

FINAL

**SOIL AND GROUNDWATER CHARACTERIZATION REPORT
BUILDING 397 FUEL RELEASE
NAVAL AVIATION DEPOT
NAVAL AIR STATION ALAMEDA
ALAMEDA, CALIFORNIA**

**Contract No. N62474-93-D-2151
Delivery Order No. 0042**

Submitted to:

Department of the Navy
Engineering Field Activity, West
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, California 94066-2402

Submitted by:

IT Corporation
4585 Pacheco Blvd.
Martinez, California 94553

June 1997

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1.0 Introduction

Under the Department of the Navy RAC contract N62474-93-D-2151, delivery order (DO) 0042, IT Corporation (IT) was requested to perform environmental services at Naval Aviation Depot (NADEP) at Naval Air Station (NAS) Alameda, California (Figure 1). The objectives of the scope of work were to determine the nature and extent of jet fuel (JP-5) in the soil and groundwater around the Jet Engine Test Cell (JETC) 15 exhaust stack at Building 397, and to recommend appropriate corrective actions to remove free phase JP-5 in the subsurface. Figure 2 provides a detailed drawing of the study area at Building 397.

To achieve the project objectives, the soil and groundwater conditions under the Jet Engine Test Cell 15 northern exhaust stack and the adjacent courtyard area (Figure 2) were characterized. Direct-push coring methods were used to drill the sampling locations at the site. In addition, seven existing permanent monitoring wells near Building 397 were sampled.

1.1 Background

The following historical description was developed based on communication with Mr. Roger Caswell, NADEP, Alameda. On February 4, 1991, 3200 gallons of water with fuel was pumped from an oil/water separator system at Building 397. On February 28, 1991, during heavy rains, several storm drain manholes near Building 397 overflowed. The overflow was found to contain free phase jet fuel. Approximately 33,750 gallons of impacted product and water were collected, and 4,000 gallons of jet fuel (JP-5) were separated and disposed. The source of the fuel was identified as an open drain petcock found in fuel room of Building 397. It is estimated that the fuel loss from the petcock was up to 17,000 gallons.

In March 1991, excavation at the outlets of 4 oil/water separators at Building 397 was performed by NADEP personnel, in order to plug damaged lines and prevent overflow discharge of JP-5 to the storm sewer. Follow-up checks performed after the winter rains in 1991 indicated that fuel-impacted water was accumulating in sewers surrounding the building. This was believed to result from residual fuel and/or oil in the soil around the existing piping. Soil sampling in excavations showed the presence of jet fuel and associated compounds.

In December 1992, IT was contracted through the U.S. Army Corps of Engineers to implement an interim removal action of impacted soil at the site. In February 1993, IT excavated soil to a depth of approximately 2 feet below water level (approximately 6 to 8 feet below grade) (IT Corporation, 1993). The excavation was extended to achieve a predetermined action level of 1,000 mg/kg JP-5 in soil. These levels were verified by analyses performed by a field-based mobile laboratory. As a result of the interim removal action, approximately 1,310 tons of soil and debris were removed. Residual product observed in the subsurface soils along the excavation wall closest to the building's north wall was not removed due to potential structural impacts to the building. Abandoned underground piping and other subsurface structures were also removed, and any which could not be removed were pumped out and filled with a concrete slurry.

Following the removal action, a sloped gravel trench and recovery sumps were installed below the water table, and the site was restored at the surface. A passive product recovery system, operated by NADEP personnel, was installed to assist recovery of residual fuel. However, due to a drop in the groundwater elevation at the site, the recovery system has been inoperable. Since March 1993, the recovery system was checked periodically with only a sheen (<0.04 inch) of product measured in 2 of 5 sumps.

1.2 Scope of Work

During this field effort, the following activities were performed:

- Five locations (SB-1 through SB-5) adjacent to the JETC-15 exhaust stack were cored using direct-push geoprobe methods. Each location was cored to a depth of 9.5 feet, corresponding to approximately 5 feet below the first groundwater encountered. Two soil samples were collected from each core for laboratory analyses.
- One location (SB-6) was cored within the JETC-15 exhaust stack using a concrete corer to a depth of 4.5 feet. Groundwater was directly encountered at the base of this core hole and rose into the hole.
- Temporary well points were installed at each of the coring locations and the groundwater was sampled.
- Seven pre-existing permanent monitoring wells were sampled near Building 397, in order to evaluate the groundwater quality in the unconfined aquifer.

The samples collected during this investigation were analyzed for total petroleum hydrocarbons (TPH) as JP-5, benzene, toluene, ethylbenzene and xylenes (BTEX), and two polynuclear aromatic hydrocarbons (PAH), naphthalene and benzo(a)pyrene. Naphthalene and benzo(a)pyrene were selected as indicator chemicals of JP-5 because current toxicological data indicates that these JP-5 constituent chemicals are most likely to pose a threat to human health. The data from the field investigation were collected and evaluated relative to human health risks presented in the *Final Human Health Risk-Based Petroleum Screening Levels Technical Memorandum* for NAS Alameda (PRC Environmental Management, Inc., March 1996).

Field activities were conducted between May 31, 1996 and July 18, 1996.

2.0 Summary of Work

The project activities in this scope of work included permitting, site clearance using surface geophysical methods, soil coring using direct-push methods, soil and groundwater sampling, borehole abandonment and investigation derived waste disposal.

2.1 Permits

Soil boring permits were obtained from the Zone 7 Alameda Flood Control District (district) prior to the implementation of coring activities. The district inspector was notified prior to the boring abandonment activities, to inspect grouting activities. However, the inspector was not present during the activity.

2.2 Site Clearance

The site clearance activities were performed in accordance with the IT Corporation Standard Operating Procedures (SOP) No. 7.1 Revision 0, as detailed in the Delivery Order Work Plan (IT Corporation, 1996). A line locating service used geophysical methods to identify underground utilities. In addition, building plans were reviewed and underground services alert (USA) was notified to identify and mark any known utilities.

No utilities were encountered during coring activities outside the northern exhaust stack. However, at the coring location within the exhaust stack, a steel utility believed to be the floor drain for the exhaust stack was encountered at a depth of approximately two feet below grade. No damage to the utility resulted. This location was offset and a new location was cored without encountering any utility.

2.3 Soil Coring

Six locations were cored: five in asphalt around the JETC-15 exhaust stack (SB-1 through SB-5), and one within the JETC-15 exhaust stack (SB-6). Figure 2 shows the coring locations. The objective of the soil coring activity was to quantify TPH as JP-5, BTEX and indicator-PAH concentrations in the soil, and to facilitate installation of temporary wells.

Locations SB-1 through SB-5 were drilled using direct-push coring methods. This coring technique involved pneumatically driving a 2-inch diameter stainless steel tube (probe) in 2.5

feet lengths to the target depth. Within the probe was a sampling tube that allowed collection of continuous sample cores from ground surface, to the total depth at each location. The soil cores were then logged and soil samples were collected at target sample depths. Each soil boring was drilled to a depth of 9.5 feet below grade, which corresponded to approximately five feet below the first water encountered. Appendix A provides the boring logs for each of the coring locations.

Location SB-6, located within the exhaust stack had a concrete floor with an estimated thickness of at least 2 feet. Site preparation included removal of a corrugated steel flooring and approximately 1 foot of the base rock present below the floor. The concrete was then cored using a concrete corer, in an attempt to access the underlying soils in the vadose zone. However, the concrete in the floor of the exhaust stack was found to be 4.5 feet thick. Groundwater at this location was measured at a depth of 3.10 feet. Since groundwater was encountered within the concrete, no soil samples were collected.

Relatively undisturbed soil samples were collected in precleaned brass sleeves during coring activities. Soil samples were collected at approximately 2 feet to 3 feet below grade, and just above the water table (approximately 4.5 feet below grade) at all the coring locations in asphalt (SB-1 through SB-5). No soil samples were collected at SB-6.

2.4 Temporary Well Point Installation

One-inch diameter, 0.020-inch slotted PVC screens were inserted into borings SB-1 through SB-5 as temporary well points, to a depth of 9.5 feet below grade. A sand filter pack was installed in the annular space to filter groundwater flowing into the temporary well point. Each temporary well point was then allowed to stabilize for at least 48 hours prior to purging and sampling of the groundwater.

The well point at SB-6 was physically driven into the fill material below the concrete to a depth of 6 feet below grade.

2.5 Soil and Groundwater Sampling and Analyses

The objective of the soil and groundwater sampling was to determine the concentration of TPH as JP-5, BTEX and indicator-PAHs at the site. A decision was made to add PAH analyses after

the temporary wells were abandoned. Since analysis for PAH requires a significantly greater volume of groundwater than was collected, the temporary wells were not tested for PAHs.

2.5.1 Soil Sampling and Analyses

All the soil samples were collected in brass sleeves and transported to the selected California Department of Health Services certified laboratory by courier. The soil samples were preserved at approximately 4°C using water ice. The analysis request and chain of custody (ARCC) forms are presented in Appendix B. The soil samples were analyzed for TPH as JP-5 using modified EPA method SW8015, BTEX using EPA method SW8020 and indicator-PAHs (specifically naphthalene and benzo(a)pyrene) using EPA method SW8310. Table 1 provides a summary of the results from the soil sample analyses. Appendix C provides the laboratory data packages for the soil samples that were analyzed.

2.5.2 Groundwater Sampling and Analyses

One groundwater sample was collected from each temporary well point. Following the installation of the temporary well points, the groundwater was allowed to equilibrate for approximately 48 hours. Prior to sampling, a clear bailer was used to measure the depth and thickness of any product on the water table. A water level meter was used to measure the depth to groundwater within each temporary well point. Table 3 provides a summary of the product thickness and the depth to groundwater in each temporary well point.

Prior to groundwater sample collection, a disposable bailer was used to purge at least three well volumes from each temporary well point. When the water level in the well recharged to at least 80 percent of its original measurement, a groundwater sample was collected. The groundwater was then collected with a disposable bailer and transferred into appropriate sampling containers, and sent to the certified laboratory via a courier, after being stored at approximately 4°C using water ice. The groundwater samples collected were analyzed for TPH as JP-5 using modified EPA method SW8015 and BTEX using EPA method SW8020. Table 3 provides a summary of the analytical results obtained. Appendix C provides the laboratory data packages for the groundwater samples that were analyzed.

2.5.3 Monitoring Well Groundwater Sampling and Analyses

Following a meeting with the Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) in July 1996, a total of seven pre-existing permanent monitoring wells were sampled and analyzed for TPH as JP-5 and indicator-PAHs. These monitoring wells are screened across the water table. Table 4 presents the results of the groundwater sampling that was performed. Appendix C provides the laboratory data packages for the groundwater samples that were analyzed.

2.5.4 Quality Control Sampling

The "IT Corporation Indefinite Delivery/Indefinite Quantity Statement of Work for Laboratory Analyses," (IT Corporation, 1995) recommends the number of quality control samples that need to be collected for a given sampling event. One field duplicate soil sample was collected during this phase of work. In addition, 1 trip blank, 1 field duplicate, 1 matrix spike (spiked by the laboratory), and 1 matrix spike duplicate sample (spiked by the laboratory) were also collected and analyzed for the chemicals of concern in both soil and groundwater. All the quality control samples were found to be acceptable. Appendix C includes the laboratory data packages for the quality control samples.

2.6 Temporary Well Point Abandonment

Following groundwater sampling, each temporary well point was removed and the boreholes were abandoned using a 3 to 5 percent bentonite-in-cement grout mixture. Soil boring SB-6 was backfilled with neat cement. Each borehole was grouted to match the existing grade. Following abandonment of location SB-6, the base-rock and the corrugated steel flooring were replaced.

2.7 Disposal of Investigation Derived Wastes

Approximately 40 pounds of soil was generated during coring activities. The soil was stored in a 5-gallon steel container, sealed, labeled and temporarily stored in a location designated by NADEP personnel. Following completion of field activities, the soil was added to a JP-5 soil management stockpile at NAS Alameda, as directed by the NADEP representative. Wastewater (purge water and decontamination water) generated during the field activities was stored on site in a 55-gallon drum and discharged under permit to the sanitary sewer following completion of field activities. Miscellaneous waste (plastic covers, cement wraps, etc.) was disposed as garbage.

3.0 Summary of Results

3.1 Geology and Hydrogeology

The boring logs from the cores indicate that the soil in the subsurface around Building 397 is primarily well and poorly graded sand to a depth of 9.5 feet. These soils are typical for the area.

Groundwater in the temporary well points at the site was measured at depths between 3.83 feet and 5.12 feet below grade. Groundwater elevations in the five pre-existing permanent monitoring wells immediately surrounding the site varied between 8.86 feet and 7.93 feet above mean sea level. The temporary well points were not surveyed, and therefore the measured water levels made in them cannot be compared to those in the permanent monitoring wells. The groundwater, measured on July 9, 1996, appeared to flow in a north-westerly direction, with an average gradient of 0.008 ft/ft. This gradient is typical of the area. Figure 3 provides a potentiometric surface map for the Building 397 area.

3.2 Soil

Table 1 provides a summary of the soil analytical results for TPH as JP-5, BTEX and indicator-PAHs. TPH as JP-5 was detected in all the samples collected. The maximum concentration of TPH as JP-5 (24,000 mg/kg) was detected in one sample (SB-1-2) collected just above the water table in SB-1 (4.5 feet depth). With the exception of this sample, the highest TPH as JP-5 concentration (1,500 mg/kg) was detected in sample SB-4-2 from boring SB-4, at a depth of 4.5 feet. Neither benzene nor toluene was detected in any of the soil samples collected.

Ethylbenzene was detected in two samples, at concentrations of 6 mg/kg (SB-1-2 at 4.5 feet) in SB-1 and 0.051 mg/kg (SB-3-2 at 3.55 feet) in SB-3. Xylenes were detected in the same samples, at concentrations of 15.3 mg/kg (SB-1-2) and 0.098 mg/kg (SB-3-2). Napthalene was detected in four of eleven samples collected from the soil borings. The highest concentration (19 mg/kg) was measured in sample SB-1-2, collected at a depth of 4.5 feet within soil boring SB-1. Benzo(a)pyrene was detected in only one sample (SB-1-1) at a concentration of 0.16 mg/kg. This sample was collected from soil boring SB-1, at a depth of 2 feet below grade. It should be noted, however, that the method detection limits for napthalene and benzo(a)pyrene varied significantly, as a result of matrix interference effects in the samples.

3.3 Groundwater

3.3.1 Temporary Well Points

Prior to sampling at each temporary well point, a clear bailer was partially inserted into each well, slowly removed, and evaluated to estimate the thickness of JP-5 floating on the water table. The maximum product thickness was found in the well point at SB-1 (1 inch). This boring location was at the edge of the trench that was excavated during interim removal activities conducted in 1993 (Section 1.1). The other locations had product thickness varying between less than 0.05 inch to 0.2 inch. The JP-5 appeared highly degraded, and viscous at all the locations.

The groundwater samples that were collected from the temporary well points were analyzed for TPH as JP-5 and BTEX. In the original work plan, PAH analyses were not specified, and therefore samples were not collected for PAH analyses. The maximum concentration of TPH as JP-5 measured in the groundwater was 2,800 mg/L, at SB-2. No benzene was detected in any of the groundwater samples collected. Toluene was detected at 58 $\mu\text{g/L}$ in one sample collected at SB-5. Ethylbenzene was detected in two samples, with a maximum concentration of 79 $\mu\text{g/L}$ in the sample collected at SB-3. Xylenes were detected in four samples, with the maximum concentration of 2,500 $\mu\text{g/L}$ measured in the sample collected at SB-4. It should be noted that the method detection limits were elevated because of the high concentrations of TPH as JP-5 found in the groundwater. Table 3 summarizes the analytical results from the temporary well point samples that were collected.

3.3.2 Permanent Monitoring Wells

Seven pre-existing permanent monitoring wells, each located within one quarter of a mile of Building 397 were sampled (Figure 4). These samples were analyzed for TPH as JP-5 and indicator-PAHs. None of the samples yielded detectable concentrations of indicator-PAHs. Only one sample, collected at MW-1, yielded TPH as JP-5 (1,400 $\mu\text{g/L}$). Table 4 provides a summary of the analytical results from groundwater samples collected at the permanent monitoring wells. None of the wells showed evidence of free phase JP-5 on the groundwater.

3.3.3 Relevant Information from Other Studies

In addition to the chemical analyses that were performed on samples at the site, the total dissolved solids (TDS), transmissivity, aquifer storativity and specific yield data were compiled

for the unconfined aquifer from other available studies (PRC, January 1996; PRC, August 1996). The average TDS for 18 wells within 500 feet of Building 397 was 1,162 mg/L (ranging between 407 mg/L and 3,000 mg/L). Site 13 is an Installation Restoration Program (IRP) site that totally contains Building 397. Based on an aquifer test that was conducted at Site 13, the average transmissivity was calculated to be 0.1 ft²/min (ranging between 0.06 and 0.19 ft²/min); the average storativity was 0.0008 (ranging between 0.0004 and 0.0012) and the average specific yield was 0.12 (ranging between 0.035 and 0.22). This aquifer is considered an unlikely source of drinking water.

4.0 Conclusions and Recommendations

The conclusions, a risk-based evaluation, and recommendations for further action presented below are based on the results from the field investigation. The site is classified as a low-risk soil and groundwater case using the RWQCB interim guidance for low-risk fuel sites (California RWQCB, San Francisco Bay Region, 1996).

4.1 Conclusions

Based on the results of the investigation performed at the fuel release site at Building 397, the following conclusions have been made:

Chemicals of Concern

The soil and groundwater in the vicinity of the JETC-15 exhaust stack appear to be impacted primarily by free phase and dissolved JP-5. The soils had minor concentrations of ethylbenzene, xylenes, naphthalene and benzo(a)pyrene, and the groundwater had minor concentrations of toluene, ethylbenzene and xylenes.

Free Product

One temporary well point (SB-1), located at the edge of the former site excavation (Figure 2), had 1-inch of free-phase JP-5 measured on the water table. Other well points indicated only a JP-5 sheen (< 0.5 inch) on the water table. A trace of JP-5 (<0.05-inch) was visible under the foundation of the exhaust stack. This information suggests that only a sheen, or very thin degraded product layer exists on the groundwater surface locally at the site.

Impact of Source on Regional Aquifer

Groundwater sampling of the permanent monitoring wells indicates little lateral migration of free phase or dissolved JP-5. The one well (MW-1) that showed the presence of TPH as JP-5 (1,400 $\mu\text{g/L}$) in the groundwater is located to the south. The foundation of JETC-15 is approximately 4.5 feet thick and extends below the water table. It appears to act as a barrier, preventing migration of JP-5 to the north of the exhaust stack. The product collection trench was constructed to the north and east of the JETC-15 exhaust stack (Figure 2), and assists in preventing lateral migration of free phase JP-5. Two former storm drain lines located to the east of Building 397 were abandoned and slurry filled. These lines may also contribute to minimize

JP-5 migration from Building 397. The combined effect of these barriers is evidenced by the lack of product in the surrounding permanent wells.

4.2 Risk-Based Evaluation

In January 1996, the RWQCB issued an interim guidance on required cleanup at low-risk fuel sites. The 1996 investigation at the JETC-15 exhaust stack site was implemented based on this guidance, and the investigation results were compared with the *Human Health Risk-Based Petroleum Screening Levels Technical Memorandum* (PRC Environmental, 1996). Using the criteria recommended in the RWQCB interim guidance, the following risk-based evaluation of this site is presented.

Criteria 1: *The leak has been stopped and ongoing sources, including free product, removed or remediated*

The initial response action following detection of the fuel release in February 1991, resulted in the recovery of approximately 33,750 gallons of JP-5 product and water. The interim removal action that followed in February 1993, resulted in removal of approximately 1,300 tons of JP-5 impacted soil and an estimated volume of 18,000 gallons of JP-5 impacted groundwater. Product remaining in the vicinity of the site is estimated to be at residual saturation and largely immobile, since only a sheen was measurable in all but one of the temporary well points, and no free product was present in the permanent monitoring wells surrounding the site. The maximum volume of residual JP-5 on the water table was estimated at approximately 200 gallons.

Criteria 2: *The site has been adequately characterized*

As a result of this investigation, it has been determined that the soil and groundwater is still impacted primarily by JP-5. The concentrations of TPH as JP-5 that were significantly elevated were measured near the soil-water interface. These concentrations are expected since there is still a sheen present on the water table immediately surrounding the JETC-15 exhaust stack. However, there is no evidence of significant lateral migration, since all but one of the permanent monitoring wells indicated an absence of free phase and dissolved phase JP-5. It appears that the extent of impacted soil and groundwater is restricted to the area immediately adjacent to the JETC-15 exhaust stack, and within the boundaries of the former excavation around the building.

Criteria 3: Little or no groundwater impact currently exists and no contaminants are found at levels above established maximum contaminant levels (MCLs) or other applicable water quality objectives

The indicator chemical concentrations detected in the soil samples collected during this field investigation did not, at any location, exceed concentrations that would pose a 1E-06 cancer risk or a non-cancer hazard quotient greater than 1. The concentration of TPH as JP-5 in the soil did exceed the Tier 1 screening evaluation for residential soil in four of the eleven soil samples, and one of the eleven samples collected exceeded acceptable concentrations for occupational exposure scenarios (PRC Environmental, 1996). Since this area is industrial in use, and will be for the foreseeable future, it is unlikely that workers will be exposed to chemical concentrations above the Tier 1 risk-based screening levels (RBSLs).

The indicator chemical concentrations detected in the groundwater samples did not exceed concentrations that would pose greater than a 1E-06 cancer risk or a non-cancer hazard quotient greater than 1. The concentration of TPH as JP-5 measured in groundwater exceeded the acceptable concentrations for residential groundwater exposure scenarios, based on a Tier 1 RBSL (PRC Environmental, 1996). However, since the site is not in a residential area, and groundwater in the area is not used, this exposure pathway does not exist, and the exceedance is not appropriate under current and anticipated future land use scenarios.

Criteria 4: The dissolved hydrocarbon plume is not migrating

The groundwater sampling of permanent monitoring wells surrounding Building 379 indicates that no significant migration of the dissolved hydrocarbon plume has occurred. This is likely to be due to the deep foundation which is below the water table by at least one foot, the slurry filled utility lines, and the collection trench constructed to the north and east of the building, all of which act as barriers to inhibit plume migration.

Criteria 5: No water wells, deeper drinking water aquifers, surface water, or other sensitive receptors are likely to be impacted

There are no water production wells in unconfined aquifers near this site. The nearest surface water body is approximately 2,000 feet to the west, but data from the permanent monitoring well

MWOR-1 does not support westward migration of JP-5. The area is industrial in nature, and no other sensitive receptors are nearby.

Criteria 6: *The site presents no significant risk to human health*

Under current conditions, there is no known exposure pathway by which human exposure to JP-5 would occur.

Criteria 7: *The site presents no significant risk to the environment*

This area is an industrial area and there are no known sensitive environmental receptors at or near the site. The site does not pose a threat from migration of JP-5.

4.3 Recommendations

This site is unlikely to pose a significant threat to human health or the environment under industrial use scenarios and is therefore appropriately classified as a low-risk soil and groundwater site. Groundwater from surrounding wells should be tested for the target analytes periodically to ensure that no lateral migration is occurring prior to issuing site closure. If a residential land use is considered, the residual hydrocarbon in soil and groundwater should be re-evaluated.

Minor free phase fuel hydrocarbon is present at residual concentrations in both the soil and the groundwater. The estimated volume of recoverable free phase JP-5 from the impacted area is approximately 50 gallons. Documented costs to implement typical underground storage tank cleanup vary from \$150,000 to over \$1 million. Considering the potential industrial land use scenarios for this area, the cost to benefit ratio for active removal of residual JP-5 makes this option impractical. Since the impacted material is present largely below 3 feet, and the ground surface is paved, there is a minimal threat to human health and the environment. The likelihood that residual hydrocarbon will migrate is very low because of the presence of artificial barriers - the building foundation and the interceptor trench - around the residual hydrocarbon mass.

It is recommended that no active remediation be implemented at this fuel release site. However, it is recommended that groundwater from the following wells be sampled on a semiannual basis

for two years and be analyzed for TPH as JP-5, BTEX and the PAHs (naphthalene and benzo(a)pyrene).

- MW-1
- MWOR-1
- MWOR-2
- MW-13-P
- MWD13-3

Figure 5 illustrates the location of the permanent monitoring wells. The recommended time for sampling is March and September, in order to monitor the groundwater quality during periods when the water levels are most likely to reflect seasonal variations in groundwater elevation. If, after two years, the groundwater data indicates that the dissolved hydrocarbon plume is not migrating, no further action will be required at the site, and the RWQCB would issue site closure.

5.0 References

IT Corporation, *Naval Air Station Alameda Rapid Response Final Project Report for Excavation and Disposal of Hydrocarbon Contaminated Soil at the U.S. Naval Air Station, Alameda, California*, August 1993.

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PRC Environmental Management, Inc., *Naval Air Station Alameda, Alameda, California, Final Human Health Risk-Based Petroleum Screening Levels Technical Memorandum*, March 28, 1996.

PRC Environmental Management, Inc., *Technical Memorandum, Aquifer Test Data Analysis, Naval Air Station Alameda, Alameda, California*, August 6, 1996.

TABLES

FINAL SOIL AND GROUNDWATER
CHARACTERIZATION REPORT
BUILDING 397 FUEL RELEASE

DATED 01 JUNE 1997

TABLE 1
SOIL ANALYTICAL RESULTS SUMMARY
NAS ALAMEDA, BUILDING 397
MAY 1996

Sample ID	Sample Date	Sample Depth (ft)	Concentration (In mg/kg)						
			JP-5	Benzene	Toluene	Ethyl benzene	Xylene	Napthalene	Benzo(a)pyrene
SB-1-1	5/31/96	2.0	6.4	<0.0055	<0.0055	<0.0055	<0.0055	<0.055	0.16
SB-1-2	5/31/96	4.5	24,000	<0.030	<0.030	6.0	15.3	19	<2.5
SB-1-3 (dupl)	5/31/96	2.0	3.8	<0.0064	<0.0064	<0.0064	<0.0064	<0.064	<0.045
SB-2-1	5/31/96	2.0	1,300	<0.0056	<0.0056	<0.0056	<0.0056	0.1	<0.039
SB-2-2	5/31/96	3.5	1,100	<0.006	<0.006	<0.006	<0.006	17	<2.5
SB-3-1	5/31/96	2.0	170	<0.0052	<0.0052	<0.0052	<0.0052	<0.52	<0.36
SB-3-2	5/31/96	3.5	3.9	<0.0056	<0.0056	0.051	0.098	5.9	<0.39
SB-4-1	5/31/96	3.0	3.8	<0.0056	<0.0056	<0.0056	<0.0056	<0.056	<0.039
SB-4-2	5/31/96	4.5	1,500	<0.0057	<0.0057	<0.0057	<0.0057	<2.3	<1.6
SB-5-1	5/31/96	3.0	1.3	<0.0057	<0.0057	<0.0057	<0.0057	<0.11	<0.08
SB-5-2	5/31/96	4.0	150	<0.0054	<0.0054	<0.0054	<0.0054	<0.054	<0.038

TABLE 2
GROUNDWATER ELEVATION DATA
BUILDING 397 AREA PERMANENT MONITORING WELLS
NAS ALAMEDA, BUILDING 397
JULY 1996

Well I.D.	Date	Top of Casing (feet AMSL)	Depth of Groundwater (feet)	Groundwater Elevation (feet AMSL)
MW-1	7/9/96	14.09	5.23	8.86
MWOR-1	7/9/96	12.50	4.28	8.22
MW-13-P	7/9/96	12.50	4.57	7.93
P-13-1	7/9/96	12.07	4.10	7.97
P-13-2	7/9/96	12.03	4.57	7.93

TABLE 3
GROUNDWATER ANALYTICAL RESULTS SUMMARY
TEMPORARY WELL POINTS
NAS ALAMEDA, BUILDING 397
JUNE 1996

Sample Location	Sample Date	Depth to Groundwater (feet)	Product Thickness (Inch)	Concentration (In $\mu\text{g/L}$)				
				JP-5	Benzene	Toluene	Ethyl benzene	Xylene
SB-1	6/3/96	5.12	1.0	1,500,000	<10	<10	<10	1200
SB-2	6/3/96	4.05	0.20	2,800,000	<50	<50	<50	<50
SB-3	6/3/96	4.14	0.05	58,000	<5	<5	79	71
SB-4	6/3/96	4.45	0.05	580,000	<50	<50	<50	2,500
SB-5	6/3/96	4.56	0.05	760,000	<25	58	<25	<25
SB-6	6/3/96	3.83	<0.05	20,000	<2.5	<2.5	17	28

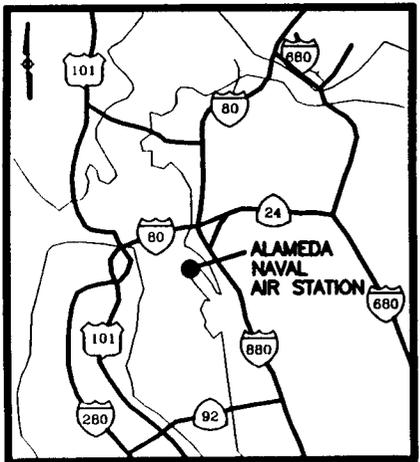
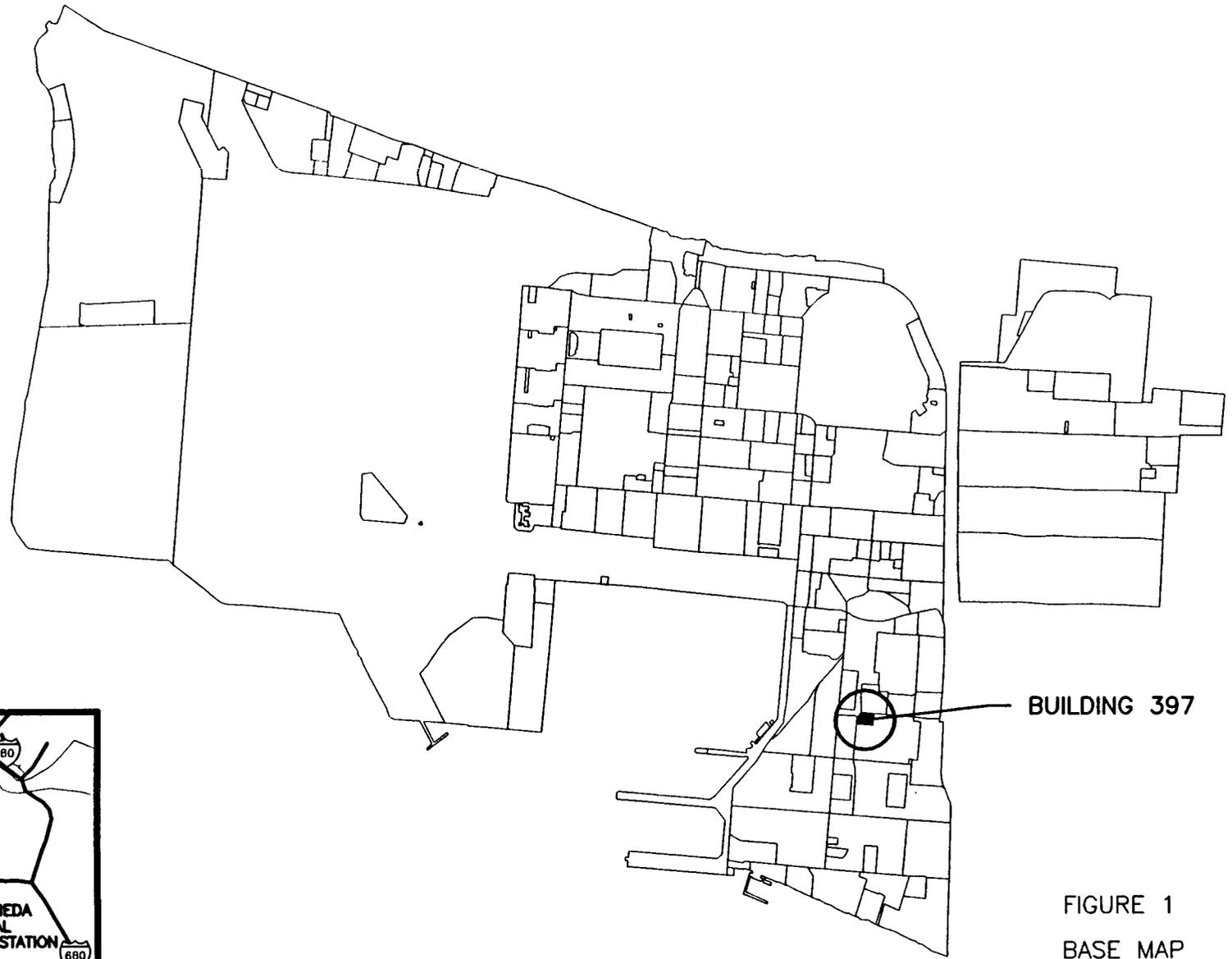
TABLE 4
GROUNDWATER ANALYTICAL RESULTS SUMMARY
PERMANENT MONITORING WELLS
NAS ALAMEDA, BUILDING 397
JULY 1996

Sample I.D.	Sample Date	Concentration (In $\mu\text{g/L}$)		
		JP-5	Napthalene	Benzo(a)pyrene
M07C-09	7/18/96	<50	<5	<0.1
MWD13-3	7/18/96	<50	<5	<0.1
MWD13-3D	7/18/96	<50	<5	<0.1
MWOR-3	7/18/96	<50	<5	<0.1
MWOR-1	7/18/96	<50	<5	<0.1
M13-06	7/18/96	<50	<5	<0.1
MW13-P	7/18/96	<50	<5	<0.1
MW-1	7/18/96	1,400	<5	<0.1

FIGURES

FINAL SOIL AND GROUNDWATER CHARACTERIZATION REPORT BUILDING 397 FUEL RELEASE

DATED 01 JUNE 1997



LOCATION MAP

NOT TO SCALE

BUILDING 397

FIGURE 1
BASE MAP
ALAMEDA NAVAL AIR STATION
PREPARED FOR
ALAMEDA NAVAL AIR STATION
ALAMEDA, CALIFORNIA



DRAWN BY

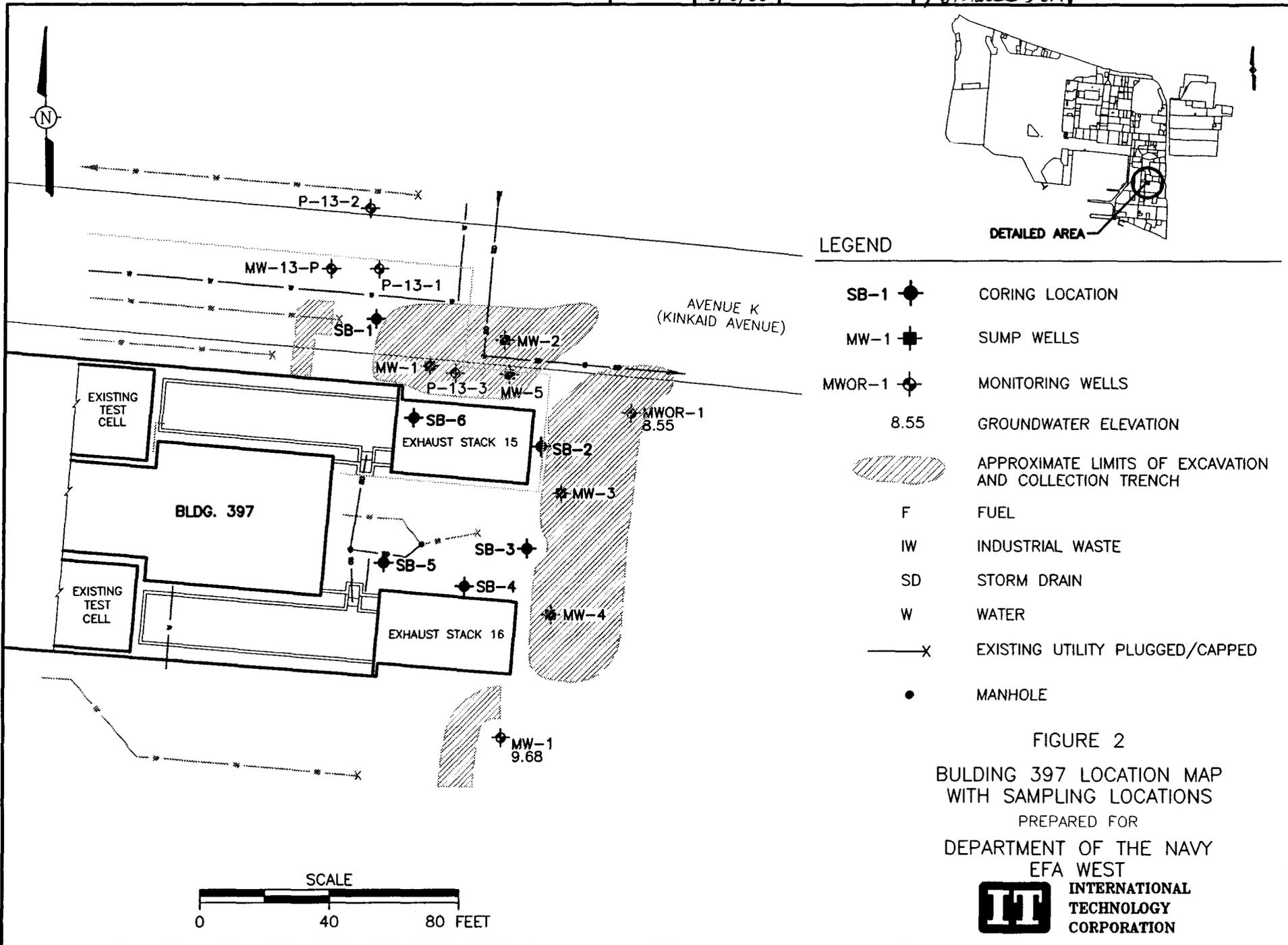
T.R.S.
9/6/96

CHECKED BY
APPROVED BY

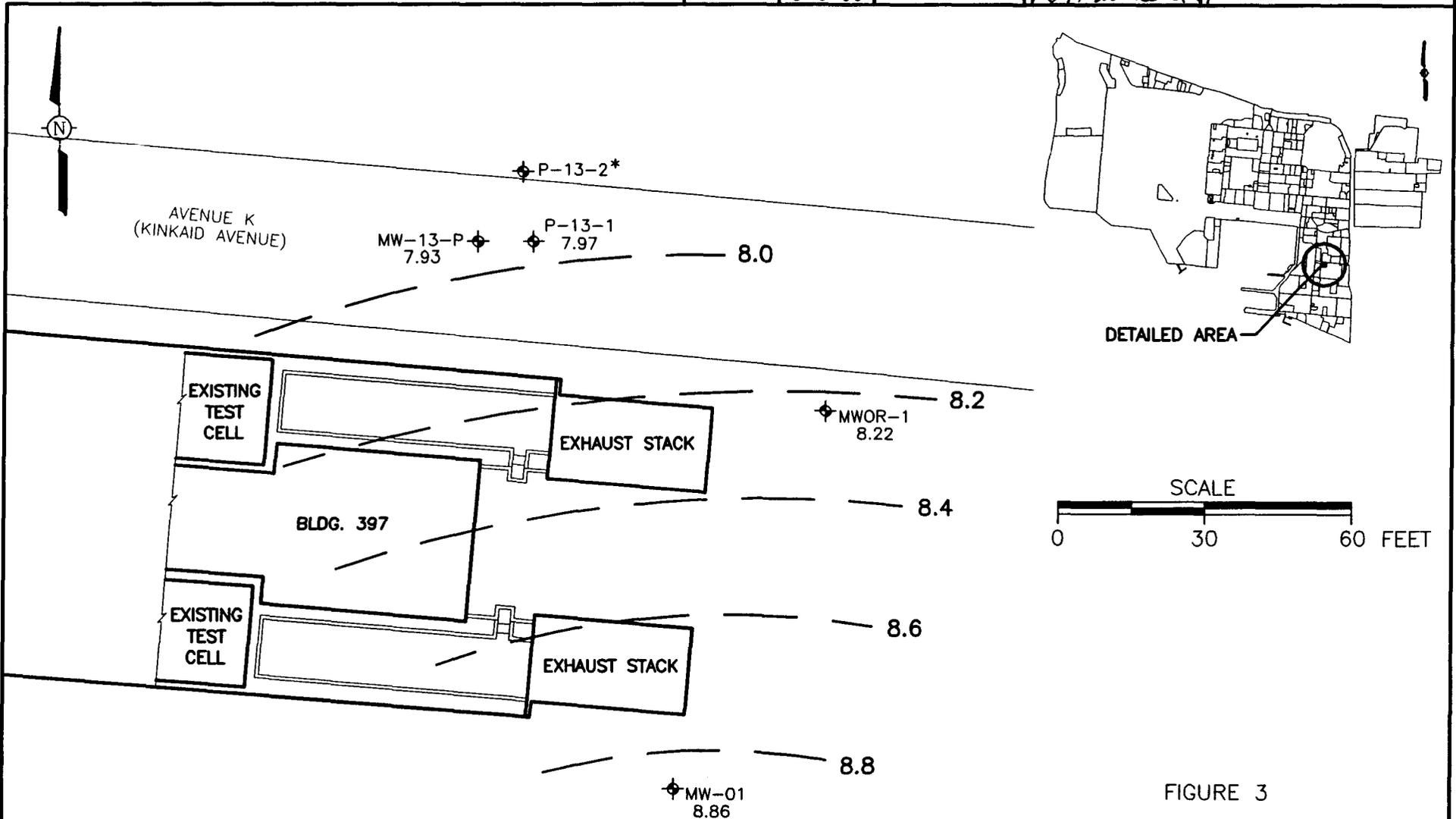
5/24/97
P. Mann 5-21-97

DRAWING NUMBER

764287-A8



DRAWN BY	T.R.S.	CHECKED BY	<i>[Signature]</i> 5/29/97	DRAWING NUMBER	764287-A7
	9-6-96	APPROVED BY	<i>[Signature]</i> 5-29-97		



LEGEND

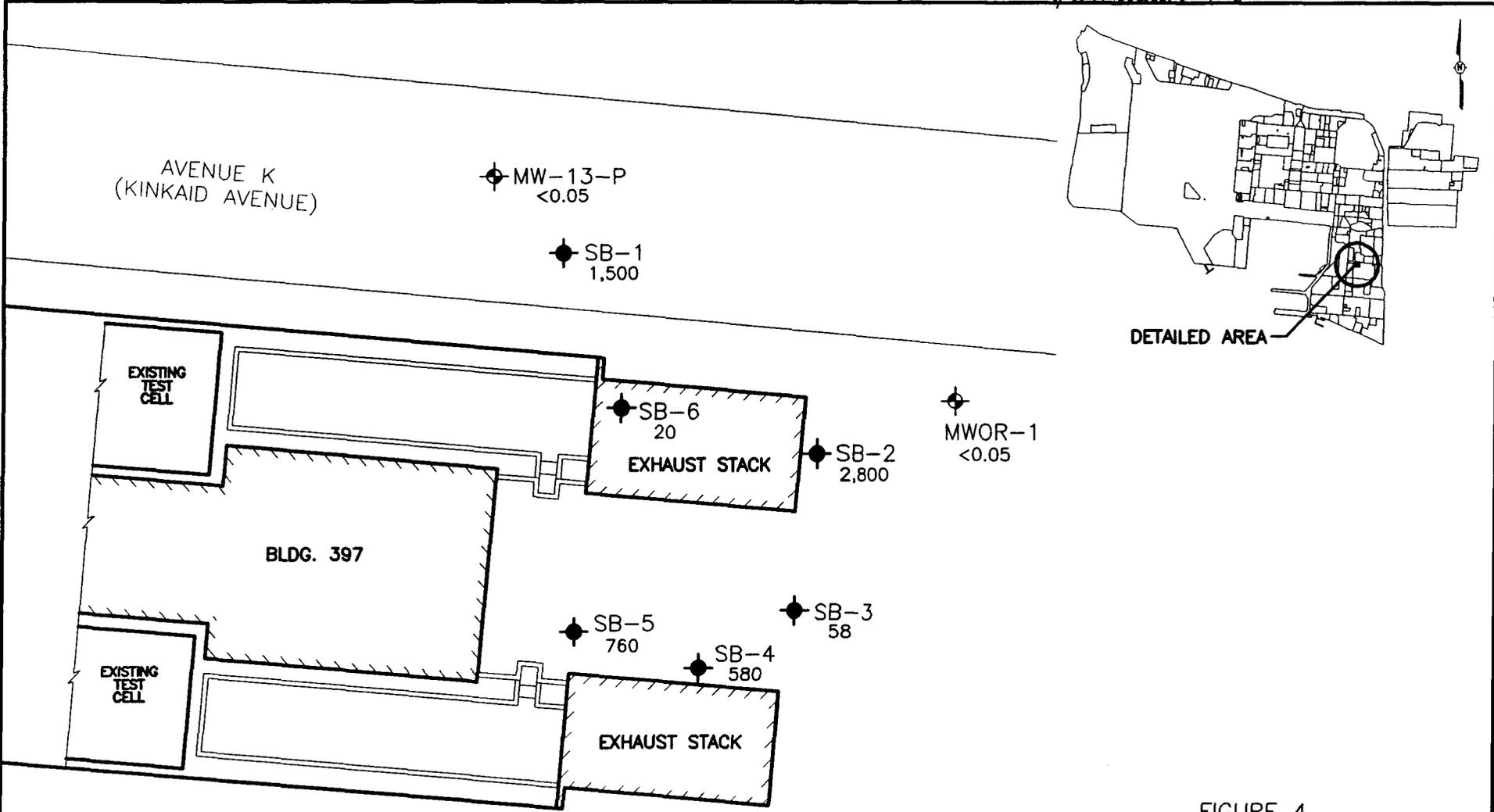
- ⊕ MONITORING WELLS
- 8.22 FEET ABOVE MEAN SEA LEVEL
- * GROUNDWATER ELEVATION IN WELL P-13-2 WAS ANOMALOUSLY HIGH AND WAS NOT USED FOR THIS FIGURE

FIGURE 3
BUILDING 397
GROUNDWATER GRADIENT MAP
JULY 1996

PREPARED FOR
ALAMEDA NAVAL AIR STATION
ALAMEDA, CALIFORNIA



DRAWN BY	T.R.S.	CHECKED BY	<i>[Signature]</i> 3/29/97	DRAWING NUMBER	764287-A5
	9-6-96	APPROVED BY	<i>[Signature]</i> 5-28-97		



NOTE: ALL CONCENTRATIONS PRESENTED ARE IN MG/L.

LEGEND

- SB-1 CORING LOCATION
- MW-1 EXISTING WELLS



FIGURE 4
 CONCENTRATION OF JP-5 IN
 GROUNDWATER AT SAMPLING LOCATIONS
 BUILDING 397

PREPARED FOR
 ALAMEDA NAVAL AIR STATION
 ALAMEDA, CALIFORNIA



DRAWING NUMBER 764287-A9

CHECKED BY

APPROVED BY

T.R.S. 9/6/96

DRAWN BY



NINTH STREET

AVENUE K
(KINKAID AVENUE)

AVENUE L

609

397

MWD13-3

MW-13-P

MWOR-1

MW-1

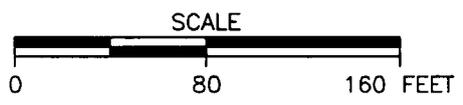
MWOR-2



FIGURE 5

PROPOSED PERMANENT
MONITORING WELL
SAMPLING LOCATIONS

PREPARED FOR
ALAMEDA NAVAL AIR STATION
ALAMEDA, CALIFORNIA



Appendix A

Boring Logs

BORING NO. SB-1

DEPTH IN FEET	SAMPLE NUMBER	RECOVERY (in./in.)	DRILLING REMARKS	USCS	PROFILE	FIELD GEOLOGIST <u>L. Farigs</u>	DATE BEGAN <u>5/31/96</u>
						CHECKED BY <u>[Signature]</u>	DATE FINISHED <u>6/3/96</u>
0						APPROVED BY <u>[Signature]</u>	TOTAL DEPTH <u>9.5 ft.</u>
	SB1-3	6"		gp	Asphalt = 1 inch. GRAVEL FILL; black, moist, loose, 100% gravel-angular.		
	SB1-1	6"			SAND; moderate reddish brown, loose, moist, medium sand.		1.5'
					SAND; grayish, wet, very loose, 100% medium to coarse sand.		3.8'
5	SB1-2	6"		sp	Groundwater encountered at 4.74'		
				sw	SAND; moderate reddish brown, wet, loose, 100% medium to fine sand.		8.88'
10					TOTAL DEPTH 9.5 FEET		

DRILLER : P. Rodgers
 DRILLING CO. : Gregg Drilling & Testing, Inc.
 DRILLING METHOD : Geoprobe
 SAMPLING METHOD : Continuous Core
 PROJECT NAME : Naval Air Station, Alameda
 LOCATION : Building 397
 PROJECT NO. : 764287

DRAWN BY	T.R.S.	CHECKED BY	<u>[Signature]</u> 5/29/97	FILE NAME & DISK NUMBER	AN-SB1(AN155)
DATE	8/28/96	APPROVED BY	<u>[Signature]</u> 5-28-97		



INTERNATIONAL TECHNOLOGY CORPORATION

BORING NO. SB-2

DEPTH IN FEET	SAMPLE NUMBER	RECOVERY (in./ft)	DRILLING REMARKS	USCS	PROFILE	FIELD INFORMATION	
						FIELD GEOLOGIST	DATE BEGAN
						L. Farias	5/31/96
						Checked by: <i>[Signature]</i>	6/3/96
						APPROVED BY: <i>[Signature]</i>	
						TOTAL DEPTH	9.5 ft.
						DESCRIPTION	
0				gp		Asphalt = 1 inch. Gravel Fill; black, moist, loose, 100% gravel.	1.5'
	SB2-1	6"				Sand; grayish, moist, loose, 100% fine to medium sand.	
	SB2-2	6"		sp		SAND; grayish, wet, very loose, 100% medium to coarse grained sand. Groundwater encountered at 4.13'.	3.5'
5				sw		SAND; moderate reddish brown, wet, loose, 100% medium to fine grained sand.	8.0'
10				TOTAL DEPTH 9.5 FEET			
15							
20							
25							
30							
35							

DRILLER : P. Rodgers
 DRILLING CO. : Gregg Drilling & Testing, Inc.
 DRILLING METHOD : Geoprobe
 SAMPLING METHOD : Continuous Core
 PROJECT NAME : Naval Air Station, Alameda
 LOCATION : Building 397
 PROJECT NO. : 764287

PAGE 1 OF 1

DRAWN BY	T.R.S.	CHECKED BY	<i>[Signature]</i> 5/24/97	FILE NAME &	
DATE	8/28/96	APPROVED BY	<i>[Signature]</i> 5/29/96	DISK NUMBER	AN-SB2(AN155)



INTERNATIONAL
 TECHNOLOGY
 CORPORATION

BORING NO. SB-3

DEPTH IN FEET	SAMPLE NUMBER	RECOVERY (in/in)	DRILLING REMARKS	USCS	PROFILE	FIELD GEOLOGIST <u>D. Britton</u>	DATE BEGAN <u>5/31/96</u>	
						CHECKED BY <u>[Signature]</u>	DATE FINISHED <u>6/3/96</u>	
						APPROVED BY <u>[Signature]</u>	TOTAL DEPTH <u>9.5 ft.</u>	
						DESCRIPTION		
0				gp	[Pattern]	Asphalt = 1 inch. Gravel fill.	1.5'	
	SB3-1	4"				SAND; grayish, moist, very loose, 100% fine to medium grained sand, large 1/4"-1" clasts.		
	SB3-2	6"		ap	[Pattern]	Groundwater encountered at 4.30 ft.		
5				sm	[Pattern]	SAND with SILT; reddish orange, decreasing moisture, fine grained, 85% sand, 15% silt.	7.0'	
10	TOTAL DEPTH 9.5 FEET							
15								
20								
25								
30								
35								

DRILLER : P. Rodgers
 DRILLING CO. : Gregg Drilling & Testing, Inc.
 DRILLING METHOD : Geoprobe
 SAMPLING METHOD : Continuous Core
 PROJECT NAME : Naval Air Station, Alameda
 LOCATION : Building 397
 PROJECT NO. : 764287

PAGE 1 OF 1

DRAWN BY	T.R.S.	CHECKED BY	<u>[Signature]</u>	FILE NAME &	
DATE	8/28/96	APPROVED BY	<u>[Signature]</u>	DISK NUMBER	AN-SB3(AN155)



**INTERNATIONAL
 TECHNOLOGY
 CORPORATION**

BORING NO. SB-4

DEPTH IN FEET	SAMPLE NUMBER	RECOVERY (in/in)	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0						FIELD GEOLOGIST <u>L. Fariss</u> DATE BEGAN <u>5/31/96</u> CHECKED BY <u>[Signature]</u> DATE FINISHED <u>6/3/96</u> APPROVED BY <u>[Signature]</u> TOTAL DEPTH <u>9.5 ft.</u>
				gp		Asphalt = 1 inch. GRAVEL FILL; moist, loose, 100% angular gravel. 1.5'
						SAND; grayish, moist, loose, 100% medium to fine sand.
	SB4-1	6"				
	SB4-2	6"				
5				sp		SAND; grayish, wet, very loose, 100% medium to fine sand. 4.0' ∇ Groundwater encountered at 4.73'
				sw		SAND; moderate reddish brown, wet, loose, 100% medium to fine sand, 8.0'
10						TOTAL DEPTH 9.5 FEET
15						
20						
25						
30						
35						

DRILLER : P. Rodgers
 DRILLING CO. : Gregg Drilling & Testing, Inc.
 DRILLING METHOD : Geoprobe
 SAMPLING METHOD : Continuous Core
 PROJECT NAME : Naval Air Station, Alameda
 LOCATION : Building 397
 PROJECT NO. : 764287

PAGE 1 OF 1

DRAWN BY	T.R.S.	CHECKED BY	<u>[Signature]</u> 5/27/96	FILE NAME & DISK NUMBER	AN-SB4(AN155)
DATE	8/28/96	APPROVED BY	<u>[Signature]</u> 5-29-96		



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BORING NO. SB-5

DEPTH IN FEET	SAMPLE NUMBER	RECOVERY (in./in)	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0						Asphalt = 1 inch. GRAVELLY SAND FILL; grayish, moist, loose, 40% gravel, 60% coarse sand.
3.4'	SB5-1	6"		gp		
5	SB5-2	6"		sm		SANDY SILT with GRAVEL; moderate reddish brown, moist, 5% gravel, 35% sand, 50% silt. Groundwater encountered at 4.8'
6.5'						SAND; grayish blue, wet, very loose, 100% medium to fine sand.
8.0'				sp		SAND; moderate brown, wet, loose, 100% fine sand.
9.5'						TOTAL DEPTH 9.5 FEET

DRILLER : P. Rodgers
 DRILLING CO. : Gregg Drilling & Testing, Inc.
 DRILLING METHOD : Geoprobe
 SAMPLING METHOD : Continuous Core
 PROJECT NAME : Naval Air Station, Alameda
 LOCATION : Building 397
 PROJECT NO. : 764287

PAGE 1 OF 1

DRAWN BY	T.R.S.	CHECKED BY	<i>[Signature]</i> 5/23/96	FILE NAME &
DATE	8/28/96	APPROVED BY	<i>[Signature]</i> 5/24/96	DISK NUMBER AN-SB5(AN155)



INTERNATIONAL
 TECHNOLOGY
 CORPORATION

BORING NO. SB-6

DEPTH IN FEET	SAMPLE NUMBER	RECOVERY (in/in)	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0						FIELD GEOLOGIST <u>L. Farig</u> DATE BEGAN <u>5/31/96</u> CHECKED BY <u>[Signature]</u> DATE FINISHED <u>6/3/96</u> APPROVED BY <u>[Signature]</u> TOTAL DEPTH <u>4.5 ft.</u>
0				GP		GRAVEL FILL; grayish, very loose, subrounded to rounded gravel 100%. 1.5'
0	N/A	N/A				Reinforced Concrete.
3						Groundwater encountered at 3'-10". Cellulose - 1 inch thick. Concrete with baserock
5						TOTAL DEPTH 4.5 FEET
10						
15						
20						
25						
30						
35						

DRILLER : P. Santos, D. Quiroz
 DRILLING CO. : Gregg Drilling & Testing, Inc.
 DRILLING METHOD : Concrete Core
 SAMPLING METHOD : N/A
 PROJECT NAME : Naval Air Station, Alameda
 LOCATION : Building 397
 PROJECT NO. : 764287

DRAWN BY	T.R.S.	CHECKED BY	<u>[Signature]</u> 5/29/96	FILE NAME & DISK NUMBER	AN-SB6(AN155)
DATE	8/28/96	APPROVED BY	<u>[Signature]</u> 5/29/96		



Appendix B

Analysis Request and Chain of Custody Forms



126322

**ANALYSIS REQUEST AND
CHAIN OF CUSTODY RECORD***

Project Name/No. 1 1764287.09901002 Samples Shipment Date 7 7/18/96 Bill to: 5 IT Corp
 Sample Team Members 2 Wicker/Britton Lab Destination 8 Curtis & Thompkins 4585 Pacheco Blvd
 Profit Center No. 3 3745 Lab Contact 9 Anh Do Martinez, CA, 94553
 Project Manager 4 Don Marini Project Contact/Phone 12 Don Marini Report to: 10 Don Marini
 Purchase Order No. 6 Carrier/Waybill No. 13 N/A IT Corp
 Required Report Date 11 14 days Martinez, CA, 94553

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
71896-MOTC-09	Groundwater	1045 7/18/96	1 liter glass	1 L	NONE	8015 - JP-5	FOR LAB USE ONLY	
71896-MOTC-09-MS/MSD		1100 7/18/96		2 L		8310 - Naphthalene benzo(a) pyrene JP-5		
71896-MWD13-3		1300 7/18/96		1 L		Naphthalene benzo(a) pyrene JP-5		
71896-MWD13-3-D		1300 7/18/96		1 L		Naphthalene benzo(a) pyrene JP-5		
						Naphthalene Benzo(a) pyrene		

Special Instructions: 23 Please Filter all samples

Possible Hazard Identification: 24
 Non-hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal: 25
 Return to Client Disposal by Lab Archive (mos.)

Turnaround Time Required: 26
 Normal Rush
 QC Level: 27
 I II III Project Specific (specify): NAS Alameda, DO# 42

1. Relinquished by 28 <u>RW Wicker</u> (Signature/Affiliation)	Date: <u>7/18/96</u> Time: <u>1947</u>	1. Received by 28 <u>[Signature]</u> (Signature/Affiliation)	Date: <u>7/18/96</u> Time: <u>1947</u>
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

White: To accompany samples
Yellow: Field copy
* See back of form for special instructions.

126322

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. **497668**
Page **2** of **3**

Project Name/No. 1
Sample Team Members 2
Profit Center No. 3
Project Manager 4
Purchase Order No. 6
Required Report Date 11

Samples Shipment Date 7
Lab Destination 8
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13

Bill to: 5
Report to: 10

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
71896-MWOR-3	groundwater	7/18/96 1415	glass	1 L	None	8015 - JP-5	FOR LAB USE ONLY	
↓	↓	↓	↓	↓	↓	8210 - Naphthalene benzo(a)pyrene		
71896-MWOR-1	↓	7/18/96 1515	↓	↓	↓	JP-5		
↓	↓	↓	↓	↓	↓	Naph. benzo(a)p.		
71896-M13-06	↓	7/18/96 1630	↓	↓	↓	JP-5		FOR LAB USE ONLY
↓	↓	↓	↓	↓	↓	Naph. benzo(a)p.		
71896-MW13-P	↓	7/18/96 1815	↓	↓	↓	JP-5		
↓	↓	↓	↓	↓	↓	Naph. benzo(a)p.		

Special Instructions: 23 **Please filter all samples**

Possible Hazard Identification: 24
 Non-hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal: 25
 Return to Client Disposal by Lab Archive (mos.)

Turnaround Time Required: 26
 Normal Rush
 QC Level: 27
 I II III Project Specific (specify):

1. Relinquished by 28 (Signature/Affiliation) Rick Warner	Date: 7/18/96 Time: 1947	1. Received by 28 (Signature/Affiliation) [Signature]	Date: 7/18/96 Time: 19:47
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

Write: To accompany samples
Yellow: Field copy
* See back of form for special instructions



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ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD *

Reference Document No. **497664**
Page **3** of **3**

Project Name/No. 1

Samples Shipment Date 7

Bill to: 5

Sample Team Members 2

Lab Destination 8

Profit Center No. 3

Lab Contact 9

Project Manager 4

Project Contact/Phone 12

Report to: 10

Purchase Order No. 6

Carrier/Waybill No. 13

Required Report Date 11

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Preservative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
71896-MW-1	groundwater	7/18/96 1840	glass	1L	None	8015 - JP-5		
↓	↓	↓	↓	1L	None	8310 - Naphthalene Benzo(a)pyrene	FOR LAB USE ONLY	
/	/	/	/	/	/	/	FOR LAB USE ONLY	
/	/	/	/	/	/	/		
/	/	/	/	/	/	/		
/	/	/	/	/	/	/		
/	/	/	/	/	/	/		

Special Instructions: 23 **Please Filter all samples.**

Possible Hazard Identification: 24

Non-hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal: 25

Return to Client Disposal by Lab Archive (mos.)

Turnaround Time Required: 26

Normal Rush

QC Level: 27

I. II. III. Project Specific (specify):

1. Relinquished by 28 **Rick Wicher**
(Signature/Affiliation)

Date: **7/18/96**
Time: **1947**

1. Received by 28 **[Signature]**
(Signature/Affiliation)

Date: **7/18/96**
Time: **19:47**

2. Relinquished by
(Signature/Affiliation)

Date:
Time:

2. Received by
(Signature/Affiliation)

Date:
Time:

3. Relinquished by
(Signature/Affiliation)

Date:
Time:

3. Received by
(Signature/Affiliation)

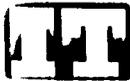
Date:
Time:

Comments: 29

White: To accompany samples

Yellow: Field copy

* See back of form for special instructions



INTERNATIONAL
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CORPORATION

125823

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 375161
Page 1 of 2

Project Name/No. 1 NAS Alameda - DO42
Sample Team Members 2 Farias / Britton
Profit Center No. 3 _____
Project Manager 4 Don Marino
Purchase Order No. 6 _____
Required Report Date 11 June 11, 1996

Samples Shipment Date 7 6-4-96
Lab Destination 8 Curtis & Tomkins
Lab Contact 9 Cynthia Schlay 486-0900
Project Contact/Phone 12 Lo Farias 372-1100
Carrier/Waybill No. 13 Pick-Up

Bill to: 5 IT Corporation
4585 Pacheco Blvd
Martinez CA 94523
Attn: EFAI WEST ACCTNG
Report to: 10 IT Corporation
4585 Pacheco Blvd
Martinez CA 94523
Attn: Don Marino

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
SB-1	Groundwater	6-3-96 1500-1357	VOA's	40ml	HCl	TPH BTEX EPA 8020		
		6-3-96 1338	VOA	40ml	HCl	BTEX EPA 8020		
		6-3-96 1500	1 liter Amber Jar	~1 liter	None	TPH as JP-5 EPA 8015		
SB-2		6-3-96 1500	VOA	40ml	HCl	BTEX EPA 8020		
		6-3-96 1500	VOA	40ml	HCl			
		6-3-96 1630	1 liter Amber Jar	1 liter	None	TPH as JP-5 EPA 8015		
SB-3	Groundwater	6-3-96 1400	VOA	40ml	HCl	BTEX EPA 8020		
		6-3-96 1400			HCl			

Special Instructions: 23 * rbp2 opened in error in field - do not analyze

Possible Hazard Identification: 24
 Non-hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal: 25
 Return to Client Disposal by Lab Archive (mos)

Turnaround Time Required: 26
 Normal Rush 5 DAY - Per Contact
 QC Level: 27
 I II III Project Specific (specify): _____

1. Relinquished by 28 (Signature/Affiliation) <u>David Britton IT Corp</u>	Date: <u>6-3-96</u> Time: <u>1904</u>	1. Received by 28 (Signature/Affiliation) <u>[Signature] IT Corp</u>	Date: <u>6-3-96</u> Time: <u>1904</u>
2. Relinquished by (Signature/Affiliation) <u>[Signature] IT Corp</u>	Date: <u>6-4-96</u> Time: <u>2:45</u>	2. Received by (Signature/Affiliation) <u>[Signature]</u>	Date: <u>6/4/96</u> Time: <u>2:45</u>
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

SHOW FIELD COPY SEE BACK OF FORM FOR SPECIAL INSTRUCTIONS



ANALYSIS REQUEST AND
CHAIN OF CUSTODY RECORD (cont.)*

125823

Project Name *NAS Alameda - 00#42*

Project No. 764287

Samples Shipment Date

ONE CONTAINER PER LINE

Sample 14 Number	Sample 15 Description/Type	Date/Time 16 Collected	Container 17 Type	Sample 18 Volume	Pre-19 servative	Requested Testing 20 Program	Condition on 21 Receipt	Disposal 22 Record No.
SB-3	Groundwater	6-3-96 1400	1 liter Amber Jar	1 liter	None	TPH as JP-5 EPA 8015		
SB-4		6-3-96 1445	VOA	40ml	HCl	BTEX EPA 8020		
↓		6-3-96 1445	VOA	40ml	HCl	↓		
↓		6-3-96 1700	2 liter Amber Jar	~1 liter	None	TPH as JP-5 EPA 8015		
SB-5		6-3-96	VOA	40ml	HCl	TPH BTEX EPA 8020		
↓		6-3-96	VOA	↓	HCl	↓		
↓		6-3-96	1 liter Amber Jar	1 liter	None	TPH as JP-5 EPA 8015		
SB-6		6-3-96 1251	VOA	40ml	HCl	BTEX EPA 8020		
↓		6-3-96 1252	↓	40ml	HCl	↓		
↓		6-3-96 1256	1 liter Amber Jar	1 liter	None	TPH as JP-5 EPA 8015		
ERØ1		6-3-96 1322	↓	1 liter	None	TPH as JP-5 EPA 8015		
↓		6-3-96 1320	VOA	40ml	HCl	BTEX by EPA 8020		
↓		6-3-96 1321	↓	↓	↓	↓		
TBØ1		6-3-96	40ml VOA	40ml	HCl	BTEX by EPA 8020		
TBØ2*		6-3-96	40ml VOA	40ml	HCl	BTEX by EPA 8020		
MS-1	6-3-96 1925	1 L AMBER	1 L	None	TPH as JP-5 by mod EPA 8015			
MS-1	6-3-96 1925	40ml VOA	2x4ml	HCl	BTEX by EPA 8020			
MSD-1	6-3-96 1925	1 L AMBER	1 L	None	TPH as JP-5 by mod EPA 8015			
MSD-1	6-3-96 1925	40ml VOA	2x4ml	HCL	BTEX by EPA 8020			

White: To accompany samples

Yellow: Field copy

* See back of form for special instructions



125826

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 775159
Page 1 of 2

Project Name/No. 1 WAS Alameda
Sample Team Members 2 Farias / Britton
Profit Center No. 3
Project Manager 4 Don Marini
Purchase Order No. 6
Required Report Date 11 JUNE 11, 1996

Samples Shipment Date 7 6-4 5-31-96
Lab Destination 8 CURTIS & TUNKINS
Lab Contact 9 CYNTHIA SCHLAG (486-0900)
Project Contact/Phone 12 L. FARIAS / 372-9100
Carrier/Waybill No. 13 Drop-off Pick-Up

Bill to: 5 ITT CORPORATION
4585 PACHECO BLVD
MARTINEZ CA 94553
ATTN: EPA/WEST ACCOUNTING
Report to: 10 ITT CORPORATION
4585 PACHECO BLVD
MARTINEZ CA 94553
ATTN: DON MARINI

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
S13-1-1	Soil / SAND	5-31-96 0950	Bress skene	full (6")	None	JP-5 by med EPA 3015 BTEX by EPA 3020		
S13-1-2	Soil / SAND	5-31-96 0950	↓	↓	↓	↓		
S13-2-1	Soil / SAND	5-31-96 1035	↓	↓	↓	↓		
S13-2-2	Soil / SAND	5-31-96 1035	↓	↓	↓	↓		
S13-3-1	Soil / SAND	5-31-96 H2O DB1230	↓	1/2 full (3")	↓	↓		
S13-3-2	Soil / SAND	5-31-96 H2O DB1230	↓	full	↓	↓		
S13-7-1	Soil / SAND	5-31-96 1130	↓	↓	↓	↓		
S13-7-2	Soil / SAND	5-31-96 1130	↓	↓	↓	↓		

Special Instructions: 23

Possible Hazard Identification: 24
Non-hazard Flammable Skin Irritant Poison B Unknown
Sample Disposal: 25
Return to Client Disposal by Lab Archive (mos.)

Turnaround Time Required: 26
Normal Rush PER CONTRACT
QC Level: 27
I. II. III. Project Specific (specify):

1. Relinquished by 28 (Signature/Affiliation) <u>David Britton IT Corp</u>	Date: <u>6-3-96</u> Time: <u>1900</u>	1. Received by 28 (Signature/Affiliation) <u>J. D. Cooley IT Corp</u>	Date: <u>6-3-96</u> Time: <u>1900</u>
2. Relinquished by (Signature/Affiliation) <u>J. D. Cooley IT Corp</u>	Date: <u>6-4-96</u> Time: <u>2:45</u>	2. Received by (Signature/Affiliation) <u>J. D. Cooley</u>	Date: <u>6/4/96</u> Time: <u>2:45</u>
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29
SAMPLES STORED AT 4°C IN DESIGNATED SAMPLE REFRIGERATOR ON-SITE

White: To accompany samples
Yellow: Field copy
* See back of form for special instructions.

Regional Office



4585 Pacheco Boulevard
Martinez, California 94553 2233
510-372-9100
Fax: 510-372-5220

June 13, 1996

Ms. Cynthia Schlag
Curtis and Tomkins
2323 Fifth Street
Berkeley, CA 94710

VIA FACSIMILE
510-486-0532

Modified Analysis Request: Soil and Groundwater Samples
NAS Alameda - Building 397
IT Project No. 764287

Dear Ms. Schlag:

Pursuant to your discussion with Linus Farias yesterday, please modify the analytical requirements for the subject samples that were submitted for analysis to your laboratory on June 4, 1996.

1. We would like you to extract the required volume of sample from each of the eleven (11) soil samples that were submitted and keep them "on-hold" until further notice. These extracts may require analysis for polynuclear aromatic hydrocarbons (PNAs) using EPA method 8270. As per our agreement with Curtis and Tomkins, the sample extraction cost will be \$64.80 per sample. Should sample analysis be required the cost will not exceed \$43.20 per sample.
2. Please do not analyze the groundwater samples identified as MS-1 and MSD-1. Your laboratory selection of soil sample SB-2-2 and groundwater sample ER-01 for matrix spike (MS) and matrix spike duplicate (MSD) analyses will be adequate for this project.

Should you have further questions, please do not hesitate to call me at (510) 372-9100.

Sincerely,
IT Corporation

A handwritten signature in cursive script, appearing to read 'D. Marini'.

Don Marini
Project Manager

Appendix C

Laboratory Results and Data Packages



Curtis & Tompkins, Ltd., Analytical Laboratories. Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

COVER PAGE

Laboratory Number 125826

IT Corporation
4585 Pacheco Boulevard
Martinez, CA 94553

Project#: 764287
Location: NAS Alameda

Sample ID	Lab ID
SB-1-1	125826-001
SB-1-2	125826-002
SB-2-1	125826-003
SB-2-2	125826-004
SB-3-1	125826-005
SB-3-2	125826-006
SB-4-1	125826-007
SB-4-2	125826-008
SB-5-1	125826-009
SB-5-2	125826-010
SB-1-3	125826-011

Mary McLean 9/17/94

I certify that this data package has been reviewed for technical correctness and completeness. Please see attached narrative for a discussion of any analytical problems related to this sample set. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

Signature: 
 Title: Operations Manager

Signature: 
 Title: Project Manager

Date: 7-2-96

Date: July 2, 94



Laboratory Number: 125826
Client: IT Corporation
Project#: 764287
Location: Nas Alameda

Sample Date: 05/31/96
Receipt Date: 06/04/96

CASE NARRATIVE

Curtis & Tompkins received eleven soil samples from the Nas Alameda site on June 4, 1996. All samples were received cold and intact. All holding times were met. The following analytical problem was encountered for this data set:

BTXE (EPA 8020): High surrogate recovery for trifluorotoluene was observed for sample SB-1-2 (C&T# 125826-002) due to matrix interference. The chromatogram is included.

It should be noted that the extracts for the polynuclear aromatic hydrocarbons (PNAs) analysis are on hold until further notice.



BTXE

Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

Analysis Method: EPA 8020
 Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125826-001	SB-1-1	28169	05/31/96	06/13/96	06/13/96	9%
125826-002	SB-1-2	28169	05/31/96	06/13/96	06/13/96	17%
125826-003	SB-2-1	28169	05/31/96	06/13/96	06/13/96	11%
125826-004	SB-2-2	28202	05/31/96	06/14/96	06/14/96	16%

Matrix: Soil

Analyte	Units	125826-001	125826-002	125826-003	125826-004
Diln Fac:		1	5	1	1
Benzene	ug/Kg	<5.5	<30	<5.6	<6
Toluene	ug/Kg	<5.5	<30	<5.6	<6
Ethylbenzene	ug/Kg	<5.5	6000	<5.6	<6
m,p-Xylenes	ug/Kg	<5.5	8400	<5.6	<6
o-Xylene	ug/Kg	<5.5	6900 C	<5.6	<6
Surrogate					
Trifluorotoluene	%REC	86	120 *	85	95
Bromobenzene	%REC	83	104	85	105

* Values outside of QC limits

C: Presence of this compound confirmed by second column,
 however, the confirmation concentration differed from the reported
 result by more than a factor of two



BTXE

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125826-005	SB-3-1	28169	05/31/96	06/13/96	06/13/96	4%
125826-006	SB-3-2	28169	05/31/96	06/13/96	06/13/96	11%
125826-007	SB-4-1	28169	05/31/96	06/13/96	06/13/96	11%
125826-008	SB-4-2	28169	05/31/96	06/13/96	06/13/96	12%

Matrix: Soil

Analyte	Units	125826-005	125826-006	125826-007	125826-008
Diln Fac:		1	1	1	1
Benzene	ug/Kg	<5.2	<5.6	<5.6	<5.7
Toluene	ug/Kg	<5.2	<5.6	<5.6	<5.7
Ethylbenzene	ug/Kg	<5.2	51	<5.6	<5.7
m,p-Xylenes	ug/Kg	<5.2	98	<5.6	<5.7
o-Xylene	ug/Kg	<5.2	<5.6	<5.6	<5.7
Surrogate					
Trifluorotoluene	%REC	84	87	85	100
Bromobenzene	%REC	77	87	84	76

BTXE	
Client: IT Corporation	Analysis Method: EPA 8020
Project#: 764287	Prep Method: EPA 5030
Location: NAS Alameda	

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125826-009	SB-5-1	28202	05/31/96	06/14/96	06/14/96	13%
125826-010	SB-5-2	28169	05/31/96	06/13/96	06/13/96	8%
125826-011	SB-1-3	28169	05/31/96	06/13/96	06/13/96	22%

Matrix: Soil

Analyte	Units	125826-009	125826-010	125826-011
Diln Fac:		1	1	1
Benzene	ug/Kg	<5.7	<5.4	<6.4
Toluene	ug/Kg	<5.7	<5.4	<6.4
Ethylbenzene	ug/Kg	<5.7	<5.4	<6.4
m,p-Xylenes	ug/Kg	<5.7	<5.4	<6.4
o-Xylene	ug/Kg	<5.7	<5.4	<6.4
Surrogate				
Trifluorotoluene	%REC	85	86	86
Bromobenzene	%REC	83	81	83

FileName : G:\GC04\165K027.raw
Start Time : 0.00 min
Scale Factor: -1

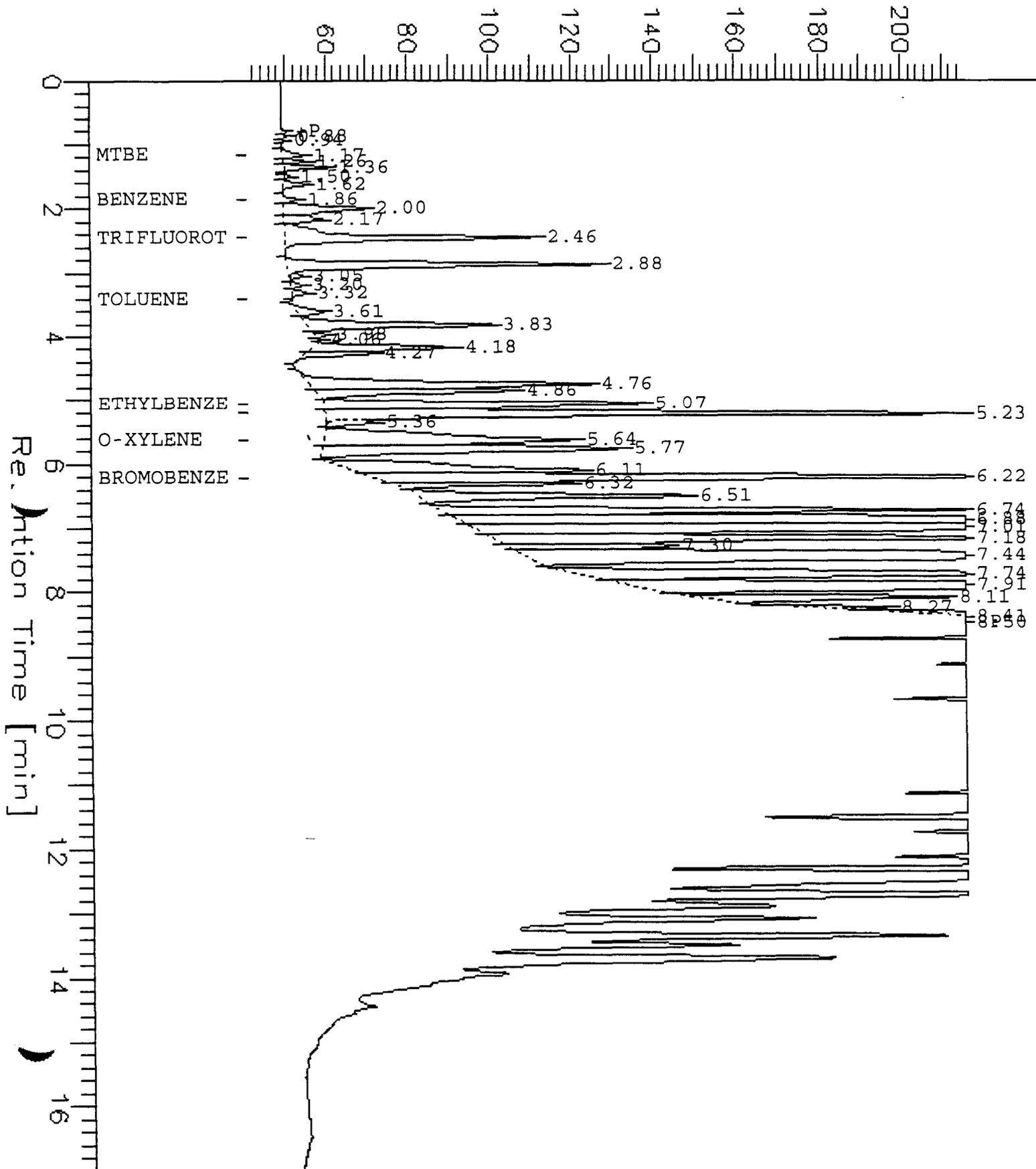
End Time : 17.00 min
Plot Offset: 40 mV

Date : 6/14/96 12:03 AM
Low Point : 40.40 mV
Plot Scale: 175 mV

Page 1 of 1
High Point : 215.40 mV

125826-002

Response [mV]



Lab #: 125826

BATCH QC REPORT

Page 1 of 1

BTXE

 Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

 Analysis Method: EPA 8020
 Prep Method: EPA 5030

METHOD BLANK

 Matrix: Soil
 Batch#: 28169
 Units: ug/Kg
 Diln Fac: 1

 Prep Date: 06/13/96
 Analysis Date: 06/13/96

MB Lab ID: QC24153

Analyte	Result	
Benzene	<5.0	
Toluene	<5.0	
Ethylbenzene	<5.0	
m,p-Xylenes	<5.0	
o-Xylene	<5.0	
Surrogate	%Rec	Recovery Limits
Trifluorotoluene	85	43-114
Bromobenzene	84	47-112



Lab #: 125826

BATCH QC REPORT

Page 1 of 1

BTXE

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Soil
Batch#: 28202
Units: ug/Kg
Diln Fac: 1

Prep Date: 06/14/96
Analysis Date: 06/14/96

MB Lab ID: QC24292

Analyte	Result	
Benzene	<5.0	
Toluene	<5.0	
Ethylbenzene	<5.0	
m,p-Xylenes	<5.0	
o-Xylene	<5.0	
Surrogate	%Rec	Recovery Limits
Trifluorotoluene	84	43-114
Bromobenzene	82	47-112



Lab #: 125826

BATCH QC REPORT

Page 1 of 1

BTXE

Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

Analysis Method: EPA 8020
 Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Soil
 Batch#: 28169
 Units: ug/Kg
 Diln Fac: 1

Prep Date: 06/13/96
 Analysis Date: 06/13/96

LCS Lab ID: QC24154

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	99.1	100	99	80-120
Toluene	103.6	100	104	80-120
Ethylbenzene	102.1	100	102	80-120
m,p-Xylenes	105.9	200	106	80-120
o-Xylene	105.9	100	106	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	86	43-114		
Bromobenzene	85	47-112		

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits



Lab #: 125826

BATCH QC REPORT

Page 1 of 1

BTXE

Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

Analysis Method: EPA 8020
 Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Soil
 Batch#: 28202
 Units: ug/Kg
 Diln Fac: 1

Prep Date: 06/14/96
 Analysis Date: 06/14/96

LCS Lab ID: QC24294

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	90.5	100	91	80-120
Toluene	92.5	100	93	80-120
Ethylbenzene	90.5	100	91	80-120
m,p-Xylenes	187.4	200	94	80-120
o-Xylene	100.2	100	100	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	85	43-114		
Bromobenzene	83	47-112		

* Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits

Lab #: 125826

BATCH QC REPORT

Page 1 of 1

BTXE	
Client: IT Corporation	Analysis Method: EPA 8020
Project#: 764287	Prep Method: EPA 5030
Location: NAS Alameda	
MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
Field ID: SB-3-1	Sample Date: 05/31/96
Lab ID: 125826-005	Received Date: 06/04/96
Matrix: Soil	Prep Date: 06/14/96
Batch#: 28202	Analysis Date: 06/14/96
Units: ug/Kg dry weight	Moisture: 4%
Diln Fac: 1	

MS Lab ID: QC24295

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	104.2	<5.208	80.63	77	75-125
Toluene	104.2	<5.208	69.48	67 *	75-125
Ethylbenzene	104.2	<5.208	54.27	52 *	75-125
m,p-Xylenes	208.3	<5.208	99.58	48 *	75-125
o-Xylene	104.2	<5.208	60.1	58 *	75-125
Surrogate	%Rec	Limits			
Trifluorotoluene	84	43-114			
Bromobenzene	79	47-112			

MSD Lab ID: QC24296

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	104.2	79.79	77	75-125	1	<20
Toluene	104.2	70.31	68 *	75-125	1	<20
Ethylbenzene	104.2	54.69	53 *	75-125	1	<20
m,p-Xylenes	208.3	101.3	49 *	75-125	2	<20
o-Xylene	104.2	48.75	47 *	75-125	21 *	<20
Surrogate	%Rec	Limits				
Trifluorotoluene	84	43-114				
Bromobenzene	81	47-112				

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 5 outside limits

Spike Recovery: 8 out of 10 outside limits



TEH-Tot Ext Hydrocarbons

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125826-001	SB-1-1	28027	05/31/96	06/06/96	06/09/96	9%
125826-002	SB-1-2	28027	05/31/96	06/06/96	06/14/96	17%
125826-003	SB-2-1	28027	05/31/96	06/06/96	06/11/96	11%
125826-004	SB-2-2	28027	05/31/96	06/06/96	06/11/96	16%

Matrix: Soil

Analyte	Units	125826-001	125826-002	125826-003	125826-004
Diln Fac:		1	250	20	10
JP-5 (C10-C16)	mg/Kg	6.4YH	24000	1300	1100
Surrogate					
Hexacosane	%REC	73	DO	DO	DO

DO: Surrogate diluted out

Y: Sample exhibits fuel pattern which does not resemble standard

H: Heavier hydrocarbons than indicated standard



TEH-Tot Ext Hydrocarbons

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125826-005	SB-3-1	28027	05/31/96	06/06/96	06/11/96	4%
125826-006	SB-3-2	28027	05/31/96	06/06/96	06/11/96	11%
125826-007	SB-4-1	28027	05/31/96	06/06/96	06/11/96	11%
125826-008	SB-4-2	28027	05/31/96	06/06/96	06/11/96	12%

Matrix: Soil

Analyte	Units	125826-005	125826-006	125826-007	125826-008
Diln Fac:		2	1	1	20
JP-5 (C10-C16)	mg/Kg	170	3.9YH	3.8	1500
Surrogate					
Hexacosane	%REC	65	84	90	DO

DO: Surrogate diluted out

Y: Sample exhibits fuel pattern which does not resemble standard

H: Heavier hydrocarbons than indicated standard



TEH-Tot Ext Hydrocarbons

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125826-009	SB-5-1	28027	05/31/96	06/06/96	06/11/96	13%
125826-010	SB-5-2	28027	05/31/96	06/06/96	06/11/96	8%
125826-011	SB-1-3	28027	05/31/96	06/06/96	06/11/96	22%

Matrix: Soil

Analyte	Units	125826-009	125826-010	125826-011
Diln Fac:		1	2	1
JP-5 (C10-C16)	mg/Kg	1.3Y	150	3.8YH
Surrogate				
Hexacosane	%REC	72	82	93

Y: Sample exhibits fuel pattern which does not resemble standard

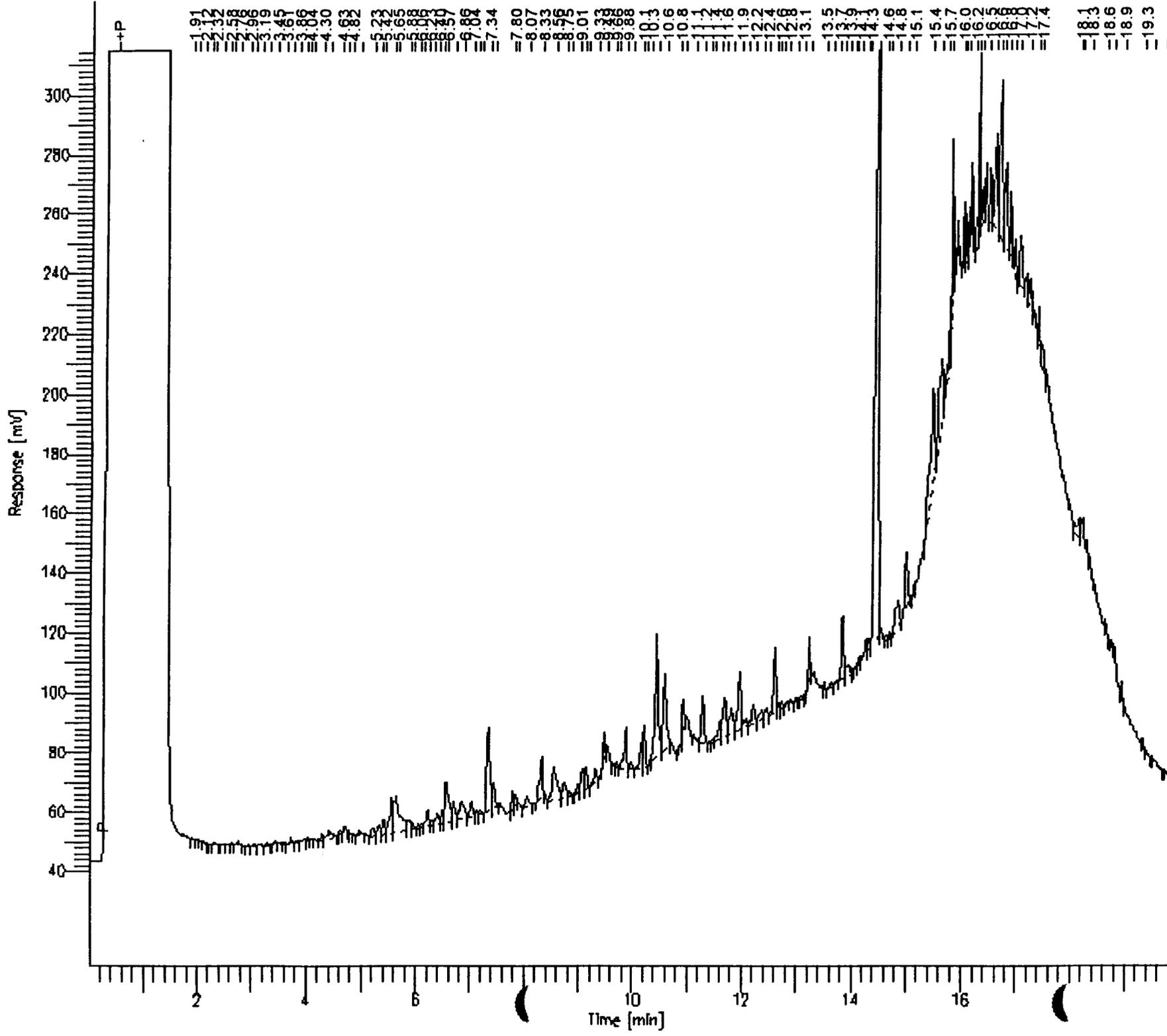
H: Heavier hydrocarbons than indicated standard

GC15 Channel A TEH

Sample Name : S_125826-001_28027
Filename : C:\GC15\CHB\159B066.RAW
Method : BTEHU.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 39 mV

Sample #: 50:5
Date : 6/11/96 02:15 PM
Time of Injection: 6/9/96 07:34 AM
Low Point : 39.35 mV
Plot Scale: 275.6 mV
High Point : 314.91 mV



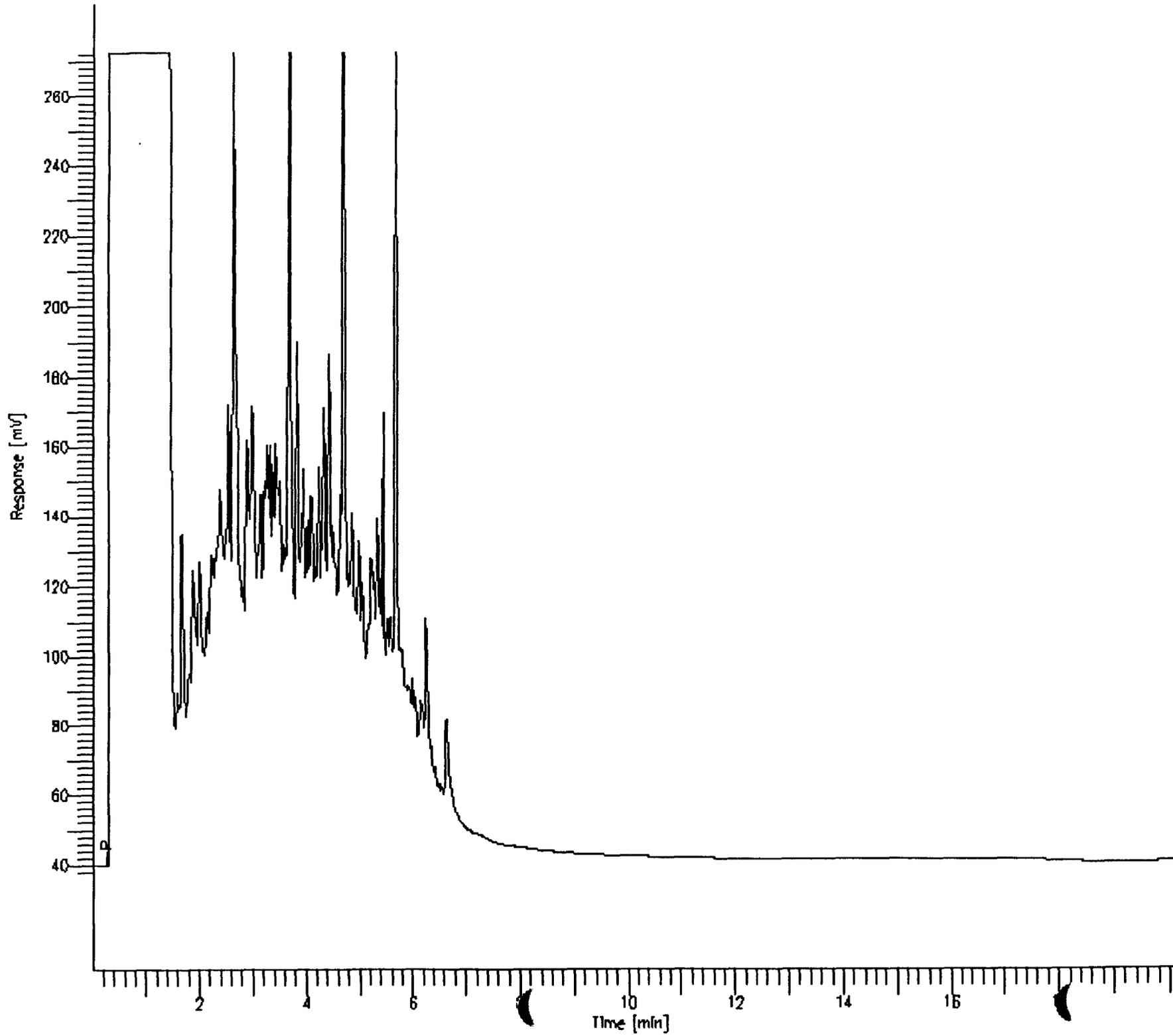
GC15 Channel A TEH

Sample Name : 3,125826-002,28027
FileName : C:\GC15\CHB\165B020.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 20.09 min
Plot Offset: 37 mV

Sample #: 50:1250
Date : 6/17/96 11:14 AM
Time of Injection: 6/14/96 02:18 PM
Low Point : 36.90 mV
Plot Scale: 235.7 mV
High Point : 272.58 mV

Page 1 of 1



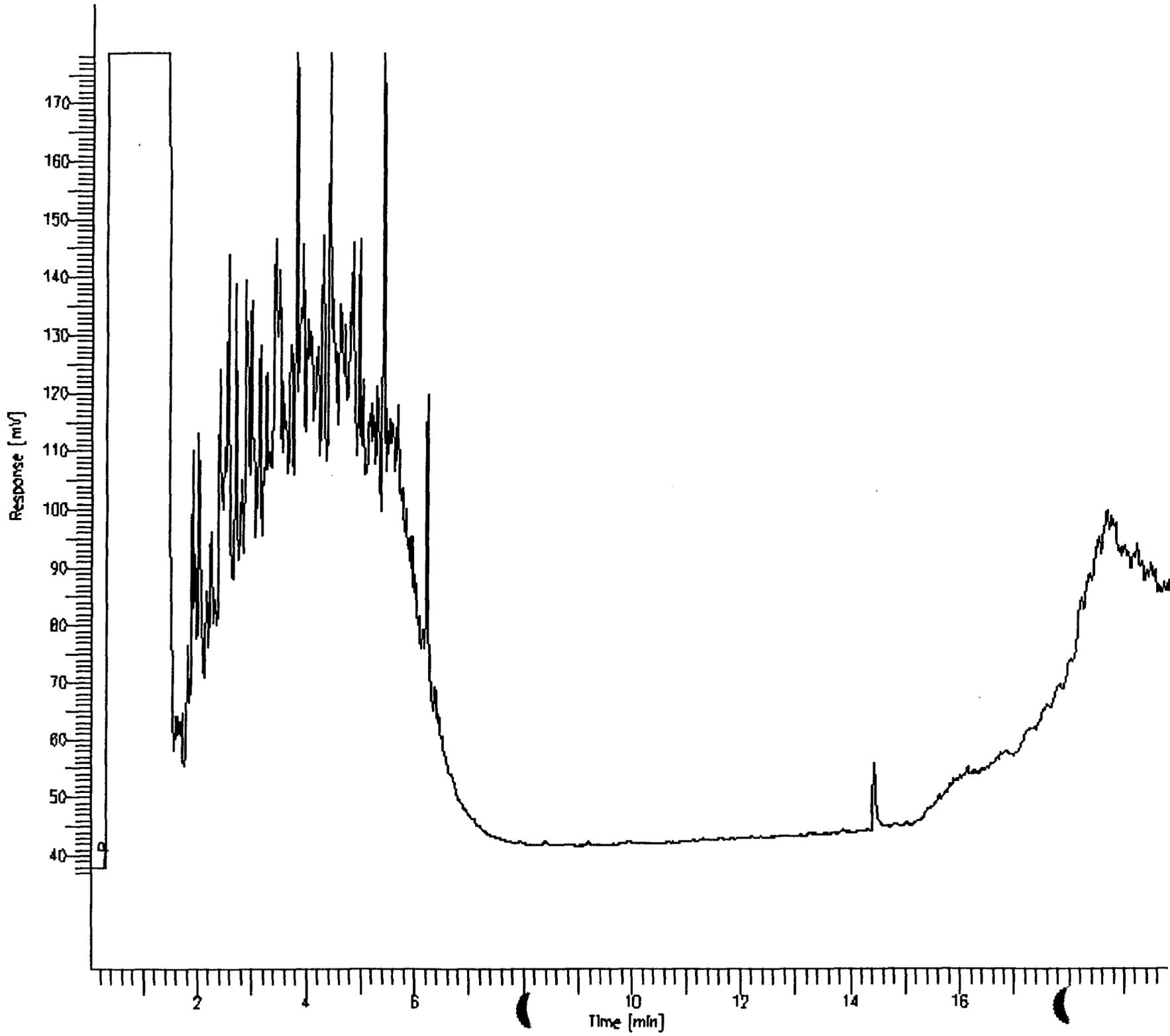
GC15 Channel A TEH

Sample Name : S_125826-003_28027
FileName : C:\GC15\CHB\162B056.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 36 mV

Sample #: 50:100
Date : 6/12/96 11:11 AM
Time of Injection: 6/11/96 05:30 PM
Low Point : 36.39 mV
Plot Scale: 142.4 mV
High Point : 178.74 mV

Page 1 of 1

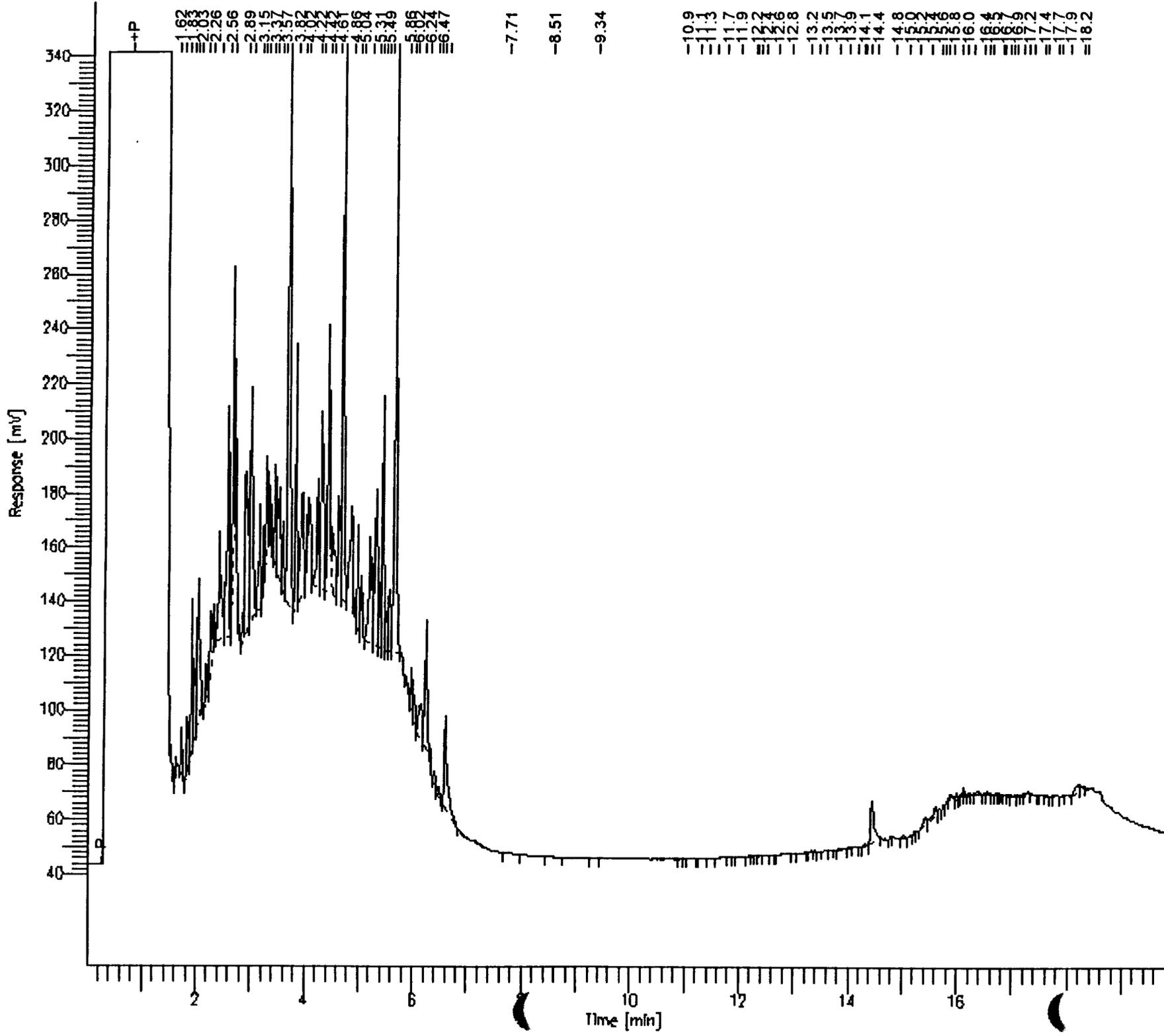


GC15 Channel A TEH

Sample Name : S_125826-004_28027
 FileName : C:\GC15\CHB\162B036.RAW
 Method : BTEHQ.MTH
 Start Time : 0.01 min
 Scale Factor: 0.0

End Time : 19.80 min
 Plot Offset: 40 mV

Sample #: 50:50
 Date : 6/11/96 01:46 PM
 Time of Injection: 6/11/96 07:28 AM
 Low Point : 39.88 mV
 Plot Scale: 301.7 mV
 High Point : 341.58 mV

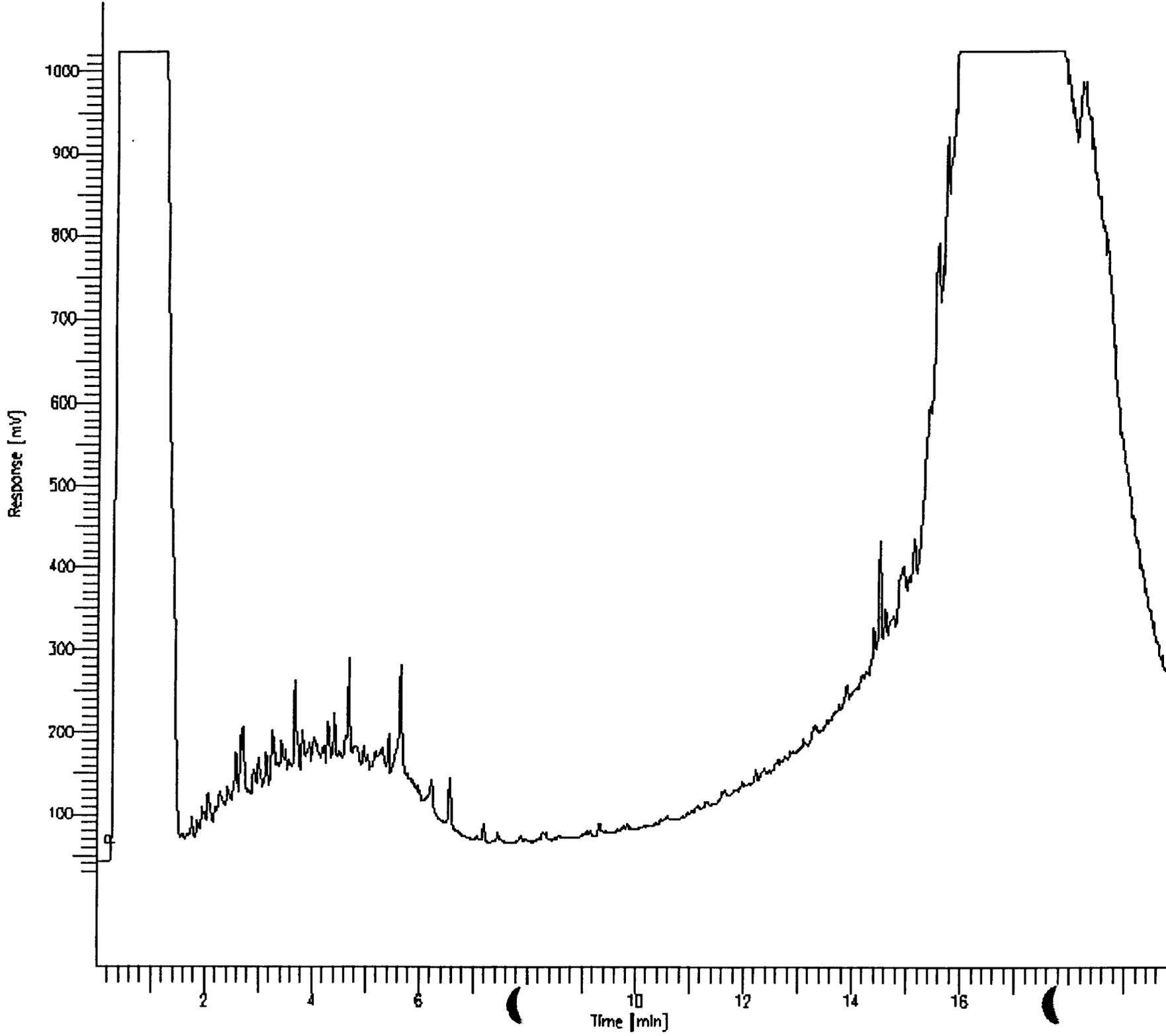


GC15 Channel A TEH

Sample Name : S_125826-005_28027
FileName : C:\GC15\CHBA\162B040.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 28 mV

Sample #: 50:10
Date : 6/11/96 02:12 PM
Time of Injection: 6/11/96 09:19 AM
Low Point : 28.06 mV
High Point : 1024.00 mV
Plot Scale: 995.9 mV

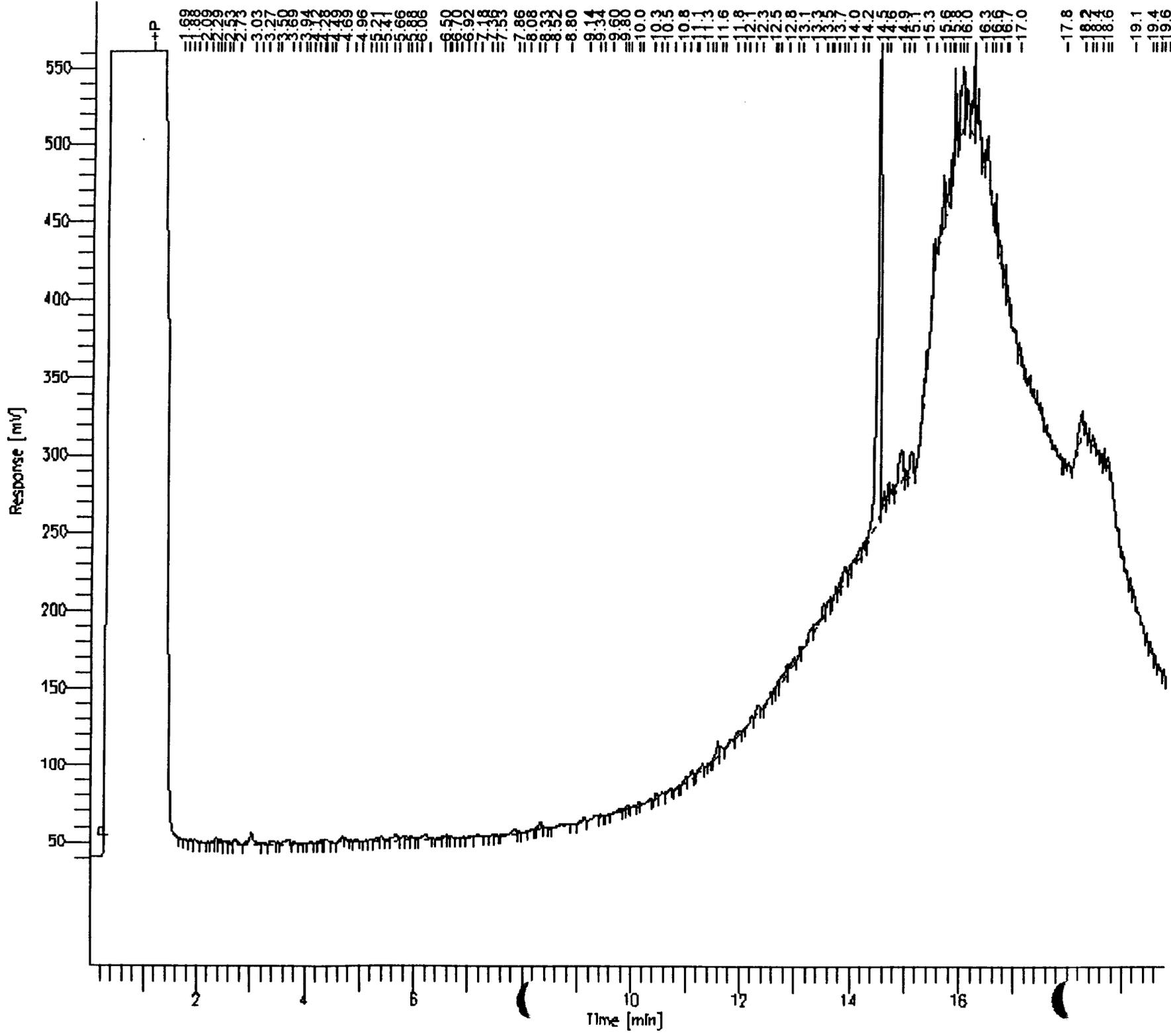


GC15 Channel A TEH

Sample Name : S_125826-006,28027
 FileName : C:\GC15\CHB\162B042.RAW
 Method : BTEHJ.MTH
 Start Time : 0.01 min
 Scale Factor: 0.0

End Time : 19.80 min
 Plot Offset: 31 mV

Sample #: 50:5
 Date : 6/11/96 11:19 AM
 Time of Injection: 6/11/96 10:35 AM
 Low Point : 30.57 mV
 Plot Scale: 530.3 mV
 High Point : 560.92 mV



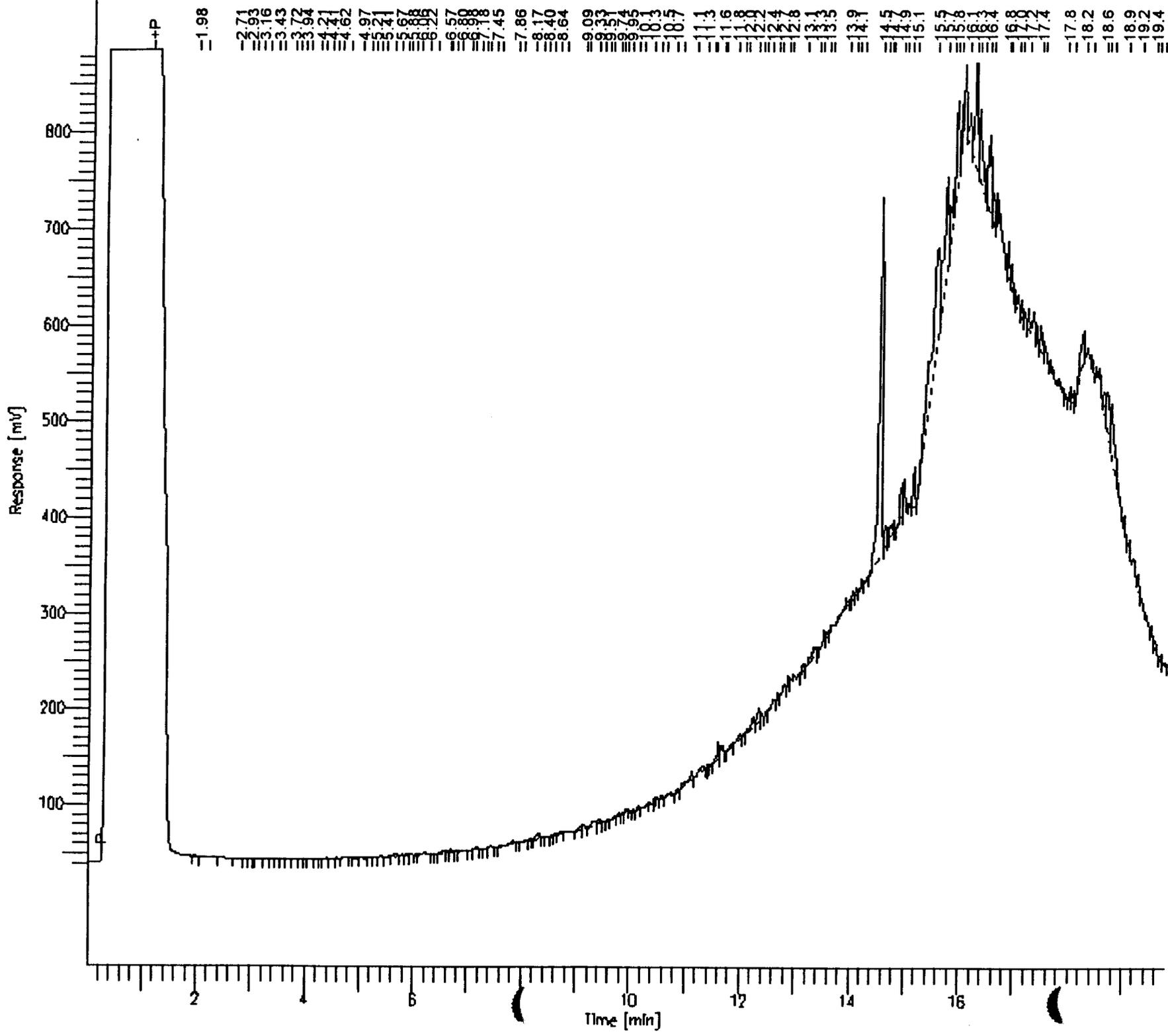
GC15 Channel A TEH

Sample Name : 5,125826-007,28027
FileName : C:\GC15\CHB\162B043.RAW
Method : BTERJ.MTH
Start Time : 0.01 min
Scale Factor : 0.0

End Time : 19.80 min
Plot Offset: 30 mV

Sample #: 50:5
Date : 6/11/96 11:32 AM
Time of Injection: 6/11/96 11:03 AM
Low Point : 30.08 mV
Plot Scale: 856.5 mV
High Point : 886.54 mV

Page 1 of 1

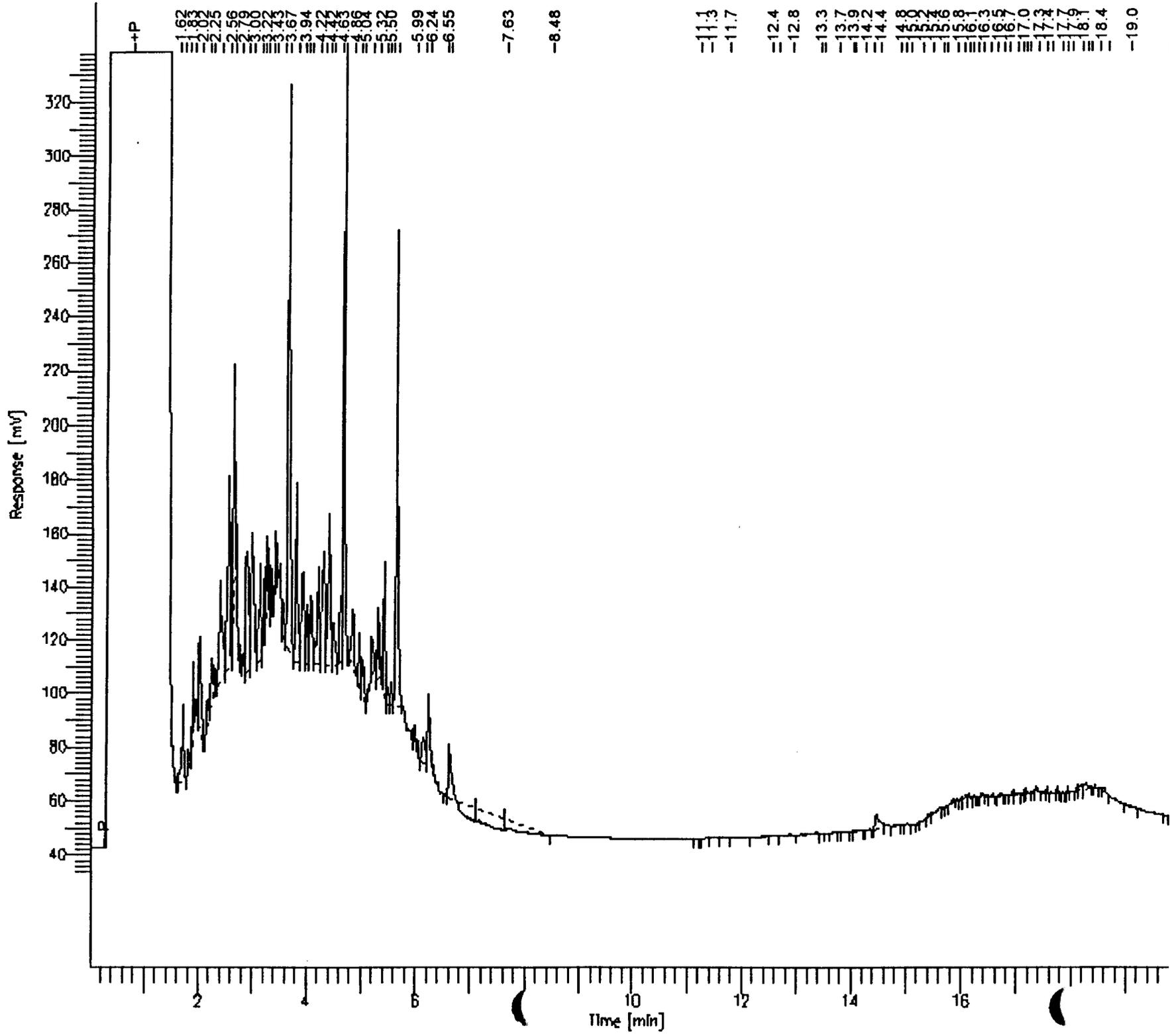


GC15 Channel A TEH

Sample Name : S,125826-008,28027
 FileName : C:\GC15\CHB\162B038.RAW
 Method : BTEHJ.MTH
 Start Time : 0.01 min
 Scale Factor: 0.0

Sample #: 50:100
 Date : 6/11/96 01:51 PM
 Time of Injection: 6/11/96 08:23 AM
 Low Point : 32.48 mV
 Plot Scale: 306.1 mV

End Time : 19.80 min
 Plot Offset: 32 mV
 High Point : 338.61 mV



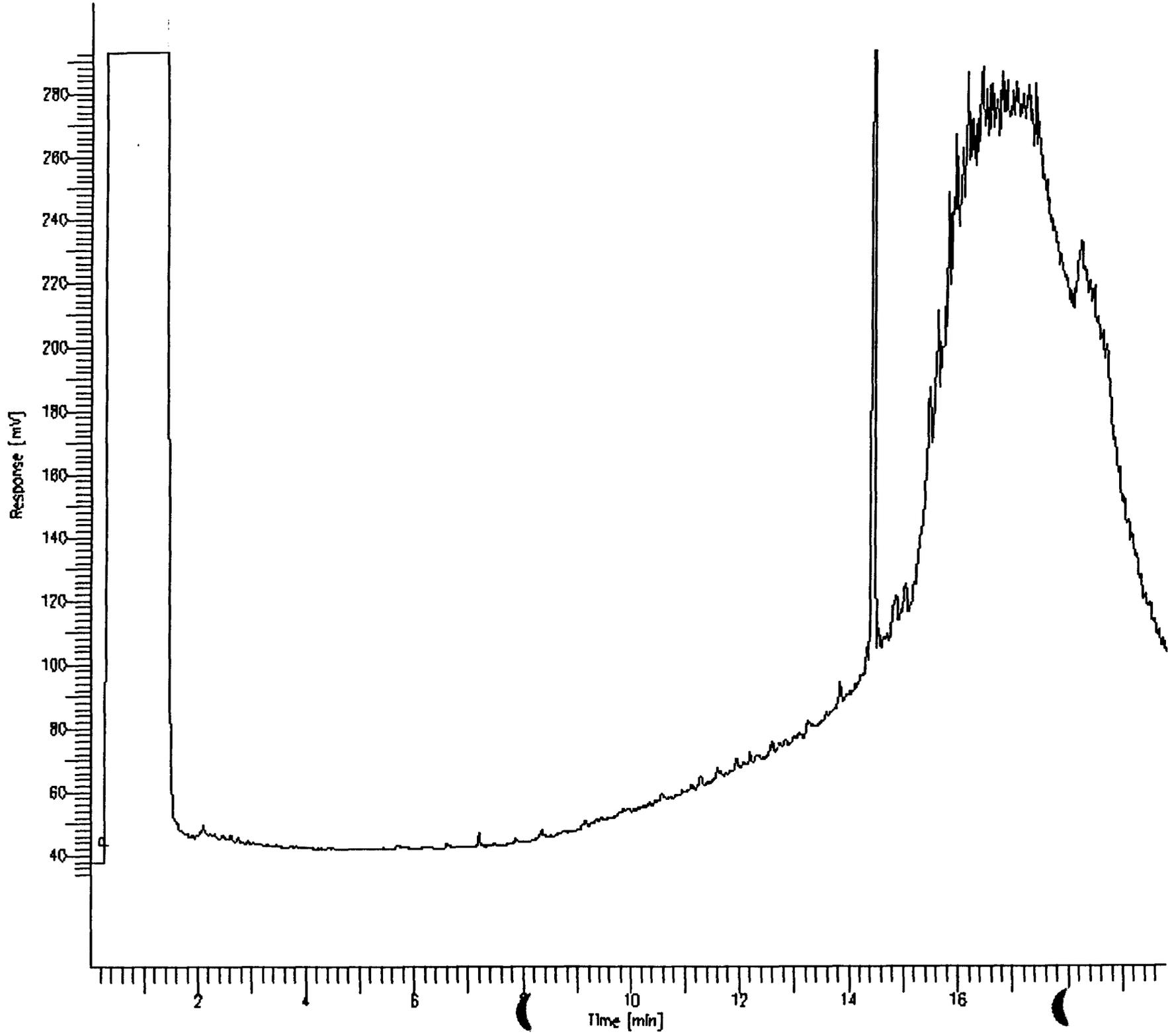
GC15 Channel A TEH

Sample Name : S_125826-009_28027
FileName : C:\GC15\CHB\162B055.RAW
Method : BTEHQ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 34 mV

Sample #: 50:5
Date : 6/12/96 11:43 AM
Time of Injection: 6/11/96 05:02 PM
Low Point : 33.86 mV
High Point : 292.81 mV
Plot Scale: 259.0 mV

Page 1 of 1



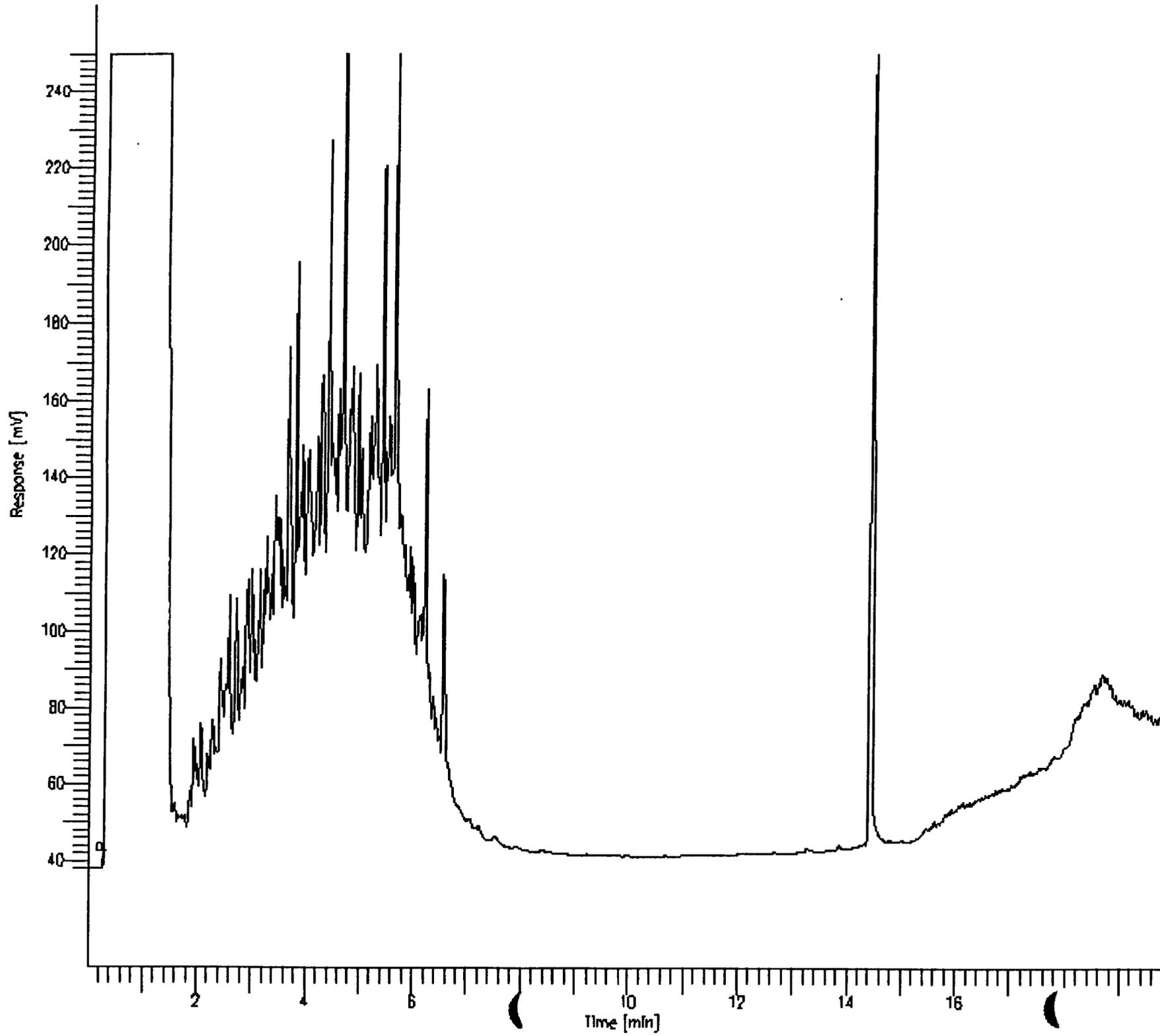
GC15 Channel A TEH

Sample Name : S_125826-010_28027
FileName : C:\GC15\CHB\162B057.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 37 mV

Sample #: 50:10
Date : 6/12/96 11:33 AM
Time of Injection: 6/11/96 05:59 PM
Low Point : 36.75 mV
Plot Scale: 213.3 mV
High Point : 250.01 mV

Page 1 of 1



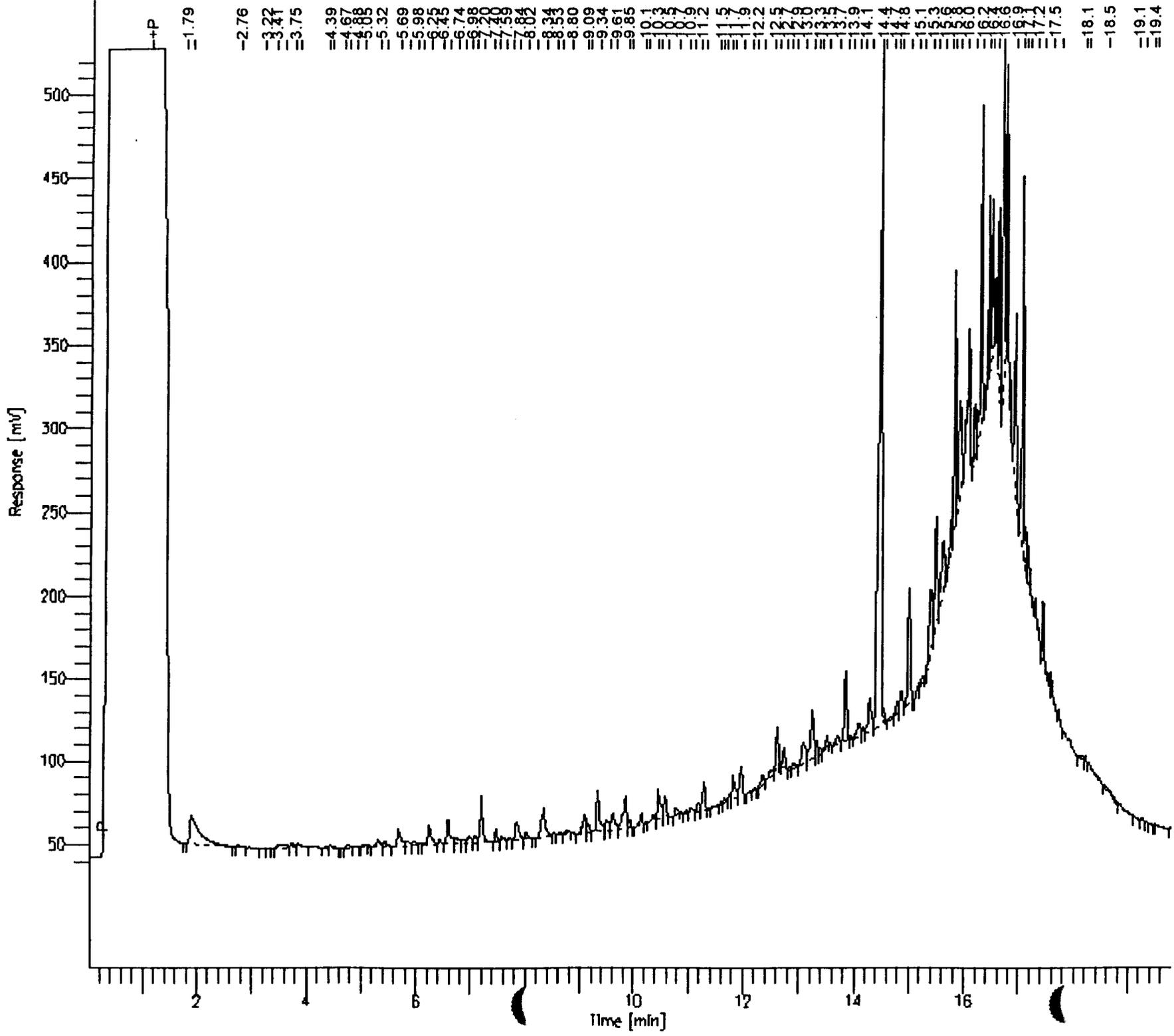
GC15 Channel A TEH

Sample Name : S_125826-011_28027
 FileName : C:\GC15\CHB\159B056.RAW
 Method : BTEHJ.MTH
 Start Time : 0.01 min
 Scale Factor: 0.0

End Time : 19.80 min
 Plot Offset: 32 mV

Sample #: 50:5
 Date : 6/11/96 02:27 PM
 Time of Injection: 6/9/96 02:52 AM
 Low Point : 32.17 mV
 Plot Scale: 496.0 mV

High Point : 528.17 mV



Lab #: 125826

BATCH QC REPORT

TEH-Tot Ext Hydrocarbons			
Client:	IT Corporation	Analysis Method:	CA LUFT (EPA 8015M)
Project#:	764287	Prep Method:	LUFT
Location:	NAS Alameda		
METHOD BLANK			
Matrix:	Soil	Prep Date:	06/06/96
Batch#:	28027	Analysis Date:	06/09/96
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC23516

Analyte	Result		
JP-5 (C10-C16)	<1.0		
Surrogate	%Rec	Recovery Limits	
Hexacosane	79	60-140	



Lab #: 125826

BATCH QC REPORT

Page 1 of 1

TEH-Tot Ext Hydrocarbons

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: LUFT

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 28027
Units: mg/Kg
Diln Fac: 1

Prep Date: 06/06/96
Analysis Date: 06/09/96

LCS Lab ID: QC23517

Analyte	Result	Spike Added	%Rec #	Limits
Surrogate	%Rec	Limits		
Hexacosane	81	60-140		

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 0 outside limits

SOIL TEH LCS RECOVERY

Lab Name: CURTIS & TOMPKINS, LTD.

Instrument ID: GC15 CHB

Run Date: 6/9/96

C&T ID: QC23517

Batch No.: 28027

COMPOUND	SPIKE ADDED Mg/Kg	LCS CONC. Mg/Kg	LCS % REC	RECOVERY LIMITS
JP5	49.5	43.4	88 PASS	60 -140

Surrogate Recovery:
(Limits: 60 - 140)

81

PASS

Spike Recovery:

0 out of 1 outside QC limits
LCS PASS

COMMENTS: _____

Percent Moisture Summary Report

Date: 14-JUN-96
 Batch: 28185
 Analyst: DM

Sample	Method	Date	Tare(g)	Wet(g)	Dry(g)	Percent Solids	Percent Moisture
125826-001	CLP SOW 390	14-JUN-96	15.2889	21.4139	20.8738	91	9
125826-002	CLP SOW 390	14-JUN-96	15.2938	25.1295	23.4613	83	17
125826-003	CLP SOW 390	14-JUN-96	15.1772	25.0836	23.9949	89	11
125826-004	CLP SOW 390	14-JUN-96	15.8039	26.2601	24.5614	84	16
125826-005	CLP SOW 390	14-JUN-96	15.0959	21.1534	20.9403	96	4
125826-006	CLP SOW 390	14-JUN-96	15.2881	24.6029	23.5425	89	11
125826-007	CLP SOW 390	14-JUN-96	15.6596	23.6694	22.7863	89	11
125826-008	CLP SOW 390	14-JUN-96	15.3404	23.6432	22.6849	88	12
125826-009	CLP SOW 390	14-JUN-96	15.5491	23.4178	22.4009	87	13
125826-010	CLP SOW 390	14-JUN-96	15.0364	26.1825	25.3074	92	8
125826-011	CLP SOW 390	14-JUN-96	15.0166	21.6995	20.2384	78	22
125926-001	CLP SOW 390	14-JUN-96	15.0479	23.348	22.8501	94	6
QC24222	CLP SOW 390	14-JUN-96	15.3406	0	15.3406	0	100
QC24223	CLP SOW 390	14-JUN-96	15.9678	25.0478	23.3454	81	19
of 125826-011						RPD: 3.9%	15.3%



125826

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document # 375159
Page 1 of 3

Project Name/No. 1 NAS Alameda
Sample Team Members 2 Farias / Britton
Profit Center No. 3
Project Manager 4 Don Marini
Purchase Order No. 6
Required Report Date 11 JUNE 11, 1996

Samples Shipment Date 7 5-31-96
Lab Destination 8 CURTIS & TUNKINS
Lab Contact 9 CYNTHIA SCHLAG (486-9900)
Project Contact/Phone 12 L. FARIAS / 372-9100
Carrier/Waybill No. 13 OFF-PACK

Bill to: 5 IT CORPORATION
4585 PACHECO BLVD
MARTINEZ CA 94553
ATTN: EPA/WEST ACCOUNTING
Report to: 10 IT CORPORATION
4585 PACHECO BLVD
MARTINEZ CA 94553
ATTN: DON MARINI

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
1 SB-1-1	Soil / SAND	5-31-96 0950	Brass screw	Full (6")	None	JP-5 by med EPA 3015 BTEX by EPA 3020		
2 SB 1-2	Soil / SAND	5-31-96 0950	↓	↓	↓	↓		
3 SB 2-1	Soil / SAND	5-31-96 1035	↓	↓	↓	↓		
4 SB 2-2	Soil / SAND	5-31-96 1035	↓	↓	↓	↓		
5 SB 3-1	Soil / SAND	5-31-96 H2O DB1230	↓	1/2 full (3")	↓	↓		
6 SB 3-2	Soil / SAND	5-31-96 H2O DB1230	↓	Full	↓	↓		
7 SB 7-1	Soil / SAND	5-31-96 1130	↓	↓	↓	↓		
8 SB 7-2	Soil / SAND	5-31-96 1130	↓	↓	↓	↓		

Special Instructions: 23

Possible Hazard Identification: 24

Non-hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal: 25

Return to Client Disposal by Lab Archive (mos.)

Turnaround Time Required: 26

Normal Rush PER CONTRACT

QC Level: 27

I. II. III. Project Specific (specify):

1. Relinquished by 28 (Signature/Affiliation) David Britton ITCorp Date: 6-3-96 Time: 1900

1. Received by 28 (Signature/Affiliation) J. D. Cooley ITCorp Date: 6-3-96 Time: 1900

2. Relinquished by (Signature/Affiliation) J. D. Cooley ITCorp Date: 6-4-96 Time: 2:45

2. Received by (Signature/Affiliation) [Signature] Date: 6/4/96 Time: 2:45

3. Relinquished by (Signature/Affiliation) Date: Time:

3. Received by (Signature/Affiliation) Date: Time:

Comments: 29 SAMPLES STORED AT 4°C IN DESIGNATED SAMPLE REFRIGERATOR ON-SITE

White: To accompany samples
Yellow: Field copy
* See back of form for special instructions

MAS Humecker



Curtis & Tompkins Ltd

COOLER RECEIPT CHECKLIST

Login#: 125826 Date Received: 6/4 Number of Coolers: 1
 Client: ITC Project: MAS Humecker

A. Preliminary Examination Phase

- Date Opened: 6/4 By (print): J. Williams (sign) J. Williams
- Did cooler come with a shipping slip (airbill, etc.)?..... YES NO
 - If YES, enter carrier name and airbill number: _____
 - Were custody seals on outside of cooler?..... YES NO *Intact upon samples jar*
 - How many and where? _____ Seal date: _____ Seal name: _____
 - Were custody seals unbroken and intact at the date and time of arrival?..... YES NO *- Intact on samples*
 - Were custody papers dry and intact when received?..... YES NO
 - Were custody papers filled out properly (ink, signed, etc.)?..... YES NO
 - Did you sign the custody papers in the appropriate place?..... YES NO
 - Was project identifiable from custody papers?..... YES NO
 - If YES, enter project name at the top of this form.
 - If required, was sufficient ice used?..... YES NO
 - Type of ice: ice Temperature: 5.5

B. Login Phase

- Date Logged In: 6/4 By (print): J. Williams (sign) J. Williams
- Describe type of packing in cooler: foam
 - Did all bottles arrive unbroken?..... YES NO
 - Were labels in good condition and complete (ID, date, time, signature, etc.)?... YES NO
 - Did bottle labels agree with custody papers?..... YES NO
 - Were appropriate containers used for the tests indicated?..... YES NO
 - Were correct preservatives added to samples?..... YES NO
 - Was sufficient amount of sample sent for tests indicated?..... YES NO
 - Were bubbles absent in VOA samples? If NO, list sample Ids below..... YES NO *nk*
 - Was the client contacted concerning this sample delivery?..... YES NO
 - If YES, give details below.
 - Who was called? _____ By whom? _____ Date: _____

Additional Comments:

Regional Office



4585 Pacheco Boulevard
Martinez, California 94563 2233
510-372-9100
Fax: 510-372-5220

June 13, 1996

Ms. Cynthia Schlag
Curtis and Tomkins
2323 Fifth Street
Berkeley, CA 94710

VIA FACSIMILE
510-486-0532

Modified Analysis Request: Soil and Groundwater Samples
NAS Alameda - Building 397
IT Project No. 764287

Dear Ms. Schlag:

Pursuant to your discussion with Linus Farias yesterday, please modify the analytical requirements for the subject samples that were submitted for analysis to your laboratory on June 4, 1996.

1. We would like you to extract the required volume of sample from each of the eleven (11) soil samples that were submitted and keep them "on-hold" until further notice. These extracts may require analysis for polynuclear aromatic hydrocarbons (PNAs) using EPA method 8270. As per our agreement with Curtis and Tomkins, the sample extraction cost will be \$64.80 per sample. Should sample analysis be required the cost will not exceed \$43.20 per sample.
2. Please do not analyze the groundwater samples identified as MS-1 and MSD-1. Your laboratory selection of soil sample SB-2-2 and groundwater sample ER-01 for matrix spike (MS) and matrix spike duplicate (MSD) analyses will be adequate for this project.

Should you have further questions, please do not hesitate to call me at (510) 372-9100.

Sincerely,
IT Corporation


Don Marini
Project Manager



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

A N A L Y T I C A L R E P O R T

Prepared for:

IT Corporation
4585 Pacheco Boulevard
Martinez, CA 94553

Date: 25-JUL-96
Lab Job Number: 126227
Project ID: 764287
Location: NAS Alameda

May Plener 7/17/96

Reviewed by: _____

Reviewed by: _____

This package may be reproduced only in its entirety.



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3550

Field ID: SB-1-1
Lab ID: 125826-001
Matrix: Soil
Batch#: 28189
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 05/31/96
Received: 06/04/96
Extracted: 06/14/96
Analyzed: 06/17/96
Moisture: 9%

Analyte	Result	Reporting Limit
---------	--------	-----------------

Naphthalene	ND	55
Benzo(a)pyrene	160	38

Surrogate	%Recovery	Recovery Limits
-----------	-----------	-----------------

Nitrobenzene-d5	45	23-120
2-Fluorobiphenyl	59	30-115
Terphenyl-d14	58	18-137



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3550

Field ID: SB-1-2
Lab ID: 125826-002
Matrix: Soil
Batch#: 28189
Units: ug/Kg dry weight
Diln Fac: 60

Sampled: 05/31/96
Received: 06/04/96
Extracted: 06/14/96
Analyzed: 07/16/96
Moisture: 17%

Analyte	Result	Reporting Limit
---------	--------	-----------------

Naphthalene	19000	3600
Benzo(a)pyrene	ND	2500

Surrogate	%Recovery	Recovery Limits
-----------	-----------	-----------------

Nitrobenzene-d5	DO*	23-120
2-Fluorobiphenyl	DO*	30-115
Terphenyl-d14	DO*	18-137

* Values outside of QC limits
): Surrogate diluted out



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3550

Field ID: SB-2-1
Lab ID: 125826-003
Matrix: Soil
Batch#: 28189
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 05/31/96
Received: 06/04/96
Extracted: 06/14/96
Analyzed: 07/17/96
Moisture: 11%

Analyte	Result	Reporting Limit
Naphthalene	100	56
Benzo(a)pyrene	ND	39

Surrogate	%Recovery	Recovery Limits
Nitrobenzene-d5	67	23-120
2-Fluorobiphenyl	79	30-115
Terphenyl-d14	103	18-137



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3550

Field ID: SB-2-2
Lab ID: 125826-004
Matrix: Soil
Batch#: 28189
Units: ug/Kg dry weight
Diln Fac: 60

Sampled: 05/31/96
Received: 06/04/96
Extracted: 06/14/96
Analyzed: 07/16/96
Moisture: 16%

Analyte	Result	Reporting Limit
---------	--------	-----------------

Naphthalene	17000	3600
Benzo(a)pyrene	ND	2500

Surrogate	%Recovery	Recovery Limits
-----------	-----------	-----------------

Nitrobenzene-d5	DO*	23-120
2-Fluorobiphenyl	DO*	30-115
Terphenyl-d14	DO*	18-137

* Values outside of QC limits
: Surrogate diluted out



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation	Analysis Method: EPA 8270	
Project#: 764287	Prep Method: EPA 3550	
Location: NAS Alameda		
Field ID: SB-3-1	Sampled: 05/31/96	
Lab ID: 125826-005	Received: 06/04/96	
Matrix: Soil	Extracted: 06/14/96	
Batch#: 28189	Analyzed: 06/17/96	
Units: ug/Kg dry weight	Moisture: 4%	
Diln Fac: 10		
Analyte	Result	Reporting Limit
Naphthalene	ND	520
Benzo(a)pyrene	ND	360
Surrogate	%Recovery	Recovery Limits
Nitrobenzene-d5	76	23-120
2-Fluorobiphenyl	76	30-115
Terphenyl-d14	94	18-137



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3550

Field ID: SB-3-2
Lab ID: 125826-006
Matrix: Soil
Batch#: 28189
Units: ug/Kg dry weight
Diln Fac: 10

Sampled: 05/31/96
Received: 06/04/96
Extracted: 06/14/96
Analyzed: 07/16/96
Moisture: 11%

Analyte	Result	Reporting Limit
---------	--------	-----------------

Naphthalene	5900	560
Benzo(a)pyrene	ND	390

Surrogate	%Recovery	Recovery Limits
-----------	-----------	-----------------

Nitrobenzene-d5	108	23-120
2-Fluorobiphenyl	76	30-115
Terphenyl-d14	85	18-137



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3550

Field ID: SB-4-1
Lab ID: 125826-007
Matrix: Soil
Batch#: 28189
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 05/31/96
Received: 06/04/96
Extracted: 06/14/96
Analyzed: 06/19/96
Moisture: 11%

Analyte	Result	Reporting Limit
Naphthalene	ND	56
Benzo(a)pyrene	ND	39

Surrogate	%Recovery	Recovery Limits
Nitrobenzene-d5	68	23-120
2-Fluorobiphenyl	74	30-115
Terphenyl-d14	105	18-137



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3550

Field ID: SB-4-2
Lab ID: 125826-008
Matrix: Soil
Batch#: 28189
Units: ug/Kg dry weight
Diln Fac: 40

Sampled: 05/31/96
Received: 06/04/96
Extracted: 06/14/96
Analyzed: 07/16/96
Moisture: 12%

Analyte	Result	Reporting Limit
Naphthalene	ND	2300
Benzo(a)pyrene	ND	1600
Surrogate	%Recovery	Recovery Limits
Nitrobenzene-d5	DO*	23-120
2-Fluorobiphenyl	DO*	30-115
Terphenyl-d14	DO*	18-137

* Values outside of QC limits
: Surrogate diluted out



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation	Analysis Method: EPA 8270	
Project#: 764287	Prep Method: EPA 3550	
Location: NAS Alameda		
Field ID: SB-5-1	Sampled: 05/31/96	
Lab ID: 125826-009	Received: 06/04/96	
Matrix: Soil	Extracted: 06/14/96	
Batch#: 28189	Analyzed: 06/18/96	
Units: ug/Kg dry weight	Moisture: 13%	
Diln Fac: 2		
Analyte	Result	Reporting Limit
Naphthalene	ND	110
Benzo(a)pyrene	ND	80
Surrogate	%Recovery	Recovery Limits
Nitrobenzene-d5	60	23-120
2-Fluorobiphenyl	79	30-115
Terphenyl-d14	81	18-137



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3550

Field ID: SB-5-2
Lab ID: 125826-010
Matrix: Soil
Batch#: 28189
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 05/31/96
Received: 06/04/96
Extracted: 06/14/96
Analyzed: 06/18/96
Moisture: 8%

Analyte	Result	Reporting Limit
---------	--------	-----------------

Naphthalene	ND	54
Benzo(a)pyrene	ND	38

Surrogate	%Recovery	Recovery Limits
-----------	-----------	-----------------

Nitrobenzene-d5	57	23-120
2-Fluorobiphenyl	73	30-115
Terphenyl-d14	81	18-137



Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3550

Field ID: SB-1-3
Lab ID: 125826-011
Matrix: Soil
Batch#: 28189
Units: ug/Kg dry weight
Diln Fac: 1

Sampled: 05/31/96
Received: 06/04/96
Extracted: 06/14/96
Analyzed: 06/17/96
Moisture: 22%

Analyte	Result	Reporting Limit
---------	--------	-----------------

Naphthalene	ND	64
Benzo(a)pyrene	ND	45

Surrogate	%Recovery	Recovery Limits
-----------	-----------	-----------------

Nitrobenzene-d5	40	23-120
2-Fluorobiphenyl	48	30-115
Terphenyl-d14	48	18-137

Lab #: 125826

BATCH QC REPORT

Page 1 of 1

Polynuclear Aromatic Hydrocarbons by GC/MS

 Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

 Analysis Method: EPA 8270
 Prep Method: EPA 3550

METHOD BLANK

 Matrix: Soil
 Batch#: 28189
 Units: ug/Kg
 Diln Fac: 1

 Prep Date: 06/14/96
 Analysis Date: 06/17/96

MB Lab ID: QC24239

Analyte	Result	Reporting Limit
Naphthalene	ND	50
Benzo(a)pyrene	ND	35
Surrogate	%Rec	Recovery Limits
Nitrobenzene-d5	62	23-120
2-Fluorobiphenyl	77	30-115
Terphenyl-d14	81	18-137



Lab #: 125826

BATCH QC REPORT

Page 1 of 1

Polynuclear Aromatic Hydrocarbons by GC/MS

Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

Analysis Method: EPA 8270
 Prep Method: EPA 3550

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: SB-4-1
 Lab ID: 125826-007
 Matrix: Soil
 Batch#: 28189
 Units: ug/Kg dry weight
 Diln Fac: 1

Sample Date: 05/31/96
 Received Date: 06/04/96
 Prep Date: 06/14/96
 Analysis Date: 06/19/96
 Moisture: 11%

MS Lab ID: QC24241

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Acenaphthene	1873	0	1590	85	31-137
Pyrene	1873	26.31	1751	91	35-142
Surrogate	%Rec	Limits			
Nitrobenzene-d5	79	23-120			
2-Fluorobiphenyl	83	30-115			
Terphenyl-d14	105	18-137			

MSD Lab ID: QC24242

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Acenaphthene	1873	1460	78	31-137	9	21
Pyrene	1873	1635	85	35-142	7	28
Surrogate	%Rec	Limits				
Nitrobenzene-d5	71	23-120				
2-Fluorobiphenyl	76	30-115				
Terphenyl-d14	98	18-137				

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 2 outside limits

Spike Recovery: 0 out of 4 outside limits

Regional Office

INTERNATIONAL
TECHNOLOGY
CORPORATION4585 Pacheco Boulevard
Martinez, California 94553 2233
510-372-9100
Fax: 510-372-5220

June 13, 1996

Ms. Cynthia Schlag
Curtis and Tomkins
2323 Fifth Street
Berkeley, CA 94710VIA FACSIMILE
510-486-0532

Modified Analysis Request: Soil and Groundwater Samples
NAS Alameda - Building 397
IT Project No. 764287

Dear Ms. Schlag:

Pursuant to your discussion with Linus Farias yesterday, please modify the analytical requirements for the subject samples that were submitted for analysis to your laboratory on June 4, 1996.

1. We would like you to extract the required volume of sample from each of the eleven (11) soil samples that were submitted and keep them "on-hold" until further notice. These extracts may require analysis for polynuclear aromatic hydrocarbons (PNAs) using EPA method 8270. As per our agreement with Curtis and Tomkins, the sample extraction cost will be \$64.80 per sample. Should sample analysis be required the cost will not exceed \$43.20 per sample.
2. Please do not analyze the groundwater samples identified as MS-1 and MSD-1. Your laboratory selection of soil sample SB-2-2 and groundwater sample ER-01 for matrix spike (MS) and matrix spike duplicate (MSD) analyses will be adequate for this project.

Should you have further questions, please do not hesitate to call me at (510) 372-9100.

Sincerely,
IT Corporation

A handwritten signature in cursive script that reads "Don Marini".

Don Marini
Project Manager



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

A N A L Y T I C A L R E P O R T

Prepared for:

IT Corporation
4585 Pacheco Boulevard
Martinez, CA 94553

Date: 19-JUN-96
Lab Job Number: 125823
Project ID: 764287
Location: NAS Alameda

RECEIVED

JUN 27 1996

GOVERNMENT PROGRAMS

Reviewed by: _____

Amey, J. L. 4/17/96

Reviewed by: _____

Arthur E. Schlegel

This package may be reproduced only in its entirety.

LABORATORY NUMBER: 125823
CLIENT: IT Corporation

DATE SAMPLED: 06/03/96
DATE RECEIVED: 06/04/96

CASE NARRATIVE

This analytical set consisted of eleven water samples. The samples were received at Curtis & Tompkins Laboratory on 06/04/96 in good order. All holding times were met. Samples MS-1 (125823-010) and MSD-1 (125823-011) were not analyzed per Linus Farius on 06/18/96. No analytical problems were encountered for this data set.



TEH-Tot Ext Hydrocarbons

Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

Analysis Method: CA LUFT (EPA 8015M)
 Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125823-001	SB-1	28095	06/03/96	06/10/96	06/18/96	
125823-002	SB-2	28095	06/03/96	06/10/96	06/18/96	
125823-003	SB-3	28095	06/03/96	06/10/96	06/18/96	
125823-004	SB-4	28095	06/03/96	06/10/96	06/18/96	

Matrix: Water

Analyte	Units	125823-001	125823-002	125823-003	125823-004
Diln Fac:		800	1600	20	120
JP5	ug/L	1500000	2800000	58000	580000
Diesel C12-C22	ug/L	950000 YL	1700000 YL	38000 YL	340000 YL
Surrogate					
Hexacosane	%REC	DO	DO	DO	DO

DO: Surrogate diluted out

Y: Sample exhibits fuel pattern which does not resemble standard

L: Lighter hydrocarbons than indicated standard

TEH-Tot Ext Hydrocarbons

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125823-005	SB-5	28095	06/03/96	06/10/96	06/18/96	
125823-006	SB-6	28095	06/03/96	06/10/96	06/17/96	
125823-007	ER-01	28095	06/03/96	06/10/96	06/17/96	

Matrix: Water

Analyte	Units	125823-005	125823-006	125823-007
Diln Fac:		200	5	1
JP5	ug/L	760000	20000	<47
Diesel C12-C22	ug/L	440000 YL	17000 YL	<47
Surrogate				
Hexacosane	%REC	DO	87	95

DO: Surrogate diluted out

Y: Sample exhibits fuel pattern which does not resemble standard

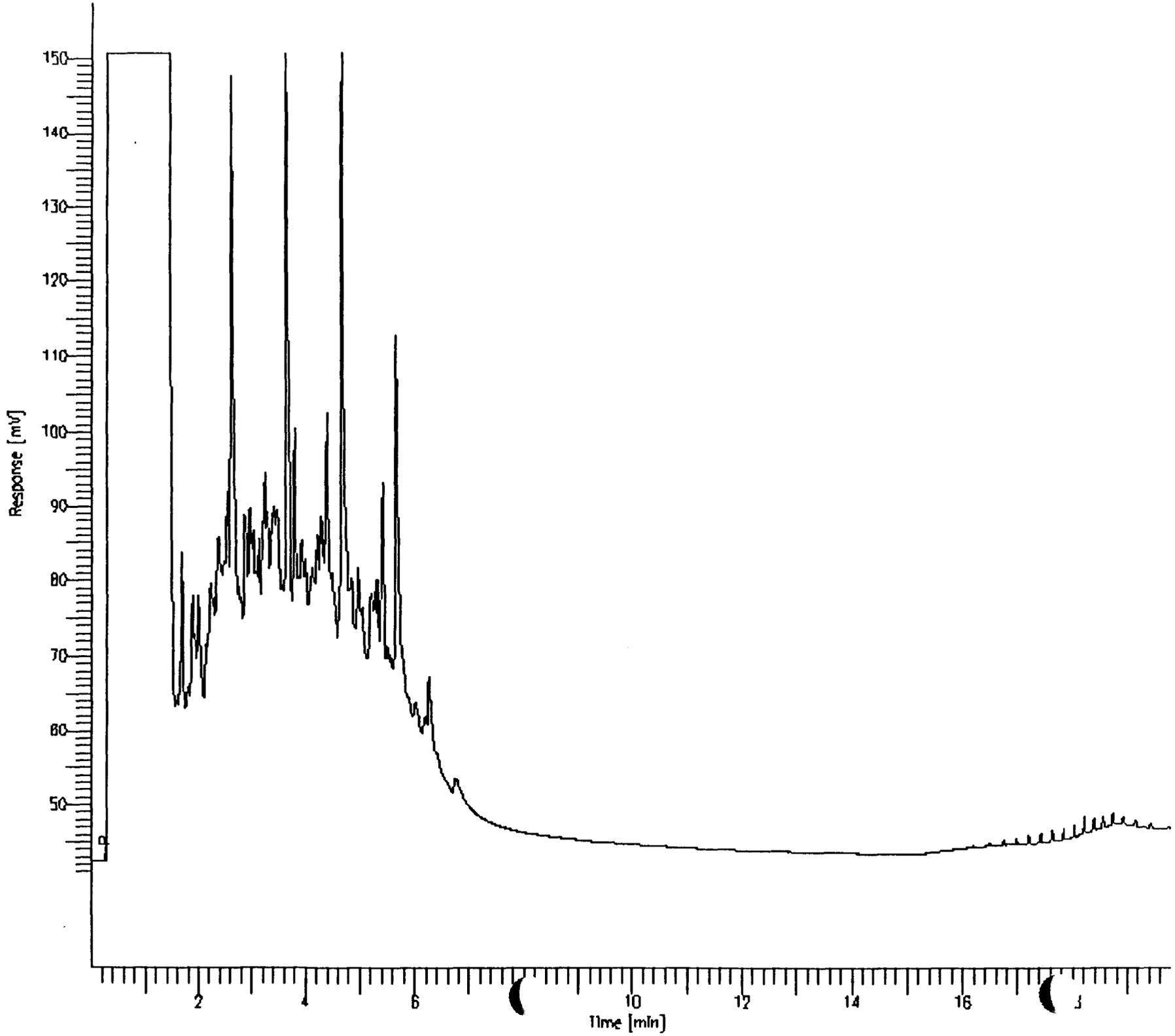
L: Lighter hydrocarbons than indicated standard

GC15 Channel A TEH

Sample Name : 3,125823-001,28095
FileName : C:\GC15\CHB\169B037.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 41 mV

Sample #: 820:4000
Date : 6/18/96 02:16 PM
Time of Injection: 5/18/96 01:52 PM
Low Point : 40.83 mV
Plot Scale: 109.9 mV
High Point : 150.70 mV



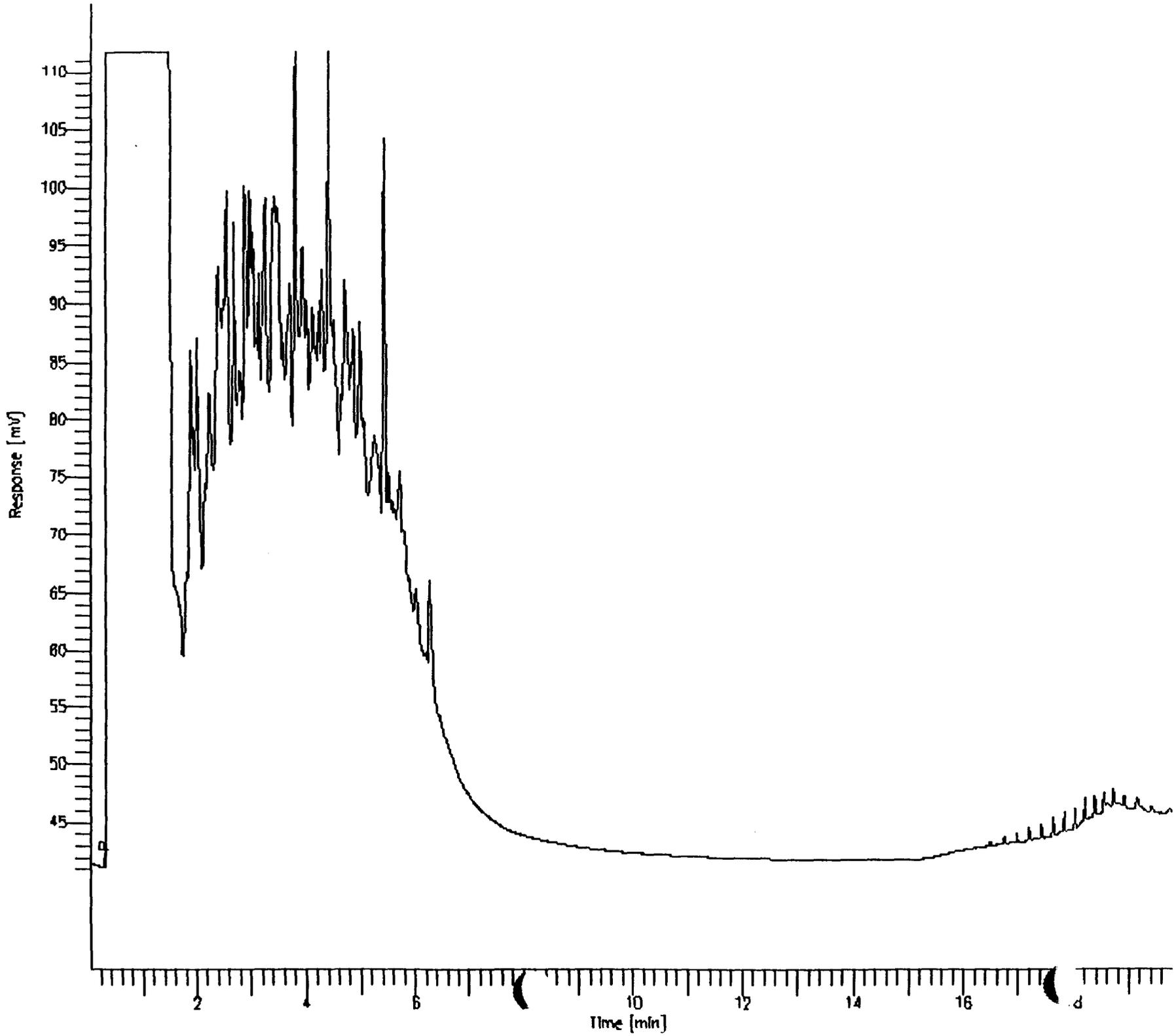
GC15 Channel A TEH

Sample Name : S_125823-002_28095
FileName : C:\GC15\CHB\169B041.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 40 mV

Sample #: 960:8000
Date : 6/18/96 04:19 PM
Time of Injection: 6/18/96 03:59 PM
Low Point : 40.44 mV
Plot Scale: 71.3 mV

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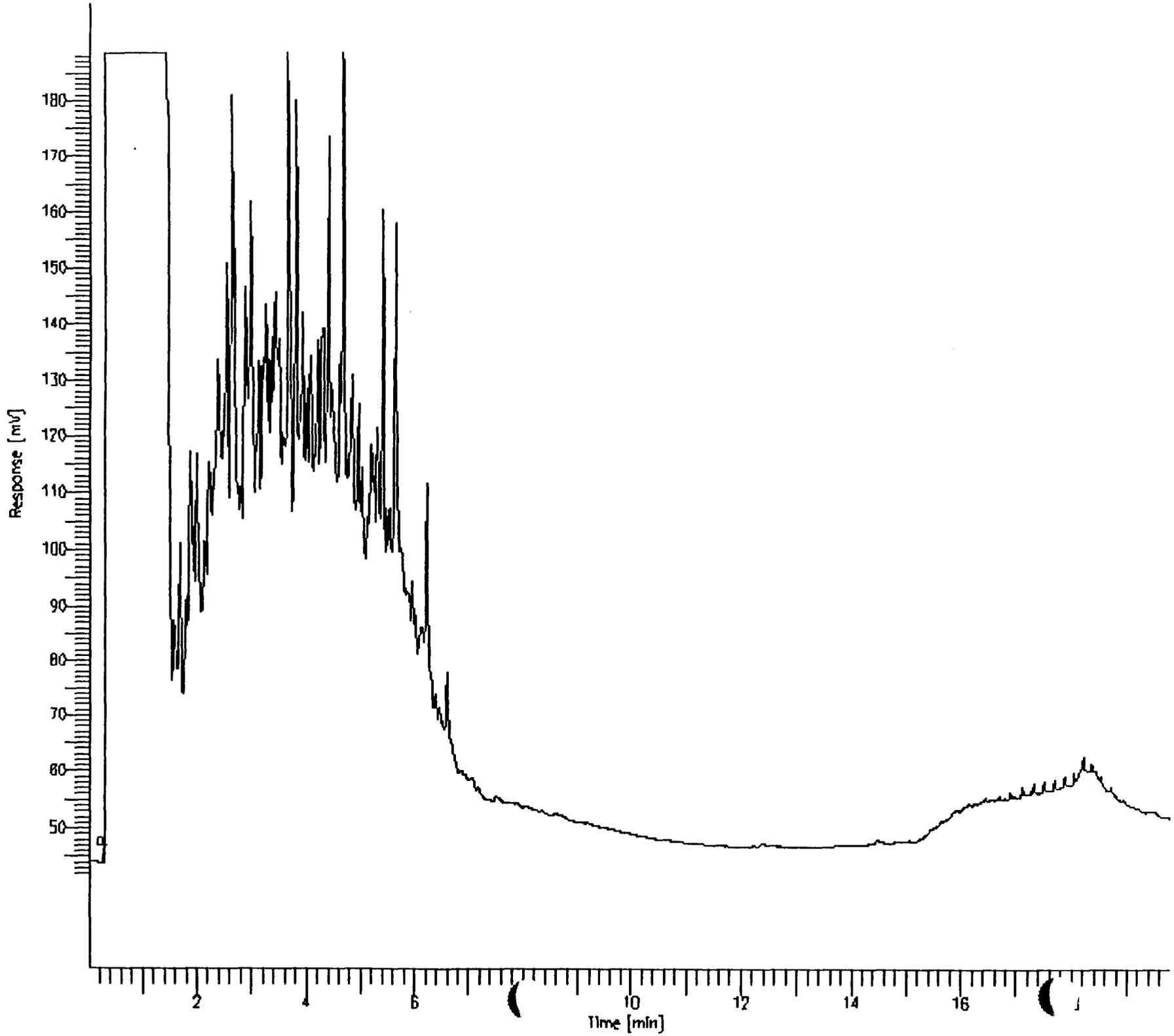


GC15 Channel A TEH

Sample Name : 5,125823-003,28095
FileName : C:\GC15\CHB\169B010.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 42 mV

Sample #: 1060:100
Date : 6/18/96 10:25 AM
Time of Injection: 6/17/96 07:07 PM
Low Point : 41.71 mV
Plot Scale: 146.9 mV
High Point : 188.57 mV



GC15 Channel A TEH

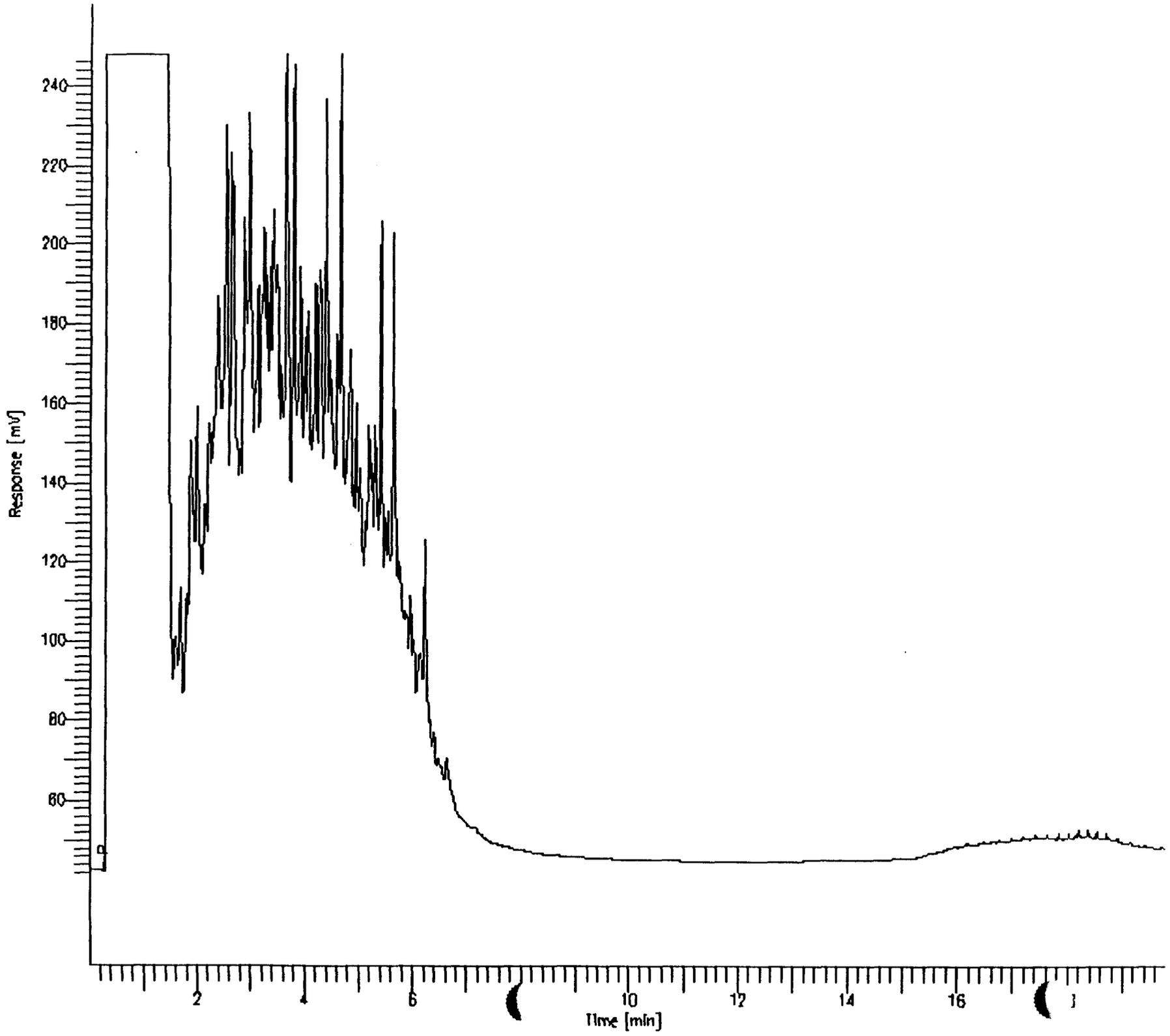
Sample Name : S.125823-004.29095
Filename : C:\GC15\CHB\169B039.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 42 mV

Sample #: 950:600
Date : 6/18/96 03:26 PM
Time of Injection: 6/18/96 03:04 PM
Low Point : 41.73 mV
Plot Scale: 206.2 mV

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High Point : 247.88 mV



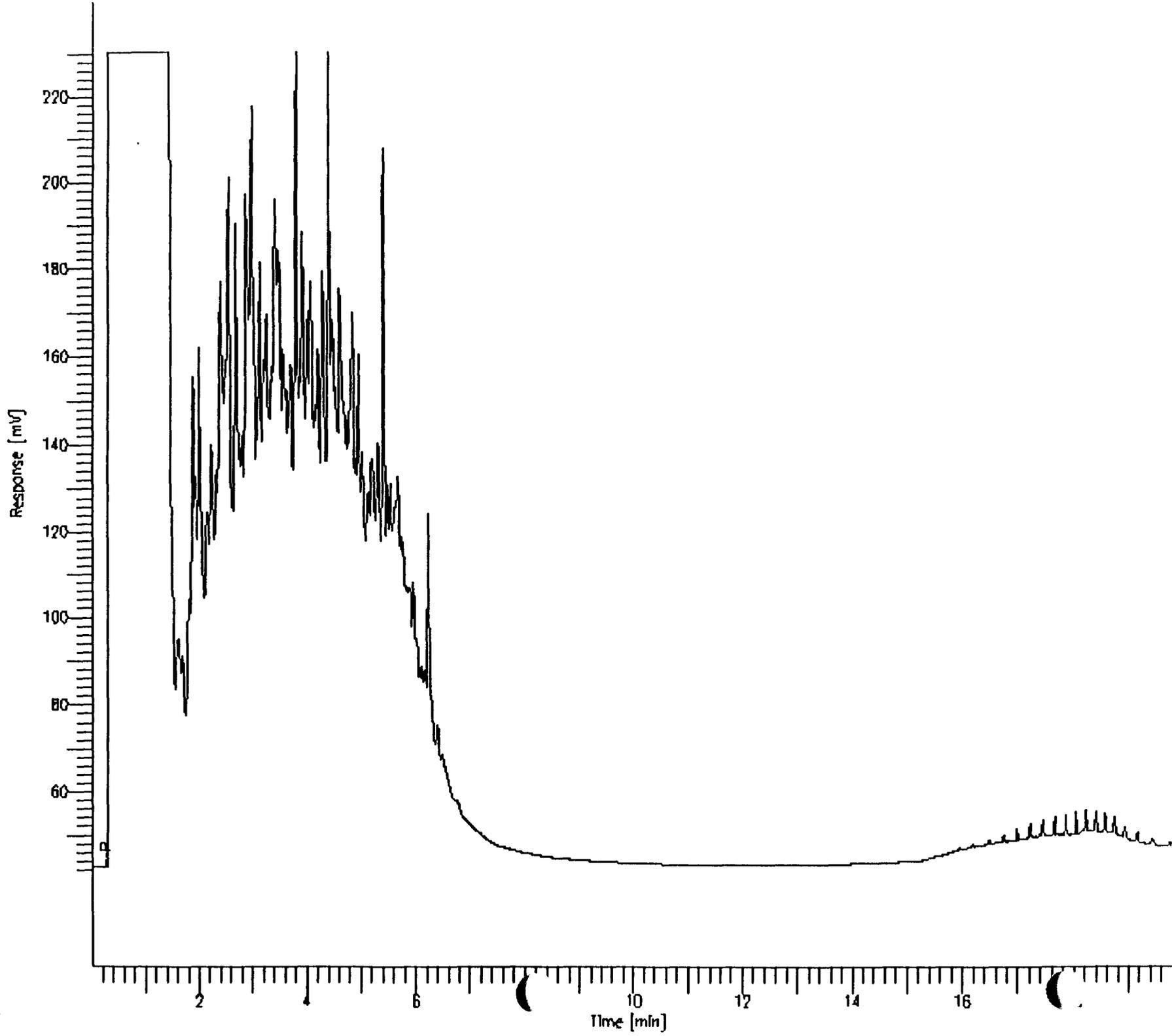
GC15 Channel A TEH

Sample Name : S_125823-005,28095
FileName : C:\GC15\CHB\169B040.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 41 mV

Sample #: 1060:1000
Date : 6/18/96 03:54 PM
Time of Injection: 6/18/96 03:31 PM
Low Point : 41.48 mV
Plot Scale: 188.8 mV
High Point : 230.25 mV

Page 1 of 1



GC15 Channel A TEH

Sample Name : 5,125823-006,28095
FileName : C:\GC15\CHB\169B007.RAW
Method : BTEHQ.MTH
Start Time : 0.01.min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 37 mV

Sample #: 1060:25

Date : 6/17/96 06:11 PM

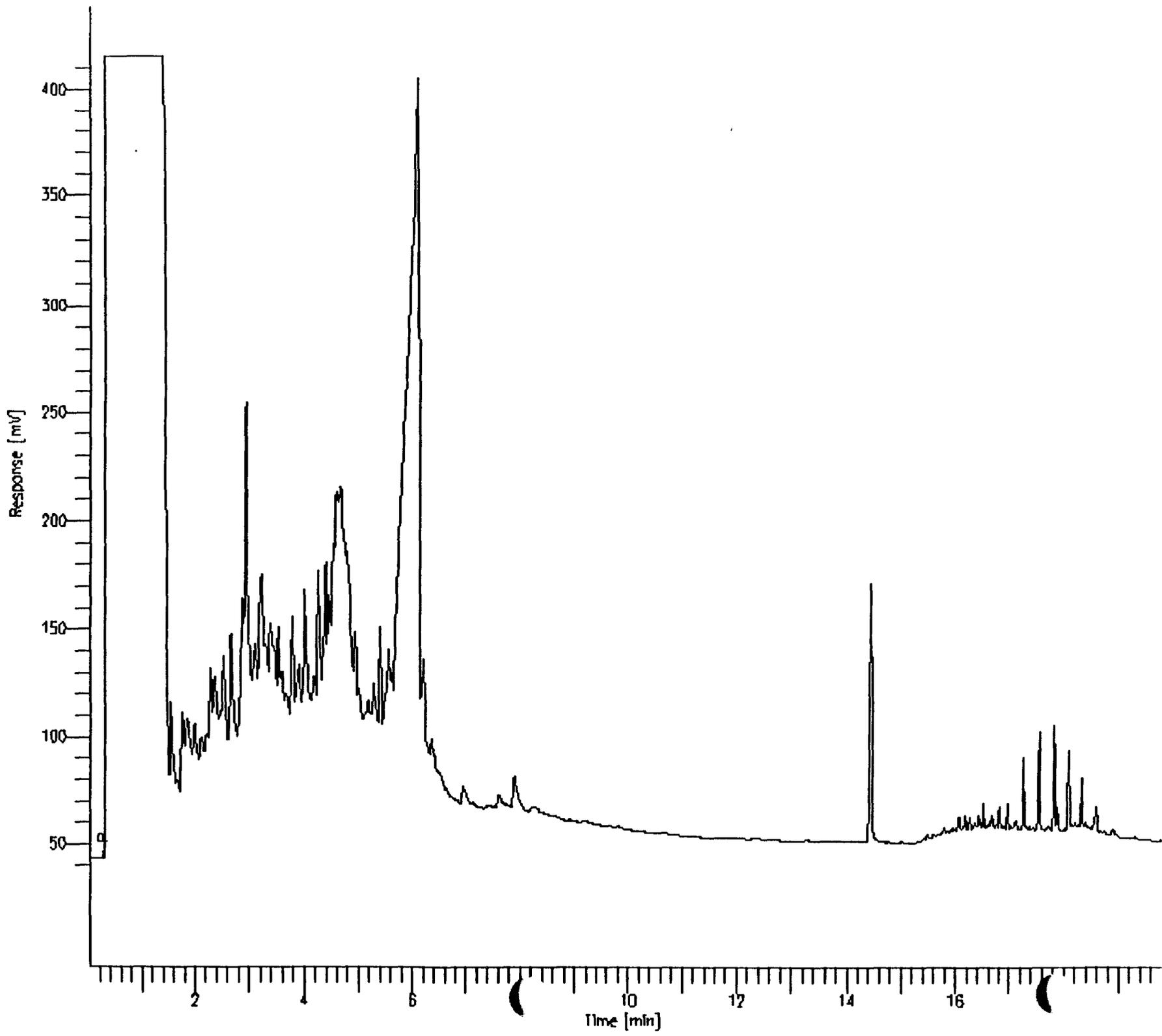
Time of Injection: 6/17/96 05:35 PM

Low Point : 37.12 mV

Plot Scale: 378.8 mV

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High Point : 415.92 mV





Lab #: 125823

BATCH QC REPORT

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TEH-Tot Ext Hydrocarbons

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 3520

METHOD BLANK

Matrix: Water
Batch#: 28095
Units: ug/L
Diln Fac: 1

Prep Date: 06/10/96
Analysis Date: 06/11/96

MB Lab ID: QC23824

Analyte	Result	
JP5	<50	
Diesel C12-C22	<50	
Surrogate	%Rec	Recovery Limits
Hexacosane	95	60-140

WATER TEH BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: Curtis & Tompkins, Ltd.

Instrument ID: GC15 CHB

Run Date: 6/17/96

C&T ID: QC23827 QC23828

Batch No.: 28095

COMPOUND	SPIKE ADDED Ug/L	BLANK CONC. Ug/L	BS CONC. Ug/L	BS % REC	QC LIMITS RECOVERY
JP5	2475	0	2077.13	84 PASS	60 - 140

COMPOUND	SPIKE ADDED Ug/L	BSD CONC. Ug/L	BSD % REC	% RPD	QC LIMITS RPD RECOVERY	
JP5	2475	1970.51	80 PASS	5 PASS	35	60 - 140

Surrogate Recoveries- (Limits:65-135)	BS:	HEX				
	BSD	<table border="1"> <tr><td>100</td></tr> <tr><td>93</td></tr> </table>	100	93	<table> <tr><td>PASS</td></tr> <tr><td>PASS</td></tr> </table>	PASS
100						
93						
PASS						
PASS						

RPD: 0 out of 1 outside of QC limits
 Spike Recovery: 0 out of 4 outside of QC limits

 COMMENTS: _____

BTXE

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125823-001	SB-1	28138	06/03/96	06/13/96	06/13/96	
125823-002	SB-2	28170	06/03/96	06/14/96	06/14/96	
125823-003	SB-3	28170	06/03/96	06/14/96	06/14/96	
125823-004	SB-4	28138	06/03/96	06/12/96	06/12/96	

Matrix: Water

Analyte	Units	125823-001	125823-002	125823-003	125823-004
Diln Fac:		20	100	10	100
Benzene	ug/L	<10	<50	<5	<50
Toluene	ug/L	<10	<50	<5	<50
Ethylbenzene	ug/L	<10	<50	79	<50
m,p-Xylenes	ug/L	1200 C	<50	71	2500 C
o-Xylene	ug/L	<10	<50	<5	<50
Surrogate					
Trifluorotoluene	%REC	99	96	98	91
Bromobenzene	%REC	93	96	99	86

C: Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor of two



BTXE

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125823-005	SB-5	28138	06/03/96	06/12/96	06/12/96	
125823-006	SB-6	28170	06/03/96	06/14/96	06/14/96	
125823-007	ER-01	28138	06/03/96	06/12/96	06/12/96	
125823-008	TB01	28030	06/03/96	06/06/96	06/06/96	

Matrix: Water

Analyte	Units	125823-005	125823-006	125823-007	125823-008
Diln Fac:		50	5	1	1
Benzene	ug/L	<25	<2.5	<0.5	<0.5
Toluene	ug/L	58	<2.5	<0.5	<0.5
Ethylbenzene	ug/L	<25	17	<0.5	<0.5
m,p-Xylenes	ug/L	<25	28	<0.5	<0.5
o-Xylene	ug/L	<25	<2.5	<0.5	<0.5
Surrogate					
Trifluorotoluene	%REC	87	100	86	91
Bromobenzene	%REC	88	103	87	82

Lab #: 125823

BATCH QC REPORT

Page 1 of 1

BTXE

 Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

 Analysis Method: EPA 8020
 Prep Method: EPA 5030

METHOD BLANK

 Matrix: Water
 Batch#: 28030
 Units: ug/L
 Diln Fac: 1

 Prep Date: 06/06/96
 Analysis Date: 06/06/96

MB Lab ID: QC23528

Analyte	Result	
Benzene	<0.5	
Toluene	<0.5	
Ethylbenzene	<0.5	
m,p-Xylenes	<0.5	
o-Xylene	<0.5	
Surrogate	%Rec	Recovery Limits
Trifluorotoluene	90	58-130
Bromobenzene	78	62-131



Lab #: 125823

BATCH QC REPORT

Page 1 of 1

BTXE

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 28138
Units: ug/L
Diln Fac: 1

Prep Date: 06/12/96
Analysis Date: 06/12/96

MB Lab ID: QC24017

Analyte	Result		
Benzene	<0.5		
Toluene	<0.5		
Ethylbenzene	<0.5		
m,p-Xylenes	<0.5		
o-Xylene	<0.5		
Surrogate	%Rec		Recovery Limits
Trifluorotoluene	85		58-130
Bromobenzene	82		62-131



Lab #: 125823

BATCH QC REPORT

Page 1 of 1

BTXE

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 28170
Units: ug/L
Diln Fac: 1

Prep Date: 06/13/96
Analysis Date: 06/13/96

MB Lab ID: QC24157

Analyte	Result	
Benzene	<0.5	
Toluene	<0.5	
Ethylbenzene	<0.5	
m,p-Xylenes	<0.5	
o-Xylene	<0.5	
Surrogate	%Rec	Recovery Limits
Trifluorotoluene	97	58-130
Bromobenzene	83	62-131



Lab #: 125823

BATCH QC REPORT

Page 1 of 1

BTXE

Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

Analysis Method: EPA 8020
 Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
 Batch#: 28030
 Units: ug/L
 Diln Fac: 1

Prep Date: 06/06/96
 Analysis Date: 06/06/96

LCS Lab ID: QC23530

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	22.3	20	112	80-120
Toluene	22.6	20	113	80-120
Ethylbenzene	22.2	20	111	80-120
m,p-Xylenes	44.8	40	112	80-120
o-Xylene	22.8	20	114	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	94	58-130		
Bromobenzene	86	62-131		

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits

Lab #: 125823

BATCH QC REPORT

Page 1 of 1

BTXE

 Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

 Analysis Method: EPA 8020
 Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

 Matrix: Water
 Batch#: 28138
 Units: ug/L
 Diln Fac: 1

 Prep Date: 06/12/96
 Analysis Date: 06/12/96

LCS Lab ID: QC24018

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	19.3	20	97	80-120
Toluene	20	20	100	80-120
Ethylbenzene	19.1	20	96	80-120
m,p-Xylenes	39.7	40	99	80-120
o-Xylene	20.1	20	101	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	87	58-130		
Bromobenzene	85	62-131		

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits



Lab #: 125823

BATCH QC REPORT

Page 1 of 1

BTXE

Client: IT Corporation
Project#: 764287
Location: NAS Alameda

Analysis Method: EPA 8020
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 28170
Units: ug/L
Diln Fac: 1

Prep Date: 06/13/96
Analysis Date: 06/13/96

LCS Lab ID: QC24159

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	22.4	20	110	80-120
Toluene	23.1	20	115	80-120
Ethylbenzene	23.1	20	112	80-120
m,p-Xylenes	46.8	40	112	80-120
o-Xylene	23.4	20	114	80-120
Surrogate	%Rec	Limits		
Trifluorotoluene	100	58-130		
Bromobenzene	91	62-131		

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits



Lab #: 125823

BATCH QC REPORT

Page 1 of 1

BTXE

Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

Analysis Method: EPA 8020
 Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ER-01
 Lab ID: 125823-007
 Matrix: Water
 Batch#: 28138
 Units: ug/L
 Diln Fac: 1

Sample Date: 06/03/96
 Received Date: 06/04/96
 Prep Date: 06/12/96
 Analysis Date: 06/12/96

MS Lab ID: QC24019

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5000	20.1	101	75-125
Toluene	20	<0.5000	21.8	109	75-125
Ethylbenzene	20	<0.5000	21	105	75-125
m,p-Xylenes	40	<0.5000	42.7	107	75-125
o-Xylene	20	<0.5000	21.8	109	75-125
Surrogate	%Rec	Limits			
Trifluorotoluene	85	58-130			
Bromobenzene	86	62-131			

MSD Lab ID: QC24020

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	19.7	99	75-125	2	<20
Toluene	20	21.5	108	75-125	1	<20
Ethylbenzene	20	20.1	101	75-125	4	<20
m,p-Xylenes	40	42	105	75-125	2	<20
o-Xylene	20	21.9	110	75-125	1	<20
Surrogate	%Rec	Limits				
Trifluorotoluene	86	58-130				
Bromobenzene	85	62-131				

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

Lab #: 125823

BATCH QC REPORT

Page 1 of 1

BTXE

 Client: IT Corporation
 Project#: 764287
 Location: NAS Alameda

 Analysis Method: EPA 8020
 Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

 Field ID: ZZZZZZ
 Lab ID: 125938-001
 Matrix: Water
 Batch#: 28170
 Units: ug/L
 Diln Fac: 1

 Sample Date: 06/05/96
 Received Date: 06/11/96
 Prep Date: 06/13/96
 Analysis Date: 06/13/96

MS Lab ID: QC24160

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5000	22.4	112	75-125
Toluene	20	<0.5000	22.9	115	75-125
Ethylbenzene	20	<0.5000	22.5	113	75-125
m,p-Xylenes	40	<0.5000	45.6	114	75-125
o-Xylene	20	<0.5000	22.8	114	75-125
Surrogate	%Rec	Limits			
Trifluorotoluene	96	58-130			
Bromobenzene	86	62-131			

MSD Lab ID: QC24161

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	23.2	116	75-125	4	<20
Toluene	20	23.7	119	75-125	3	<20
Ethylbenzene	20	23.4	117	75-125	4	<20
m,p-Xylenes	40	47.3	118	75-125	4	<20
o-Xylene	20	23.8	119	75-125	4	<20
Surrogate	%Rec	Limits				
Trifluorotoluene	95	58-130				
Bromobenzene	87	62-131				

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits



125023

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 375161
Page 1 of 2

Project Name/No. 1 NAS Alameda - DO42
Sample Team Members 2 Farias / Britton
Profit Center No. 3
Project Manager 4 Don Marino
Purchase Order No. 6
Required Report Date 11 June 11, 1996

Samples Shipment Date 7 6-4-96
Lab Destination 8 Curtis & Tompkins
Lab Contact 9 Cynthia Schlay 486-0000
Project Contact/Phone 12 Lo Farias 372-1100
Carrier/Waybill No. 13 Pick - Up

Bill to: 5 IT Corporation
4585 Pacheco Blvd
Martinez CA 94523
Attn: EFAI WEST ACCTNG
Report to: 10 IT Corporation
4585 Pacheco Blvd
Martinez CA 94523
Attn: Don Marino

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
SB-1	Groundwater	6-3-96 1500-1357	VOA's	40ml	HCl	TP BTEX EPA 8020		
		6-3-96 1338	VOA	40ml	HCl	BTEX EPA 8020		
		6-3-96 1600	1 liter Amber Jar	~1 liter	None	TPH as JP-5 EPA 8015		
SB-2		6-3-96 1500	VOA	40ml	HCl	BTEX EPA 8020		
		6-3-96 1500	VOA	40ml	HCl			
		6-3-96 1630	1 liter Amber Jar	1 liter	None	TPH as JP-5 EPA 8015		
SB-3	Groundwater	6-3-96 1400	VOA	40ml	HCl	BTEX EPA 8020		
		6-3-96 1400			HCl			

Special Instructions: 23 * ~~TP~~ opened in error in field - do not analyze

Possible Hazard Identification: 24
Non-hazard Flammable Skin Irritant Poison B Unknown
Sample Disposal: 25
Return to Client Disposal by Lab Archive (mos.)

Turnaround Time Required: 26
Normal Rush 5 DAY - Per Contact
QC Level: 27
I. II. III. Project Specific (specify):

1. Relinquished by 28 (Signature/Affiliation) <u>David Britton ITCorp</u>	Date: <u>6-3-96</u> Time: <u>1904</u>	1. Received by 28 (Signature/Affiliation) <u>[Signature] ITCorp</u>	Date: <u>6-3-96</u> Time: <u>1904</u>
2. Relinquished by (Signature/Affiliation) <u>[Signature] ITCorp</u>	Date: <u>6-4-96</u> Time: <u>2:45</u>	2. Received by (Signature/Affiliation) <u>[Signature]</u>	Date: <u>6/4/96</u> Time: <u>2:45</u>
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29



125823

**ANALYSIS REQUEST AND
CHAIN OF CUSTODY RECORD (cont.)***

Project Name NAS Alameda - 00#42

Project No. 764287

Samples Shipment Date

ONE CONTAINER PER LINE

Sample 14 Number	Sample 15 Description/Type	Date/Time 16 Collected	Container 17 Type	Sample 18 Volume	Pre-19 servative	Requested Testing 20 Program	Condition on 21 Receipt	Disposal 22 Record No.
SB-3	Groundwater	6-3-96 1400	1 liter Amber Jar	1 liter	None	TPH as JP-5 EPA 8015		
SB-4	↓	6-3-96 1445	VOA	40ml	HCl	BTEX EPA 8020		
↓		6-3-96 1445	VOA	40ml	HCl	↓		
↓		6-3-96 1700	2 liter Amber Jar	~1 liter	None	TPH as JP-5 EPA 8015		
SB-5		6-3-96	VOA	40ml	HCl	BTEX EPA 8020		
↓		6-3-96	VOA	↓	HCl	↓		
↓		6-3-96	1 liter Amber Jar	1 liter	None	TPH as JP-5 EPA 8015		
SB-6		6-3-96 1251	VOA	40ml	HCl	BTEX EPA 8020		
↓		6-3-96 1252	↓	40ml	HCl	↓		
↓		6-3-96 1255	1 liter Amber Jar	1 liter	None	TPH as JP-5 EPA 8015		
ERØ1		6-3-96 1322	↓	1 liter	None	TPH as JP-5 EPA 8015		
↓	6-3-96 1320	VOA	40ml	HCl	BTEX by EPA 8020			
↓	6-3-96 1321	↓	↓	↓	↓			
TBØ1	6-3-96	40ml VOA	40ml	HCl	BTEX by EPA 8020			
TBØ2*	6-3-96	40ml VOA	40ml	HCl	BTEX by EPA 8020			
MS-1	6-3-96 1925	1 L AMBER	1 L	None	TPH as JP-5 by mod EPA 8015			
MS-1	6-3-96 1925	40ml VOA	2x40ml	HCl	BTEX by EPA 8020			
MSD-1	6-3-96 1925	1 L AMBER	1 L	None	TPH as JP-5 by mod EPA 8015			
MSD-1	6-3-96 1925	40ml VOA	2x40ml	HCL	BTEX by EPA 8020			

White: To accompany samples
Yellow: Field copy
* See back of form for special instructions

10042



Curtis & Tompkins, Ltd

COOLER RECEIPT CHECKLIST

Login#: 125823 Date Received: 6/4 Number of Coolers: 1
 Client: JTC Project: NAS Alameda

- A. Preliminary Examination Phase
 Date Opened: 6/4 By (print): J. Williams (sign) [Signature]
- Did cooler come with a shipping slip (airbill, etc.)?..... YES NO
 If YES, enter carrier name and airbill number: _____
 - Were custody seals on outside of cooler?..... YES NO
 How many and where? _____ Seal date: _____ Seal name: Intact upon sample Jan
 - Were custody seals unbroken and intact at the date and time of arrival?..... YES NO upon samples
 - Were custody papers dry and intact when received?..... YES NO
 - Were custody papers filled out properly (ink, signed, etc.)?..... YES NO
 - Did you sign the custody papers in the appropriate place?..... YES NO
 - Was project identifiable from custody papers?..... YES NO
 If YES, enter project name at the top of this form.
 - If required, was sufficient ice used?..... YES NO
 Type of ice: ice Temperature: 5.50C

- B. Login Phase
 Date Logged In: 6/4 By (print): J. Williams (sign) [Signature]
- Describe type of packing in cooler: can
 - Did all bottles arrive unbroken?..... YES NO
 - Were labels in good condition and complete (ID, date, time, signature, etc.)?... YES NO
 - Did bottle labels agree with custody papers?..... YES NO
 - Were appropriate containers used for the tests indicated?..... YES NO
 - Were correct preservatives added to samples?..... YES NO
 - Was sufficient amount of sample sent for tests indicated?..... YES NO
 - Were bubbles absent in VOA samples? If NO, list sample Ids below..... YES NO
 - Was the client contacted concerning this sample delivery?..... YES NO
 If YES, give details below.
 Who was called? _____ By whom? _____ Date: _____

Additional Comments:



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (510) 486-0900

A N A L Y T I C A L R E P O R T

Prepared for:

IT Corporation
4585 Pacheco Boulevard
Martinez, CA 94553

Date: 02-AUG-96
Lab Job Number: 126322
Project ID: 764287.09901002
Location: NAS Alameda, DO#42

Reviewed by:

*May please
7/2/96*

Reviewed by:

This package may be reproduced only in its entirety.

Laboratory Number: 126322
Client: IT Corporation
Project#: 764287.09901002
Location: NAS Alameda, DO#42

Sample Date: 07/18/96
Receipt Date: 07/18/96

CASE NARRATIVE

Curtis & Tompkins received eight water samples from NAS Alameda, DO#42 site on July 18, 1996 for PAH and TPH extractable analyses. The samples were received cold and intact. The samples were filtered prior to sample extraction.

PAHs (EPA 8310): High percent recoveries were observed for fluorene and anthracene in the laboratory control sample (LCS) analysis. This noncompliance should not affect the quality of the data as the target analytes were not detected in the samples. All MS/MSD recoveries passed applicable QC criteria.

It should be noted that a 500 mL sample volume was used for extraction due to quality control (QC) problems in original PAH analysis. The samples were reextracted using 500 mL of the TPH full liters. The samples were spiked with half the amount of surrogate and matrix spikes and concentrated to half the standard final volume in order to maintain the same detection limits. A corrective action report has been initiated to resolve the issue.

TPH Extractable (EPA 8015M): A 500 mL sample volume was used for the TEH analysis as discussed above. No analytical problems were encountered.



TEH-Tot Ext Hydrocarbons

Client: IT Corporation
Project#: 764287.09901002
Location: NAS Alameda, DO#42

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126322-001	71896-M07C-09	28849	07/18/96	07/25/96	07/28/96	
126322-002	71896-MWD13-3	28849	07/18/96	07/25/96	07/28/96	
126322-003	71896-MWD13-3-D	28849	07/18/96	07/25/96	07/28/96	
126322-004	71896-MWOR-3	28849	07/18/96	07/25/96	07/28/96	

Matrix: Filtrate

Analyte	Units	126322-001	126322-002	126322-003	126322-004
Diln Fac:		1	1	1	1
JP-5 (C10-C16)	ug/L	<50	<50	<50	<50
Surrogate					
Hexacosane	%REC	103	103	95	100



TEH-Tot Ext Hydrocarbons

Client: IT Corporation
 Project#: 764287.09901002
 Location: NAS Alameda, DO#42

Analysis Method: CA LUFT (EPA 8015M)
 Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126322-005	71896-MWOR-1	28849	07/18/96	07/25/96	07/28/96	
126322-006	71896-M13-06	28849	07/18/96	07/25/96	07/28/96	
126322-007	71896-MW13-P	28849	07/18/96	07/25/96	07/29/96	
126322-008	71896-MW-1	28849	07/18/96	07/25/96	07/29/96	

Matrix: Filtrate

Analyte	Units	126322-005	126322-006	126322-007	126322-008
Diln Fac:		1	1	1	1
JP-5 (C10-C16)	ug/L	<50	<50	<50	1400 YH
Surrogate					
Hexacosane	%REC	103	98	108	102

Y: Sample exhibits fuel pattern which does not resemble standard

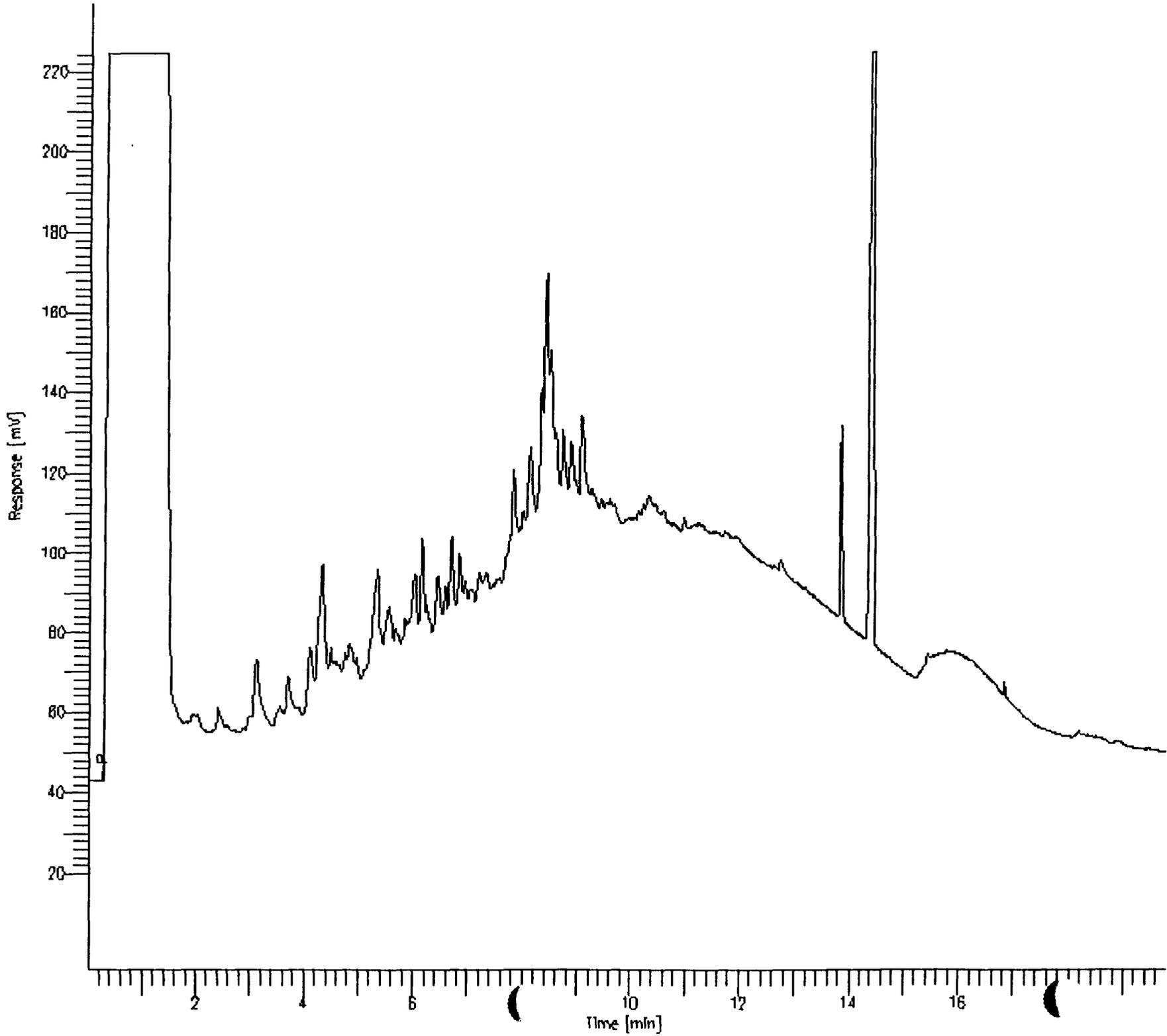
H: Heavier hydrocarbons than indicated standard

GC15 Channel A TEH

Sample Name : W,125322-008
FileName : C:\GC15\1212B021.RAW
Method : BTEHJ.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 19 mV

Sample #: 28849
Date : 7/29/96 09:56 AM
Time of Injection: 7/29/96 08:56 AM
Low Point : 19.06 mV
Plot Scale: 205.5 mV
High Point : 224.59 mV



GC15 Channel A TEH

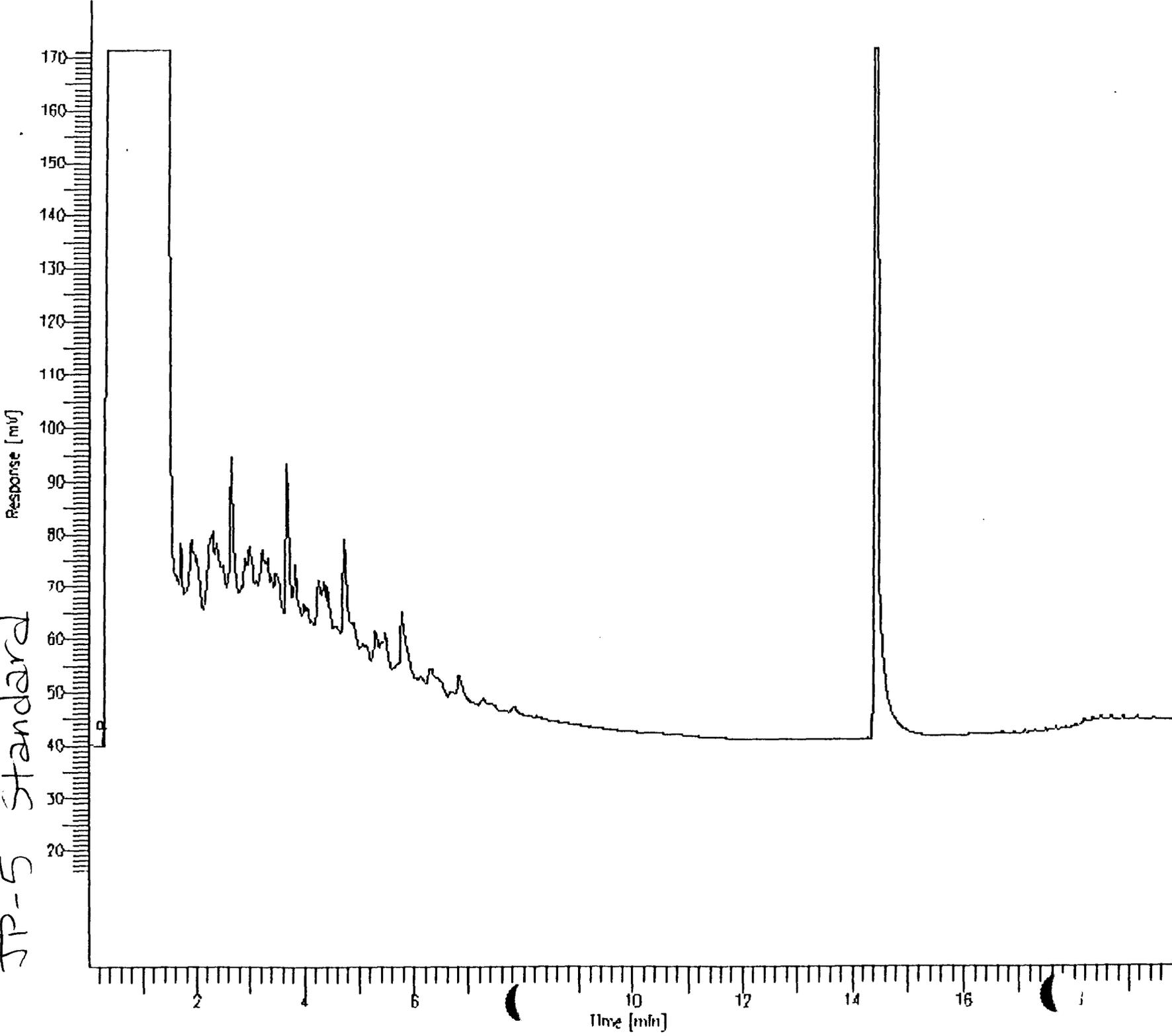
Sample Name : CCV, 96WS2316, JP
FileName : G:\GC15\212B004.RAW
Method : BREHO.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.80 min
Plot Offset: 15 mV

Sample #: 250MG/L
Date : 7/29/96 09:09 AM
Time of Injection: 7/29/96 06:10 PM
Low Point : 15.44 mV
High Point : 171.35 mV
Plot Scale: 155.9 mV

Page 1 of 1

JP-5 Standard





Lab #: 126322

BATCH QC REPORT

Page 1 of 1

TEH-Tot Ext Hydrocarbons

Client: IT Corporation
Project#: 764287.09901002
Location: NAS Alameda, DO#42

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 3520

METHOD BLANK

Matrix: Filtrate
Batch#: 28849
Units: ug/L
Diln Fac: 1

Prep Date: 07/25/96
Analysis Date: 07/28/96

MB Lab ID: QC26869

Analyte	Result	
JP-5 (C10-C16)	<50	
Surrogate	%Rec	Recovery Limits
Hexacosane	98	60-140



Lab #: 126322

BATCH QC REPORT

Page 1 of 1

TEH-Tot Ext Hydrocarbons

Client: IT Corporation
Project#: 764287.09901002
Location: NAS Alameda, DO#42

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 3520

LABORATORY CONTROL SAMPLE

Matrix: Filtrate
Batch#: 28849
Units: ug/L
Diln Fac: 1

Prep Date: 07/25/96
Analysis Date: 07/28/96

LCS Lab ID: QC26870

Analyte	Result	Spike Added	%Rec #	Limits
JP-5 (C10-C16)	1765	2500	71	60-140
Surrogate	%Rec	Limits		
Hexacosane	98	60-140		

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 1 outside limits



Lab #: 126322

BATCH QC REPORT

Page 1 of 1

TEH-Tot Ext Hydrocarbons

Client: IT Corporation
 Project#: 764287.09901002
 Location: NAS Alameda, DO#42

Analysis Method: CA LUFT (EPA 8015M)
 Prep Method: EPA 3520

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: 71896-M07C-09
 Lab ID: 126322-001
 Matrix: Filtrate
 Batch#: 28849
 Units: ug/L
 Diln Fac: 1

Sample Date: 07/18/96
 Received Date: 07/18/96
 Prep Date: 07/25/96
 Analysis Date: 07/25/96

MS Lab ID: QC26871

Analyte	Spike Added	Sample	MS	%Rec #	Limits
JP-5 (C10-C16)	2500	<50	1627	65	60-140
Surrogate	%Rec	Limits			
Hexacosane	98	60-140			

MSD Lab ID: QC26872

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
JP-5 (C10-C16)	2500	1626	65	60-140	0	25
Surrogate	%Rec	Limits				
Hexacosane	101	60-140				

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits



Curtis & Tompkins, Ltd

LABORATORY NUMBER: 126322-001
CLIENT: IT Corporation
PROJECT ID: 764287.09901002
LOCATION: NAS Alameda, DO#42
SAMPLE ID: 71896-M07C-09

DATE SAMPLED: 07/18/96
DATE RECEIVED: 07/18/96
DATE EXTRACTED: 07/25/96
DATE ANALYZED: 07/29/96
DATE REPORTED: 08/02/96
BATCH NO: 28848

EPA 8310
Polynuclear Aromatic Hydrocarbons by HPLC in Aqueous Solutions

COMPOUND	RESULT (ug/L)	REPORTING LIMIT (ug/L)
Naphthalene	ND	5
Benzo(a)pyrene	ND	0.10

ND = Not detected at or above reporting limit.

SURROGATE RECOVERY	QC LIMITS	
Recovery, %	64	30-130



Curtis & Tompkins, Ltd

LABORATORY NUMBER: 126322-002
CLIENT: IT Corporation
PROJECT ID: 764287.09901002
LOCATION: NAS Alameda, DO#42
SAMPLE ID: 71896-MWD13-3

DATE SAMPLED: 07/18/96
DATE RECEIVED: 07/18/96
DATE EXTRACTED: 07/25/96
DATE ANALYZED: 07/31/96
DATE REPORTED: 08/02/96
BATCH NO: 28848

EPA 8310
Polynuclear Aromatic Hydrocarbons by HPLC in Aqueous Solutions

COMPOUND	RESULT (ug/L)	REPORTING LIMIT (ug/L)
Naphthalene	ND	5
Benzo(a)pyrene	ND	0.10

ND = Not detected at or above reporting limit.

SURROGATE RECOVERY	QC LIMITS	
Recovery, %	63	30-130



Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 126322-003
CLIENT: IT Corporation
PROJECT ID: 764287.09901002
LOCATION: NAS Alameda, DO#42
SAMPLE ID: 71896-MWD13-3-D

DATE SAMPLED: 07/18/96
DATE RECEIVED: 07/18/96
DATE EXTRACTED: 07/25/96
DATE ANALYZED: 07/31/96
DATE REPORTED: 08/02/96
BATCH NO: 28848

EPA 8310
Polynuclear Aromatic Hydrocarbons by HPLC in Aqueous Solutions

COMPOUND	RESULT (ug/L)	REPORTING LIMIT (ug/L)
Naphthalene	ND	5
Benzo(a)pyrene	ND	0.10

ND = Not detected at or above reporting limit.

SURROGATE RECOVERY	QC LIMITS	
Recovery, %	60	30-130



Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 126322-004
CLIENT: IT Corporation
PROJECT ID: 764287.09901002
LOCATION: NAS Alameda, DO#42
SAMPLE ID: 71896-MWOR-3

DATE SAMPLED: 07/18/96
DATE RECEIVED: 07/18/96
DATE EXTRACTED: 07/25/96
DATE ANALYZED: 07/31/96
DATE REPORTED: 08/02/96
BATCH NO: 28848

EPA 8310
Polynuclear Aromatic Hydrocarbons by HPLC in Aqueous Solutions

COMPOUND	RESULT (ug/L)	REPORTING LIMIT (ug/L)
Naphthalene	ND	5
Benzo(a)pyrene	ND	0.10

ND = Not detected at or above reporting limit.

SURROGATE RECOVERY	QC LIMITS
Recovery, %	56 30-130



Curtis & Tompkins, Ltd

LABORATORY NUMBER: 126322-005
CLIENT: IT Corporation
PROJECT ID: 764287.09901002
LOCATION: NAS Alameda, DO#42
SAMPLE ID: 71896-MWOR-1

DATE SAMPLED: 07/18/96
DATE RECEIVED: 07/18/96
DATE EXTRACTED: 07/25/96
DATE ANALYZED: 07/29/96
DATE REPORTED: 08/02/96
BATCH NO: 28848

EPA 8310
Polynuclear Aromatic Hydrocarbons by HPLC in Aqueous Solutions

COMPOUND	RESULT (ug/L)	REPORTING LIMIT (ug/L)
Naphthalene	ND	5
Benzo(a)pyrene	ND	0.10

ND = Not detected at or above reporting limit.

SURROGATE RECOVERY	QC LIMITS	
Recovery, %	60	30-130



Curtis & Tompkins, Ltd

LABORATORY NUMBER: 126322-006
CLIENT: IT Corporation
PROJECT ID: 764287.09901002
LOCATION: NAS Alameda, DO#42
SAMPLE ID: 71896-M13-06

DATE SAMPLED: 07/18/96
DATE RECEIVED: 07/18/96
DATE EXTRACTED: 07/25/96
DATE ANALYZED: 07/30/96
DATE REPORTED: 08/02/96
BATCH NO: 28848

EPA 8310
Polynuclear Aromatic Hydrocarbons by HPLC in Aqueous Solutions

COMPOUND	RESULT (ug/L)	REPORTING LIMIT (ug/L)
Naphthalene	ND	5
Benzo(a)pyrene	ND	0.10

ND = Not detected at or above reporting limit.

SURROGATE RECOVERY	QC LIMITS	
Recovery, %	61	30-130



Curtis & Tompkins, Ltd

LABORATORY NUMBER: 126322-007
CLIENT: IT Corporation
PROJECT ID: 764287.09901002
LOCATION: NAS Alameda, DO#42
SAMPLE ID: 71896-MW13-P

DATE SAMPLED: 07/18/96
DATE RECEIVED: 07/18/96
DATE EXTRACTED: 07/25/96
DATE ANALYZED: 07/29/96
DATE REPORTED: 08/02/96
BATCH NO: 28848

EPA 8310
Polynuclear Aromatic Hydrocarbons by HPLC in Aqueous Solutions

COMPOUND	RESULT (ug/L)	REPORTING LIMIT (ug/L)
Naphthalene	ND	5
Benzo(a)pyrene	ND	0.10

ND = Not detected at or above reporting limit.

SURROGATE RECOVERY	QC LIMITS	
Recovery, %	68	30-130



Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 126322-008
CLIENT: IT Corporation
PROJECT ID: 764287.09901002
LOCATION: NAS Alameda, DO#42
SAMPLE ID: 71896-MW-1

DATE SAMPLED: 07/18/96
DATE RECEIVED: 07/18/96
DATE EXTRACTED: 07/25/96
DATE ANALYZED: 07/29/96
DATE REPORTED: 08/02/96
BATCH NO: 28848

EPA 8310
Polynuclear Aromatic Hydrocarbons by HPLC in Aqueous Solutions

COMPOUND	RESULT (ug/L)	REPORTING LIMIT (ug/L)
Naphthalene	ND	5
Benzo(a)pyrene	ND	0.10

ND = Not detected at or above reporting limit.

SURROGATE RECOVERY	QC LIMITS	
Recovery, %	64	30-130



Curtis & Tompkins, Ltd

LABORATORY NUMBER: 126322-MB
CLIENT: IT Corporation
PROJECT ID: 764287.09901002
LOCATION: NAS Alameda, DO#42
SAMPLE ID: METHOD BLANK

DATE EXTRACTED: 07/25/96
DATE ANALYZED: 07/31/96
DATE REPORTED: 08/02/96
BATCH NO: 28848

EPA 8310
Polynuclear Aromatic Hydrocarbons by HPLC in Aqueous Solutions

COMPOUND	RESULT (ug/L)	REPORTING LIMIT (ug/L)
Naphthalene	ND	5
Benzo(a)pyrene	ND	0.10

ND = Not detected at or above reporting limit.

SURROGATE RECOVERY	QC LIMITS	
Recovery, %	69	30-130

WATER PAH LCS WORKSHEET

Lab Name: CURTIS & TOMPKINS,LTD.

SAMPLE: LCS QC26866, 500:1

Date Analyzed: 7/24/96

Batch: 28848

COMPOUND	SPIKE ADDED (ug/L)	LCS AMT (ug/L)	LCS % REC	QC LIMITS # REC.
Naphthalene	10.00	7.2	72	27-112
Acenaphthylene	20.00	16.7	83	36-95
Acenaphthene	2.00	1.6	80	35-99
Flourene	10.00	11.0	110	* 40-106
Phenanthrene	1.00	0.8	80	32-115
Anthracene	1.00	1.1	108	* 30-104
Benzo(k)flouranthene	1.00	0.9	91	40-110
Indeno(123cd)pyrene	1.00	0.9	91	41-111

SURROGATE % RECOVERIES:

UV (30-130): 90.47

FL (60-160): 167.66

to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 150 out of 6 outside of limits

WATER PAH MATRIX SPIKE/MATRIX SPIKE DUP RECOVERY



Curtis & Tompkins, Ltd.

Lab Name: CURTIS & TOMPKINS, LTD.

Contract: N/A

QC Sample ID: QC26867 QC26868

Batch: 28404

Date Analyzed: 7/24/96

%Moisture: N/A

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS % REC	QC LIMITS # REC.
Naphthalene	10	0	6.0	60	27-112
Acenaphthylene	20	0	14	68	36-95
Acenaphthene	2	0	1.5	75	35-99
Fluorene	10.0	0.0	9.4	94	40-106
Phenanthrene	1.0	0.0	0.8	76	32-115
Anthracene	1.0	0.0	1.0	98	30-104
Benzo(k)Fluoranthene	1.0	0.0	0.9	86	40-110
Indeno(123cd)Pyrene	1.0	0.0	0.9	89	41-111

COMPOUND	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC	% RPD	QC LIMITS # RPD	REC.	#
Naphthalene	10	6.3	63	6	20	27-112	
Acenaphthylene	20	14	71	5	20	36-95	
Acenaphthene	2	1.5	77	3	20	35-99	
Fluorene	10.0	9.1	91	4	20	40-106	
Phenanthrene	1.0	0.8	76	0	20	32-115	
Anthracene	1.0	0.9	93	5	20	30-104	
Benzo(k)Fluoranthene	1.0	0.9	92	7	20	40-110	
Indeno(123cd)Pyrene	1.0	0.9	90	1	20	41-111	

SURROGATE RECOVERIES:	UV	QC LIMIT	FL	QC LIMIT
MS	82%	30-130	191%	60-160
MSD	88%	30-130	213%	60-160

* Values outside of QC limits

RPD: 0 out of 8 outside limits
 Spike Recovery: 0 out of 16 outside limits



INTERNATIONAL
TECHNOLOGY
CORPORATION

126322

**ANALYSIS REQUEST AND
CHAIN OF CUSTODY RECORD***

Reference Document No. 497667
Page 1 of 3

Project Name/No. ¹ 764287.09901002
 Sample Team Members ² Wicker/Britton
 Profit Center No. ³ 3745
 Project Manager ⁴ Don Marini
 Purchase Order No. ⁶
 Required Report Date ¹¹ 14 days

Samples Shipment Date ⁷ 7/18/96
 Lab Destination ⁸ Curtis & Thompkins
 Lab Contact ⁹ Anh Do
 Project Contact/Phone ¹² Don Marini
 Carrier/Waybill No. ¹³ N/A

Bill to: ⁵ IT Corp
 4585 Pacheco Blvd
 Martinez, CA, 94553

Report to: ¹⁰ Don Marini
 IT Corp
 Martinez, CA, 94553

ONE CONTAINER PER LINE

Sample Number ¹⁴	Sample Description/Type ¹⁵	Date/Time Collected ¹⁶	Container Type ¹⁷	Sample Volume ¹⁸	Preservative ¹⁹	Requested Testing Program ²⁰	Condition on Receipt ²¹	Disposal Record No. ²²
71896-M07C-09	Groundwater	1045 7/18/96	1 liter glass	1 L	None	8015 - JP-5	FOR LAB USE ONLY	
71896-M07C-09-MS/MSD		1100 7/18/96		2 L		8310 - Naphthalene benzo(a) pyrene JP-5		
71896-MWD13-3		1300 7/18/96		1 L		Naphthalene benzo(a) pyrene JP-5	FOR LAB USE ONLY	
71896-MWD13-3-D		1300 7/18/96		1 L		Naphthalene benzo(a) pyrene JP-5		
						Naphthalene Benzo(a) pyrene		

Special Instructions: ²³ Please Filter all samples

Possible Hazard Identification: ²⁴
 Non-hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal: ²⁵
 Return to Client Disposal by Lab Archive (mos.)

Turnaround Time Required: ²⁶
 Normal Rush
 QC Level: ²⁷
 I. II. III. Project Specific (specify): NAS Alameda, DO# 42

1. Relinquished by ²⁸ (Signature/Affiliation) <i>R Wicker</i>	Date: 7/18/96 Time: 1947	1. Received by ²⁸ (Signature/Affiliation) <i>[Signature]</i>	Date: 7/18/96 Time: 1947
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: ²⁹

Write: 10 accompany samples

Yellow: Held copy

* See back of form for special instructions



12632

**ANALYSIS RECEIPT AND
CHAIN OF CUSTODY RECORD***

Project Name/No. 1
Sample Team Members 2
Profit Center No. 3
Project Manager 4
Purchase Order No. 6
Required Report Date 11

Samples Shipment Date 7
Lab Destination 8
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13

Bill to: 5
Report to: 10

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
71896-MWOR-3	groundwater	7/18/96 1415	glass	1 L	None	8015 - JP-5	FOR LAB USE ONLY	
↓	↓	↓	↓	↓	↓	8210 - Naphthalene benzo(a)pyrene		
71896-MWOR-1		7/18/96 1515				JP-5	FOR LAB USE ONLY	
↓	↓	↓	↓	↓	↓	Naph. benzo(a)p.		
71896-M13-06		7/18/96 1630				JP-5	FOR LAB USE ONLY	
↓	↓	↓	↓	↓	↓	Naph. benzo(a)p.		
71896-MW13-P		7/18/96 1815				JP-5	FOR LAB USE ONLY	
↓	↓	↓	↓	↓	↓	Naph. benzo(a)p.		

Special Instructions: 23 **Please filter all samples**

Possible Hazard Identification: 24
 Non-hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal: 25
 Return to Client Disposal by Lab Archive (mos.)

Turnaround Time Required: 26
 Normal Rush
 QC Level: 27
 I II III Project Specific (specify):

1. Relinquished by 28 (Signature/Affiliation) Rick W. Weber	Date: 7/18/96 Time: 1947	1. Received by 28 (Signature/Affiliation) [Signature]	Date: 7/18/96 Time: 1947
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

White: To accompany samples
Yellow: Held copy
See back or refer to: Special instructions

ANALYSIS RECEIPT AND CHAIN OF CUSTODY RECORD*

Project Name/No. ¹ ~~_____~~
 Sample Team Members ² ~~_____~~
 Profit Center No. ³ ~~_____~~
 Project Manager ⁴ ~~_____~~
 Purchase Order No. ⁶ ~~_____~~
 Required Report Date ¹¹ ~~_____~~

Samples Shipment Date ⁷ ~~_____~~
 Lab Destination ⁸ ~~_____~~
 Lab Contact ⁹ ~~_____~~
 Project Contact/Phone ¹² ~~_____~~
 Carrier/Waybill No. ¹³ ~~_____~~

Bill to: ⁵ ~~_____~~
 Report to: ¹⁰ ~~_____~~

ONE CONTAINER PER LINE

Sample Number ¹⁴	Sample Description/Type ¹⁵	Date/Time Collected ¹⁶	Container Type ¹⁷	Sample Volumes ¹⁸	Pre-servative ¹⁹	Requested Testing Program ²⁰	Condition on Receipt ²¹	Disposal Record No. ²²
71896-MN-1	groundwater	7/18/96 1840	glass	1 L	None	8015 - JP-5	FOR LAB USE ONLY	
↓	↓	↓	↓	1 L	None	8310 - Naphthalene Benzo(a)pyrene		
↓	↓	↓	↓	↓	↓	↓	FOR LAB USE ONLY	
↓	↓	↓	↓	↓	↓	↓		
↓	↓	↓	↓	↓	↓	↓		
↓	↓	↓	↓	↓	↓	↓		

Special Instructions: ²³ Please Filter all samples.

Possible Hazard Identification: ²⁴ Non-hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: ²⁵ Return to Client Disposal by Lab Archive (mos.)

Turnaround Time Required: ²⁶ Normal Rush QC Level: ²⁷ I II III Project Specific (specify):

1. Relinquished by ²⁸ Rick Wicher Date: 7/18/96 Time: 1947 1. Received by ²⁸ [Signature] Date: 7/18/96 Time: 1947

2. Relinquished by (Signature/Affiliation) Date: Time: 2. Received by (Signature/Affiliation) Date: Time:

3. Relinquished by (Signature/Affiliation) Date: Time: 3. Received by (Signature/Affiliation) Date: Time:

Comments: ²⁹

White: To accompany samples Yellow: Field copy * See back of form for special instructions.