03/91
CLIENT I.D.	: M-108A	DATE ANALYZED	: 01/08/91
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17

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AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01213202

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
4-CHLOROPHENYL PHENYL ETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	65
2-FLUOROBIPHENYL (%)	71
TERPHENYL (%)	79
PHENOL-D6 (%)	60
2-FLUOROPHENOL (%)	68
2,4,6-TRIBROMOPHENOL (%)	79

Note: Sample was originally extracted on 12/17/90 but had to be reextracted due to low acid surrogate recoveries in the sample and the blank. Reextraction was performed past holding time. Results for the target compounds for both extractions are identical.

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 01213202

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01132204

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-10B	DATE ANALYZED	: 12/16/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17

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AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01132204

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
4-CHLOROPHENYL PHENYL ETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	58
2-FLUOROBIPHENYL (%)	70
TERPHENYL (%)	67
PHENOL-D6 (%)	51
2-FLUOROPHENOL (%)	73
2,4,6-TRIBROMOPHENOL (%)	63

AnalyticalTechnologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 01132204

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
2157 BRANCHED ALCOHOL	0.3
2208 ALIPHATIC HYDROCARBON C26	0.5

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01201001

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/01/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/03/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-12B	DATE ANALYZED	: 12/15/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17

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AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01201001

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
4-CHLOROPHENYL PHENYL ETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	52
2-FLUOROBIPHENYL (%)	68
TERPHENYL (%)	68
PHENOL-D6 (%)	46
2-FLUOROPHENOL (%)	25
2,4,6-TRIBROMOPHENOL (%)	69

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 01201001

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01201002

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/01/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/03/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-14B	DATE ANALYZED	: 12/17/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17

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Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 01201002

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
4-CHLOROPHENYL PHENYL ETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	61
2-FLUOROBIPHENYL (%)	71
TERPHENYL (%)	71
PHENOL-D6 (%)	62
2-FLUOROPHENOL (%)	71
2,4,6-TRIBROMOPHENOL (%)	66

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 01201002

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
2210 ALIPHATIC HYDROCARBON	0.7

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01132202

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-103B	DATE ANALYZED	: 12/16/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17

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AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01132202

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
4-CHLOROPHENYL PHENYL ETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	49
2-FLUOROBIPHENYL (%)	67
TERPHENYL (%)	69
PHENOL-D6 (%)	63
2-FLUOROPHENOL (%)	58
2,4,6-TRIBROMOPHENOL (%)	63

AnalyticalTechnologies, ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 01132202

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
2149 ALIPHATIC HYDROCARBON C25	0.2
2209 ALIPHATIC HYDROCARBON C26	0.4

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01132203

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-105B	DATE ANALYZED	: 12/16/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYL PHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17

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AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 01132203

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
4-CHLOROPHENYL PHENYL ETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL PHENYL ETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.85
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-BUTYL PHTHALATE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3-DICHLOROBENZIDINE	<0.34
BENZO(a)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(b)FLUORANTHENE	<0.17
BENZO(k)FLUORANTHENE	<0.17
BENZO(a)PYRENE	<0.17
INDENO(1,2,3-cd)PYRENE	<0.17
DIBENZO(a,h)ANTHRACENE	<0.17
BENZO(g,h,i)PERYLENE	<0.17

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	54
2-FLUOROBIPHENYL (%)	70
TERPHENYL (%)	72
PHENOL-D6 (%)	56
2-FLUOROPHENOL (%)	68
2,4,6-TRIBROMOPHENOL (%)	66

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 01132203

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
1977 AROMATIC ETHER	0.2
2157 BRANCHED ALCOHOL	0.2
2208 ALIPHATIC HYDROCARBON C26	0.2

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 01132201

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/27/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-108B	DATE ANALYZED	: 12/16/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 20

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<3.4
PHENOL	<3.4
ANILINE	<3.4
BIS(2-CHLOROETHYL)ETHER	<3.4
2-CHLOROPHENOL	<3.4
1,3-DICHLOROBENZENE	<3.4
1,4-DICHLOROBENZENE	<3.4
BENZYL ALCOHOL	<3.4
1,2-DICHLOROBENZENE	<3.4
2-METHYLPHENOL	<3.4
BIS(2-CHLOROISOPROPYL)ETHER	<3.4
4-METHYLPHENOL	<3.4
N-NITROSO-DI-N-PROPYLAMINE	<3.4
HEXACHLOROETHANE	<3.4
NITROBENZENE	<3.4
ISOPHORONE	<3.4
2-NITROPHENOL	<3.4
2,4-DIMETHYLPHENOL	<3.4
BENZOIC ACID	<17
BIS(2-CHLOROETHOXY)METHANE	<3.4
2,4-DICHLOROPHENOL	<3.4
1,2,4-TRICHLOROBENZENE	<3.4
NAPHTHALENE	<3.4
4-CHLOROANILINE	<3.4
HEXACHLOROBUTADIENE	<3.4
4-CHLORO-3-METHYLPHENOL	<3.4
2-METHYLNAPHTHALENE	<3.4
HEXACHLOROCYCLOPENTADIENE	<3.4
2,4,6-TRICHLOROPHENOL	<3.4
2,4,5-TRICHLOROPHENOL	<17
2-CHLORONAPHTHALENE	<3.4
2-NITROANILINE	<17
DIMETHYL PHTHALATE	<3.4
ACENAPHTHYLENE	<3.4
3-NITROANILINE	<17
ACENAPHTHENE	<3.4
2,4-DINITROPHENOL	<17
4-NITROPHENOL	<17
DIBENZOFURAN	<3.4
2,4-DINITROTOLUENE	<3.4
2,6-DINITROTOLUENE	<3.4
DIETHYLPHTHALATE	<3.4

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AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 01132201

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
4-CHLOROPHENYL PHENYL ETHER	<3.4
FLUORENE	<3.4
4-NITROANILINE	<17
4,6-DINITRO-2-METHYLPHENOL	<17
N-NITROSODIPHENYLAMINE	<3.4
4-BROMOPHENYL PHENYL ETHER	<3.4
HEXACHLOROBENZENE	<3.4
PENTACHLOROPHENOL	<17
PHENANTHRENE	<3.4
ANTHRACENE	<3.4
DI-BUTYL PHTHALATE	<3.4
FLUORANTHENE	<3.4
PYRENE	<3.4
BUTYLBENZYLPHTHALATE	<3.4
3,3-DICHLOROBENZIDINE	<6.8
BENZO(a)ANTHRACENE	<3.4
BIS(2-ETHYLHEXYL)PHTHALATE	<3.4
CHRYSENE	<3.4
DI-N-OCTYLPHTHALATE	<3.4
BENZO(b)FLUORANTHENE	<3.4
BENZO(k)FLUORANTHENE	<3.4
BENZO(a)PYRENE	<3.4
INDENO(1,2,3-cd)PYRENE	<3.4
DIBENZO(a,h)ANTHRACENE	<3.4
BENZO(g,h,i)PERYLENE	<3.4

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	30
2-FLUOROBIPHENYL (%)	107
TERPHENYL (%)	109
PHENOL-D6 (%)	**
2-FLUOROPHENOL (%)	**
2,4,6-TRIBROMOPHENOL (%)	70

** Due to the necessary dilution of the sample, result was not attainable

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 01132201

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
898 ALIPHATIC HYDROCARBON C12	2
917 ALIPHATIC HYDROCARBON C12	2
937 ALIPHATIC HYDROCARBON C12	2
1001 ALIPHATIC HYDROCARBON C13	3
1023 ALIPHATIC HYDROCARBON C13	3
2002 ALIPHATIC HYDROCARBON C24	3
2026 ALIPHATIC HYDROCARBON C24	3
2048 ALIPHATIC HYDROCARBON C24	3
2070 ALIPHATIC HYDROCARBON C25	6
2143 ALIPHATIC HYDROCARBON C25	3
2180 ALIPHATIC HYDROCARBON C26	8
2227 CYLIC HYDROCARBON	5
600-2500 TOTAL EXTRACTABLE HYDROCARBONS C9-C28	500

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01132205

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/27/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-37	DATE ANALYZED	: 12/16/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 20

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<3.4
PHENOL	<3.4
ANILINE	<3.4
BIS(2-CHLOROETHYL)ETHER	<3.4
2-CHLOROPHENOL	<3.4
1,3-DICHLOROBENZENE	<3.4
1,4-DICHLOROBENZENE	<3.4
BENZYL ALCOHOL	<3.4
1,2-DICHLOROBENZENE	<3.4
2-METHYLPHENOL	<3.4
BIS(2-CHLOROISOPROPYL)ETHER	<3.4
4-METHYLPHENOL	<3.4
N-NITROSO-DI-N-PROPYLAMINE	<3.4
HEXACHLOROETHANE	<3.4
NITROBENZENE	<3.4
ISOPHORONE	<3.4
2-NITROPHENOL	<3.4
2,4-DIMETHYLPHENOL	<3.4
BENZOIC ACID	<17
BIS(2-CHLOROETHOXY)METHANE	<3.4
2,4-DICHLOROPHENOL	<3.4
1,2,4-TRICHLOROBENZENE	<3.4
NAPHTHALENE	<3.4
4-CHLOROANILINE	<3.4
HEXACHLOROBUTADIENE	<3.4
4-CHLORO-3-METHYLPHENOL	<3.4
2-METHYLNAPHTHALENE	<3.4
HEXACHLOROCYCLOPENTADIENE	<3.4
2,4,6-TRICHLOROPHENOL	<3.4
2,4,5-TRICHLOROPHENOL	<17
2-CHLORONAPHTHALENE	<3.4
2-NITROANILINE	<17
DIMETHYL PHTHALATE	<3.4
ACENAPHTHYLENE	<3.4
3-NITROANILINE	<17
ACENAPHTHENE	<3.4
2,4-DINITROPHENOL	<17
4-NITROPHENOL	<17
DIBENZOFURAN	<3.4
2,4-DINITROTOLUENE	<3.4
2,6-DINITROTOLUENE	<3.4
DIETHYLPHTHALATE	<3.4

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AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 01132205

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS
4-CHLOROPHENYL PHENYL ETHER	<3.4
FLUORENE	<3.4
4-NITROANILINE	<17
4,6-DINITRO-2-METHYLPHENOL	<17
N-NITROSODIPHENYLAMINE	<3.4
4-BROMOPHENYL PHENYL ETHER	<3.4
HEXACHLOROBENZENE	<3.4
PENTACHLOROPHENOL	<17
PHENANTHRENE	<3.4
ANTHRACENE	<3.4
DI-BUTYL PHTHALATE	<3.4
FLUORANTHENE	<3.4
PYRENE	<3.4
BUTYLBENZYLPHTHALATE	<3.4
3,3-DICHLOROBENZIDINE	<6.8
BENZO(a)ANTHRACENE	<3.4
BIS(2-ETHYLHEXYL)PHTHALATE	<3.4
CHRYSENE	<3.4
DI-N-OCTYLPHTHALATE	<3.4
BENZO(b)FLUORANTHENE	<3.4
BENZO(k)FLUORANTHENE	<3.4
BENZO(a)PYRENE	<3.4
INDENO(1,2,3-cd)PYRENE	<3.4
DIBENZO(a,h)ANTHRACENE	<3.4
BENZO(g,h,i)PERYLENE	<3.4

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	42
2-FLUOROBIPHENYL (%)	93
TERPHENYL (%)	106
PHENOL-D6 (%)	**
2-FLUOROPHENOL (%)	**
2,4,6-TRIBROMOPHENOL (%)	63

** Due to the necessary dilution of the sample, result was not attainable

AnalyticalTechnologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 01132205

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
897 ALIPHATIC HYDROCARBON C12	2
1001 ALIPHATIC HYDROCARBON C13	3
1023 ALIPHATIC HYDROCARBON C13	3
1062 ALIPHATIC HYDROCARBON C13	2
1284 ALIPHATIC HYDROCARBON C15	1
2002 ALIPHATIC HYDROCARBON C24	4
2047 ALIPHATIC HYDROCARBON C24	4
2071 ALIPHATIC HYDROCARBON C25	6
2105 ALIPHATIC HYDROCARBON C25	6
2142 ALIPHATIC HYDROCARBON C25	5
2179 ALIPHATIC HYDROCARBON C26	10
2226 CYCLIC HYDROCARBON	7
600-2500 TOTAL EXTRACTABLE HYDROCARBONS C9-C28	500

Analytical Technologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	ATI I.D.	: 012132
PROJECT #	: 2738.0144	DATE EXTRACTED	: 12/17/90
PROJECT NAME	: NAS ALAMEDA	DATE ANALYZED	: 01/06/91
CLIENT I.D.	: REAGENT BLANK	UNITS	: MG/KG
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	90

Analytical Technologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

		ATI I.D.	: 012132
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/19/90
PROJECT #	: 2738.0144	DATE ANALYZED	: 01/06/91
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	95

Analytical Technologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

		ATI I.D.	: 012010
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/03/90
PROJECT #	: 2738-0144	DATE ANALYZED	: 12/13/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	142

AnalyticalTechnologies, GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

		ATI I.D.	: 011322
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/03/90
PROJECT #	: 2738-0144	DATE ANALYZED	: 12/13/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	142

Analytical Technologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

		ATI I.D.	: 012146
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/17/90
PROJECT #	: 2738-0144	DATE ANALYZED	: 01/06/91
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	90

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 01/06/91
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
GAMMA BHC	<0.0050	0.027	0.023	85	N/A	N/A	N/A
HEPTACHLOR	<0.0050	0.027	0.024	89	N/A	N/A	N/A
ALDRIN	<0.0050	0.027	0.023	85	N/A	N/A	N/A
DIELDRIN	<0.010	0.067	0.047	70	N/A	N/A	N/A
ENDRIN	<0.010	0.067	0.081	121	N/A	N/A	N/A
P,P'-DDT	<0.010	0.067	0.071	106	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012010

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/13/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
GAMMA BHC	<0.0050	0.027	0.021	78	N/A	N/A	N/A
HEPTACHLOR	<0.0050	0.027	0.023	85	N/A	N/A	N/A
ALDRIN	<0.0050	0.024	0.019	79	N/A	N/A	N/A
DIELDRIN	<0.010	0.059	54*	54	N/A	N/A	N/A
ENDRIN	<0.010	0.073	0.069	95	N/A	N/A	N/A
P,P'-DDT	<0.010	0.075	0.069	92	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

*** Dieldrin recovery is outside of ATI's laboratory control limits, but is within CLP advisory limits.**

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 011322

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/13/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
GAMMA BHC	<0.0050	0.027	0.021	78	N/A	N/A	N/A
HEPTACHLOR	<0.0050	0.027	0.023	85	N/A	N/A	N/A
ALDRIN	<0.0050	0.024	0.019	79	N/A	N/A	N/A
DIELDRIN	<0.010	0.059	54*	54	N/A	N/A	N/A
ENDRIN	<0.010	0.073	0.069	95	N/A	N/A	N/A
P,P'-DDT	<0.010	0.075	0.069	92	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

*** Dieldrin recovery is outside of ATI's laboratory control limits, but is within CLP advisory limits.**

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012146

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 01/06/91
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
GAMMA BHC	<0.0050	0.027	0.023	85	N/A	N/A	N/A
HEPTACHLOR	<0.0050	0.027	0.024	89	N/A	N/A	N/A
ALDRIN	<0.0050	0.027	0.023	85	N/A	N/A	N/A
DIELDRIN	<0.010	0.067	0.047	70	N/A	N/A	N/A
ENDRIN	<0.010	0.067	0.081	121	N/A	N/A	N/A
P,P'-DDT	<0.010	0.067	0.071	106	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01213202

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 01/06/91
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
GAMMA BHC	<0.0050	0.032	0.022	69	0.024	75	9
HEPTACHLOR	<0.0050	0.032	0.032	100	0.034	106	6
ALDRIN	<0.0050	0.032	0.023	72	0.025	78	8
DIELDRIN	<0.010	0.081	0.044	54	0.045	56	2
ENDRIN	<0.010	0.081	0.082	101	0.087	107	6
P,P'-DDT	<0.010	0.081	0.065	80	0.071	88	9

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01213201

DATE EXTRACTED : 12/19/90
DATE ANALYZED : 01/06/91
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
GAMMA BHC	<0.0050	0.032	0.015	47	0.020	63	29
HEPTACHLOR	<0.0050	0.032	0.017	53	0.019	59	11
ALDRIN	<0.0050	0.032	0.018	56	0.020	63	11
DIELDRIN	<0.010	0.081	0.045	56	0.056	69	22
ENDRIN	<0.010	0.081	0.060	74	0.075	93	22
P,P'-DDT	<0.010	0.081	0.061	75	0.072	89	17

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012010

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01201001

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/13/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
GAMMA BHC	<0.0050	0.027	0.021	78	0.021	78	0
HEPTACHLOR	<0.0050	0.027	0.022	81	0.020	74	10
ALDRIN	<0.0050	0.024	0.020	83	0.019	79	5
DIELDRIN	<0.010	0.059	0.033	56*	0.031	53*	6
ENDRIN	<0.010	0.075	0.075	100	0.071	95	5
P,P'-DDT	<0.010	0.076	0.078	103	0.077	101	1

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

*** Dieldrin recovery is outside of ATI's laboratory control limits, but is within CLP advisory limits.**

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 011322

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01201001

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/13/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
GAMMA BHC	<0.0050	0.027	0.021	78	0.021	78	0
HEPTACHLOR	<0.0050	0.027	0.022	81	0.020	74	10
ALDRIN	<0.0050	0.024	0.020	83	0.019	79	5
DIELDRIN	<0.010	0.059	0.033	56*	0.031	53*	6
ENDRIN	<0.010	0.075	0.075	100	0.071	95	5
P,P'-DDT	<0.010	0.076	0.078	103	0.077	101	1

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

*** Dieldrin recovery is outside of ATI's laboratory control limits, but is within CLP advisory limits.**

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012146

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01213202

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 01/06/91
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
GAMMA BHC	<0.0050	0.032	0.022	69	0.024	75	9
HEPTACHLOR	<0.0050	0.032	0.032	100	0.034	106	6
ALDRIN	<0.0050	0.032	0.023	72	0.025	78	8
DIELDRIN	<0.010	0.081	0.044	54	0.045	56	2
ENDRIN	<0.010	0.081	0.082	101	0.087	107	6
P,P'-DDT	<0.010	0.081	0.065	80	0.071	88	9

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01214601

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/12/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/13/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/17/90
CLIENT I.D.	: M103-A	DATE ANALYZED	: 01/06/91
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	97

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01213201

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/10/90
PROJECT #	: 2738.0144	DATE RECEIVED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/17/90
CLIENT I.D.	: M-105A	DATE ANALYZED	: 01/06/91
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	113

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01213202

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/11/90
PROJECT #	: 2738.0144	DATE RECEIVED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/17/90
CLIENT I.D.	: M-108A	DATE ANALYZED	: 01/06/91
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	74

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132204

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-10B	DATE ANALYZED	: 12/13/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	120

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01201001

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/01/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/03/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-12B	DATE ANALYZED	: 12/13/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	137

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01201002

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/01/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/03/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-14B	DATE ANALYZED	: 12/13/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	115

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132202

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-103B	DATE ANALYZED	: 12/13/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	115

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132203

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-105B	DATE ANALYZED	: 12/13/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	130

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132201

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/27/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-108B	DATE ANALYZED	: 12/13/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	*

* Result out of limits due to sample matrix interference

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132205

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/27/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-37	DATE ANALYZED	: 12/13/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ALDRIN	<0.0050
ALPHA - BHC	<0.0050
BETA - BHC	<0.0050
GAMMA-BHC (LINDANE)	<0.0050
DELTA - BHC	<0.0050
CHLORDANE	<0.050
P,P'-DDD	<0.010
P,P'-DDE	<0.010
P,P'-DDT	<0.010
O,P'-DDD	<0.010
O,P'-DDE	<0.010
O,P'-DDT	<0.010
DIELDRIN	<0.010
ENDOSULFAN I	<0.0050
ENDOSULFAN II	<0.010
ENDOSULFAN SULFATE	<0.010
ENDRIN	<0.010
ENDRIN KETONE	<0.010
HEPTACHLOR	<0.0050
HEPTACHLOR EPOXIDE	<0.0050
METHOXYCHLOR	<0.050
TOXAPHENE	<0.10
AROCLOR 1016	<0.050
AROCLOR 1221	<0.050
AROCLOR 1232	<0.050
AROCLOR 1242	<0.050
AROCLOR 1248	<0.050
AROCLOR 1254	<0.050
AROCLOR 1260	<0.050

SURROGATE PERCENT RECOVERIES

DBC (%)	35

AnalyticalTechnologies,Inc. METALS - QUALITY CONTROL

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA ATI I.D. : 012132

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/KG	01214601	<0.82	<0.87	0	9.6	11.2	86
ALUMINUM	MG/KG	01214601	3220	3190	1	N/A	N/A	N/A
ARSENIC	MG/KG	01214601	4.5	5.1	11	12.4	8.8	88
BARIUM	MG/KG	01214601	35.0	36.9	5	440	446	91
BERYLLIUM	MG/KG	01214601	<0.18	<0.19	0	11.5	11.2	103
CALCIUM	MG/KG	01214601	1570	1510	4	N/A	N/A	N/A
CADMIUM	MG/KG	01214601	0.94	0.50	61	11.6	11.2	96
COBALT	MG/KG	01214601	3.9	4.3	8	113	112	97
CHROMIUM	MG/KG	01214601	24.0	23.7	1	61.6	44.7	84
COPPER	MG/KG	01214601	6.4	6.6	4	58.5	55.8	93
IRON	MG/KG	01214601	6080	6150	1	N/A	N/A	N/A
MERCURY	MG/KG	01201002	<0.067	<0.074	0	0.57	0.69	83
POTASSIUM	MG/KG	01214601	514	533	4	N/A	N/A	N/A
MAGNESIUM	MG/KG	01214601	1980	1990	1	N/A	N/A	N/A
MANGANESE	MG/KG	01214601	78.7	80.8	3	179	112	90
SODIUM	MG/KG	01214601	218	249	13	N/A	N/A	N/A
NICKEL	MG/KG	01214601	21.3	21.8	2	127	112	94
LEAD	MG/KG	01214601	1.5	1.5	0	4.9	4.4	78
ANTIMONY	MG/KG	01214601	<2.1	<2.2	0	73.3	112	66*
SELENIUM	MG/KG	01214601	<1.6	<1.5	0	0.77	2.2	35*
THALLIUM	MG/KG	01214601	<0.14	<0.13	0	9.3	11.1	84
VANADIUM	MG/KG	01214601	12.4	12.8	3	117	112	93
ZINC	MG/KG	01214601	13.8	13.6	1	121	112	96

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

* Result out of limits due to sample matrix interference

AnalyticalTechnologies,Inc. METALS - QUALITY CONTROL

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA ATI I.D. : 012146

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/KG	01214601	<0.82	<0.87	0	9.6	11.2	86
ALUMINUM	MG/KG	01214601	3220	3190	1	N/A	N/A	N/A
ARSENIC	MG/KG	01214601	4.5	5.1	11	12.4	8.8	88
BARIUM	MG/KG	01214601	35.0	36.9	5	440	446	91
BERYLLIUM	MG/KG	01214601	<0.18	<0.19	0	11.5	11.2	103
CALCIUM	MG/KG	01214601	1570	1510	4	N/A	N/A	N/A
CADMIUM	MG/KG	01214601	0.94	0.50	61	11.6	11.2	96
COBALT	MG/KG	01214601	3.9	4.3	8	113	112	97
CHROMIUM	MG/KG	01214601	24.0	23.7	1	61.6	44.7	84
COPPER	MG/KG	01214601	6.4	6.6	4	58.5	55.8	93
IRON	MG/KG	01214601	6080	6150	1	N/A	N/A	N/A
MERCURY	MG/KG	01201002	<0.067	<0.074	0	0.57	0.69	83
POTASSIUM	MG/KG	01214601	514	533	4	N/A	N/A	N/A
MAGNESIUM	MG/KG	01214601	1980	1990	1	N/A	N/A	N/A
MANGANESE	MG/KG	01214601	78.7	80.8	3	179	112	90
SODIUM	MG/KG	01214601	218	249	13	N/A	N/A	N/A
NICKEL	MG/KG	01214601	21.3	21.8	2	127	112	94
LEAD	MG/KG	01214601	1.5	1.5	0	4.9	4.4	78
ANTIMONY	MG/KG	01214601	<2.1	<2.2	0	73.3	112	66*
SELENIUM	MG/KG	01214601	<1.6	<1.5	0	0.77	2.2	35*
THALLIUM	MG/KG	01214601	<0.14	<0.13	0	9.3	11.1	84
VANADIUM	MG/KG	01214601	12.4	12.8	3	117	112	93
ZINC	MG/KG	01214601	13.8	13.6	1	121	112	96

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

* Result out of limits due to sample matrix interference

AnalyticalTechnologies,Inc. METALS - QUALITY CONTROL

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA ATI I.D. : 012010

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/KG	01132203	0.86	0.88	2	10.1	10.0	92
ALUMINUM	MG/KG	01132203	4010	4210	5	**	**	**
ARSENIC	MG/KG	01132203	8.1	4.5	57	13.3	7.7	68
BARIUM	MG/KG	01132203	30.6	31.4	3	390	398	90
BERYLLIUM	MG/KG	01132203	<0.16	<0.16	0	9.8	10.0	98
CALCIUM	MG/KG	01132203	2110	2170	3	**	**	**
CADMIUM	MG/KG	01132203	<0.37	<0.37	0	9.4	10.0	94
COBALT	MG/KG	01132203	4.7	4.9	4	101	99.6	97
CHROMIUM	MG/KG	01132203	29.3	30.2	3	63.8	39.8	87
COPPER	MG/KG	01132203	7.0	7.3	4	54.0	49.8	94
IRON	MG/KG	01132203	7890	8110	3	**	**	**
MERCURY	MG/KG	01201002	<0.067	<0.074	0	0.57	0.69	83
POTASSIUM	MG/KG	01132203	480	493	3	2290	1990	91
MAGNESIUM	MG/KG	01132203	2220	2280	3	**	**	**
MANGANESE	MG/KG	01132203	116	120	3	203	99.6	87
SODIUM	MG/KG	01132203	311	320	3	**	**	**
NICKEL	MG/KG	01132203	23.0	23.6	3	117	99.6	94
LEAD	MG/KG	01132203	11.0	10.3	7	13.5	3.9	64
ANTIMONY	MG/KG	01132203	<1.9	<1.9	0	66.9	99.6	67
SELENIUM	MG/KG	01132203	<1.3	<1.3	0	0.85	1.9	44
THALLIUM	MG/KG	01132203	<0.11	<0.12	0	3.2	9.7	33*
VANADIUM	MG/KG	01132203	17.8	18.3	3	112	99.6	95
ZINC	MG/KG	01132203	20.2	20.8	3	113	99.6	93

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

* Result out of limits due to sample matrix interference
** Due to the necessary dilution of the sample, result was not attainable

AnalyticalTechnologies,Inc. METALS - QUALITY CONTROL

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA ATI I.D. : 011322

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/KG	01132203	0.86	0.88	2	10.1	10.0	92
ALUMINUM	MG/KG	01132203	4010	4210	5	**	**	**
ARSENIC	MG/KG	01132203	8.1	4.5	57	13.3	7.7	68
BARIUM	MG/KG	01132203	30.6	31.4	3	390	398	90
BERYLLIUM	MG/KG	01132203	<0.16	<0.16	0	9.8	10.0	98
CALCIUM	MG/KG	01132203	2110	2170	3	**	**	**
CADMIUM	MG/KG	01132203	<0.37	<0.37	0	9.4	10.0	94
COBALT	MG/KG	01132203	4.7	4.9	4	101	99.6	97
CHROMIUM	MG/KG	01132203	29.3	30.2	3	63.8	39.8	87
COPPER	MG/KG	01132203	7.0	7.3	4	54.0	49.8	94
IRON	MG/KG	01132203	7890	8110	3	**	**	**
MERCURY	MG/KG	01132205	<0.06	<0.06	0	0.69	0.69	100
POTASSIUM	MG/KG	01132203	480	493	3	2290	1990	91
MAGNESIUM	MG/KG	01132203	2220	2280	3	**	**	**
MANGANESE	MG/KG	01132203	116	120	3	203	99.6	87
SODIUM	MG/KG	01132203	311	320	3	**	**	**
NICKEL	MG/KG	01132203	23.0	23.6	3	117	99.6	94
LEAD	MG/KG	01132203	11.0	10.3	7	13.5	3.9	64
ANTIMONY	MG/KG	01132203	<1.9	<1.9	0	66.9	99.6	67
SELENIUM	MG/KG	01132203	<1.3	<1.3	0	0.85	1.9	44
THALLIUM	MG/KG	01132203	<0.11	<0.12	0	3.2	9.7	33*
VANADIUM	MG/KG	01132203	17.8	18.3	3	112	99.6	95
ZINC	MG/KG	01132203	20.2	20.8	3	113	99.6	93

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

* Result out of limits due to sample matrix interference
** Due to the necessary dilution of the sample, result was not attainable

Analytical Technologies, Inc. METALS RESULTS

ATI I.D. : 012132

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. DATE RECEIVED : 12/12/90
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA REPORT DATE : 01/16/91

PARAMETER	UNITS	01	02
SILVER	MG/KG	<0.87	<0.85
ALUMINUM	MG/KG	3340	3260
ARSENIC	MG/KG	4.7	5.3
BARIUM	MG/KG	24.3	18.2
BERYLLIUM	MG/KG	<0.19	<0.19
CALCIUM	MG/KG	1490	1670
CADMIUM	MG/KG	0.48	2.5
COBALT	MG/KG	3.7	4.3
CHROMIUM	MG/KG	25.3	25.6
COPPER	MG/KG	8.0	6.0
IRON	MG/KG	6710	6280
MERCURY	MG/KG	<0.083	<0.083
POTASSIUM	MG/KG	541	429
MAGNESIUM	MG/KG	2040	1990
MANGANESE	MG/KG	81.0	79.0
SODIUM	MG/KG	443	224
NICKEL	MG/KG	21.8	22.0
LEAD	MG/KG	1.7	1.6
ANTIMONY	MG/KG	<2.2	<2.2
SELENIUM	MG/KG	<0.30	<0.30
THALLIUM	MG/KG	<0.13	<0.14
VANADIUM	MG/KG	14.1	13.5
ZINC	MG/KG	15.8	13.5

Field ID: M-105A M-108A

AnalyticalTechnologies, Inc. METALS RESULTS

ATI I.D. : 012010

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. DATE RECEIVED : 12/03/90
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA REPORT DATE : 01/02/91

PARAMETER	UNITS	01	02
SILVER	MG/KG	<0.75	<0.70
ALUMINUM	MG/KG	3770	3590
ARSENIC	MG/KG	4.5	4.9
BARIUM	MG/KG	26.3	25.8
BERYLLIUM	MG/KG	<0.17	<0.15
CALCIUM	MG/KG	2120	2020
CADMIUM	MG/KG	<0.37	0.72
COBALT	MG/KG	4.5	4.4
CHROMIUM	MG/KG	27.0	27.3
COPPER	MG/KG	6.4	7.9
IRON	MG/KG	7610	6730
MERCURY	MG/KG	<0.071	<0.067
POTASSIUM	MG/KG	535	489
MAGNESIUM	MG/KG	2370	2070
MANGANESE	MG/KG	111	100
SODIUM	MG/KG	314	295
NICKEL	MG/KG	22.3	21.8
LEAD	MG/KG	24.8	48.2
ANTIMONY	MG/KG	<1.9	<1.8
SELENIUM	MG/KG	<1.0	<1.1
THALLIUM	MG/KG	<0.12	<0.12
VANADIUM	MG/KG	17.3	17.2
ZINC	MG/KG	66.4	42.1

Field ID M-12B M-14B

AnalyticalTechnologies,Inc. METALS RESULTS

ATI I.D. : 011322

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA

DATE RECEIVED : 11/29/90
REPORT DATE : 01/03/91

PARAMETER	UNITS	01	02	03	04	05
SILVER	MG/KG	<0.76	<0.70	0.86	0.90	<0.72
ALUMINUM	MG/KG	6890	3780	4010	4380	7480
ARSENIC	MG/KG	15.6	7.4	8.1	4.5	9.4
BARIUM	MG/KG	62.7	32.4	30.6	34.2	64.5
BERYLLIUM	MG/KG	<0.17	<0.16	<0.16	<0.16	0.17
CALCIUM	MG/KG	2280	1810	2110	1830	2770
CADMIUM	MG/KG	<0.38	<0.35	<0.37	<0.37	<0.36
COBALT	MG/KG	8.0	4.8	4.7	5.5	7.0
CHROMIUM	MG/KG	56.6	27.7	29.3	32.1	56.7
COPPER	MG/KG	13.8	5.5	7.0	5.7	14.1
IRON	MG/KG	13900	7450	7890	8530	13100
MERCURY	MG/KG	0.09	<0.06	<0.06	<0.07	<0.06
POTASSIUM	MG/KG	968	571	480	723	1000
MAGNESIUM	MG/KG	6270	2320	2220	2620	5980
MANGANESE	MG/KG	370	103	116	111	362
SODIUM	MG/KG	353	266	311	381	450
NICKEL	MG/KG	53.2	25.1	23.0	28.6	48.0
LEAD	MG/KG	4.7	11.6	11.0	5.9	5.0
ANTIMONY	MG/KG	<1.9	<1.8	<1.9	<1.9	<1.8
SELENIUM	MG/KG	<2.5	<1.2	<1.3	<1.1	<1.3
THALLIUM	MG/KG	<0.11	<0.11	<0.11	<0.12	<0.12
VANADIUM	MG/KG	16.3	16.8	17.8	18.3	16.8
ZINC	MG/KG	28.0	21.6	20.2	24.3	26.6
		M-108B	M-103B	M-105B	M-10B	M-37

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AnalyticalTechnologies,Inc. METALS RESULTS

ATI I.D. : 012146

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. DATE RECEIVED : 12/13/90
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA REPORT DATE : 01/16/91

PARAMETER	UNITS	01
SILVER	MG/KG	<0.82
ALUMINUM	MG/KG	3220
ARSENIC	MG/KG	4.5
BARIUM	MG/KG	35.0
BERYLLIUM	MG/KG	<0.18
CALCIUM	MG/KG	1570
CADMIUM	MG/KG	0.94
COBALT	MG/KG	3.9
CHROMIUM	MG/KG	24.0
COPPER	MG/KG	6.4
IRON	MG/KG	6080
MERCURY	MG/KG	<0.061
POTASSIUM	MG/KG	514
MAGNESIUM	MG/KG	1980
MANGANESE	MG/KG	78.7
SODIUM	MG/KG	218
NICKEL	MG/KG	21.3
LEAD	MG/KG	1.5
ANTIMONY	MG/KG	<2.1
SELENIUM	MG/KG	<1.6
THALLIUM	MG/KG	<0.14
VANADIUM	MG/KG	12.4
ZINC	MG/KG	13.8

M-103A

AnalyticalTechnologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

		ATI I.D.	: 012132
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/17/90
PROJECT #	: 2738.0144	DATE ANALYZED	: 12/28/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.067
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.033
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

		ATI I.D.	: 012010
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/03/90
PROJECT #	: 2738-0144	DATE ANALYZED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.13
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.13
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

		ATI I.D.	: 011322
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/03/90
PROJECT #	: 2738-0144	DATE ANALYZED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.13
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.13
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

		ATI I.D.	: 012146
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/17/90
PROJECT #	: 2738-0144	DATE ANALYZED	: 12/28/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.067
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.033
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 012010

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01201001

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/12/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
AZINPHOS METHYL	<0.13	0.67	0.66	99	0.63	94	5
DIAZINON	<0.033	0.40	0.27	68	0.27	68	0
METHYL PARATHION	<0.033	0.33	0.33	100	0.33	100	1
PARATHION	<0.033	0.33	0.34	103	0.34	103	1

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 011322

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01201001

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/12/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
AZINPHOS METHYL	<0.13	0.67	0.66	99	0.63	94	5
DIAZINON	<0.033	0.40	0.27	68	0.27	68	0
METHYL PARATHION	<0.033	0.33	0.33	100	0.33	100	1
PARATHION	<0.033	0.33	0.34	103	0.34	103	1

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01213201

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 12/28/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
AZINPHOS METHYL	<0.13	0.67	0.43	64	0.42	63	2
DIAZINON	<0.033	0.40	0.28	70	0.23	58	20
METHYL PARATHION	<0.033	0.33	0.29	88	0.27	82	7
PARATHION	<0.033	0.33	0.26	79	0.27	82	4

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012146

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01213201

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 12/28/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
AZINPHOS METHYL	<0.13	0.67	0.43	64	0.42	63	2
DIAZINON	<0.033	0.40	0.28	70	0.23	58	20
METHYL PARATHION	<0.033	0.33	0.29	88	0.27	82	7
PARATHION	<0.033	0.33	0.26	79	0.27	82	4

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 12/28/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
AZINPHOS METHYL	<0.13	0.67	0.41	61	N/A	N/A	N/A
DIAZINON	<0.033	0.40	0.28	70	N/A	N/A	N/A
METHYL PARATHION	<0.033	0.33	0.25	76	N/A	N/A	N/A
PARATHION	<0.033	0.33	0.24	73	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012146

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 12/28/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
AZINPHOS METHYL	<0.13	0.67	0.41	61	N/A	N/A	N/A
DIAZINON	<0.033	0.40	0.28	70	N/A	N/A	N/A
METHYL PARATHION	<0.033	0.33	0.25	76	N/A	N/A	N/A
PARATHION	<0.033	0.33	0.24	73	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01214601

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/12/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/13/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/17/90
CLIENT I.D.	: M103-A	DATE ANALYZED	: 01/03/91
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.067
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.033
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01213201

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/10/90
PROJECT #	: 2738.0144	DATE RECEIVED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/17/90
CLIENT I.D.	: M-105A	DATE ANALYZED	: 12/28/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.067
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.033
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01213202

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/11/90
PROJECT #	: 2738.0144	DATE RECEIVED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/17/90
CLIENT I.D.	: M-108A	DATE ANALYZED	: 12/28/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.067
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.033
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132204

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-10B	DATE ANALYZED	: 12/18/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.13
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.13
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01201001

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/01/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/03/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-12B	DATE ANALYZED	: 12/12/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.13
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.13
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01201002

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/01/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/03/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-14B	DATE ANALYZED	: 12/13/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.13
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.13
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132202

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-103B	DATE ANALYZED	: 12/13/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.13
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.13
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132203

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-105B	DATE ANALYZED	: 12/13/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.13
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.13
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132201

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/27/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-108B	DATE ANALYZED	: 12/18/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.13
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.13
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132205

TEST : ORGANOPHOSPHORUS PESTICIDES (EPA 8140)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/27/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-37	DATE ANALYZED	: 12/18/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
AZINPHOS METHYL (GUTHION)	<0.13
BOLSTAR (SULPROFOS)	<0.033
CHLORPYRIFOS (DURSBAN)	<0.033
COUMAPHOS	<0.067
DEMETON (TOTAL)	<0.067
DIAZINON	<0.033
DICHLORVOS	<0.033
DIMETHOATE	<0.13
DISULFOTON	<0.033
EPN	<0.033
ETHOPROP	<0.033
FENSULFOTHION	<0.067
FENTHION	<0.033
MALATHION	<0.033
MERPHOS	<0.067
METHYL PARATHION	<0.033
MEVINPHOS	<0.033
NALED	<0.33
PARATHION	<0.033
PHORATE	<0.033
RONNEL	<0.033
STIROPHOS (TETRACHLORVINPHOS)	<0.033
SULFOTEPP	<0.033
TOKUTHION (PROTHIOFOS)	<0.067
TRICHLORONATE	<0.033
ETHION	<0.033
METHYL CHLORPYRIFOS	<0.033

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8150 (CHLORINATED HERBICIDES)

		ATI I.D.	: 012132
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/17/90
PROJECT #	: 2738.0144	DATE ANALYZED	: 12/27/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

Analytical Technologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8150 (CHLORINATED HERBICIDES)

		ATI I.D.	: 012010
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/03/90
PROJECT #	: 2738-0144	DATE ANALYZED	: 12/05/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

AnalyticalTechnologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8150 (CHLORINATED HERBICIDES)

		ATI I.D.	: 011322
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/03/90
PROJECT #	: 2738-0144	DATE ANALYZED	: 12/05/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

AnalyticalTechnologies,Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8150 (CHLORINATED HERBICIDES)

		ATI I.D.	: 012146
CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE EXTRACTED	: 12/17/90
PROJECT #	: 2738-0144	DATE ANALYZED	: 12/27/90
PROJECT NAME	: NAS ALAMEDA	UNITS	: MG/KG
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012146

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01214601

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 12/27/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
2,4-D	<0.0048	0.0333	0.039	117	0.041	123	5
2,4,5-TP	<0.0024	0.0333	0.037	111	0.039	117	5
2,4,5-T	<0.0024	0.0333	0.036	108	0.038	114	5
DINOSEB	<0.0048	0.033	0.019	57	0.019	57	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01214601

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 12/27/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
2,4-D	<0.0048	0.0333	0.039	117	0.041	123	5
2,4,5-TP	<0.0024	0.0333	0.037	111	0.039	117	5
2,4,5-T	<0.0024	0.0333	0.036	108	0.038	114	5
DINOSEB	<0.0048	0.0333	0.019	57	0.019	57	0

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012010

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01201002

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/05/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD

AnalyticalTechnologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 012010

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01201002

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/05/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
2,4-D	<0.0040	0.0333	0.024	72	0.031	93	25
2,4,5-TP	<0.0020	0.033	0.022	66	0.024	72	9
2,4,5-T	<0.0020	0.033	0.024	72	0.024	72	0
DINOSEB	<0.0040	0.033	0.018	54	0.021	63	15

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 011322

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : 01201002

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/05/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
2,4-D	<0.0040	0.0333	0.024	72	0.031	93	25
2,4,5-TP	<0.0020	0.033	0.022	66	0.024	72	9
2,4,5-T	<0.0020	0.033	0.024	72	0.024	72	0
DINOSEB	<0.0040	0.033	0.018	54	0.021	63	15

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012146

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 12/27/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
2,4-D	<0.0048	0.0333	0.033	99	N/A	N/A	N/A
2,4,5-TP	<0.0024	0.0333	0.033	99	N/A	N/A	N/A
2,4,5-T	<0.0024	0.0333	0.032	96	N/A	N/A	N/A
DINOSEB	<0.0048	0.0333	0.019	57	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012132

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/17/90
DATE ANALYZED : 12/27/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
2,4 D	<0.0040	0.0333	0.033	99	N/A	N/A	N/A
2,4,5-TP	<0.0020	0.0333	0.033	99	N/A	N/A	N/A
2,4,5-T	<0.0020	0.0333	0.032	96	N/A	N/A	N/A
DINOSEB	<0.0040	0.0333	0.019	57	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 012010

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/05/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
2,4-D	<0.0040	0.0333	0.038	114	N/A	N/A	N/A
2,4,5-TP	<0.0020	0.0333	0.030	90	N/A	N/A	N/A
2,4,5-T	<0.0020	0.0333	0.031	93	N/A	N/A	N/A
DINOSEB	<0.0040	0.0333	0.026	78	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies,Inc.

QUALITY CONTROL DATA

ATI I.D. : 011322

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA
REF I.D. : REAGENT SOIL

DATE EXTRACTED : 12/03/90
DATE ANALYZED : 12/05/90
SAMPLE MATRIX : SOIL
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
2,4-D	<0.0040	0.0333	0.038	114	N/A	N/A	N/A
2,4,5-TP	<0.0020	0.0333	0.030	90	N/A	N/A	N/A
2,4,5-T	<0.0020	0.0333	0.031	93	N/A	N/A	N/A
DINOSEB	<0.0040	0.0333	0.026	78	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01213201

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/10/90
PROJECT #	: 2738.0144	DATE RECEIVED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/17/90
CLIENT I.D.	: M-105A	DATE ANALYZED	: 12/27/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
2,4-D	<0.0048
2,4,5-TP (SILVEX)	<0.0024
DICAMBA	<0.0048
2,4,5-T	<0.0024
2,4-DB	<0.0048
DINOSEB	<0.0048
DICHLORPROP	<0.0048

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01213202

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/11/90
PROJECT #	: 2738.0144	DATE RECEIVED	: 12/12/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/17/90
CLIENT I.D.	: M-108A	DATE ANALYZED	: 12/27/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
2,4-D	<0.0049
2,4,5-TP (SILVEX)	<0.0024
DICAMBA	<0.0049
2,4,5-T	<0.0024
2,4-DB	<0.0049
DINOSEB	<0.0049
DICHLORPROP	<0.0049

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132204

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-10B	DATE ANALYZED	: 12/06/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

AnalyticalTechnologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01201001

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/01/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/03/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-12B	DATE ANALYZED	: 12/06/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01201002

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 12/01/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 12/03/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-14B	DATE ANALYZED	: 12/05/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132202

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-103B	DATE ANALYZED	: 12/06/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132203

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/28/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-105B	DATE ANALYZED	: 12/06/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132201

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/27/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-108B	DATE ANALYZED	: 12/06/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

AnalyticalTechnologies,Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 01132205

TEST : EPA 8150 (CHLORINATED HERBICIDES)

CLIENT	: JAMES M.MONTGOMERY CONS.ENGRS.,INC.	DATE SAMPLED	: 11/27/90
PROJECT #	: 2738-0144	DATE RECEIVED	: 11/29/90
PROJECT NAME	: NAS ALAMEDA	DATE EXTRACTED	: 12/03/90
CLIENT I.D.	: M-37	DATE ANALYZED	: 12/06/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
2,4-D	<0.0040
2,4,5-TP (SILVEX)	<0.0020
DICAMBA	<0.0040
2,4,5-T	<0.0020
2,4-DB	<0.0040
DINOSEB	<0.0040
DICHLORPROP	<0.0040

Controls for Environmental Pollution, Inc.
P.O. BOX 5351 • Santa Fe, New Mexico 87502
IN STATE 505/982-9
OUT OF STATE 800/545-2188 • FAX - 505-982-92

Controls for Environmental
Pollution, Inc
P.O. Box 5351
Santa Fe, NM 87502
Attn: James J. Mueller
Phone: (505) 982-9841

Analytical Technologies, Inc.
5550 Morehouse Drive
San Diego, CA 92121-1709

Attn: Carrie Hassinger
Invoice Number

Order #: 90-11-583
Date: 12/26/90 15:00
Work ID: Environmental
Date Received: 11/30/90
Date Completed: 12/26/90

SAMPLE IDENTIFICATION

Sample Number	Sample Description
01	#011322-01
03	#011322-03
05	#011322-05

Sample Number	Sample Description
02	#011322-02
04	#011322-04

Remainder of sample(s) for routine analysis will be disposed of three weeks from final report date. Sample(s) for bacteria analysis only, will be disposed of immediately after analysis. This is not applicable if other arrangements have been made.

Certified By

Controls for Environmental Protection, Inc.
P.O. BOX 5351 • Santa Fe, New Mexico 87502 OUT OF STATE 800/545-2188 • FAX - 505-982-9[illegible]

TEST RESULTS BY SAMPLE

Sample: 01A #011322-01 Collected: 11/27/90

Test Description	Result	Limit	Units	Analyzed	By
Gross Alpha	1.1+/-0.8		pCi/gram		
Gross Beta	4.5+/-1.2		pCi/gram		
Radium-226	0.4+/-0.1		pCi/gram		
Radium-228	<0.2		pCi/gram		
Total Uranium	0.5		ug/gram		

Sample: 02A #011322-02 Collected: 11/28/90

Test Description	Result	Limit	Units	Analyzed	By
Gross Alpha	1.0+/-0.7		pCi/gram		
Gross Beta	3.8+/-1.2		pCi/gram		
Radium-226	0.5+/-0.1		pCi/gram		
Radium-228	0.6+/-0.2		pCi/gram		
Total Uranium	0.5		ug/gram		

Sample: 03A #011322-03 Collected: 11/28/90

Test Description	Result	Limit	Units	Analyzed	By
Gross Alpha	<0.5		pCi/gram		
Gross Beta	3.4+/-1.1		pCi/gram		
Radium-226	0.6+/-0.2		pCi/gram		
Radium-228	0.6+/-0.3		pCi/gram		
Total Uranium	0.3		ug/gram		

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Sample: 04A #011322-04 Collected: 11/28/90

Test Description	Result	Limit	Units	Analyzed	By
Gross Alpha	<0.5		pCi/gram		
Gross Beta	57.2+2.9		pCi/gram		
Radium-226	0.6+/-0.2		pCi/gram		
Radium-228	<0.2		pCi/gram		
Total Uranium	0.3		ug/gram		

Sample: 05A #011322-05 Collected: 11/27/90

Test Description	Result	Limit	Units	Analyzed	By
Gross Alpha	1.6+/-0.9		pCi/gram		
Gross Beta	5.0+/-1.2		pCi/gram		
Radium-226	0.4+/-0.1		pCi/gram		
Radium-228	<0.2		pCi/gram		
Total Uranium	0.5		ug/gram		

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 CEP, Inc PERIOD [illegible]
Received: 12/04/90 Results by Sample

SAMPLE ID #012010-01 FRACTION 01A TEST CODE R26265 NAME [illegible]
Date & Time Collected 12/01/9[illegible] Category SOIL

Type of Analysis	Detection Limit pCi/g	RESULT
Radium-226	0.6	0.79+/-0.28
Radium-228	0.1	<0.3

All results report in

UNITS pCi/gram

SAMPLE ID #012010-02 FRACTION 02A TEST CODE R26265 NAME Radium-226/228
Date & Time Collected 12/01/90 Category SOIL

Type of Analysis	Detection Limit pCi/g	RESULT
Radium-226	0.6	0.67+/-0.21
Radium-228	0.1	<0.3

All results report in

UNITS pCi/gram

Controls for Environmental Pollution, Inc.
P.O. BOX 5351 • Santa Fe, New Mexico 87502
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Analytical Technologies, Inc
5550 Morehouse Drive
San Diego, CA 92121-1709

Attn: Carrie Hassinger

Work ID Environmental
P O #

Date Received
Date Reported
Work Order
Category

Test	Units	#012010-01	#012010-02
		12/01/90	12/01/90
Gross Alpha	pCi/gram	<0.6 pCi/gram (DRY)	1.5+/-0.8 pCi/gram (DRY)
Gross Beta	pCi/gram	1.7+/-1.1 pCi/gram (DRY)	1.0+/-0.5 pCi/gram (DRY)
Total Uranium	ug/gram	<0.1	0.1

Certified By

Controls for Environmental P ution, Inc.
P.O. BOX 5351 • Santa Fe, New Mexico 87502
IN STATE 505/982-9 1
OUT OF STATE 800/545-2188 • FAX - 505-982-9289

CEP, Inc. REPORT Work Order # 90-12-291
ceived: 12/14/90
Results by Sample

MPLE ID #012132-01 FRACTION 01A TEST CODE R2628S NAME Radium-226/228
Date & Time Collected 12/10/90 Category SOIL

Type of Analysis	Detection Limit pCi/g	RESULT
Radium-226	0.6	0.53+/-0.25
Radium-228	0.1	<0.3

All results report in:

UNITS pCi/gram

MPLE ID #012132-02 FRACTION 02A TEST CODE R2628S NAME Radium-226/228
Date & Time Collected 12/11/90 Category SOIL

Type of Analysis	Detection Limit pCi/g	RESULT
Radium-226	0.6	0.64+/-0.14
Radium-228	0.1	<0.3

All results report in:

UNITS pCi/gram

Controls for Environmental P ution, Inc.
P.O. BOX 5351 • Santa Fe, New Mexico 875o2
IN STATE 505/982-9 1
OUT OF STATE 800/545-2188 • FAX - 505-982-92o9

Analytical Technologies Inc.
7350 Morehouse Drive
San Diego CA 92121-1709

Attn Carrie Hallinger

Work In Environmental
P.O. # 3100

Date Received 12/14/90
Date Reported 01/03/91
Work Order: 90-12-291
Category:

Test	Units	#012132-01	#012132-02
		12/10/90	12/11/90
Gross Alpha	pCi/gram	1.1+/-0.7	<0.6
Gross Beta	pCi/gram	2.5+/-1.1	2.0+/-1.0
Total Uranium	ug/gram	0.3	0.4

Certified By

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Controls for Environmental P ution, Inc.
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IN STATE 505/982-9 1

Page 2 CEP, Inc. REPORT Work Order # 90-12-292
Received: 12/14/90 Results by Sample

SAMPLE ID #012146 FRACTION 01A TEST CODE R2628S NAME Radium-226/228
Date & Time Collected 12/12/90 Category SOIL

Type of Analysis	Detection Limit pCi/g	RESULT
Radium-226	0.6	0.31+/-0.10
Radium-228	0.1	<0.3

All results report in:

UNITS pCi/gram

MONTGOMERY LABORATORIES
a division of James M. Montgomery, Consulting Engineers, Inc.
555 East Walnut Street, Pasadena, California 91101
(818) 796-9141 / (213) 681-4255 Telex 67-5420

Report of Bulk Asbestos Analysis by Polarized Light Microscopy

Analytical Technologies, Inc.
5550 Moorehouse Dr.
San Diego, CA 92121
Attn: Lis Shigley

Job#: 437.0792
PO#:
Workorder#: W32510
Report#: R55447
Phone #:

Date Sampled: 12/12/90
Date Analyzed: 12/18/90
Date Received: 12/14/90

Lab#	Sample Description	Percent Composition
KC5863	012146-01	No Asbestos Detected

Approved by

APPROVED
DEC 21
QC OFFICER

MONTGOMERY LABORATORIES
a division of James M. Montgomery, Consulting Engineers, Inc.
555 East Walnut Street, Pasadena, California 91101
(818) 796-9141 / (213) 681-4255 Telex 67-5420

Report of Bulk Asbestos Analysis by Polarized Light Microscopy

Analytical Technologies, Inc.
5550 Moorehouse Dr.
San Diego, CA 92121
Attn: Lis Shigley

Job#: 437.0792
PO#:
Workorder#: W32512
Report#: R55449
Phone #:

Date Sampled: 12/11/90
Date Analyzed: 12/18/90
Date Received: 12/13/90

Lab#	Sample Description	Percent Composition
KC5865	012132-02	No Asbestos Detected

Approved by Carole Thomas

APPROVED
DEC 21 1990
QC OFFICER

MONTGOMERY LABORATORIES
a division of James M. Montgomery, Consulting Engineers, Inc.
555 East Walnut Street, Pasadena, California 91101
(818) 796-9141 / (213) 681-4255 Telex 67-5420

Report of Bulk Asbestos Analysis by Polarized Light Microscopy

Analytical Technologies, Inc.
5550 Moorehouse Dr.
San Diego, CA 92121
Attn: Lis Shigley

Job#: 437.0792
PO#:
Workorder#: W32511
Report#: R55448
Phone #:

Date Sampled: 12/10/90
Date Analyzed: 12/18/90
Date Received: 12/13/90

Lab#	Sample Description	Percent Composition
KC5864	012132-01	No Asbestos Detected

Approved by Carla Cheong

APPROVED
DEC 21 1990
QC OFFICER

Analytical Technologies, Inc. GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA ATI I.D. : 012132

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
MOISTURE (%)		01213202	17.7	17.7	0	N/A	N/A	N/A
PH	UNITS	01212609	8.6	8.6	0	N/A	N/A	N/A
TOTAL ORGANIC CARBON	MG/KG	01213201	302	292	3	906	658	93
TOTAL SOLIDS	%	01214601	82.9	83.0	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA ATI I.D. : 012010

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
MOISTURE (%)		01132203	2.5	2.6	4	N/A	N/A	N/A
PH	UNITS	01201002	6.3	6.1	3	N/A	N/A	N/A
TOTAL SOLIDS	%	01132203	97.5	97.4	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

AnalyticalTechnologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA ATI I.D. : 011322

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
MOISTURE (%)		01132203	2.5	2.6	4	N/A	N/A	N/A
PH	UNITS	01132205	7.9	7.6	4	N/A	N/A	N/A
TOTAL SOLIDS	%	01132203	97.5	97.4	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA ATI I.D. : 012146

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
MOISTURE (%)		01214601	17.1	17.0	1	N/A	N/A	N/A
PH	UNITS	01212609	8.6	8.6	0	N/A	N/A	N/A
TOTAL ORGANIC CARBON	MG/KG	01213201	302	292	3	906	658	93
TOTAL SOLIDS	%	01214601	82.9	83.0	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

AnalyticalTechnologies,Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 012146

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA

DATE RECEIVED : 12/13/90
REPORT DATE : 01/16/91

PARAMETER	UNITS	01
% MOISTURE	%	17.1
PH	UNITS	7.5
TOTAL ORGANIC CARBON	MG/KG	222
TOTAL SOLIDS	%	82.9

AnalyticalTechnologies,Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 011322

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA

DATE RECEIVED : 11/29/90
REPORT DATE : 01/03/91

PARAMETER	UNITS	01	02	03	04	05
% MOISTURE	%	2.9	1.6	2.5	4.4	3.0
PH	UNITS	7.2	6.0	7.1	7.3	7.9
TOTAL SOLIDS	%	97.1	98.4	97.5	95.6	97.0

AnalyticalTechnologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 012010

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA

DATE RECEIVED : 12/03/90
REPORT DATE : 01/02/91

PARAMETER	UNITS	01	02
% MOISTURE	%	1.6	0.88
PH	UNITS	7.4	6.3
TOTAL SOLIDS	%	98.4	99.1

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 012132

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC.
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA

DATE RECEIVED : 12/12/90
REPORT DATE : 01/16/91

PARAMETER	UNITS	01	02
% MOISTURE	%	17.6	17.7
PH	UNITS	8.8	8.6
TOTAL ORGANIC CARBON	MG/KG	302	333
TOTAL SOLIDS	%	82.4	82.3

AnalyticalTechnologies, Inc. Corporate Offices: 5550 Morehouse Drive San Diego, CA 92121 (619) 458-9141

ATI I.D. 012146

January 16, 1991

James M. Montgomery Consulting Engineers, Inc.
365 Lennon Lane
Walnut Creek, California 94598

Project Name: NAS Alameda

Project No.: 2738-0144

Attention: Steve Newton/Scott Weber

On December 13, 1990, Analytical Technologies, Inc. received one soil sample for analyses. The sample was analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The symbol for "less than" indicates a value below the reportable detection limit. Please see the attached sheet for the sample cross reference.

The results of these analyses and the quality control data are enclosed.

Timothy J. Fitzpatrick
Senior Project Manager

Richard M. Amano
Laboratory Manager

TJF:da

AnalyticalTechnologies,Inc.

ATI I.D. 012146

ANALYTICAL SCHEDULE

CLIENT: JAMES M. MONTGOMERY CONS. ENGRS. PROJECT NO.: 2738-0144
PROJECT NAME: NAS ALAMEDA

ANALYSIS	TECHNIQUE	REFERENCE/METHOD
PERCENT MOISTURE	GRAVIMETRIC	METHOD 7-2.2 from Methods of Soil Analysis, American Society of Agronomy
pH	ELECTRODE	EPA 9045
TOTAL ORGANIC CARBON	TOC ANALYZER	EPA 9060
TOTAL SOLIDS	GRAVIMETRIC	EPA 160.3
ALUMINUM	ICAP	EPA 6010
ANTIMONY	ICAP	EPA 6010
ARSENIC	AA/GF	EPA 7060
BARIUM	ICAP	EPA 6010
BERYLLIUM	ICAP	EPA 6010
CADMIUM	ICAP	EPA 6010
CALCIUM	ICAP	EPA 6010
CHROMIUM	ICAP	EPA 6010
COBALT	ICAP	EPA 6010
COPPER	ICAP	EPA 6010
IRON	ICAP	EPA 6010
LEAD	ICAP	EPA 6010
MAGNESIUM	ICAP	EPA 6010
MANGANESE	ICAP	EPA 6010
MERCURY	AA/COLD VAPOR	EPA 7471
NICKEL	ICAP	EPA 6010
POTASSIUM	ICAP	EPA 6010
SELENIUM	AA/GF	EPA 7740
SILVER	ICAP	EPA 6010
SODIUM	ICAP	EPA 6010
THALLIUM	AA/GF	EPA 7841
VANADIUM	ICAP	EPA 6010
ZINC	ICAP	EPA 6010

(CONTINUED NEXT PAGE)

AnalyticalTechnologies,Inc.

ATI I.D. 012146

ANALYTICAL SCHEDULE

CLIENT: JAMES M. MONTGOMERY CONS. ENGRS. PROJECT NO.: 2738-0144
PROJECT NAME: NAS ALAMEDA

ANALYSIS	TECHNIQUE	REFERENCE/METHOD
ORGANOCHLORINE PESTICIDES AND PCBs	GC/ECD	EPA 8080
ORGANOPHOSPHORUS PESTICIDES	GC/FPD	EPA 8140 *
CHLORINATED HERBICIDES	GC/ECD	EPA 8150
VOLATILE ORGANICS	GC/MS	EPA 8240
SEMI-VOLATILE ORGANICS (BNA)	GC/MS	EPA 8270
ASBESTOS	-	**
GROSS ALPHA/GROSS BETA	-	***
RADIUM-226/RADIUM-228	-	***
TOTAL URANIUM	-	***

* Organophosphorus pesticides were analyzed by Analytical Technologies, Inc. of Renton, Washington.

** Asbestos was analyzed by Montgomery Laboratories of Pasadena, Calif.

*** Radiochemistry was analyzed by Controls for Environmental Pollution, Inc. of Santa Fe, New Mexico.

NOTE: All soil sample results were calculated in dry weight.

Analytical Technologies, Inc.

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. DATE RECEIVED : 12/13/90
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA REPORT DATE : 01/16/91
ATI I.D. : 012146

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	M103-A	SOIL	12/12/90

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	1

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in twenty-one (21) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.
5550 Morehouse Drive • San Diego, CA 92121-1709

Chain of Custody

DATE 12/1/90 PAGE 1 OF 1

PROJECT MANAGER: STEVE NEWTON/SCOTT WEBER
COMPANY: JAMES M. MONTGOMERY CONSULTING ENGRS INC.
ADDRESS: 365 LENNON LANE, WALNUT CREEK, CA 94598

BILL TO: STEVE NEWTON/SCOTT WEBER
COMPANY: JAMES M. MONTGOMERY CONSULTING ENGRS. INC.
ADDRESS: 365 LENNON LANE, WALNUT CREEK, CA 94598

SAMPLERS: (Signature) Steve Johnson
PHONE NUMBER (415) 975-3400

Recommended Quantity and Preservative (Provide triple volume on QC Samples)

	SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons 418.1 (1L (H_2SO_4)/100g)	Oil and Grease 413.2 (1L (H_2SO_4)/100g)	Gasoline (MOD 8015/DOHS) (4 oz (HCl)/50g)	Diesel (MOD 8015/DOHS) (4 oz (HCl)/50g)	Gasoline/BTXE (MOD 8015/8020) (4 oz (HCl)/50g)	(C6-C25,MOD 8015) (4 oz (HCl)/50g)	BTXE (8020) (2X40ml (HCl)/50g)	Chlorinated Hydrocarbons (8010) (2X40ml (HCl)/50g)	Aromatic Hydrocarbons (8020) (2X40ml (HCl)/50g)	Chlorinated/Aromatic Hydrocarbons (8010/8020) (2X40ml (HCl)/50g)	Organic Pb (500ml/50g)		Pesticides/PCB (8080) (1L/50g)	Base/NEU/Acid Cmpds GC/MS (8270) (1L/100g)	Volatile Cmpds GC/MS (8240) (2X40ml (HCl)/100g)	Polynuclear Aromatic (8310) (1L/100g)	CCR Metals (500ml/100g)	Priority Pollutant Metals (500ml/100g)	BNA (CLP RAS)	Pesticides/PCBs (CLP RAS)	HSL Metals (CLP RAS)	Gross Alpha+Beta (9310)	Radium 226+228 (706)	Uranium	OP Pesticides (CLP SAS)	Cl Pesticides (CLP-SAS)	Total Solids (CLP-SAS)	Number of Containers
01	M-12B (3-8oz, 1-16oz)	12/1/90	10:21	Soil																			✓	✓	✓	✓	✓	✓	✓	✓	✓	4
02	M-14B ↓ ↓	12/1/90	10:40	Soil																			✓	✓	✓	✓	✓	✓	✓	✓	✓	4

PROJECT INFORMATION	SAMPLE RECEIPT	
PROJECT NUMBER: 2738 0144	TOTAL NUMBER OF CONTAINERS	8
PROJECT NAME: NAS Alameda CTO 85	CHAIN OF CUSTODY SEALS Y/N/NA	
PURCHASE ORDER NUMBER:	INTACT? Y/N/NA	
VIA:	RECEIVED GOOD COND./COLD 9°	
TAT: ☐ 24HR ☐ 48 HRS ☐ 1 WK ☒ 2 WKS	LAB NUMBER 012010	

SAMPLE DISPOSAL INSTRUCTIONS
☒ ATI Disposal @ $5.00 each ☐ Return ☐ Pickup (will call)

Comments: Call if you have any questions

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Steve Johnson Time: 10:57	Signature: Scott Weber Time: 11:45	Signature: Time:
Printed Name: Steve Johnson Date: 12/1/90	Printed Name: Scott Weber Date: 12/1/90	Printed Name: Date:
Company: James M. Montgomery	Company: JMM	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Scott Weber Time: 10:58	Signature: Time:	Signature: Time:
Printed Name: Scott Weber Date: 12/1/90	Printed Name: Date:	Printed Name: Date:
Company: JMM	Company:	Analytical Technologies, Inc.

ATI LABORATORIES: San Diego (619) 458-9141 • Phoenix (602) 438-1530 • Seattle (206) 228-8335 DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. • Pink - ORIGINATOR

AnalyticalTechnologies, Inc. Corporate Offices: 5550 Morehouse Drive San Diego, CA 92121 (619) 458-9141

ATI I.D. 011322

January 3, 1991

James M. Montgomery Consulting Engineers, Inc.
365 Lennon Lane
Walnut Creek, California 94598

Project Name: NAS Alameda

Project No.: 2738-0144

Attention: Steve Newton/Scott Weber

On November 29, 1990, Analytical Technologies, Inc. received five soil samples for analyses. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The symbol for "less than" indicates a value below the reportable detection limit. Please see the attached sheet for the sample cross reference.

The results of these analyses and the quality control data are enclosed.

for: Susan Snyder
Senior Project Manager

SS:bc

for: Richard M. Amano
Laboratory Manager

AnalyticalTechnologies,Inc.

ATI I.D. 011322

ANALYTICAL SCHEDULE

CLIENT: JAMES M. MONTGOMERY CONS. ENGRS. PROJECT NO.: 2738-0144
PROJECT NAME: NAS ALAMEDA

ANALYSIS	TECHNIQUE	REFERENCE/METHOD
PERCENT MOISTURE	GRAVIMETRIC	METHOD 7-2.2 from Methods of Soil Analysis, American Society of Agronomy
pH	ELECTRODE	EPA 9045
TOTAL SOLIDS	GRAVIMETRIC	EPA 160.3
ORGANOCHLORINE PESTICIDES AND PCBs	GC/ECD	EPA 8080
ORGANOPHOSPHORUS PESTICIDES	GC/FPD	EPA 8140 *
CHLORINATED HERBICIDES	GC/ECD	EPA 8150
SEMI-VOLATILE ORGANICS (BNA)	GC/MS	EPA 8270
GROSS ALPHA/GROSS BETA	-	**
RADIUM-226/RADIUM-228	-	**
TOTAL URANIUM	-	**

* Organophosphorus pesticides were analyzed by Analytical Technologies, Inc. of Renton, Washington.

** Radiochemistry was analyzed by Controls for Environmental Pollution, Inc. of Santa Fe, New Mexico.

NOTE: All soil sample results were calculated in dry weight.

Analytical Technologies, Inc.

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. DATE RECEIVED : 11/29/90
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA REPORT DATE : 01/03/91
ATI I.D. : 011322

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	M-108B	SOIL	11/27/90
02	M-103B	SOIL	11/28/90
03	M-105B	SOIL	11/28/90
04	M-10B	SOIL	11/28/90
05	M-37	SOIL	11/27/90

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	5

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in twenty-one (21) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

AnalyticalTechnologies, Inc. Corporate Offices 5550 Morehouse Drive San Diego, CA 92121 (619) 458-9141

ATI I.D. 012010

January 3, 1991

James M. Montgomery Consulting Engineers, Inc.
365 Lennon Lane
Walnut Creek, California 94598

Project Name: NAS Alameda

Project No.: 2738-0144

Attention: Steve Newton/Scott Weber

On December 3, 1990, Analytical Technologies, Inc. received two soil samples for analyses. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The symbol for "less than" indicates a value below the reportable detection limit. Please see the attached sheet for the sample cross reference.

The results of these analyses and the quality control data are enclosed.

for: Susan Snyder
Senior Project Manager

for: Richard M. Amano
Laboratory Manager

SS:bc

AnalyticalTechnologies, Inc.

ATI I.D. 012010

ANALYTICAL SCHEDULE

CLIENT: JAMES M. MONTGOMERY CONS. ENGRS. PROJECT NO.: 2738-0144
PROJECT NAME: NAS ALAMEDA

ANALYSIS	TECHNIQUE	REFERENCE/METHOD
PERCENT MOISTURE	GRAVIMETRIC	METHOD 7-2.2 from Methods of Soil Analysis, American Society of Agronomy
pH	ELECTRODE	EPA 9045
TOTAL SOLIDS	GRAVIMETRIC	EPA 160.3
ALUMINUM	ICAP	EPA 6010
ANTIMONY	ICAP	EPA 6010
ARSENIC	AA/GF	EPA 7060
BARIUM	ICAP	EPA 6010
BERYLLIUM	ICAP	EPA 6010
CADMIUM	ICAP	EPA 6010
CALCIUM	ICAP	EPA 6010
CHROMIUM	ICAP	EPA 6010
COBALT	ICAP	EPA 6010
COPPER	ICAP	EPA 6010
IRON	ICAP	EPA 6010
LEAD	ICAP	EPA 6010
MAGNESIUM	ICAP	EPA 6010
MANGANESE	ICAP	EPA 6010
MERCURY	AA/COLD VAPOR	EPA 7471
NICKEL	ICAP	EPA 6010
POTASSIUM	ICAP	EPA 6010
SELENIUM	AA/GF	EPA 7740
SILVER	ICAP	EPA 6010
SODIUM	ICAP	EPA 6010
THALLIUM	AA/GF	EPA 7841
VANADIUM	ICAP	EPA 6010
ZINC	ICAP	EPA 6010
ORGANOCHLORINE PESTICIDES AND PCBs	GC/ECD	EPA 8080
ORGANOPHOSPHORUS PESTICIDES	GC/FPD	EPA 8140 *
CHLORINATED HERBICIDES	GC/ECD	EPA 8150

* Organophosphorus pesticides were analyzed by Analytical Technologies, Inc. of Renton, Washington.

AnalyticalTechnologies,Inc.

ATI I.D. 012010

ANALYTICAL SCHEDULE
(CONT)

CLIENT: JAMES M. MONTGOMERY CONS. ENGRS. PROJECT NO.: 2738-0144
PROJECT NAME: NAS ALAMEDA

ANALYSIS	TECHNIQUE	REFERENCE/METHOD
SEMI-VOLATILE ORGANICS (BNA)	GC/MS	EPA 8270
GROSS ALPHA/GROSS BETA	-	*
RADIUM-226/RADIUM-228	-	*
TOTAL URANIUM	-	*

* Radiochemistry was analyzed by Controls for Environmental Pollution, Inc. of Santa Fe, New Mexico.

NOTE: All soil sample results were calculated in dry weight.

Analytical Technologies, Inc.

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. DATE RECEIVED : 12/03/90
PROJECT # : 2738-0144
PROJECT NAME : NAS ALAMEDA REPORT DATE : 01/02/91
ATI I.D. : 012010

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	M-12B	SOIL	12/01/90
02	M-14B	SOIL	12/01/90

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	2

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in twenty-one (21) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.
5550 Morehouse Drive • San Diego, CA 92121-1709

Chain of Custody

DATE 12/11/90 PAGE 1 OF 1

PROJECT MANAGER: STEVE NEWTON/SCOTT WEBER
COMPANY: JAMES M. MONTGOMERY CONSULTING ENGRS, INC
ADDRESS: 365 LENNON LANE, WALNUT CREEK, CA 94598

BILL TO: STEVE NEWTON/SCOTT WEBER
COMPANY: JAMES M. MONTGOMERY CONSULTING ENGRS, INC
ADDRESS: 365 LENNON LANE, WALNUT CREEK, CA 94598

Scott Weber — SAMPLERS: (Signature)
(415)975-3400 — PHONE NUMBER

Recommended Quantity and Preservative (Provide triple volume on QC Samples)

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons 418.1 (1L (H_2SO_4)/100g)	Oil and Grease 413.2 (1L (H_2SO_4)/100g)	Gasoline (MOD 8015/DOHS) (4 oz (HCl)/50g)	Diesel (MOD 8015/DOHS) (4 oz (HCl)/50g)	Gasoline/BTXE (MOD 8015/8020) (4 oz (HCl)/50g)	(C6-C25, MOD 8015) (4 oz (HCl)/50g)	BTXE (8020) (2X40ml (HCl)/50g)	Chlorinated Hydrocarbons (8010) (2X40ml (HCl)/50g)	Aromatic Hydrocarbons (8020) (2X40ml (HCl)/50g)	Chlorinated/Aromatic Hydrocarbons (8010/8020) (2X40ml (HCl)/50g)	CLPSAS	Total Solids	Pesticides/PCB CLPRAS	Base/NEU/Acid Cmpds GC/MS (8270) (1L/100g)	Volatile Cmpds GC/MS (8240) (2X40ml (HCl)/50g)	Polynuclear Aromatic (8310) (1L/100g)	Metals HSL CLPRAS	Priority Pollutant Metals (500ml/100g)	VOA CLPRAS	BNA CLPRAS	Gross Alpha + Beta 9310	Radium 226+228 706	Uranium	OP Pesticides CLPSAS	Cl Herbicides CLPSAS	TOC CLPSAS	Asbestos	Number of Containers	pH-Soil CLPSAS
01 M-105A (3-8oz, 1-16oz)	12/11/90		Soil												X		X				X		X	X	X	X	X	X	X	X	X	X	4	X
02 M-108A (3-8oz, 1-16oz)	12/11/90		Soil												X		X				X		X	X	X	X	X	X	X	X	X	X	4	X

PROJECT INFORMATION	
PROJECT NUMBER:	2738.0144
PROJECT NAME:	NAS-ALAMEDA
PURCHASE ORDER NUMBER:	
VIA:	FEDEX
TAT: ☐ 24HR ☐ 48 HRS ☐ 1 WK ☒ 2 WKS	

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	8
CHAIN OF CUSTODY SEALS Y/N/NA	Y
INTACT? Y/N/NA	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	012132

SAMPLE DISPOSAL INSTRUCTIONS
☒ ATI Disposal @ $5.00 each ☐ Return ☐ Pickup (will call)

Comments: Call if you have questions.
(Asbestos - 1-8oz jar Radionuclides - 1-8oz jar.)

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Scott Weber Time: 4:30	Signature: Time:	Signature: Time:
Printed Name: Scott Weber Date: 12/11/90	Printed Name: Date:	Printed Name: Date:
Company: JMM	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Time: 0930
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 12/12/90
Company:	Company:	Analytical Technologies, Inc.

ATI LABORATORIES: San Diego (619) 458-9141 • Phoenix (602) 438-1530 • Seattle (206) 228-8335 DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. • Pink - ORIGINATOR

AnalyticalTechnologies, Inc. Corporate Offices: 5550 Morehouse Drive San Diego, CA 92121 (619) 458-9141

ATI I.D. 012132

January 18, 1991

James M. Montgomery Consulting Engineers, Inc.
365 Lennon Lane
Walnut Creek, California 94598

Project Name: NAS Alameda

Project No.: 2738-0144

Attention: Steve Newton/Scott Weber

On December 12, 1990, Analytical Technologies, Inc. received two soil samples for analyses. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The symbol for "less than" indicates a value below the reportable detection limit. Please see the attached sheet for the sample cross reference.

Please note that holding times were exceeded for the volatile organics analyses by EPA Method 8240.

The results of these analyses and the quality control data are enclosed.

for: Gary A. Stewart
Timothy J. Fitzpatrick
Senior Project Manager

Richard M. Amano
Laboratory Manager

TJF:da

AnalyticalTechnologies, Inc.

ATI I.D. 012132

ANALYTICAL SCHEDULE

CLIENT: JAMES M. MONTGOMERY CONS. ENGRS. PROJECT NO.: 2738-0144
PROJECT NAME: NAS ALAMEDA

ANALYSIS	TECHNIQUE	REFERENCE/METHOD
PERCENT MOISTURE	GRAVIMETRIC	METHOD 7-2.2 from Methods of Soil Analysis, American Society of Agronomy
pH	ELECTRODE	EPA 9045
TOTAL ORGANIC CARBON	TOC ANALYZER	EPA 9060
TOTAL SOLIDS	GRAVIMETRIC	EPA 160.3
ALUMINUM	ICAP	EPA 6010
ANTIMONY	ICAP	EPA 6010
ARSENIC	AA/GF	EPA 7060
BARIUM	ICAP	EPA 6010
BERYLLIUM	ICAP	EPA 6010
CADMIUM	ICAP	EPA 6010
CALCIUM	ICAP	EPA 6010
CHROMIUM	ICAP	EPA 6010
COBALT	ICAP	EPA 6010
COPPER	ICAP	EPA 6010
IRON	ICAP	EPA 6010
LEAD	ICAP	EPA 6010
MAGNESIUM	ICAP	EPA 6010
MANGANESE	ICAP	EPA 6010
MERCURY	AA/COLD VAPOR	EPA 7471
NICKEL	ICAP	EPA 6010
POTASSIUM	ICAP	EPA 6010
SELENIUM	AA/GF	EPA 7740
SILVER	ICAP	EPA 6010
SODIUM	ICAP	EPA 6010
THALLIUM	AA/GF	EPA 7841
VANADIUM	ICAP	EPA 6010
ZINC	ICAP	EPA 6010

(CONTINUED NEXT PAGE)

AnalyticalTechnologies,Inc.

ATI I.D. 012132

ANALYTICAL SCHEDULE

CLIENT: JAMES M. MONTGOMERY CONS. ENGRS. PROJECT NO.: 2738-0144
PROJECT NAME: NAS ALAMEDA

ANALYSIS	TECHNIQUE	REFERENCE/METHOD
ORGANOCHLORINE PESTICIDES AND PCBs	GC/ECD	EPA 8080
ORGANOPHOSPHORUS PESTICIDES	GC/FPD	EPA 8140 *
CHLORINATED HERBICIDES	GC/ECD	EPA 8150
VOLATILE ORGANICS	GC/MS	EPA 8240
SEMI-VOLATILE ORGANICS (BNA)	GC/MS	EPA 8270
ASBESTOS	-	**
GROSS ALPHA/GROSS BETA	-	***
RADIUM-226/RADIUM-228	-	***
TOTAL URANIUM	-	***

* Organophosphorus pesticides were analyzed by Analytical Technologies, Inc. of Renton, Washington.

** Asbestos was analyzed by Montgomery Laboratories of Pasadena, Calif.

*** Radiochemistry was analyzed by Controls for Environmental Pollution, Inc. of Santa Fe, New Mexico.

NOTE: All soil sample results were calculated in dry weight.

AnalyticalTechnologies, Inc.

CLIENT : JAMES M.MONTGOMERY CONS.ENGRS.,INC. DATE RECEIVED : 12/12/90
PROJECT # : 2738.0144
PROJECT NAME : NAS ALAMEDA REPORT DATE : 01/16/91
ATI I.D. : 012132

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	M-105A	SOIL	12/10/90
02	M-108A	SOIL	12/11/90

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	2

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in twenty-one (21) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.
5550 Morehouse Drive • San Diego, CA 92121-1709

Chain of Custody

DATE 12/12/90 PAGE 1 OF 1

PROJECT MANAGER: STEVE NEWTON/SCOTT WEBER
COMPANY: JAMES M. MONTGOMERY CONSULTING ENGRS. INC.
ADDRESS: 365 LENNON LANE, WALNUT CREEK, CA 94598

BILL TO: STEVE NEWTON/SCOTT WEBER
COMPANY: JAMES M. MONTGOMERY CONSULTING ENGRS. INC.
ADDRESS: 365 LENNON LANE, WALNUT CREEK, CA 94598

SAMPLERS: (Signature) — PHONE NUMBER: (415) 975-3400

Recommended Quantity and Preservative (Provide triple volume on QC Samples)

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons 418.1 (1L (H_2SO_4)/100g)	Oil and Grease 413.2 (1L (H_2SO_4)/100g)	Gasoline (MOD 8015/DOHS) (4 oz (HCl)/50g)	Diesel (MOD 8015/DOHS) (4 oz (HCl)/50g)	Gasoline/BTXE (MOD 8015/8020) (4 oz (HCl)/50g)	(C6-C25, MOD 8015) (4 oz (HCl)/50g)	BTXE (8020) (2X40ml (HCl)/50g)	Chlorinated Hydrocarbons (8010) (2X40ml (HCl)/50g)	Aromatic Hydrocarbons (8020) (2X40ml (HCl)/50g)	Chlorinated/Aromatic Hydrocarbons (8010/8020) (2X40ml (HCl)/50g)	~~Organic Pb~~ VOA CLPRAS		Pesticides/PCB CLPRAS	Base/NEU/Acid Cmpds BNA CLPRAS	Volatile Cmpds GC/MS (8240) (2X40ml (HCl)/100g)	Polynuclear Aromatic (8310) (1L/100g)	~~EPA~~ Metals HSL CLPRAS	Priority Pollutant Metals (500ml/100g)	Gross Alpha + Beta 9310	Radium 226-228 7026	Uranium CLPSAS	OP Pesticides CLPSAS	Cl Herbicides CLPSAS	TDC CLPSAS	Asbestos CLPSAS	PH - Soil CLPSAS	Total Solids CLPSAS	Number of Containers
01 M-103A (3-8oz, 1-16oz)	12/12/90		Soil												X		X	X			X		X	X	X	X	X	X	X	X	X	4

PROJECT INFORMATION	SAMPLE RECEIPT	
PROJECT NUMBER: 2738-0144	TOTAL NUMBER OF CONTAINERS	4
PROJECT NAME: NAS-Alameda	CHAIN OF CUSTODY SEALS Y/N/NA	Y
PURCHASE ORDER NUMBER:	INTACT? Y/N/NA	Y
VIA: Fed EX	RECEIVED GOOD COND./COLD	Y
TAT: ☐ 24HR ☐ 48 HRS ☐ 1 WK ☒ 2 WKS	LAB NUMBER 012-46	

SAMPLE DISPOSAL INSTRUCTIONS: ☒ ATI Disposal @ $5.00 each ☐ Return ☐ Pickup (will call)

Comments: Call if you have questions
do Data Pack on This Sample M-103A Deliverable

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Steve Johnson Time: 3:45	Signature: Time:	Signature: Time:
Printed Name: Steve Johnson Date: 12/12/90	Printed Name: Date:	Printed Name: Date:
Company: JMM	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Time: 0935
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 12/14/90
Company:	Company:	Analytical Technologies, Inc.

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Analytical Technologies, Inc.
5550 Morehouse Drive • San Diego, CA 92121-1709

Chain of Custody

DATE 11/28/90 PAGE 1 OF 1

PROJECT MANAGER: STEVE NEWTON/SCOTT WEBER
COMPANY: JAMES M. MONTGOMERY CONSULTING ENGRS, INC
ADDRESS: 365 LENNON LANE, WALNUT CREEK, CA 94598

BILL TO: STEVE NEWTON/SCOTT WEBER
COMPANY: JAMES M. MONTGOMERY CONSULTING ENGRS, INC.
ADDRESS: 365 LENNON LANE, WALNUT CREEK, CA 94598

Scott Weber/Craig Stevens — SAMPLERS (Signature)
(415) 935-3400 — PHONE NUMBER

Recommended Quantity and Preservative (Provide triple volume on QC Samples)

	SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons 418.1 (1L (H_2SO_4)/100g)	Oil and Grease 413.2 (1L (H_2SO_4)/100g)	Gasoline (MOD 8015/DOHS) (4 oz (HCl)/50g)	Diesel (MOD 8015/DOHS) (4 oz (HCl)/50g)	Gasoline/BTXE (MOD 8015/8020) (4 oz (HCl)/50g)	(C6-C25,MOD 8015) (4 oz (HCl)/50g)	BTXE (8020) (2X40ml (HCl)/50g)	Chlorinated Hydrocarbons (8010) (2X40ml (HCl)/50g)	Aromatic Hydrocarbons (8020) (2X40ml (HCl)/50g)	Chlorinated/Aromatic Hydrocarbons (8010/8020) (2X40ml (HCl)/50g)	Organic Pb (500ml/50g)		Pesticides/PCB (8080) (1L/50g)	Base/NEU/Acid Cmpds GC/MS (8270) (1L/100g)	Volatile Cmpds GC/MS (8240) (2X40ml (HCl)/100g)	Polynuclear Aromatic (8310) (1L/100g)	CCR Metals (500ml/100g)	Priority Pollutant Metals (500ml/100g)	BNA CLP RAS	Pesticides/PCB's CLP RAS	HSL Metals CLP RAS	Gross Alpha + Beta 9310	Radium 226 + 228 706	Uranium	OP Pesticides CLP SAS	Cl Pesticides CLP SAS	Total Solids CLP SAS	Number of Containers
01	M-108B 3-8oz, 1-16oz	11/27/90	10:21AM	Soil																				X	X	X	X	X	X	X	X	X	X	4
02	M-103B	11/28/90	11:25AM	Soil																				X	X	X	X	X	X	X	X	X	X	4
03	M-105B	11/28/90	10:30AM	Soil																				X	X	X	X	X	X	X	X	X	X	4
04	M-10B	11/28/90	10:20AM	Soil																				X	X	X	X	X	X	X	X	X	X	4
05	M-37	11/27/90	10:15AM	Soil																				X	X	X	X	X	X	X	X	X	X	4

PROJECT INFORMATION	
PROJECT NUMBER:	2738-0144
PROJECT NAME:	NAS Alameda
PURCHASE ORDER NUMBER:	
VIA:	
TAT: ☐ 24HR ☐ 48 HRS ☐ 1 WK ☒ 2 WKS	

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	20
CHAIN OF CUSTODY SEALS Y/N/NA	Y
INTACT? Y/N/NA	Y
RECEIVED GOOD COND./COLD	✓
LAB NUMBER	

SAMPLE DISPOSAL INSTRUCTIONS
☒ ATI Disposal @ $5.00 each ☐ Return ☐ Pickup (will call)

Comments: Call if you have questions

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Craig Stevens Time: 12:30	Signature: Time:	Signature: Time:
Printed Name: Craig Stevens Date: 11/28/90	Printed Name: Date:	Printed Name: Date:
Company: James M. Montgomery	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Analytical Technologies, Inc.

ATI LABORATORIES: San Diego (619) 458-9141 • Phoenix (602) 438-1530 • Seattle (206) 228-8335 DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. • Pink - ORIGINATOR

APPENDIX E

LABORATORY DATA QUALITY ASSESSMENT

APPENDIX E
DATA QUALITY ASSESSMENT
ALAMEDA NAS - CTO 85

The analytical results for CTO 85 are summarized in the text of this report. Eight soil samples and one duplicate field samples were collected between November 27 and December 12, 1990, and were analyzed for chemical compounds by Analytical Technologies, Inc., San Diego, California. Controls for Environmental Pollution, Inc., Santa Fe, New Mexico, analyzed samples for radiochemical parameters.

James M. Montgomery Consulting Engineers, Inc. (JMM) reviewed the laboratory results according to EPA guidance for CLP protocols and the QA/QC recommended in the non-CLP protocols. The data review was based on the laboratory data reports only, not the raw data. The following sections describe the field and laboratory QC samples that were included with this project along with the associated results. Laboratory reports for field and QC samples are included in Appendix D.

1.0 QC Sampling and Analysis

A duplicate field sample (sample M-37) was collected with sample M-108B. The relative percent difference (RPD) between the original and duplicate sample results were within acceptable limits for all analyses (Table 1). No other field QC samples were collected for this project.

Laboratory QC samples included laboratory duplicate samples, matrix spike and matrix spike duplicate (MS/MSD) samples, laboratory control samples, (spiked reagent blanks) and reagent blank samples. Surrogate analyte recoveries were also monitored.

1.1 Volatile Organic Data

The volatile organic data are valid and meet the QA/QC criteria with the following exceptions. The holding times for samples M-108A and M-105-A were exceeded by one and two days, respectively. These sample results should be considered estimated concentrations. No other QC problems were identified for this analysis.

1.2 Semivolatile Organic Data Assessment

The semivolatile data are valid and substantially meet the criteria set forth in the analytical protocol with the exceptions of the items listed below.

Blank Contamination

Reagent blank samples extracted on December 3 and 5 contained low levels of hydrocarbons (0.2 to 1 mg/kg), including di-butyl phthalate, chrysene, and several tentatively identified compounds (TICs). These results are not expected to affect the sample data because no target analytes were detected in field samples and TIC blank sample results were substantially lower than reported TIC results.

Spike Recoveries

Both reagent spikes and MS/MSDs were analyzed as part of this method. The spiked reagent soil sample extracted on December 3 had a recovery of 4-nitrophenol (129%) that was outside CLP limits but within ATI control limits. This problem is not expected to affect the data.

The recoveries of 2,4-dinitrotoluene and 4-nitrophenol from one matrix spike sample extracted on January 1 were slightly above the upper CLP limit. This discrepancy is not expected to affect the data.

Surrogate Recoveries and Holding Times

Surrogate spikes of phenol-d6 and 2-fluorophenol in samples M-108B and M-37 (the field duplicate of sample M-108B) were not recoverable due to sample dilutions. Samples M-103A, M-105A, and M-108A were originally extracted on December 17 but had to be reextracted due to low acid surrogate recoveries in the samples and blank. Reextractions were performed past holding times. Results for target compounds were identical for both extractions. Results for these samples may be biased slightly low. No other holding time or surrogate problems were identified.

1.3 Organochlorine Pesticide and PCB Data Assessment

The organochlorine pesticide and PCB data are valid and substantially meet the criteria established in the analytical protocol, with the exceptionof the items listed below.

Surrogate Recovery

The dibutylchlorendate (DBC) recovery was outside CLP limits for sample M-108B. However, these limits are considered advisory and do not require qualification of the sample data.

Reagent Blank and Matrix Spike Recoveries

The reagent soil, MS, and MSD samples extracted on December 3 had recoveries for dieldrin that were outside ATI's control limits but within CLP advisory limits. These low recoveries are not expected to affect data quality.

1.4 Metals Data Assessment

The metals data are valid and substantially meet the criteria presented in the analytical protocol with the following exceptions listed below. The RPD between laboratory duplicate samples was large for cadmium in one set (61%) and for arsenic in another set (57%). Poor recoveries of antimony and silver (66% and 35%) in one MS sample, and thalium (33%) in another, were attributed to sample matrix interferences by the laboratory. In addition, recoveries were not attainable in the second MS sample for aluminum, calcium, iron, and sodium due to necessary dilution of the sample. Based on these QC results, antimony, selenium, and thallium results may be biased slightly low.

1.5 Organoshposphorus Pesticide Data Assessment (Method 8140)

The organophosphorus pesticide data are valid and substantially meet the criteria established in the analytical protocol with the following exceptions.

Surrogate Recoveries

No surrogate recovery results were reported with the data. Method 8140 recommends that one or two surrogates that are not expected to be present be added to every sample. The laboratory has not been able to identify a suitable surrogate to run with this analysis.

Matrix Spike Recoveries

At least one compound added to each MS samples and spiked reagent blank was outside the 75 to 125 percent advisory limits (Regian 9 SAS Guidelines). However, no recovery was less than 61 percent. These results should not affect data quality.

1.6 Chlorinated Herbicide Data Assessment (Method 8150)

The chlorinated data are valid and substantially meet the criteria established in the analytical protocol with the following exceptions.

Surrogate Recoveries

No surrogate recovery results were reported with the data. Method 8150 recommends that one or two surrogates that are not expected to be present be added to every sample. The laboratory is analyzing pentachlorophenol as a surrogate analyte for this analysis. However, no control limits have been established yet.

Reagent Blank and Matrix Sprike Recoveries

Two spike reagent blank samples and two MS/MSD pairs were analyzed with project samples. Dinoseb recoveries were low in all but one QC sample (54% to 57%). The other three compounds, 2,4-D, 2,4,5-TP, and 2,4,5-T, were within the 75% to 125% advisory limits for all but one MS/MSD pair. The exceptions were no more than 10% outside limits.

1.7 Summary of Data Assessment

Chemical data obtained as part of this site investigation conducted for CTO 85 generally meet project data quality objectives and are appropriate for the intended uses. However, as discussed in previous sections, several VOC, semivolatile, and metals results may require qualification due to QC results.

Appendix E
Table 1. Relative Percent Difference
Field Duplicate Samples

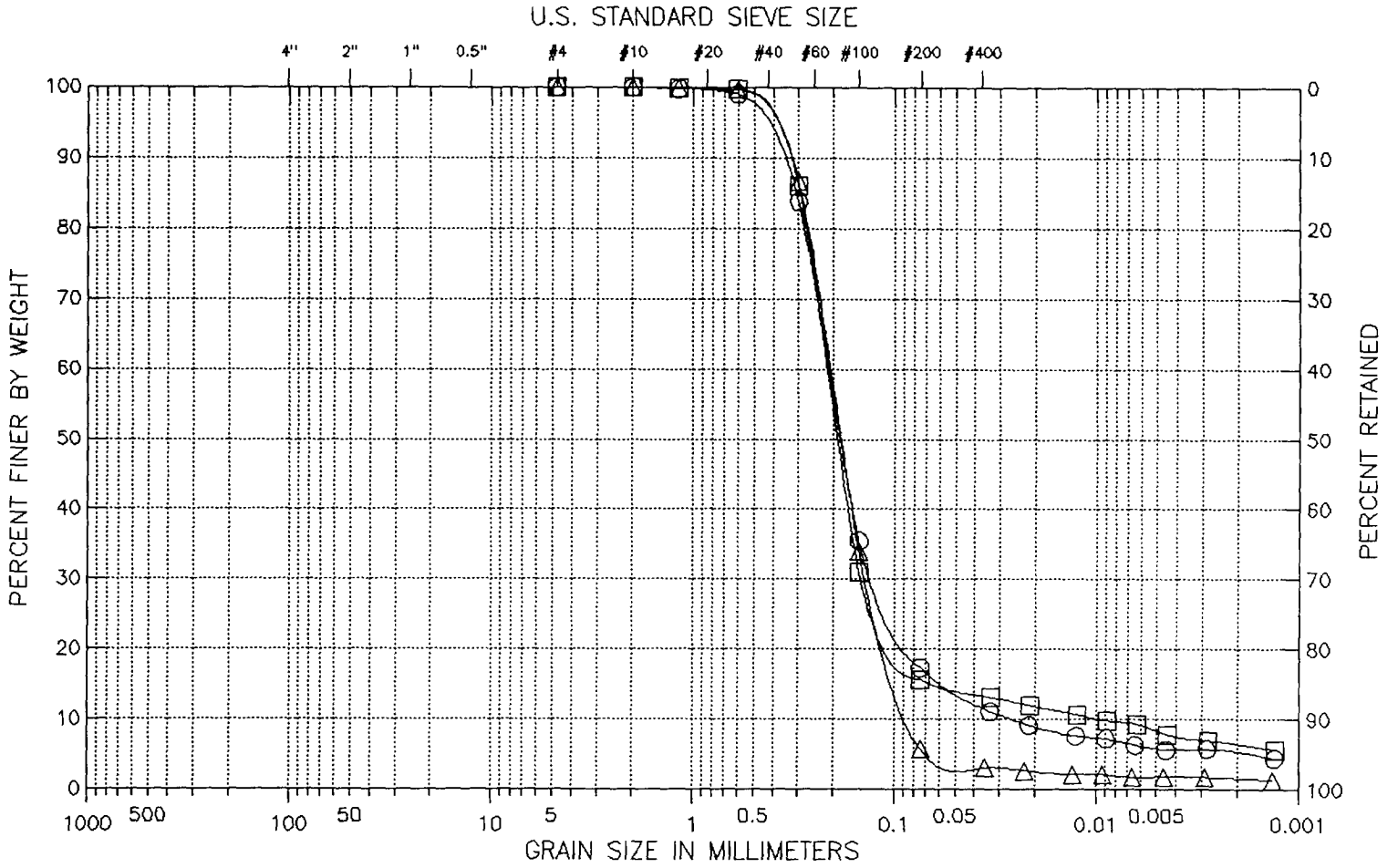
FIELD ID	M-108B mg/kg	M-37 mg/kg	RPD %
pH	7.2	7.9	9
Total Solids (%)	97.1	97.0	0
Total Organic Carbon (mg/kg)	NA	NA	NC
INORGANICS (mg/kg)			
Aluminum	6890	7480	8
Antimony	<1.9	<1.8	NC
Arsenic	15.6	9.4	50
Barium	62.7	64.5	3
Beryllium	<0.17	0.17	NC
Calcium	2280	2770	19
Cadmium	<0.38	<0.36	NC
Chromium	56.6	56.7	0
Cobalt	8.0	7.0	13
Copper	13.8	14.1	2
Iron	13900	13100	6
Lead	4.7	5.0	6
Magnesium	6270	5980	5
Manganese	370	362	2
Mercury	0.09	<0.06	NC
Nickel	53.2	48.0	10
Potassium	968	1000	3
Selenium	<2.5	<1.3	NC
Silver	<0.76	<0.72	NC
Sodium	353	450	24
Thallium	<0.11	<0.12	NC
Vanadium	16.3	16.8	3
Zinc	28.0	26.6	5
CL PESTICIDES/PCBS	ND	ND	NC
OP PESTICIDES	ND	ND	NC
CHLORINATED HERBICIDES	ND	ND	NC
SEMIVOLATILE ORGANICS (mg/kg)			
Aliphatic Hydrocarbon C12	2	2	NC
Aliphatic Hydrocarbon C12	2		NC
Aliphatic Hydrocarbon C12	2		NC
Aliphatic Hydrocarbon C13	3	3	NC
Aliphatic Hydrocarbon C13		3	NC
Aliphatic Hydrocarbon C13	3	2	NC
Aliphatic Hydrocarbon C15		1	NC
Aliphatic Hydrocarbon C24	3	4	NC
Aliphatic Hydrocarbon C24	3	4	NC
Aliphatic Hydrocarbon C24	3		NC
Aliphatic Hydrocarbon C25	6	6	NC
Aliphatic Hydrocarbon C25	3	6	NC
Aliphatic Hydrocarbon C25		5	NC
Aliphatic Hydrocarbon C26	8	10	NC
Cylic Hydrocarbon	5	7	NC
Hydrocarbons C9-C28	500	500	NC
Gross Alpha (pCi/g)	1.1+/-0.8	1.6+/-0.9	37
Gross Beta (pCi/g)	4.5+/-1.2	5.0+/-1.2	26
Total Uranium (ug/g)	0.5	0.5	0
Radium-226 (pCi/g)	0.4+/-0.1	0.4+/-0.1	0
Radium-228 (pCi/g)	<0.2	<0.2	NC

RPD: Relative Percent Differenct
NC: Not Calculated
NA: Not Analyzed

APPENDIX F

GEOTECHNICAL LABORATORY REPORTS

Project : JAMES M. MONTGOMERY
Project No.: 90C0137A
Location:
Date : Fri Mar 22 1991

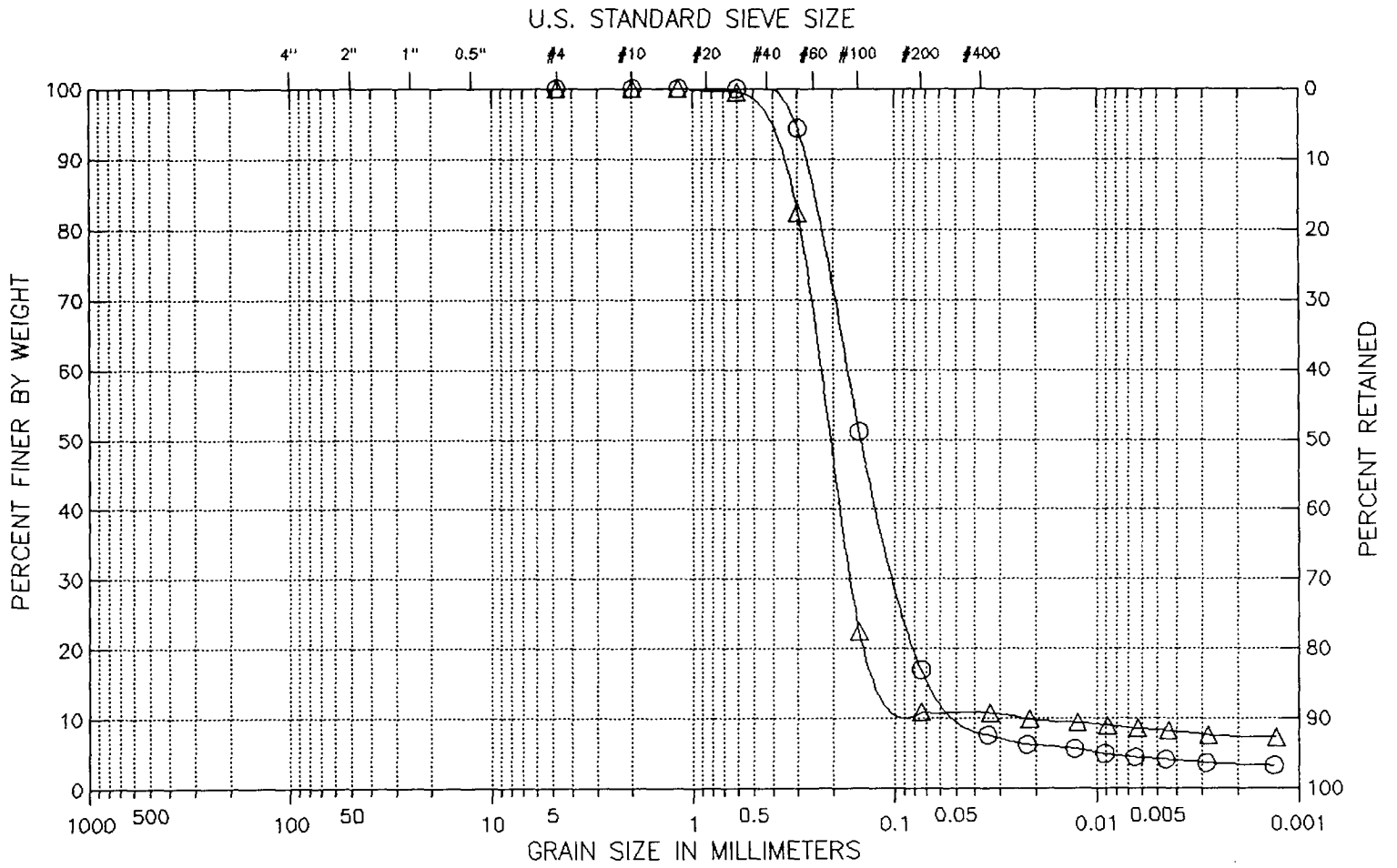


COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring No.	Sample No.	Depth	Filename	Classification / Description
⊖	M-10A	M-10A	4.0'	M10A	BROWN CLAYEY SILTY SAND
△	M-14A	M-14A	15.0'	M14A	YELLOW/TAN CLAYEY SILTY SAND
⊟	M-14B	M-14B	60.0'	M14B	YELLOW/TAN CLAYEY SILTY SAND

Figure 1

Project : JAMES M. MONTGOMERY
Project No.: 90C0137A
Location:
Date : Fri Mar 22 1991



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring No.	Sample No.	Depth	Filename	Classification / Description
-O-	M-103A	M-103A	15.0'	M103A	GRAY CLAYEY SILTY SAND
-△-	M-108B	M-108B	50.0'	M108B	YELLOW/TAN CLAYEY SILTY SAND

Figure 1

GEOTECHNICAL LABORATORY TEST DATA

Project : JAMES M. MONTGOMERY
Filename : M14A
Project No. : 90C0137A
Depth : 15.0'
Elevation :
Boring No. : M-14A
Test Date : 03/20/91
Tested by : N. JOHNSON
Sample No. : M-14A
Test Method : D422
Checked by : S. CAPPS
Location :
Soil Description : YELLOW/TAN CLAYEY SILTY SAND
Remarks :

HYDROMETER

Hydrometer ID : 1734
Weight of air-dried soil = 120 gm
Specific Gravity = 2.65

Hygroscopic Moisture Content :
Weight of Wet Soil = 120 gm
Weight of Dry Soil = 116.57 gm
Moisture Content = 0.0294244

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
2.00	12.00	22.00	3.64	0.036	3	0.036
5.00	11.50	21.90	3.09	0.023	3	0.023
15.00	11.00	21.70	2.50	0.013	2	0.013
30.00	11.00	21.70	2.50	0.009	2	0.009
60.00	10.50	21.70	2.00	0.007	2	0.007
120.00	10.50	22.10	2.18	0.005	2	0.005
300.00	10.00	23.00	2.09	0.003	2	0.003
1440.00	9.80	22.30	1.57	0.001	1	0.001

GEOTECHNICAL LABORATORY TEST DATA

Project : JAMES M. MONTGOMERY
Filename : M14A
Project No. : 90C0137A
Depth : 15.0'
Elevation :
Boring No. : M-14A
Test Date : 03/20/91
Tested by : N. JOHNSON
Sample No. : M-14A
Test Method : D422
Checked by : S. CAPPS
Location :
Soil Description : YELLOW/TAN CLAYEY SILTY SAND
Remarks :

COARSE SIEVE SET

Sieve Mesh	Sieve Openings Inches	Sieve Openings Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	0.00	0.00	100
#16	0.046	1.18	0.08	0.08	100
#30	0.024	0.60	0.35	0.43	100
#50	0.012	0.30	15.07	15.50	87
#100	0.006	0.15	61.31	76.81	34
#200	0.003	0.07	32.87	109.68	6

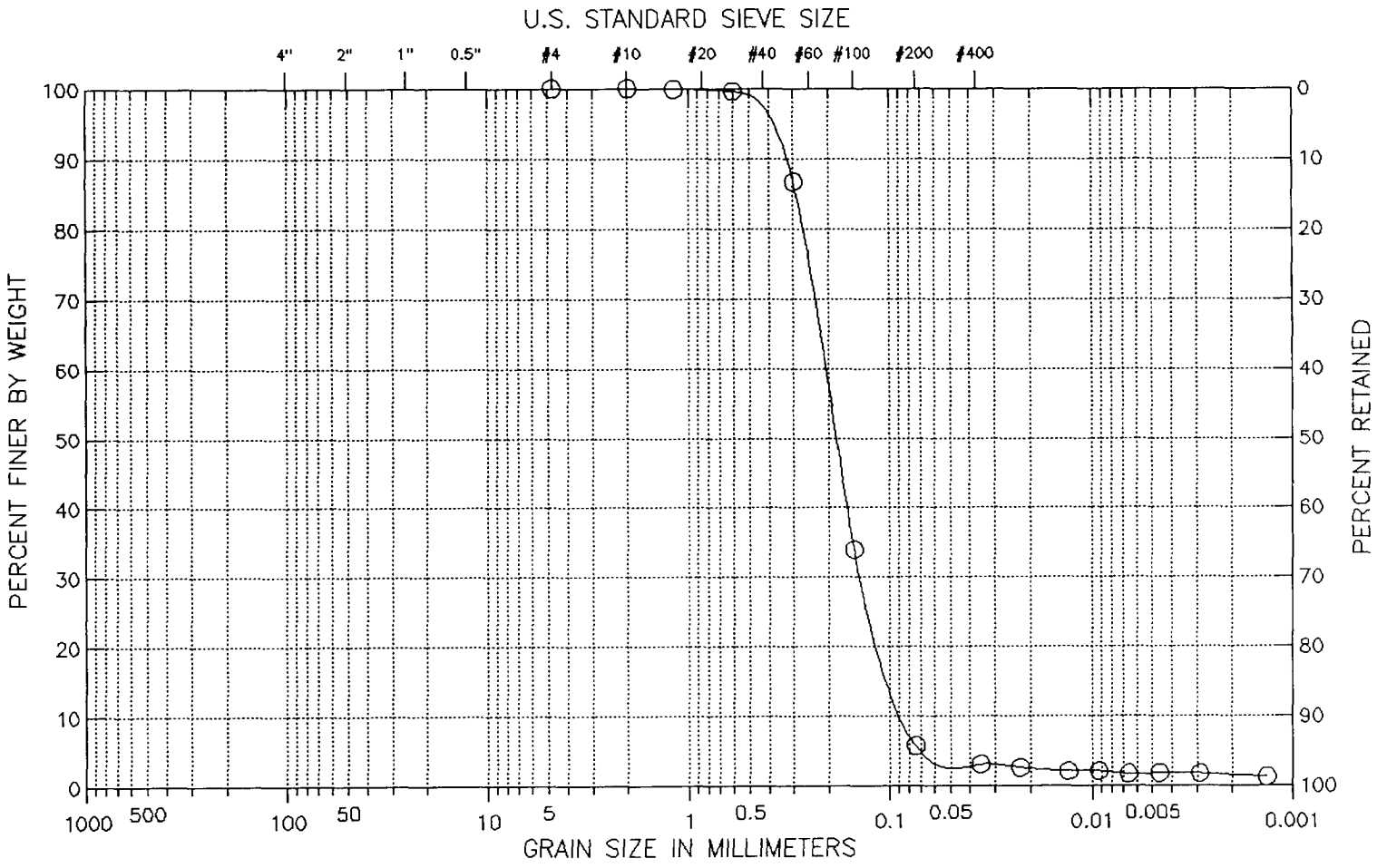
Total Weight of Sample = 116.57
Tare Weight = 0

D85 : 0.2934 mm
D60 : 0.2112 mm
D50 : 0.1852 mm
D30 : 0.1357 mm
D15 : 0.0933 mm
D10 : 0.0823 mm

Soil Classification

ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : M-14A Sample No: M-14A Tested by : N. JOHNSON Filename : M14A	Project : JAMES M. MONTGOMERY Project No.: 90C0137A Location: Date : Fri Mar 22 1991



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
()
Visual Description :
YELLOW/TAN CLAYEY SILTY SAND

Remarks :

Figure 1

GEOTECHNICAL LABORATORY TEST DATA

Project : JAMES M. MONTGOMERY
Filename : M14B
Project No. : 90C0137A
Depth : 60.0'
Elevation :
Boring No. : M-14B
Test Date : 03/20/91
Tested by : N. JOHNSON
Sample No. : M-14B
Test Method : D422
Checked by : S. CAPPS
Location :
Soil Description : YELLOW/TAN CLAYEY SILTY SAND
Remarks :

HYDROMETER

Hydrometer ID : 1734
Weight of air-dried soil = 120 gm
Specific Gravity = 2.65

Hygroscopic Moisture Content :
Weight of Wet Soil = 120 gm
Weight of Dry Soil = 118.24 gm
Moisture Content = 0.014885

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
2.00	23.80	22.00	15.44	0.033	13	0.033
5.00	22.50	21.90	14.09	0.021	12	0.021
15.00	21.00	21.90	12.59	0.012	11	0.012
30.00	20.00	21.90	11.59	0.009	10	0.009
60.00	19.50	21.70	11.00	0.006	9	0.006
120.00	17.50	22.20	9.23	0.004	8	0.004
300.00	16.20	23.00	8.29	0.003	7	0.003
1440.00	15.00	22.20	6.73	0.001	6	0.001

GEOTECHNICAL LABORATORY TEST DATA

Project : JAMES M. MONTGOMERY
Filename : M14B
Project No. : 90C0137A
Depth : 60.0'
Elevation :
Boring No. : M-14B
Test Date : 03/20/91
Tested by : N. JOHNSON
Sample No. : M-14B
Test Method : D422
Checked by : S. CAPPS
Location :
Soil Description : YELLOW/TAN CLAYEY SILTY SAND
Remarks :

COARSE SIEVE SET

Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	0.00	0.00	100
#16	0.046	1.18	0.07	0.07	100
#30	0.024	0.60	0.35	0.42	100
#50	0.012	0.30	16.10	16.52	86
#100	0.006	0.15	64.88	81.40	31
#200	0.003	0.07	18.09	99.49	16

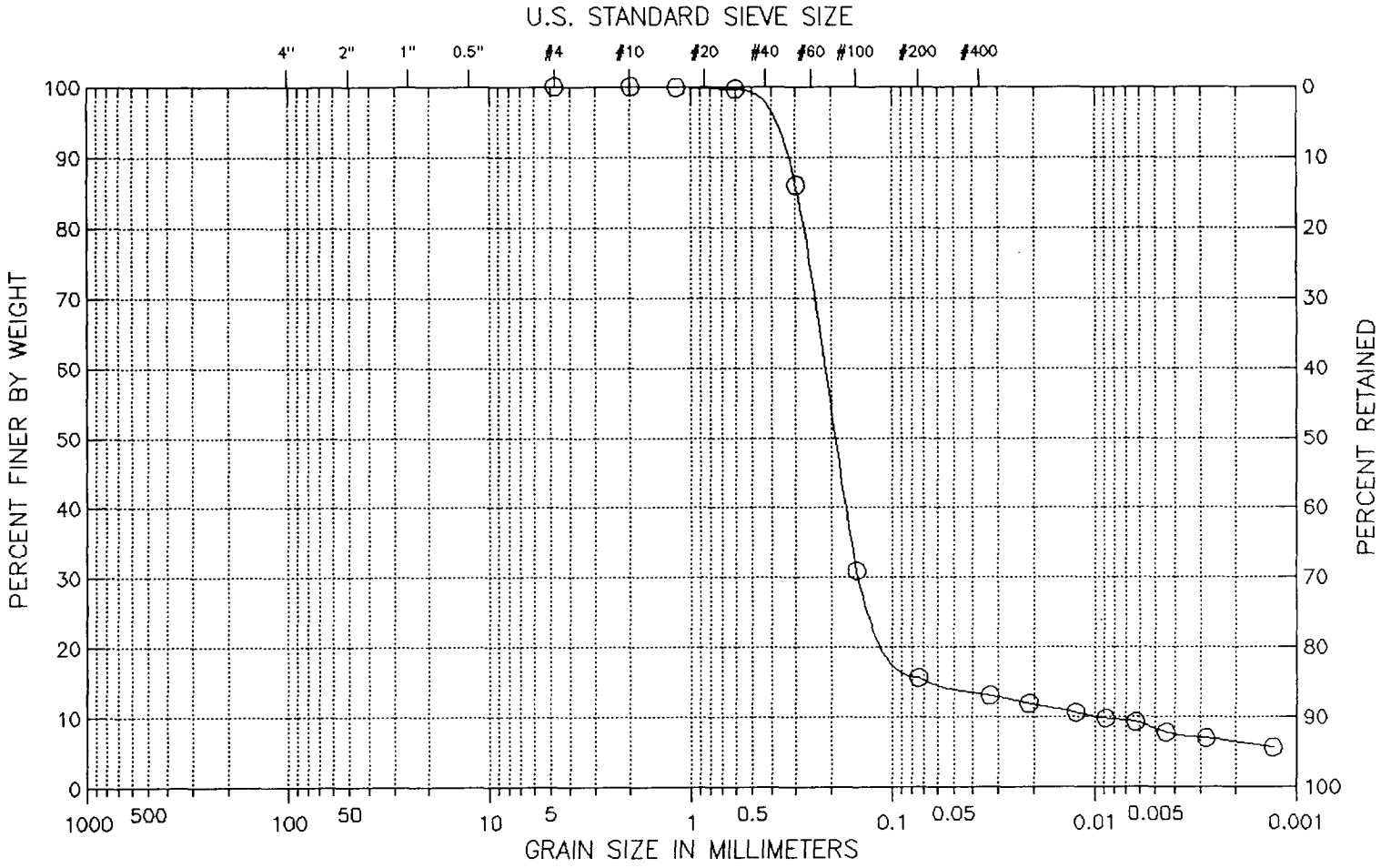
Total Weight of Sample = 118.24
Tare Weight = 0

D85 : 0.2963 mm
D60 : 0.2162 mm
D50 : 0.1906 mm
D30 : 0.1433 mm
D15 : 0.0603 mm
D10 : 0.0095 mm

Soil Classification

ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : M-14B Sample No.: M-14B Tested by : N. JOHNSON Filename : M14B	Project : JAMES M. MONTGOMERY Project No.: 90C0137A Location: Date : Fri Mar 22 1991



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
()
Visual Description :
YELLOW/TAN CLAYEY SILTY SAND

Remarks :

Figure 1

GEOTECHNICAL LABORATORY TEST DATA

Project : JAMES M. MONTGOMERY
Filename : M108B
Project No. : 90C0137A
Depth : 50.0'
Elevation :
Boring No. : M-108B
Test Date : 03/20/91
Tested by : N. JOHNSON
Sample No. : M-108B
Test Method : D422
Checked by : S. CAPPS
Location :
Soil Description : YELLOW/TAN CLAYEY SILTY SAND
Remarks :

HYDROMETER

Hydrometer ID : 1734
Weight of air-dried soil = 120 gm
Specific Gravity = 2.65

Hygroscopic Moisture Content :
Weight of Wet Soil = 120 gm
Weight of Dry Soil = 117.81 gm
Moisture Content = 0.0185893

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
2.00	21.00	22.10	12.68	0.034	11	0.034
5.00	20.00	22.00	11.64	0.021	10	0.021
15.00	19.50	21.90	11.09	0.012	9	0.012
30.00	19.00	21.90	10.59	0.009	9	0.009
60.00	18.50	21.90	10.09	0.006	9	0.006
120.00	18.00	22.20	9.73	0.004	8	0.004
300.00	17.00	22.80	9.00	0.003	8	0.003
1440.00	17.00	22.00	8.64	0.001	7	0.001

GEOTECHNICAL LABORATORY TEST DATA

Project : JAMES M. MONTGOMERY
Filename : M108B
Project No. : 90C0137A
Depth : 50.0'
Elevation :
Boring No. : M-108B
Test Date : 03/20/91
Tested by : N. JOHNSON
Sample No. : M-108B
Test Method : D422
Checked by : S. CAPPS
Location :
Soil Description : YELLOW/TAN CLAYEY SILTY SAND
Remarks :

COARSE SIEVE SET

Sieve Mesh	Sieve Openings Inches	Sieve Openings Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	0.00	0.00	100
#16	0.046	1.18	0.00	0.00	100
#30	0.024	0.60	0.52	0.52	100
#50	0.012	0.30	20.28	20.80	82
#100	0.006	0.15	70.30	91.10	23
#200	0.003	0.07	13.65	104.75	11

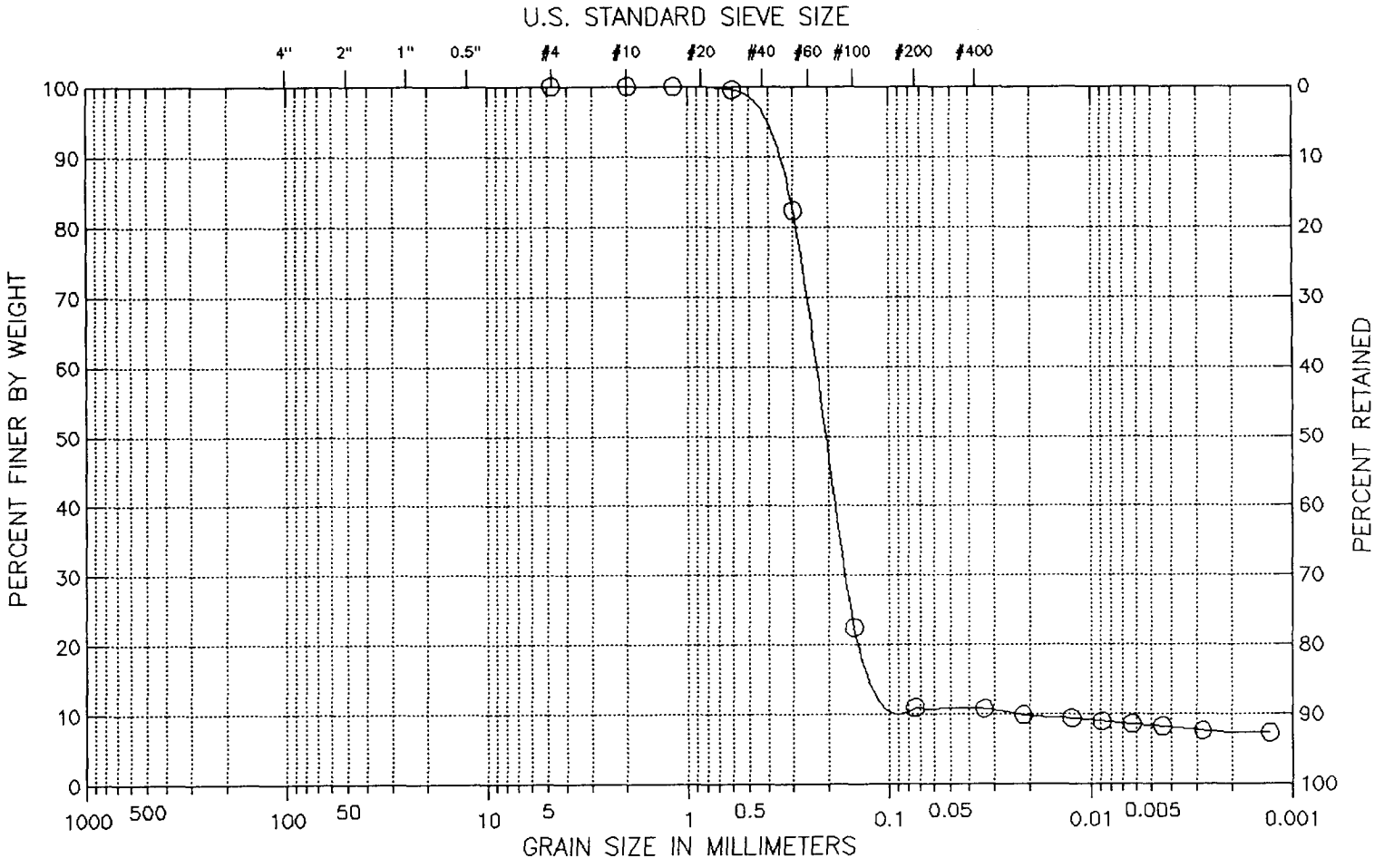
Total Weight of Sample = 117.81
Tare Weight = 0

D85 : 0.3343 mm
D60 : 0.2316 mm
D50 : 0.2063 mm
D30 : 0.1636 mm
D15 : 0.0949 mm
D10 : 0.0227 mm

Soil Classification

ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : M-108B Sample No.: M-108B Tested by : N. JOHNSON Filename : M108B	Project : JAMES M. MONTGOMERY Project No.: 90C0137A Location: Date : Fri Mar 22 1991



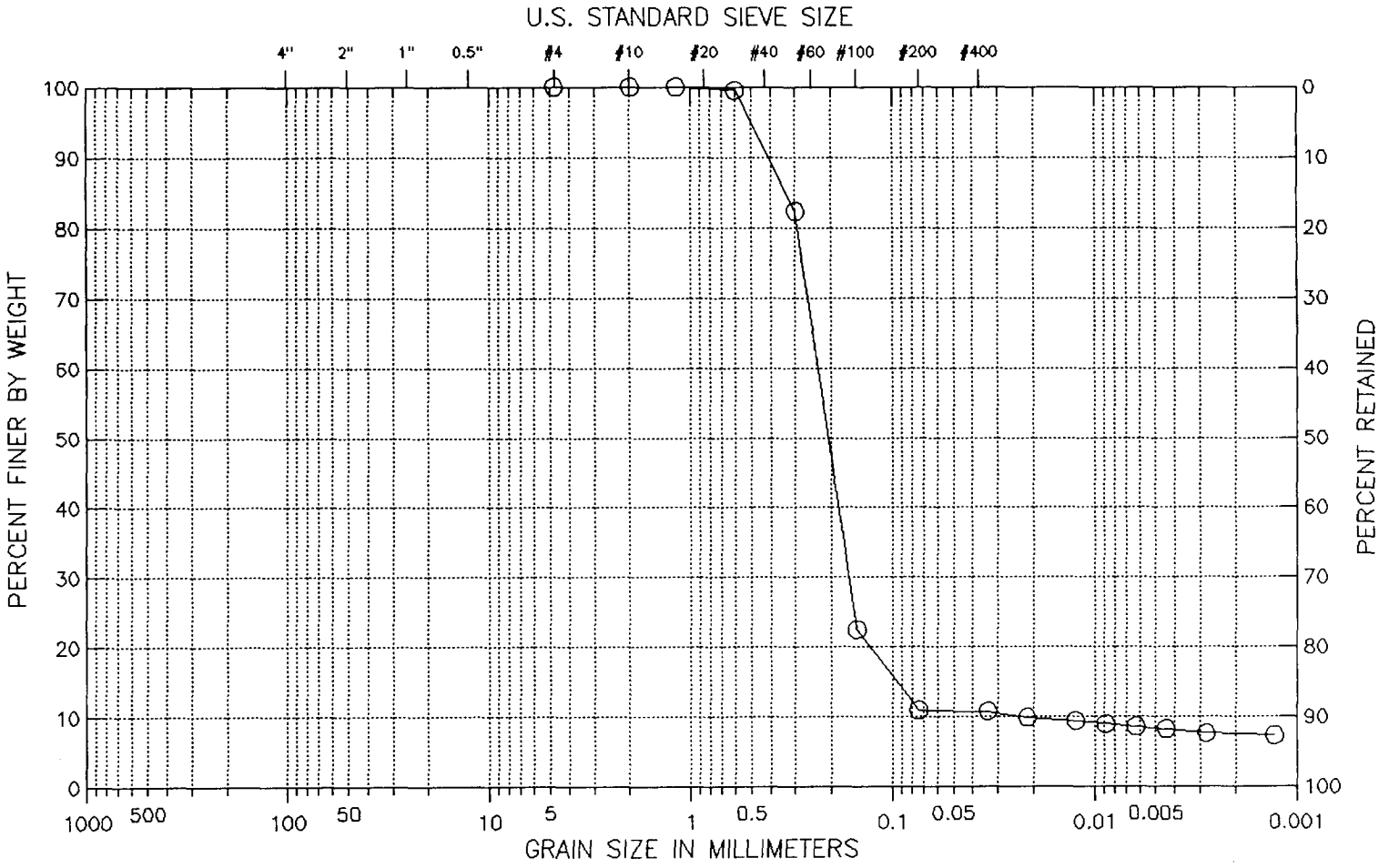
COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
()
Visual Description :
YELLOW/TAN CLAYEY SILTY SAND

Remarks :

Figure 1

Boring No. : M-108B Sample No: M-108B Tested by : N. JOHNSON Filename : M108B	Project : JAMES M. MONTGOMERY Project No.: 90C0137A Location: Date : Fri Mar 22 1991



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
()
Visual Description :
YELLOW/TAN CLAYEY SILTY SAND

Remarks :

Figure 1

GEOTECHNICAL LABORATORY TEST DATA

Project : JAMES M. MONTGOMERY
Project No. : 90C0137A
Boring No. : M-10A
Sample No. : M-10A
Location :
Soil Description : BROWN CLAYEY SILTY SAND
Remarks :

Depth : 4.0'
Test Date : 03/20/91
Test Method : D422

Filename : M10A
Elevation :
Tested by : N. JOHNSON
Checked by : S. CAPPS

HYDROMETER

Hydrometer ID : 1734
Weight of air-dried soil = 120 gm
Specific Gravity = 2.65

Hygroscopic Moisture Content :
Weight of Wet Soil = 120 gm
Weight of Dry Soil = 119.02 gm
Moisture Content = 0.00823391

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
2.00	21.50	22.10	13.18	0.034	11	0.034
5.00	19.20	22.10	10.88	0.022	9	0.022
15.00	17.50	21.90	9.09	0.013	8	0.013
30.00	17.00	21.90	8.59	0.009	7	0.009
60.00	16.00	21.80	7.55	0.006	6	0.006
120.00	15.10	22.10	6.78	0.005	6	0.005
300.00	14.80	23.00	6.89	0.003	6	0.003
1440.00	13.50	22.20	5.23	0.001	4	0.001

GEOTECHNICAL LABORATORY TEST DATA

Project : JAMES M. MONTGOMERY
Filename : M10A
Project No. : 90C0137A
Depth : 4.0'
Elevation :
Boring No. : M-10A
Test Date : 03/20/91
Tested by : N. JOHNSON
Sample No. : M-10A
Test Method : D422
Checked by : S. CAPPS
Location :
Soil Description : BROWN CLAYEY SILTY SAND
Remarks :

COARSE SIEVE SET

Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	0.00	0.00	100
#16	0.046	1.18	0.27	0.27	100
#30	0.024	0.60	0.94	1.21	99
#50	0.012	0.30	18.04	19.25	84
#100	0.006	0.15	57.42	76.67	35
#200	0.003	0.07	21.53	98.20	17

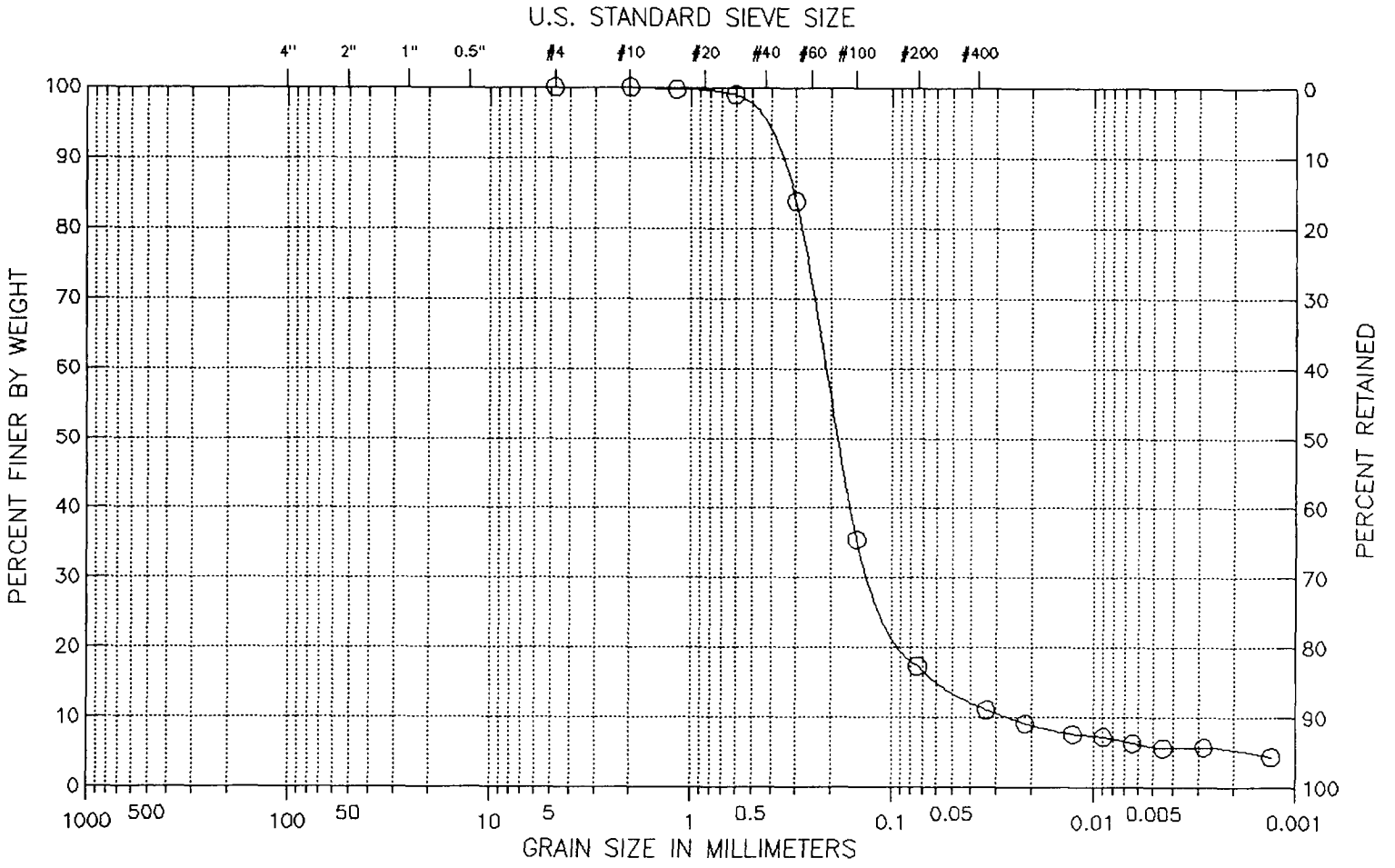
Total Weight of Sample = 119.02
Tare Weight = 0

D85 : 0.3169 mm
D60 : 0.2132 mm
D50 : 0.1847 mm
D30 : 0.1211 mm
D15 : 0.0549 mm
D10 : 0.0262 mm

Soil Classification

ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : M-10A Sample No.: M-10A Tested by : N. JOHNSON Filename : M10A	Project : JAMES M. MONTGOMERY Project No.: 90C0137A Location: Date : Fri Mar 22 1991



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
()
Visual Description :
BROWN CLAYEY SILTY SAND

Remarks :

Figure 1

GEOTECHNICAL LABORATORY TEST DATA

Project : JAMES M. MONTGOMERY
Filename : M103A
Project No. : 90C0137A
Depth : 15.0'
Elevation :
Boring No. : M-103A
Test Date : 03/20/91
Tested by : N. JOHNSON
Sample No. : M-103A
Test Method : D422
Checked by : S. CAPPS
Location :
Soil Description : GRAY CLAYEY SILTY SAND
Remarks :

HYDROMETER

Hydrometer ID : 1734
Weight of air-dried soil = 120 gm
Specific Gravity = 2.65

Hygroscopic Moisture Content :
Weight of Wet Soil = 120 gm
Weight of Dry Soil = 113.9 gm
Moisture Content = 0.0535558

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
2.00	17.00	22.10	8.68	0.035	8	0.035
5.00	15.50	22.10	7.18	0.022	6	0.022
15.00	14.90	21.90	6.49	0.013	6	0.013
30.00	14.00	21.90	5.59	0.009	5	0.009
60.00	13.50	21.90	5.09	0.006	4	0.006
120.00	13.00	22.20	4.73	0.005	4	0.005
300.00	12.10	23.00	4.19	0.003	4	0.003
1440.00	12.00	22.20	3.73	0.001	3	0.001

GEOTECHNICAL LABORATORY TEST DATA

Project : JAMES M. MONTGOMERY
Filename : M103A
Project No. : 90C0137A
Depth : 15.0'
Elevation :
Boring No. : M-103A
Test Date : 03/20/91
Tested by : N. JOHNSON
Sample No. : M-103A
Test Method : D422
Checked by : S. CAPPS
Location :
Soil Description : GRAY CLAYEY SILTY SAND
Remarks :

COARSE SIEVE SET

Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	0.00	0.00	100
#16	0.046	1.18	0.00	0.00	100
#30	0.024	0.60	0.03	0.03	100
#50	0.012	0.30	6.33	6.36	94
#100	0.006	0.15	48.78	55.14	51
#200	0.003	0.07	38.52	93.66	17

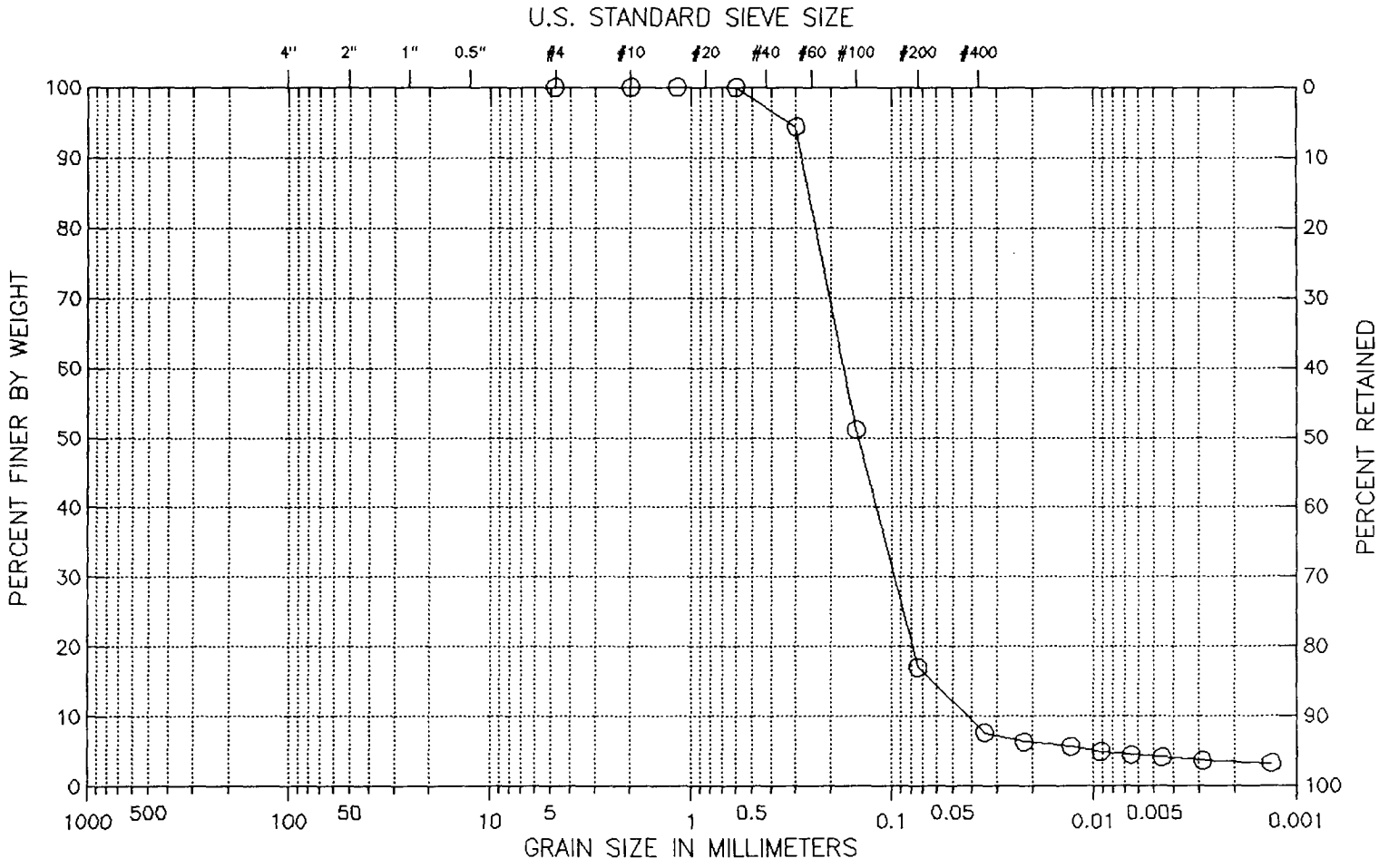
Total Weight of Sample = 113.9
Tare Weight = 0

D85 : 0.2582 mm
D60 : 0.1729 mm
D50 : 0.1465 mm
D30 : 0.0968 mm
D15 : 0.0628 mm
D10 : 0.0419 mm

Soil Classification

ASTM Group Symbol : N/A
ASTM Group Name : N/A
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : M-103A Sample No.: M-103A Tested by : N. JOHNSON Filename : M103A	Project : JAMES M. MONTGOMERY Project No.: 90C0137A Location: Date : Fri Mar 22 1991



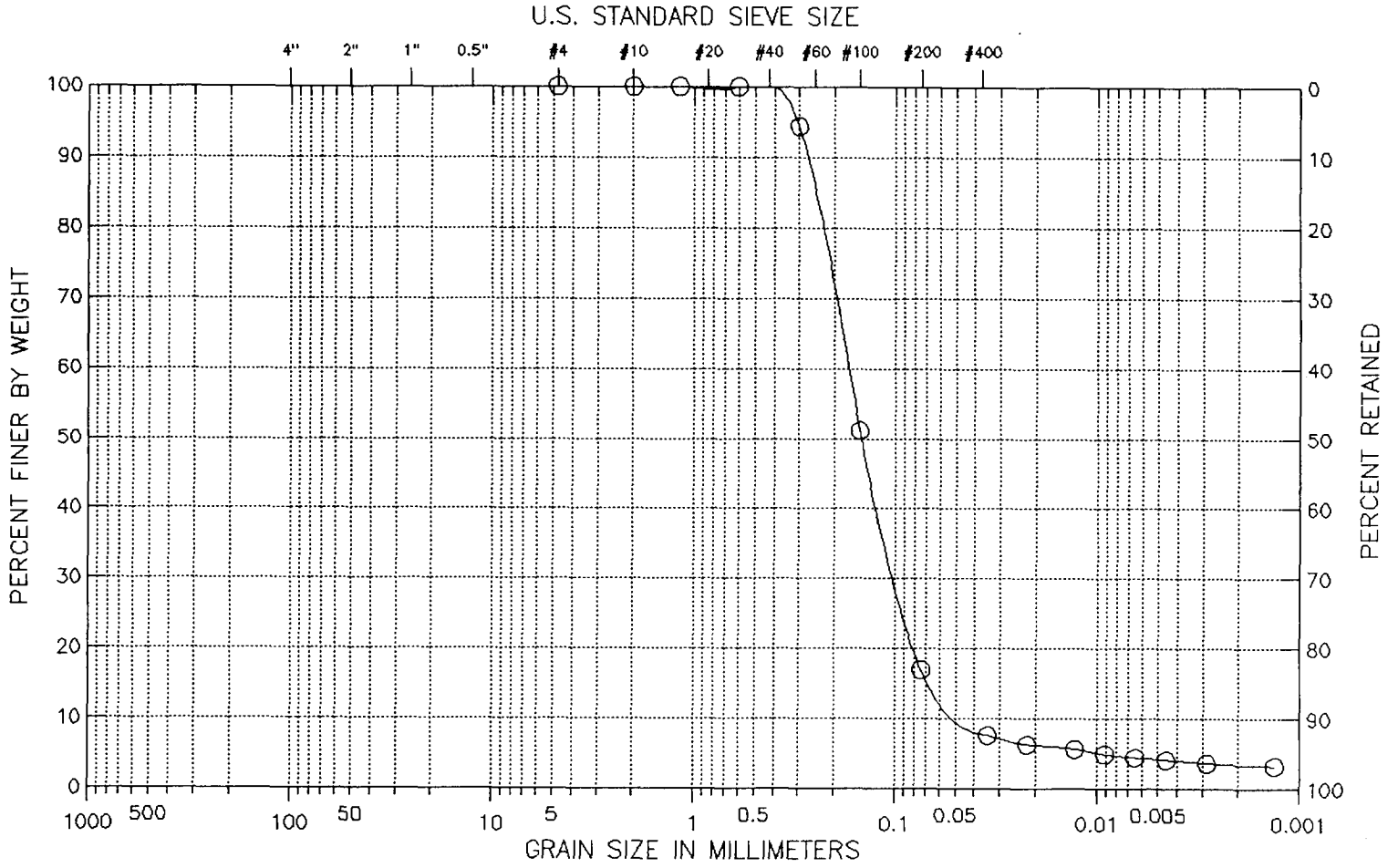
COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
()
Visual Description :
GRAY CLAYEY SILTY SAND

Remarks :

Figure 1

Boring No. : M-103A Sample No.: M-103A Tested by : N. JOHNSON Filename : M103A	Project : JAMES M. MONTGOMERY Project No.: 90C0137A Location: Date : Fri Mar 22 1991



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
()
Visual Description :
GRAY CLAYEY SILTY SAND

Remarks :

Figure 1