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DRAFT WATER QUALITY INVESTIGATION OF STORMWATER DRAINAGE

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HARDING LAWSON ASSOCIATES

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WATER QUALITY INVESTIGATION OF STORMWATER DRAINAGE NAVAL STATION, TREASURE ISLAND HUNTERS POINT ANNEX

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WATER QUALITY INVESTIGATION OF STORMWATER DRAINAGE
NAVAL STATION, TREASURE ISLAND
HUNTERS POINT ANNEX

HLA Job No. 02176,339.02

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DRAFT

TABLE OF CONTENTS

LIST OF TABLES iv

LIST OF ILLUSTRATIONS iv

1.0 INTRODUCTION 1

2.0 BACKGROUND 2

2.1 Storm Drain System History 2
2.2 Prior and Related Investigations 3

3.0 OBJECTIVES AND SCOPE 5

4.0 TECHNICAL APPROACH 6

4.1 Conceptual Model of Stormwater Runoff 6
4.2 Study Implementation and Methods 7
4.2.1 Site Selection and Storm Drain Hydrology 7
4.2.2 Storm Drain Sediment Sampling 9
4.2.3 Pre-storm Event Water Sampling 10
4.2.4 Storm Event Water Sampling 10
4.2.4.1 Identification of Storm Event 10
4.2.4.2 Sampling 11
4.3 Analytical Program 13
4.3.1 Laboratory Analytical Program 13
4.3.2 Field Analytical Program 14

5.0 RESULTS 15

5.1 Site Selection and Storm Drain Hydrology 15
5.2 Storm Drain Sediment Chemistry Results 16
5.2.1 CLP Volatile Organic Compounds 16
5.2.2 CLP Semivolatile Organic Compounds 17
5.2.3 CLP Pesticides and Polychlorinated Biphenyls 17
5.2.4 Total Petroleum Hydrocarbons as Diesel 17
5.2.5 Total Petroleum Hydrocarbons as Gasoline 18
5.2.6 Oil & Grease 18
5.2.7 CLP Metals 18
5.2.8 pH 18
5.2.9 CLP Cyanide 18
5.2.10 Hexavalent Chromium 18
5.3 Pre-Event Storm Drain Water Sampling Results 19
5.3.1 CLP Volatile Organic Compounds 19
5.3.2 CLP Semivolatile Organic Compounds 19
5.3.3 CLP Pesticides and Polychlorinated Biphenyls 19

DRAFT

TABLE OF CONTENTS
(continued)

5.3.4 Total Petroleum Hydrocarbons as Diesel 19
5.3.5 Total Petroleum Hydrocarbons as Gasoline 19
5.3.6 Oil & Grease 20
5.3.7 CLP Metals 20
5.3.8 pH 20
5.3.9 CLP Cyanide 20
5.3.10 Hexavalent Chromium 21
5.4 Storm Event Results 21
5.4.1 Storm Event Meteorology and Hydrology 21
5.4.2 Chemical Results 22
5.4.2.1 CLP Volatile Organic Compounds 22
5.4.2.2 CLP Semivolatile Organic Compounds 23
5.4.2.3 CLP Pesticides and Polychlorinated Biphenyls 23
5.4.2.4 Total Petroleum Hydrocarbons as Diesel 23
5.4.2.5 Total Petroleum Hydrocarbons as Gasoline 23
5.4.2.6 Oil & Grease 23
5.4.2.7 CLP Metals 23
5.4.2.8 pH 24
5.4.2.9 CLP Cyanide 24
5.4.2.10 Hexavalent Chromium 24
5.4.2.11 Anions 25

6.0 QUALITY ASSURANCE/QUALITY CONTROL ASSESSMENT 26

7.0 SUMMARY AND DISCUSSION 28

8.0 CONCLUSIONS 32

9.0 RECOMMENDATIONS 33

10.0 REFERENCES 34

TABLES

ILLUSTRATIONS

Appendix

DRAFT

LIST OF TABLES

Table 1	Summary of Sources and Quantities of Chemicals from Industrial Activities Disposed in the Storm and Sanitary Sewers
Table 2	Parameters and Analytical Methods
Table 3	List of Sample Numbers and Analyses Performed
Table 4	Storm Drain Station Field Parameter Data
Table 5	List of Organic Compounds Detected in Sediment Samples
Table 6	List of Inorganic Compounds Detected in Sediment Samples
Table 7	Sediment Samples, Waste Extraction Test Results
Table 8	Pre-Event Storm Drain Station Field Parameter Data
Table 9	List of Organic Compounds Detected in Pre-Event Storm Drain Water
Table 10	List of Inorganic Compounds Detected in Pre-Event Storm Drain Water
Table 11	Storm Event Field Parameter Data, December 15, 1990
Table 12	List of Organic Compounds Detected in Storm Event Water Samples
Table 13	List of Inorganic Compounds Detected in Storm Event Water Samples
Table 14	Summary of Detected Chemicals, Sediment Samples
Table 15	Summary of Detected Chemicals, Pre-Event Water Samples
Table 16	Summary of Detected Chemicals, Storm Event Water Samples

LIST OF ILLUSTRATIONS

Plate 1	Location Map
Plate 2	Sampling Stations
Plate 3	Precipitation Record from HPA, SFO, and SFMD
Plate 4	1989 and 1990 Precipitation Record for SF Airport (SFO)
Plate 5	Storm Event Precipitation Hydrograph

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1.0 INTRODUCTION

This report presents the results of an investigation conducted by Harding Lawson Associates (HLA) at the Naval Station, Treasure Island, Hunters Point Annex (HPA), San Francisco, California (Plate 1), to assess the chemical quality of surface runoff and storm drainage waters during the first major storm event of the 1990-91 rainfall period. Also described are the results of pre-event storm drain sediment and storm drain water sampling and reconnaissance monitoring activities related to sample site selection and characterization of ambient conditions.

This investigation was conducted to assess the quality of stormwater that enters the San Francisco Bay during storm events. This report satisfies requirements expressed by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB, *1987a,b*).

DRAFT

2.0 BACKGROUND

2.1 Storm Drain System History

The storm drain and sanitary sewer systems at HPA were originally constructed between 1942 and 1946 as a combined system that drained into San Francisco Bay (*YEI, 1988*). Between 1942 and 1976 the combined system was used to collect stormwater runoff, sewage, and industrial wastes from numerous locations and facilities at HPA (*HLA, 1988a*). Documented industrial discharges to the combined system include acids, bases, organic solvents, paint, PCB-contaminated waste oil, and heavy metal-contaminated electrolyte solutions (*WESTEC, 1984*). Table 1 summarizes the documented discharges to the combined sewer system.

The combined system originally discharged directly into San Francisco Bay through 41 outfalls (*YEI, 1988*). Partial separation and upgrading of the combined systems began in 1958 in response to the Federal Water Pollution Control Act requirements in effect at that time (*YEI, 1988*). At that time, sewage and storm drainage in the industrial areas and in the southwest portion of HPA were separated. Twenty-nine outfalls were converted to drain only the storm drain system while twelve other outfalls continued to drain combined storm and sanitary systems.

In 1973, the RWQCB issued an order for complete separation of the two systems and abatement of the then current waste disposal practices (*YEI, 1988*). A major separation project was initiated in 1973 and completed in 1975. During the separation project, all of the storm drain outfalls in the southern portion of HPA south of J Street (Plate 2) were combined and connected to a single 72-inch outfall that discharged directly into the bay (*YEI, 1988*). In 1976, a follow-up project further separated the sanitary sewer and storm drain systems. At the end of this project, the systems were considered to be fully separated (*YEI, 1988*).

DRAFT

A Utilities Technical Study (UTS) was conducted in 1988 (*YEI, 1988*). The UTS noted that in Drainage Areas A and D, storm drain and sanitary sewer systems are still connected (*YEI, 1988*). The UTS found indications of sanitary and industrial pollution throughout the storm drain system. Sanitary pollution was believed to be minor and appeared to be the result of leaks from the sanitary sewer system through infiltration and poorly disconnected pre-1976 flow diversion structures (*YEI, 1988*).

The UTS did not formally address industrial pollution in the storm drain system, but noted the existence of apparent industrial pollution. Specifically, the report mentioned oil pollution and hypothesized either warehouse floor cleaning activities or direct discharge into the storm drain system as likely sources (*YEI, 1988*).

On October 17, 1989, HPA experienced the Loma Prieta earthquake (Richter scale magnitude 7.2). Quake-generated land subsidence and utilities damage were observed at HPA and apparently led to seawater encroachment and flooding of the storm drain system (*Brown, 1989; U.S. Navy, 1990*). The full extent of possible impacts to the storm drain system (e.g. settling, reversals of flow, formation of cracks, etc.) remain unknown.

2.2 Prior and Related Investigations

In an initial response to the 1987 RWQCB concerns, the Navy implemented a reconnaissance study (*HLA, 1988b*) based upon sampling requirements specified by the RWQCB (*RWQCB, 1988a,b*). The objective of this program was to identify and characterize selected storm runoff sources at HPA. Samples were collected from six locations specified by the RWQCB during two storm events from two storm drain manholes, two surface drainage rivulets, and two ponded areas. This sampling program did not detect organochlorine pesticides, polychlorinated biphenyls (PCBs), volatile organic compounds, and base/neutral and acid extractable organic compounds except the PCB, Aroclor 1260, at

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3 micrograms per liter (μg/l) in one ponded stormwater sample. Low levels of metals were found in the stormwater runoff including barium (0.1 to 0.29 milligrams/liter, mg/l), cadmium (0.1 mg/l), copper (0.1 to 0.3 mg/l), molybdenum (0.39 mg/l), zinc (0.1 to 0.2 mg/l), and thallium (0.2 to 0.8 mg/l; a suspected field or laboratory contaminant) (*HLA, 1988b*).

In addition to this earlier investigation of stormwater quality, the HPA storm drain system has been or will be investigated in additional studies:

- The Preliminary Assessment, Other Areas/Utilities (PA Other Areas) report describes the storm sewer system and identifies potential contaminant release areas and types (*HLA, 1990*). As a result of this PA, a site inspection (SI) of the storm drain system will be performed to evaluate the effects of potential discharges from the system on soil and groundwater quality. Preparation of the SI work plan is underway.

- The Environmental Sampling and Analysis Plan (ESAP) will evaluate the toxicity of water and sediments associated with the storm drain system (*ATT, 1991*). The ESAP will evaluate the toxicity characteristics of storm drain water sampled during a storm event from the same four storm drain stations used in this study as well as the toxicity of water and sediment in the storm drain outfall areas. Chemical characterization will also be performed on the water and sediments.

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3.0 OBJECTIVES AND SCOPE

The objective of this investigation is to characterize the chemical quality of stormwater runoff that discharges into San Francisco Bay during rainfall events.

The scope of the investigation as presented in the work plan for stormwater sampling (*HLA, 1988a*) is to:

1) Identify monitoring station locations within drainage basins containing Remedial Investigation/Feasibility Study (RI/FS) sites.

2) Evaluate the extent of tidal influence at each selected monitoring station and possible affects on the viability and representativeness of storm event monitoring.

3) At each monitoring station, collect, measure, and analyze water and accumulated sediment samples for chemical constituents/parameters to evaluate ambient, pre-event conditions.

4) During a representative major rainfall event, determine the rainfall hydrograph and collect and analyze samples of precipitation and stormwater runoff draining into and flowing through the storm drain from each monitoring station.

Collection of suspended sediment samples from runoff and storm drain water was originally scoped in the work plan (*HLA, 1988a*). Suspended sediment was deleted from the sampling plan after trial sampling during a rainfall event indicated that sufficient suspended sediment volumes could not be collected from either the runoff or the storm drain water. Collection of water samples from the storm drains during ambient, pre-event conditions was added to the scope to compare stormwater runoff to pre-existing water quality in the storm drains.

In order for these data to be directly comparable to other site data, the analyses are performed in accordance with other sampling and analysis quality assurance (QA) requirements (*HLA, 1988c*). This also means that the data was validated according to EPA Contract Laboratory Program (CLP) protocols. The results of that validation are in the appendix.

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4.0 TECHNICAL APPROACH

4.1 Conceptual Model of Stormwater Runoff

During storm events, most precipitation that falls on HPA which does not evaporate, is captured within a storm drain system consisting of ten drainage areas. The ten drainage areas (Areas A through J) range in surface area between 7 and 200 acres (*YEI, 1988*) (Plate 2) and drain to the Bay through outfalls located at the perimeter of HPA. Rainfall either infiltrates into the ground surface of each drainage basin, evaporates, or flows overland to gutters and into the storm drain collection system. Depending on the intensity and duration of the rainfall, surface contaminants may be mobilized by stormwater runoff. Upon entering the storm drain system, stormwaters may flow in different directions depending on the point of entry into the drain system (Plate 2). The runoff initially combines with other water already present in the storm drain system which may have entered the system from tidal influx of bay water and/or seepage of groundwater from surrounding shallow aquifers.

The type and degree to which constituents are released to the Bay from any one drainage basin is dependent on various factors. Some of the more important factors include the location of the drainage basin relative to location of surficial contaminants present at the various Installation Restoration (IR) and Preliminary Assessment (PA) sites (e.g. Table 1; *HLA, 1990*), the mobility of the chemical constituents, antecedent dry conditions, the size of the drainage area, and as mentioned above, the intensity and duration of individual storm events. Surface contaminants that wash into the storm drains may include those related to prior activities at the IR and PA sites and non-site related constituents that have accumulated on surface streets from atmospheric deposition and fugitive releases (e.g., unauthorized release of oil from automobiles).

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In addition to contaminants that enter the drains during storm events, existing sediments in the drains may also act as long-term sources that may be remobilized during storm events. Potential sources of these accumulated sediments include surficial soils mobilized during previous storm events, sediment from non-stormwater surface runoff (e.g., from washing, and/or dumping activities), and suspended sediment from bay water that has settled out within the drains. In addition, contaminated groundwater that seeps into the drains from surrounding shallow aquifers may contribute constituents to these sediments.

To obtain representative samples that will accurately characterize the water quality of the stormwater drainage, the factors listed above must be considered in the design of a sampling system to collect representative samples. In this investigation the following data were considered: information regarding the location of onsite contamination relative to the drainage basins, the size of drainage basins, meteorological data (intensity and duration) of the storm event and its relationship to other previous storms, bottom sediment data, and the influence of tides on the flow of water within the drains were used.

4.2 Study Implementation and Methods

Data for the water quality investigation were collected in four phases:

- Site Selection and Storm Drain Hydrology
- Storm Drain Sediment Sampling
- Pre-Storm Event Water Sampling
- Storm Event Water Sampling

4.2.1 Site Selection and Storm Drain Hydrology

The four storm drain sampling stations that were selected balanced the need to sample points within the drain system supplied by a large portion of an individual drainage

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area with the requirement that locations not be too near the outfalls and significantly affected by tidal bay water. The locations selected fulfilled the following criteria:

- The drainage areas selected for sampling should include areas of known or suspected contamination (IR or PA sites) and should have received documented discharges of industrial waste (Table 1).
- The sampling location should access the storm drain system at a location downgradient of a defined drainage area.
- The sampling location should be far enough upgradient in the storm drain system to minimize the effects of bay water encroachment within the drain system.
- The sampling location (storm drain) should act as a portal through which surface runoff from areas of known or suspected contamination could be collected.

Four separate storm drainage areas ranging in surface area from 30 to 200 acres were selected for sampling (Plate 2). Each storm drain monitoring station is located within a drainage basin that contains known RI or PA sites or have a history of industrial discharges to the system. Stormwater sampling station SW1 is located in drainage area D (35 acres; *YEI, 1988*) and collects runoff draining sites IR-6 (Tank Farm) and IR-19 (Building 901). Stormwater sampling station SW2 is located in drainage area H (33 acres; *YEI, 1988*) and collects runoff draining off sites IR-8 (Building 503 PCB Spill Area), IR-9 (Pickling and Plate Yard), PA-33, PA-37, and PA-44. Stormwater sampling station SW3 is located in drainage area A (200 acres; *YEI, 1988*) and collects stormwater draining sites IR-2 (Bay Fill Area), IR-4 (Scrap Yard), IR-5 (Old Transformer Storage Yard), IR-8 (Building 503 PCB Spill Area), IR-12 (Disposal Trench), IR-13 (Old Commissary Site), PA-41, and PA-56. Stormwater sampling station SW4 is located in drainage area E (30 acres; *YEI, 1988*), and collects runoff draining sites PA-58, PA-28, and PA-29. The drainage area sampled by SW4 is known to have experienced significant historical industrial discharges (*Westec, 1984*; Table 1).

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Following site selection, field measurements (e.g., pH, electrical conductivity, and temperature) and observations of tidal effects upon the storm drain system were made at each site following an extended high tide of 7.9 feet. This screening was designed to assess the extent to which tidal bay water may flow up into the storm drain system at each station and complicate stormwater and sediment collection. Previous observations following the October 17, 1990 earthquake indicates some tidal bay water at the stations (*Navy, 1990*). In addition, during a light precipitation event, observations of electrical conductivity and depth to water were made to assess the drain system effectiveness in draining surface runoff from the HPA site during storm events and stormwater displacement of saline bay water from the storm drain system. The observations of displacement of saline bay water by surface runoff during a rainfall event confirmed the usability of the selected sampling stations for collection of stormwater runoff.

4.2.2 Storm Drain Sediment Sampling

Storm drain sediment samples were collected from each of the four stations on November 17, 1989, to investigate sediment chemicals within the storm drains. Sediment was collected with a sampling device consisting of a 2-inch diameter stainless steel sampling tube attached to a 10-foot long length of PVC pipe. Samples were collected by lowering the sampler to the bottom of the storm drain and scraping the sediment surface until the sampling tube was filled. The sample tube was then removed from the PVC pipe, sealed with Teflon-lined plastic caps, and taped at both ends. Two tubes were filled at each sampling station. The samples were labeled and stored on ice at 4°C until delivery under chain of custody to the analytical laboratory.

All sampling equipment that came in contact with soil or water within the drains was decontaminated before and after each use. Decontamination consisted of washing with a

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non-phosphate containing detergent solution and rinsing with deionized water. All rinsate water was discharged to a Baker tank located at the HPA decontamination area. The Baker tank was subsequently sampled and the results forwarded to the San Francisco Department of Public Works, Industrial Waste Division, for approval to discharge to the sanitary sewer.

4.2.3 Pre-storm Event Water Sampling

Pre-storm event storm drain water samples were collected from the four stations on November 16, 1990, to establish representative ambient water quality conditions within the storm drains. Samples were collected by lowering a clean four-inch diameter PVC bailer into the storm drain and allowing it to fill while partially submerged in the water. During sampling it was visually observed that bottom sediment was disturbed by the bailer hitting the bottom. An unknown amount of suspended sediment may have been introduced into the samples. Sample water was decanted directly into laboratory-supplied sample bottles. A separate prewashed bailer was used for each sample. In addition to storm drain water samples, an equipment blank and a field duplicate were submitted for analyses. Samples were preserved in accordance with standard U.S. Environmental Protection Agency (EPA) practice (*EPA, 1988a,b*), stored on ice at 4°C and delivered under chain of custody to the analytical laboratory. Field parameters (pH, conductivity, and temperature) were measured at the time of sample collection.

4.2.4 Storm Event Water Sampling

4.2.4.1 Identification of Storm Event

A significant storm event was defined as an event that would provide sustained runoff for a minimum of five hours (*HLA, 1988a*). Local professional weather forecasters were consulted during the rainy season to estimate the 24-hour precipitation amount (inches of precipitation) that would correlate to the required five hours of runoff. Storms that

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produced 0.3 inches of rain were estimated to provide five hours of runoff (*Somers, 1990*). This criterion was used to determine if an approaching storm warranted sampling. However, complexities and uncertainties of weather forecasting complicate the accurate identification of the first significant precipitation event of the season.

Storm event sampling required prediction of storm arrival times and estimation of storm size. This was accomplished by continual communication with local weather forecasters during the fall and winter 1990 rainy season. Upon confirmation from the forecasters of an approaching storm event of sufficient size (e.g., 0.3 inches of expected rainfall), personnel were mobilized to HPA for sample collection.

4.2.4.2 Sampling

The storm event samples were collected on December 15, 1990 between the hours of 0130 and 0800. Sample collection teams consisting of 2 people worked at each station. All teams simultaneously collected storm drain water samples on the hour and samples of stormwater runoff into the drains on the half hour throughout the sampling event. Thus, there was a one-hour time interval between collection of similar type samples. The only exception to this sampling frequency occurred at station SW3, where insufficient stormwater runoff precluded collection of stormwater runoff samples. In addition to the stormwater samples, three field duplicates, four trip blanks, two equipment blanks, and a field blank were submitted for analysis.

At each station, storm drain water samples were collected from the surface of the water with precleaned 4-inch diameter PVC bailers. A new, precleaned bailer was used for each sample. Water was decanted from the bailers into precleaned 1000-ml plastic beakers, which were used to fill sample bottles. Stormwater runoff samples were collected by holding a 1000-ml beaker below the rim of the storm drain and collecting the water as it

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flowed into the storm drain. Stormwater was then decanted directly into sample bottles. A new beaker was used for each sample.

Field parameters (pH, conductivity and temperature) were measured at the time of sample collection. Alkalinity was measured on selected samples. Measurements of depth to water in the four storm drains were taken on an hourly basis during the storm event.

Data on the intensity and duration of the rainfall event were collected with a Qualimetrics™ 6011-A Tipping Bucket Rain Gauge at station PG (Plate 2). This instrument generated a continuous record of the precipitation rate and the precipitation amount that fell at that station during the storm event.

A bulk precipitation sample was collected at station BP (Plate 2). The bulk precipitation sample collection device consisted of four steam-cleaned plastic funnels that drained into four precleaned 1 gallon glass containers. The precipitation collection area of the four funnels was 3.14 square feet. Collection of the precipitation sample began thirty minutes after the beginning of the rain event (00:30) and continued collecting rainwater until the end of the stormwater sampling task (7:30). The bulk precipitation sample was decanted from the one gallon glass containers directly into sample bottles. A portion of the sample was analyzed for the field parameters of pH, conductivity, and alkalinity.

Field parameter data consisting of precipitation intensity, pH, temperature, and conductivity associated with individual samples were reviewed at the end of the storm event. Based on a review of these data, samples that were representative of the range of parameters observed were selected for submittal to the analytical laboratory. Field screening (i.e., review of precipitation intensity) also allowed identification and submittal of samples

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that were representative of the different periods of rainfall intensity experienced during the storm.

4.3 Analytical Program

4.3.1 Laboratory Analytical Program

For each sample collection phase, water and sediment samples were analyzed by CHEMWEST Analytical Laboratories, Sacramento, California, an EPA Contract Laboratory Program (CLP), Department of Health Services (DHS), and Navy Assessment and Control of Installation Pollutants (NACIP) certified laboratory for the parameters listed in Table 2. Table 2 also lists the analytical methods. Applicable analyses were conducted in accordance with the requirements specified by the EPA CLP. All non-CLP analyses were reported with "CLP-like" deliverables. These deliverables consisted of results and supporting analytical documentation.

Table 3 summarizes the analyses performed on the four types of samples: storm drain sediments, pre-event storm drain water, and storm event stormwater runoff and storm drain water. A total of 44 water samples and 4 sediment samples were collected. An additional 13 quality control/quality assurance (QA/QC) water samples were submitted.

Water samples submitted for CLP metals analysis were acidified but not filtered in the field. Upon receipt, the laboratory split the metal samples into two portions. One portion was filtered and analyzed for acid soluble metals and the other, unfiltered portion was analyzed for total metals.

The group of analyses performed on samples of the same matrix type was identical with three exceptions. The precipitation sample (HLA sample number 9050BP01) was analyzed only for anions (EPA Test Method 300.0) and volatile organic compounds due to sample volume limitations. Sample 90504R00 was not analyzed for anions due to sample

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volume limitations. Twenty water samples listed in Table 3 were not analyzed for pH (EPA 9045) due to incorrect laboratory analysis requests; field pH measurements were made for these samples.

4.3.2 Field Analytical Program

Field parameters (pH, electrical conductivity, temperature, and alkalinity) were measured both to compliment the laboratory analytical results and to help make inferences about changes in storm drain quality.

Field pH measurements of storm drain water and storm runoff water were made with either Orion 210 or 230 pH meters and Markson Model #830B combination electrodes. Field pH measurements of rain water were made with a Markson A-1053B pure water electrode specifically designed for low ionic strength solutions. All field pH measurements were performed after a two-point calibration process.

Electrical conductivity was measured with a Yellow Springs Instruments Model Number 33 conductivity meter. Meter accuracy was verified with standards of known ionic strength before and during the field measurement process. Electrical conductivity measurements were made and also reported as specific conductance at 25 degrees Celsius. Water temperature measurements were taken with the thermistor function of the conductivity meter.

Field alkalinity determinations were made using acid titration with a Hach™ digital titrator. Alkalinity was determined from the inflection point of plotted pH measurements generated during the titration process and reported in terms of equivalent mg/l as $CaCO_3$.

DRAFT

5.0 RESULTS

5.1 Site Selection and Storm Drain Hydrology

To evaluate the effect of tides and precipitation on the water levels and chemical quality of water at the four stations, field reconnaissance observations were made during a high tide cycle on December 27, 1989 (*Navy, 1990*), and January 8, 1990 (*Navy, 1990*), and following a light precipitation event of 0.09 inches on October 31, 1990. Electrical conductivity of the storm drain water was measured during each event; the depth to water in the storm drains was measured during the January 8, 1990, and the October 31, 1990, reconnaissance observations.

At Station SW1, electrical conductivity during the January 8, 1990 tidal event ranged from 29000 to 30800 μmhos/cm, indicating that the storm drain system was flooded by saline bay water. The water level in the storm drain remained static during the tidal fluctuation. The electrical conductivity of Station SW1 storm drain water was not measured after the light precipitation event on October 31, 1990. Storm drain station SW1A, located 10 feet upgradient from SW1 displayed an electrical conductivity of 230 μmhos, suggesting that fresh stormwater displaces the saline bay water even during minimal storm events.

At Station SW2, electrical conductivity during the January 8, 1990 high tidal event ranged from 31600 to 33700 μmhos/cm, indicating that the storm drain system was flooded by saline bay water. The water level in the storm drain fluctuated 0.70 feet during the tidal cycle. Following the precipitation event, the electrical conductivity at Station SW2 was 210 μmhos/cm, indicating that fresh stormwater effectively displaces the saline bay water during minimal storm events.

At Station SW3, electrical conductivity during the January 8, 1990 tidal event ranged from 31500 to 32000 μmhos/cm, indicating that the storm drain system was flooded by saline bay water. The water level in the storm drain fluctuated 3.78 feet during the tidal

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cycle. After the light precipitation event, the electrical conductivity at Station SW3 was 9500 μmhos/cm indicating that fresh stormwater partially dilutes saline bay water during minimal storm events.

At Station SW4, electrical conductivity during the January 8, 1990 high tidal event ranged from 9000 to 13500 μmhos/cm, suggesting that the storm drain system was affected by saline bay water. The water level in the storm drain fluctuated 0.06 foot during the tidal cycle. After the light precipitation event, the electrical conductivity at station SW4 was 340 μmhos/cm, suggesting that fresh stormwater displaces the saline bay water during minimal storm events.

5.2 Storm Drain Sediment Chemistry Results

Validated analytical results for the four sediment samples are presented in Table 5 (Organic Analyses), Table 6 (Inorganic Analyses) and Table 7 (Waste Extraction Test [WET] Inorganic Analyses). Only those compounds with values reported above the analytical detection limit for at least one of the samples are presented in Tables 5 and 6. Data qualifiers assigned during validation and CLP data qualifiers provided by the analytical laboratory appear with the data and are defined at the end of the table. Complete information on validation is presented in Section 6.0 and the Appendix. The sediment results are presented on a dry weight basis. Sections 5.2.1 through 5.2.10 summarize these results.

5.2.1 CLP Volatile Organic Compounds

- Sediment samples from Stations SW2 and SW3 contained no detectable volatile organic compounds (VOCs). The sediment sample from Station SW1 contained carbon disulfide at a concentration of 4 micrograms per kilogram (ug/kg).

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- The sediment sample from Station SW4 contained the following eleven VOCs (presented in the order of greatest to least concentration:) 1,2-dichloroethene (15,000 ug/kg), vinyl chloride (14,000 ug/kg), xylenes (1900 ug/kg), toluene (1900 ug/kg), ethylbenzene (330 ug/kg), chlorobenzene (200 ug/kg), 1,1-dichloroethene (62 ug/kg), benzene (14 ug/kg), trichloroethene (9 ug/kg), 1,1-dichloroethane (5 ug/kg), and carbon disulfide (4 ug/kg).

5.2.2 CLP Semivolatile Organic Compounds

- The sediment sample from station SW1 contained the following fourteen SOCs (presented in the order of greatest to least concentration:) dimethylphthalate (8,800 ug/kg), 4-methyl phenol (6,900 ug/kg), benzoic acid (3,600 ug/kg), pentachlorophenol (3,200 ug/kg), fluoranthene (2,600 ug/kg), pyrene (2,400 ug/kg), phenathrene (1,900 ug/kg), chrysene (1,600 ug/kg), benzo(b) fluoranthene (1,600 ug/kg), benzo(k) fluoranthene (1,600 ug/kg), benzo(a) anthracene (900 ug/kg), butylbenzylphthalate (840 ug/kg), benzo(a) pyrene (780 ug/kg), and phenol (550 ug/kg).

- The sediment sample from station SW2 contained the following six polynuclear aromatic hydrocarbons (presented in the order of greatest to least concentration:) fluoranthene (1,000 ug/kg), phenathrene (680 ug/kg), benzo(b) fluoranthene (600 ug/kg), benzo(k)fluoranthene (600 ug/kg), chrysene (540 ug/kg), and pyrene (580 ug/kg).

- The sediment sample from station SW3 contained the two SOCs butylbenzylphthalate (880 ug/kg) and pyrene (610 ug/kg).

- The sediment sample from station SW4 contained the following fourteen SOCs (presented in the order of greatest to least concentration:) 1,2-dichlorobenzene (42,000 ug/kg), 1,4-dichlorobenzene (14,000 ug/kg), chrysene (4,600 ug/kg), fluoranthene (4,500 ug/kg), pyrene (4,100 ug/kg), benzo(b) fluoranthene (3,100 ug/kg), benzo(k) fluoranthene (3,100 ug/kg), phenathrene (2,200 ug/kg), di-n-octylphthalate (1,800 ug/kg), anthracene (1,700 ug/kg), benzo(a) pyrene (1,500 ug/kg), butylbenzylphthalate (1,500 ug/kg), fluorene (770 ug/kg), and 2-methylnaphthalene (390 ug/kg).

5.2.3 CLP Pesticides and Polychlorinated Biphenyls

- All four sediment samples contained the PCB Aroclor 1260. The observed concentrations were SW1 (6,000 ug/kg), SW2 (24,000 ug/kg), SW3 (4,100 ug/kg), and SW4 (2,800 ug/kg). No other pesticide/PCB analytes were detected.

5.2.4 Total Petroleum Hydrocarbons as Diesel

- All four sediment samples contained total petroleum hydrocarbons (TPH) as diesel: SW1 (9,900 mg/kg), SW2 (850 mg/kg), SW3 (840 mg/kg), and SW4 (4,600 mg/kg).

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5.2.5 Total Petroleum Hydrocarbons as Gasoline

- Samples from stations SW1, SW2, and SW3 contained no detectable TPH as gasoline. The sample from station SW4 contained TPH as gasoline at a concentration of 240 mg/kg.

5.2.6 Oil & Grease

- All four sediment samples contained oil and grease at concentrations of SW1 (32,500 mg/kg), SW2 (4,200 mg/kg), SW3 (6,400 mg/kg), and SW4 (39,600 mg/kg).

5.2.7 CLP Metals

- The major elements aluminum, calcium, iron, magnesium, manganese, potassium, and sodium were present in all four sediment samples at concentrations (mg/kg) ranging from 7300 to 20800, 5490 to 12200, 21600 to 37300, 8190 to 37000, 220 to 924, 969 to 3190, and 6110 to 14800, respectively.

- The trace elements mercury, arsenic, lead, barium, beryllium, cadmium, chromium, cobalt, copper, nickel, silver, vanadium, were present in all four sediment samples at concentrations (mg/kg) ranging from 0.3 to 0.98, 6.3 to 9.3, 334 to 473, 78.7 to 393, 0.41 to 1.3, 0.47 to 7.8, 99.8 to 692, 10.4 to 30.3, 204 to 1170, 89.4 to 331, 1.6 to 2, and 33.7 to 71.2, respectively.

- The trace element molybdenum appeared in three of the four sediment samples at concentrations (mg/kg) ranging from 11.1 to 16.5.

- All WET test results were below the Title 22 soluble threshold limit concentration (STLC) criteria. (Table 7)

5.2.8 pH

- The sediment samples displayed the following pH values: SW1(8.5), SW2 (7.3), SW3 (8.0), and SW4 (7.8).

5.2.9 CLP Cyanide

- None of the four sediment samples contained detectable levels of cyanide.

5.2.10 Hexavalent Chromium

- None of the four sediment samples contained detectable levels of hexavalent chromium.

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5.3 Pre-Event Storm Drain Water Sampling Results

Field parameter data for the pre-event storm drain samples are presented in Table 8. The validated analytical results for the four pre-event storm drain water samples collected during this study are presented in Table 9 (Organic Analyses) and Table 10 (Inorganic Analyses). Only those compounds with values reported above the analytical detection limit for at least one of the samples are presented in Tables 7 and 8. Data qualifiers assigned during validation and CLP data qualifiers provided by the analytical laboratory appear with the data and are defined at the end of the tables.

5.3.1 CLP Volatile Organic Compounds

- The water sample from stations SW1 and SW3 contained no detectable CLP-VOCs. Station SW2 contained the following 2 VOCs (presented in the order of greatest to least concentration:) trichloroethene (17 micrograms per liter (μg/l)) and 1,2-dichloroethene (14 μg/l). Station SW4 contained the following 3 VOCs (presented in order of greatest to least concentration:) trichloroethene (30 μg/l), 1,2-dichloroethene (16 μg/l), and vinyl chloride (2 μg/l).

5.3.2 CLP Semivolatile Organic Compounds

- The water samples from stations SW2, SW3, and SW4 contained no detectable quantities of semivolatile organic compounds. Station SW1 contained 4-methylphenol (5 μg/l).

5.3.3 CLP Pesticides and Polychlorinated Biphenyls

- The water samples from stations SW2, SW3, and SW4 contained no detectable quantities of pesticides or PCBs. Station SW1 contained Aroclor 1260 (3.8 μg/l).

5.3.4 Total Petroleum Hydrocarbons as Diesel

- The water samples from station SW2 contained no detectable TPH as Diesel. Stations SW1, SW3 and SW4 contained 0.9 mg/l, 0.067 mg/l, and 0.36 mg/l, respectively.

5.3.5 Total Petroleum Hydrocarbons as Gasoline

- None of the samples from the four stations contained detectable levels of total petroleum hydrocarbons as gasoline.

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5.3.6 Oil & Grease

- None of the samples from the four stations contained detectable levels of oil & grease.

5.3.7 CLP Metals

- The CLP inorganics analyses were performed on acidified, then filtered and on non-filtered samples to generate acid soluble and total concentration values, respectively.

- The acid soluble form of the major elements aluminum, calcium, iron magnesium, manganese, potassium, and sodium appeared in nearly all of the storm drain samples at concentrations (mg/l) ranging from 0.48 to 2.77, 121 to 344, 0.463 to 1.22, 0.355 to 1.12, 0.0375 to 3.06, 102 to 317, and 3040 to 9120, respectively.

- The acid soluble form of the trace elements lead and chromium appeared in all four storm drain samples at concentrations (μg/l) ranging from 1.7 to 23.6 and 772 to 2380, respectively.

- The acid soluble form of the trace elements mercury, copper, and zinc appeared in a limited number of samples at concentrations (μg/l) of 0.24, 115 to 168, and 644, respectively.

- The total form of the major elements aluminum, calcium, iron magnesium, manganese, potassium and sodium appeared in nearly all of the storm drain samples at concentrations (mg/l) ranging from 1.37 to 2.87, 127 to 377, 0.376 to 0.735, 375 to 1,210, 0.139 to 3.04, 122 to 356, 335 to 10,000, respectively.

- The total form of the trace elements antimony, lead, thallium, barium, beryllium, copper, and zinc appeared in a limited number of samples at concentrations (μg/l) of 3.6, 1.3 to 9.9, 5.3, 42.5 to 73.8, 21, 915 to 2640, and 604, respectively.

- The acid soluble and total forms of arsenic were not present in any of the samples.

5.3.8 pH

- The four pre-event storm drain samples displayed pH values as follows; SW1(7.5), SW2 (7.8), SW3 (7.7), and SW4 (7.3)

5.3.9 CLP Cyanide

- None of the four stations contained detectable levels of cyanide.

5.3.10 Hexavalent Chromium

- Stations SW2 and SW4 contained no detectable quantities of hexavalent chromium. Stations SW1 and SW3 contained hexavalent chromium at 0.043 μg/l and 0.027 μg/l, respectively.

5.4 Storm Event Results

5.4.1 Storm Event Meteorology and Hydrology

HPA experienced seven precipitation events during the fall and winter stormwater sampling field season of 1990. Plate 3 presents daily precipitation amounts for the period November 14, 1990 through December 15, 1990, as measured by three weather stations: the National Weather Service (NWS) San Francisco Mission Dolores (SFMD) station, the NWS San Francisco Airport (SFO) station, and HPA Station PG (Plate 1). Plate 3 indicates that the sampled December 15, 1990, storm event was the first significant storm events (e.g. greater than 0.3 inches of rainfall) of the season and that precipitation values measured at the HPA PG station are comparable to the observations at the nearby National Weather Service sites.

Plate 4 presents the NWS daily precipitation records for January 1989 through December 1989 as measured at the SFO station. The sampled rainfall event was comparable in magnitude to other large storms which occurred in the region during the preceding two-year period.

Plate 5 is the precipitation hydrograph generated by the continuously recording precipitation gage located at Station PG. Runoff and storm drain sampling times are posted on the hydrograph with arrows to describe the relationship between sample times and the precipitation event. Plate 5 indicates that a total of 0.95 inches of rain fell at HPA on December 15, 1990 for the 23 hour, 55 minute period beginning at 0005 hours and ending at 2400 hours. Between 0130 and 0800, water samples were taken every half hour.

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Table 11 presents depth to water data for each station throughout the duration of the sampling event. Depth to water data are qualitative indications of hydraulic conditions within the drain during the time of sampling. Shorter depth to water suggests larger volumes of water flowing through the drain, but may also indicate tidal backwash or obstructions in the drain lines.

5.4.2 Chemical Results

Field parameter data for the storm event storm drain, runoff, and precipitation samples are presented in Table 11. Validated analytical results for the forty storm event water samples are presented in Table 12 (Organic Analyses) and Table 13 (Inorganic Analyses). Only those compounds with values reported above the analytical detection limit for at least one of the samples are presented in Tables 12 and 13. In the Station Number field of each table, bulk precipitation samples are listed as BP1, runoff water samples are listed with the suffix RO, and storm drain water samples are listed with the suffix SD. Table 9 presents the sample collection times for each sample. Analyzed compounds in non detectable concentrations are denoted ND; the detection limit appears in parentheses. Data qualifiers assigned during data validation and CLP data qualifiers provided by the analytical laboratory appear with the data and are defined at the end of the table.

5.4.2.1 CLP Volatile Organic Compounds

- The 15 runoff samples and the single precipitation sample displayed no detectable VOCs. No VOCs were detected in 19 of the 24 storm drain samples submitted for analysis.
- The first storm drain sample collected from SW2 contained benzene (1 μg/l). Four of the five storm drain samples collected from SW4 contained trichloroethene at concentrations ranging from 1 to 5 μg/l. Two of the five storm drain samples collected from SW4 contained detectable concentrations of 1,2-dichloroethene. Both observed 1,2-dichloroethene concentrations were 2 μg/l.

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5.4.2.2 CLP Semivolatile Organic Compounds

- None of the 24 storm drain samples contained SOCs. Thirteen of the fifteen runoff samples contained no SOCs. Two runoff samples collected at SW2 contained detectable concentrations of phenol at 2 and 3 μg/l.

5.4.2.3 CLP Pesticides and Polychlorinated Biphenyls

- No pesticides/PCBs were detected in 19 of the 24 storm drain samples and 14 of the 15 runoff samples. One runoff sample collected at SW1 contained Aroclor 1260 (3.2 μg/l). Four of the five storm drain samples collected at SW1 contained Aroclor 1260 at concentrations ranging from 2.4 to 5 μg/l. One storm drain sample collected at SW2 also contained Aroclor 1260 (2.2 μg/l).

5.4.2.4 Total Petroleum Hydrocarbons as Diesel

- TPH as diesel appeared in the following: three storm drain samples from Station SW1 at concentrations ranging from 0.65 to 3.4 mg/l, storm drain sample from Station SW2 at 0.91 mg/l, three storm drain samples from Station SW3 at concentrations ranging from 0.64 to 1.1 mg/l, and two storm drain samples from SW4 at concentrations ranging from 0.59 to 1.0 mg/l.

5.4.2.5 Total Petroleum Hydrocarbons as Gasoline

- Two of the 39 samples contained TPH as gasoline. The storm drain sample from Station SW1 contained TPH as gasoline at a concentration of 5 mg/l. The storm drain sample from Station SW3 contained TPH as gasoline at a concentration of 0.25 mg/l.

5.4.2.6 Oil & Grease

- No oil and grease was detected in 36 of the 39 samples. Three storm drain samples from sampling station SW1 contained oil and grease at concentrations ranging from 6.7 to 65 mg/l.

5.4.2.7 CLP Metals

- The CLP inorganics analyses were performed on acidified then filtered and non-filtered samples to generate acid soluble and total analyte concentration values, respectively.

- The acid soluble form of the elements magnesium, manganese, and iron appeared in nearly all of the runoff and storm drain samples, at concentrations (mg/l) ranging from 0.302 to 202, 0.015 to 0.766, and 0.167 to 1.640, respectively.

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- The acid soluble form of the elements calcium, potassium, and sodium appeared in many of the runoff and storm drain samples, at concentrations (mg/l) ranging from 3.48 to 108, 0.684 to 67.2, 0.894 to 1,520, respectively. Field blank results required that many low concentration detected occurrences of these major elements be qualified as not detected.

- The acid soluble form of the trace elements lead, copper, and zinc appeared in nearly all of the runoff and storm drain samples, at concentrations (μg/l) ranging from 19.7 to 123, 17.1 to 86.9, and 59.3 to 639, respectively.

- The acid soluble form of the trace elements mercury, arsenic, chromium, nickel and vanadium appeared in a few of the samples, at concentrations (μg/l) ranging from 0.23 to 0.31, 2.0 to 6.5, 4.2 to 16.1, 8.2 to 16, and 2.2 to 5.4, respectively.

- The acid soluble form of the element aluminum and the trace elements antimony and silver were determined not to be present in the samples after the data qualification process.

- The total form of the elements aluminum, calcium, iron, magnesium, manganese, and potassium appeared in nearly all of the runoff and storm drain samples, at concentrations (mg/l) ranging from 0.363 to 4.98, 2.93 to 95.3, 0.394 to 5.54, 0.479 to 189, 0.0201 to 0.779, and 0.279 to 65.2, respectively.

- The total form of the trace elements lead, barium, chromium, copper, nickel, and zinc appeared in nearly all of the runoff and storm drain samples, at concentrations (μg/l) ranging from 12.7 to 158, 24.4 to 184, 4.6 to 62.4, 21.4 to 158, 4.7 to 151, and 150 to 711, respectively.

- The total form of the trace elements mercury, arsenic, antimony, cobalt, silver, and vanadium appeared in a few of the samples, at concentrations (μg/l) ranging from 0.26 to 0.78, 2.6 to 5.3, 14.5 to 26.3, 4 to 8.4, 2.2 to 2.7, and 3.8 to 13.9, respectively.

5.4.2.8 pH

- Twenty of the 39 water samples were analyzed for pH. Sample pH values ranged from 6.4 to 7.9.

5.4.2.9 CLP Cyanide

- No cyanide was detected in runoff or storm drain samples.

5.4.2.10 Hexavalent Chromium

- No hexavalent chromium was detected in runoff or storm drain samples.

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5.4.2.11 Anions

- Chloride appeared in 21 of the samples at concentrations ranging from 11 to 32,000 mg/l. Nitrate appeared in 38 of the samples at concentrations ranging from 0.12 to 0.94 mg/l. Orthophosphate as phosphorous appeared in the six of the seven storm drain samples from SW3 ranging from 0.37 to 0.58 mg/l. Sulfate appeared in all seven of the storm drain samples from SW3 at concentrations ranging from 100 to 390 mg/l.

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6.0 QUALITY ASSURANCE/QUALITY CONTROL ASSESSMENT

The chemical data presented in this report have been reviewed for accuracy and precision. Chemical analyses performed according to the CLP statements of work (*EPA, 1988a,b*) have been reviewed and qualified according to the EPA guidelines (*EPA, 1988c,d*). Non-CLP analytical results were reviewed and qualified in a manner similar to the CLP data; if no guidance was available from the CLP documents (*EPA, 1988c,d*) data quality criteria described in the Quality Assurance Project Plan (*HLA, 1988c*) were used.

All of the data presented in this report have been assigned one of the following four qualifiers, as defined in the Quality Assurance Project Plan (*HLA, 1988c*):

A - Acceptable (data meet all QC criteria)

J - Estimate, qualitatively correct but quantitatively suspect

R - Reject, data not suitable for any purpose

U - Not detected

The assignment of these four qualifiers reflects the first level of validation (*HLA, 1988c*), which includes a review of laboratory blanks, field blanks, laboratory duplicates, field duplicates, laboratory spikes, surrogate spikes, holding times, and inductively coupled plasma (ICP) serial dilutions.

A summary of the data review process is as follows:

- Sample result integrity is verified by tracking sample and sample results through field chain of custody records, laboratory run logs, laboratory worksheets, and raw data.

- Sample results are first qualified by laboratory blank data and then by field blank data. Analytes identified in any of the blanks and also in the sample results are qualified as non-detected (false positives) unless the sample results are five times greater than the largest concentration observed in the associated blanks. Common laboratory organic contaminants (methlyene chloride, acetone, etc.) are an exception to this criteria and must appear at ten times the highest concentration observed in any of the blanks.

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- Duplicate results (matrix, blank spike, matrix spike) are reviewed and relative percent differences (RPD) are calculated and compared to CLP and project criteria. If RPD criteria are exceeded, the data are qualified.

- Spike results and percent recovered (%R) (matrix, blank, and surrogate) are reviewed and compared to CLP and project criteria. Percent recovery criteria violations qualify the data.

- Holding times are analyzed and compared to EPA guidelines. Results with holding time exceedances are qualified.

- Other pertinent data such as ICP serial dilution data, calibration data, etc., are checked and compared to CLP criteria. Criteria violation qualifies data.

The results of the QA/QC assessment shown in the Appendix that the data appear to be accurate and of good quality with some minor exceptions mentioned below. All of the storm event mercury results were qualified as estimated due to holding time exceedances. Laboratory method blank, field blank, and equipment blank contamination required the qualification of a large number of CLP inorganic results (aluminum, barium, calcium, copper, iron, magnesium, manganese, potassium, sodium, silver) with a "U" as non-detected. Field and equipment blank contamination required the qualification of all of the storm event water sample TPH-diesel results with either a "U" as non-detected or a "J" as estimated. Surrogate spike results, ICP serial dilution results, matrix duplicate results, and matrix spike results led to qualifying a small number of inorganic and organic results with a "J" as estimated. The appendix provides a more thorough description of data qualification.

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7.0 SUMMARY AND DISCUSSION

This water quality investigation of stormwater drainage at HPA has identified contaminants within the storm drain system at four locations. Contaminants were found in samples of storm drain water and sediments collected prior to rainfall, in samples of surface runoff draining into the storm drains, and water flowing through the storm drains collected during a significant and representative rainfall event. A summary of the detected compounds is found at each station is presented in Tables 14, 15, and 16 and the following:

Storm drain sediment samples:

- No VOCs were detected at stations SW2 and SW3. 1,2-DCE, vinyl chloride, xylenes, toluene, ethylbenzene, chlorobenzene, 1,1-dichloroethene, benzene, TCE, 1,1-dichloroethane and carbon disulfide were detected at Station SW4. Carbon disulfide was detected at Station SW1.
- Polynuclear aromatic hydrocarbons, oil and grease, Aroclor 1260, and TPH as diesel were detected at all four stations.
- Phenol compounds and benzoic acid were detected at Station SW1.
- 1,2-dichlorobenzene, 1,4-dichlorobenzene, butyl benzylphthalate, and 2-methylnaphthalene were detected at Station SW4.
- Cyanide, TPH as gasoline, and hexavalent chromium were not detected at any of the stations except for station SW4, where TPH as gasoline was found.
- Mercury, arsenic, aluminum, lead, barium, beryllium, cadmium, calcium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, silver, sodium, vanadium, zinc, and molybdenum were detected at the four stations.

Pre-event storm drain water samples:

- No VOCs were detected at Stations SW1 and SW3. TCE and 1,2 DCE were detected at Station SW2. TCE, 1,2-DCE, and vinyl chloride were detected at Station SW4.
- No SOCs or pesticides/PCBs were detected at Stations SW2, SW3, or SW4. 4-methylphenol and Aroclor 1260 were detected at Station SW1.
- TPH as diesel was detected at Stations SW1, SW3, and SW4. Total Chromium VI was detected at Stations SW1 and SW3.

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- No detectable TPH as gasoline, oil and grease, or cyanide were found at any of the four stations.

- Lead, aluminum, calcium, chromium, iron, magnesium, potassium, and sodium were detected in the pre-event water samples from the four stations. Mercury was detected at station SW2. Barium was detected at station SW3 and SW4. Manganese was detected at station SW2, SW3, and SW4. Hexavalent chromium was detected at stations SW1 and SW3.

- Sulfate and chloride were detected at the four stations.

Storm event water samples:

- The sampled storm event of December 15, 1991 was a significant storm (greater than 0.3 inches) comparable in magnitude to other moderate to large storms during the preceding two years. The storm event was sampled for an adequate period of time to provide a representative sample of precipitation, runoff, and storm drain water.

- VOCs were for the most part not detected in the runoff or precipitation samples. Low levels of benzene, TCE, and 1,2-DCE were detected at Stations SW2 and SW4.

- None of the runoff or storm drain samples contained SOCs except for two runoff samples from Station SW2, which contained low levels of phenol.

- Aroclor 1260 was identified in one runoff sample from SW1, five storm drain samples from Station SW1 and 3 storm drain samples from SW2.

- TPH as diesel was found in all runoff and storm drain samples.

- TPH as gasoline was found in two storm drain samples, one from station SW1 and one from station SW3.

- Three storm drain samples from station SW1 contained oil and grease. No other storm drain or runoff samples contained detectable oil and grease.

- No cyanide or hexavalent chromium were detected in runoff or storm drain samples.

- Mercury, lead, aluminum, barium, calcium, chromium, copper, iron, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc were detected in samples from all four stations. Cobalt was detected at SW3 and silver was detected at SW4.

- Nitrate and chloride were detected at the four stations. Sulfate was detected at SW1 and SW4. Orthophosphate was detected at SW3.

Review of Table 11 indicates that a variety of water types were sampled during the storm event sampling activities.

- Storm drain samples from SW1 have very low field alkalinity (25 mg/l $CaCO_3$) and low specific conductivities (57-268 μmhos/cm). Stormwater runoff samples from SW1 have low specific conductivities (30-60 μmhos/cm) and field alkalinities (18-20 mg/l $CaCO_3$.

- Station SW2 produced storm drain water samples that appeared to become more saline during the end of the sampling period. Measured water levels indicate that the water continued to rise throughout the sampling event. Stormwater runoff samples from SW2 suggest freshwater.

- Station SW3 storm drain samples were brackish at the beginning and appeared to become more fresh throughout the sampling period. The water level rose at Station SW3 throughout the sampling event.

- Station SW4 storm drain water that appeared to become fresher as the sampling event continued. SW4 runoff samples were very similar to the storm drain samples in specific conductivity, temperature, and alkalinity. The water level fluctuated up and down throughout the sampling period.

Review of Tables 14, 15 and 16 indicate considerable variation in the detection and concentration of compounds for the four drainage areas. For the storm drain sediments, Stations SW1 and SW4 tend to have more detections of organic compounds then Stations SW2 and SW3. Station SW4 is the only station with frequent VOC detections. In contrast, all four stations had similar detections and concentrations of metals.

Ambient pre-event water within the drains had, for all stations, far fewer detections of organic compounds and metals than the sediments. For the storm event runoff and drain samples, detection of organic compounds was again infrequent, although metals were more frequently detected for all four stations compared to the pre-event water samples. Pre-event water samples contained generally higher concentrations of sodium and chloride than the storm event runoff and storm drain samples. Concentrations of metals were generally comparable for all four stations for the storm event runoff and storm drain

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samples. Analyses of the precipitation sample indicate that the rain water contributed some of the anions to the runoff but none of the VOCs.

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8.0 CONCLUSIONS

The following conclusions were reached upon review of the water and sediment data collected in this investigation:

- On the basis of the number of organic and inorganic compounds detected and the concentration of these constituents, the accumulated sediments present in the storm drains may represent the primary source of potential contamination to the Bay rather than surface water runoff flowing into the drains, assuming these sediments are mobilized during storm events.

- Saltwater encroachment in the storm drains may occur during both ambient non-event conditions (e.g., during high tide) and, as seen at SW3, during significant rainfall events (e.g., SW3 had relatively high specific conductance values during the storm event). Discrete sampling of stormwater may be difficult in locations that are affected by saltwater encroachment.

- More frequent detections of total metals in the storm event runoff and storm drain waters relative to the pre-event storm drain water samples indicate that metals may be released to the Bay during storm events.

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9.0 RECOMMENDATIONS

This investigation has documented water and sediment quality of stormwater drainage. Additional study beyond the scope of previous or proposed related investigations (e.g., the PA other area report and the ESAP) is recommended to:

- Establish the nature and extent of sediment contamination within the storm drains and study the feasibility of removing/treating contaminated sediments to reduce potential contaminant loading to the Bay.

- These water quality results of stormwater runoff should be compared against the requirements of NPDES permits for stormwater discharge to the Bay.

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TABLES

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Table 1. Summary of Sources and Quantities of Chemicals from Industrial Activities Disposed in the Storm and Sanitary Sewers (Westec, 1984)

Sanitary Sewer Reach(1)	Storm Drainage Area(2)	Building No.	Description of Originating Process	Waste Quantities: Continuous Average Flow	Waste Quantities: Periodic Discharge	Waste Chemicals and Materials	Method of Disposal
6,7	H	411	Shipfitting Shop -- pickling of structural steel, draining of rinse water tanks and chemical tanks	---	15,000 gal. water rinse tank once per month. Each 15,000 gal. chemical tank 4 times per year.	Chemical Solution Tanks (1) Sulfuric acid, sodium chloride, and inhibitor (2) Sodium dichromate and phosphoric acid	Combined sewer
6,7	H	411	Shipfitting Shop -- pickling of structural aluminum, draining of rinse water tanks and chemical tanks	3 gpm	7,500 gal. once per month	Chemical Solution Tanks (1) Wyandotte M.F. acid and Altrex cleaner (2) Wyandotte 2487 acid	Combined sewer
2	D	134	Machine Shop -- cleaning of engine parts, draining of chemical tanks and rinse tank	1 gpm	---	Chemical Solution Tanks (1) Penesolve 814 (2) Penestrip CR	Combined sewer
4	E	258	Pipe Cleaning Shop -- draining of chemical tanks and rinse	2 gpm	6,000 gal. per week	Chemical Solution Tanks (1) Muriatic acid (2) Sodium hydroxide (3) Sulfuric acid (4) Chromic acid (5) Sodium hydroxide and Penesolve 814 (6) Penestrip CR	Combined sewer
4	E	231	Machine Shop -- cleaning facility	2 gpm	5,000 gal. rinse water once per week. 3,000 gal. chemical solution once per month.	Chemical Solution Tanks (1) Sulfuric acid - 1 (2) Phosphoric acid - 1 (3) Sodium hydroxide - 3 (4) Dichloro benzene - 2	Combined sewer

T16670-L

Table 1. Summary of Sources and Quantities of Chemicals from Industrial Activities Disposed in the Storm and Sanitary Sewers (Westec, 1984)

Sanitary Sewer Reach(1)	Storm Drainage Area(2)	Building No.	Description of Originating Process	Waste Quantities: Continuous Average Flow	Waste Quantities: Periodic Discharge	Waste Chemicals and Materials	Method of Disposal
4	E	231	Machine Shop -- backwash from water demineralization plant, and boiler blowdown	2,000 gal. per month	3,000 gal. four times per month (anion softeners). 1,500 gal. seven times per month (cation softeners)	Anion softeners -- caustic solution Cation softeners -- sulfuric acid solution	Combined sewer
4	E	253 (1st floor)	Ordnance Shop -- cleaning, paint stripping, and painting of steel	2 gpm	3,000 gal. chemical soution tank 4 times per year	Sodium hydroxide, Stoddard solvent, Steam-Kleen, and various paints	Combined sewer
Side Reach	C	124	Acid Mixing Plant -- washdown of spilled acid, draining of acid tanks	---	1,000 gal. per month washdown water	Sulfuric acid and distilled water (combined to form electrolyte for storage batteries)	Storm sewer
4	E	253 (2nd, 4th & 5th floors)	Electronic and Optical Shop -- cleaning, paint stripping and painting of aluminum and steel	2 gpm (total)	300 gal. chemical solution tank once per month	Sodium hydroxide, Oakite aluminum cleaner 164, and various paints	Combined sewer
7	H	351	Electronics Shop -- cleaning and painting electronic equipment	1 gpm	---	Chem-mist detergent, very small quantities of alcohol and tri-chloroethylene	Combined sewer
7	H	351	Electronics Shop -- photographic reproduction and photo developing	30 gpm	200 gal. per week from chemical solution trays	Ammonium thiosulfate, silver, salts, acetic acid, sodium sulfite, sodium carbonate, and minute quantities of cyanides. Also various chemicals washed off print paper.	Combined sewer
7	H	351A	Electronics Shop -- cleaning of electronic equipment	100 gal. per day	---	Chem-mist detergent, small amounts of thinner and solvent	Combined sewer

T16670-L

Table 1. Summary of Sources and Quantities of Chemicals from Industrial Activities Disposed in the Storm and Sanitary Sewers (Westec, 1984)

Sanitary Sewer Reach(1)	Storm Drainage Area(2)	Building No.	Description of Originating Process	Waste Quantities: Continuous Average Flow	Waste Quantities: Periodic Discharge	Waste Chemicals and Materials	Method of Disposal
Side Reach A	C	123	Battery Overhaul -- discharge of electrolyte from batteries to be reconditioned, and washdown water	100 gpm during periods when electrolytle being discharged	---	"Used" electrolyte (sulfuric acid and distilled water), soda ash (for partial neutralization)	Storm sewer
Side Reach A	C	123	Plating Shop -- electroplating, paint stripping, irriditing, and parkerizing	20 gpm	---	Cyanide Plating Solutions - Copper, cadmium, and silver Acidic Plating Solutions - Nickel, chrome, tin, lead, gold, and brass Other Chemical Solutions - Penetol X, irridite, and Parkocomposition Acid Solutions - Chromic, nitric, sulfuric, phosphoric, fluoboric, and Muriatic Used containers and buckets	Storm sewer
4	E	211	Machine and Electronic Test and Repair Shop -- paint stripping and painting	1/2 gpm	---	Sodium hydroxide, D-Floate, Steam-Kleen compound, and various paints	Combined sewer
4	F	215	Fire House -- washing of apparatus	300 gal. per day	---	Detergent	Combined sewer
7	G	302	Transportation Shop -- cleaning transportation equipment	1 gpm	---	Decarbonizer, degreaser, and detergent	Combined sewer
6	A	530	Hobby Shop - car washing	300 gal. per day	---	Detergent	Combined sewer
9	G	436	Material Storage Bldg. -- washing garbage cans	2 gpm	500 gal. twice per year	Sodium hydroxide, detergent	Combined sewer
10	D	101	Reproduction Department -- blueprint, ozalid, and photo developing (small amount)	25 gpm	500 gal. per week from solution trays, etc.	Hydrogen peroxide, ammonia, photo-developer solutions and various chemicals washed off print paper	Combined sewer

T16670-L

Table 1. Summary of Sources and Quantities of Chemicals from Industrial Activities Disposed in the Storm and Sanitary Sewers (Westec, 1984)

Sanitary Sewer Reach(1)	Storm Drainage Area(2)	Building No.	Description of Originating Process	Waste Quantities: Continuous Average Flow	Waste Quantities: Periodic Discharge	Waste Chemicals and Materials	Method of Disposal
4	F	217	Sheet Metal Shop -- spray painting	1 gpm	300 gal. twice per month	D-Floate, various paints	Combined sewer
4	E	270	Paint Shop -- cleaning paint buckets	100 gal. per day	3,000 gal. chemical solution tank four times per year	Sodium hydroxide Used paint buckets	Combined sewer
7	H	366	Boat Shop -- painting and washing	100 gal.	300 gal. once per week	Epoxides, polyester resin, methylethyl-ketones	Combined sewer
6	H	435	Equipment Storage Bldg. -- spray painting	200 gal. per day	300 gal. once per week	Various paints, paint thinner	Combined sewer
10	D	111 and 112	Diesel Oil Pumping Plant -- draw-off from oil separator units, washdown of spillage	---	2,000 gal. per month	Emulsifying agent during washdown Waste oil	Storm sewer
4	F	203	Power Plant -- boiler blowdown and backwash from zeolite water softeners	5,000 gal. per month	1,500 gal. 10 times per month backwash	Softeners -- dilute sulfuric acid, salt solution	Combined sewer
4	E	272	Riggers Shop -- cleaning of chain hoists	100 gal. per day	---	Steam-Kleen	Combined sewer
4	E	280	Aluminum Cleaning Facility	1/2 gpm	5,000 gal. rinse tank once per month. Tri-sodium tank once per week. Wyandotte tank once every six months	Chemical Solution Tanks (1) Sodium phosphate tribasic (2) Wyandotte 2787 deoxidizer (No neutralization)	Combined sewer

T16670-L

Table 2. Parameters and Analytical Methods

Parameter	Analytical Methods	Reference
Volatile Organic Compounds (VOCs)	CLP VOC	SOW 2/88[1]
Semivolatile Organic Compounds (SOCs)	CLP SOC	SOW 2/88
Polychlorinated Biphenyls (PCBs) and Pesticides	CLP Pest/PCB	SOW 2/88
Metals	CLP Metals	SOW 7/87[2]
	WET Test[3]	CCR Title 22[4]
Cyanide	CLP Cyanide	SOW 7/87
Hexavalent Chromium	EPA 7196	SW-846[5]
Anions (Cl-, NO3, PO4, SO4)	EPA 300.0	EPA-600/4-84-017[6]
Total Petroleum Hydrocarbon (TPH) as Diesel	EXTN/GC-FID	LUFT[7]
TPH as Gasoline	EPA 5030/GC-FID	SW-846/LUFT
Oil and Grease	EPA 9070	SW-846
pH	EPA 9045	SW-846

1 EPA Contract Laboratory Program, Statement of Work (SOW) for Organics Analysis, February 1988.

2 EPA Contract Laboratory Program, Statement of Work (SOW) for Inorganics Analysis, July 1987.

3 Waste Extraction Test (WET) performed on sediment samples only.

4 California Code of Regulations, Title 22 Section 66700.

5 EPA Test Methods for Evaluating Solid Waste, SW-846, 3rd Edition, November 1986.

6 EPA Test Method; The Determination of Inorganic Anions by Ion Chromatography - Method 300.0. EPA 600/4-84-017, March, 1984.

7 State of California Leaking Underground Fuel Tank Task Force, Leaking Underground Fuel Tank Manual: Guidelines for Site Assessment, Cleanup and Underground Storage Tank Closure, May 1987.

Table 3.
List of Sample Numbers and Analyses Performed
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Sample Number	Matrix Type	QC Type	Laboratory Number(s)	WET CAM Metals	CLP-VOC	CLP-SOC	CLP-Pest/PCB	CLP-Inorganics	CLP-Cyanide	LUFT-G (TPH-G)	LUFT-D (TPH-D)	EPA9070/71 (Oil&Grease)	EPA9045 (pH)	EPA7196 (Cr +6)	EPA300.0 (Anions)
Storm Drain Sediment Samples															
89461SDS	Soil		5020-1	x	x	x	x	x	x	x	x	x	x	x	-
89462SDS	Soil		5020-2	x	x	x	x	x	x	x	x	x	x	x	-
89463SDS	Soil		5020-3	x	x	x	x	x	x	x	x	x	x	x	-
89464SDS	Soil		5020-4	x	x	x	x	x	x	x	x	x	x	x	-
Pre-event Storm Drain Water Samples and Quality Control Samples															
9046E132	Water	EQBLK	7148-1	-	x	x	x	x	x	x	x	x	x	x	x
9046E133	Water		7148-2	-	x	x	x	x	x	x	x	x	x	x	x
9046E134	Water		7148-3	-	x	x	x	x	x	x	x	x	x	x	x
9046E135	Water	FDUP (E134)	7148-4	-	x	x	x	x	x	x	x	x	x	x	x
9046E136	Water		7148-5	-	x	x	x	x	x	x	x	x	x	x	x
9046E137	Water		7148-6	-	x	x	x	x	x	x	x	x	x	x	x
Storm Event Water Samples and Quality Control Samples															
90501R00	Water		7323-1	-	x	x	x	x	x	x	x	x	-	x	x
90501S00	Water		7323-2	-	x	x	x	x	x	x	x	x	-	x	x
90501R01	Water		7323-3	-	x	x	x	x	x	x	x	x	-	x	x
90501S01	Water		7323-4	-	x	x	x	x	x	x	x	x	-	x	x
90501R02	Water		7323-5	-	x	x	x	x	x	x	x	x	-	x	x

Table 3.
List of Sample Numbers and Analyses Performed
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
(cont.'d)

Sample Number	Matrix Type	QC Type	Laboratory Number(s)	WET CAM Metals	CLP-VOC	CLP-SOC	CLP-Pest/PCB	CLP-Inorganics	CLP-Cyanide	LUFT-G (TPH-G)	LUFT-D (TPH-D)	EPA9070/71 (Oil&Grease)	EPA9045 (pH)	EPA7196 (Cr +6)	EPA300.0 (Anions)
Phase 4, Storm Event Water Samples and Quality Control Samples (cont.'d)															
90501S02	Water		7323-6	-	x	x	x	x	x	x	x	x	-	x	x
90501S03	Water	FDUP (1S02)	7323-7	-	x	x	x	x	x	x	x	x	-	x	x
90501R04	Water		7323-8	-	x	x	x	x	x	x	x	x	-	x	x
90501S07	Water		7323-9	-	x	x	x	x	x	x	x	x	-	x	x
90501S08	Water		7323-10	-	x	x	x	x	x	x	x	x	-	x	x
90501S09	Water	TRBLK	7323-11	-	x	-	-	-	-	-	-	-	-	-	-
90501R09	Water	EQBLK	7323-12	-	x	x	x	x	x	x	x	x	x	x	x
9050BP01	Water		7323-20 7329-8	-	x	-	-	-	-	-	-	-	-	-	x
90502S00	Water		7323-21	-	x	x	x	x	x	x	x	x	x	x	x
90502R00	Water		7323-22	-	x	x	x	x	x	x	x	x	x	x	x
90502S01	Water		7323-23	-	x	x	x	x	x	x	x	x	x	x	x
90502R01	Water		7323-24	-	x	x	x	x	x	x	x	x	x	x	x
90502S02	Water		7323-26	-	x	x	x	x	x	x	x	x	x	x	x
90502R02	Water		7323-27	-	x	x	x	x	x	x	x	x	x	x	x
90502S03	Water		7323-28	-	x	x	x	x	x	x	x	x	x	x	x
90502R03	Water		7323-29	-	x	x	x	x	x	x	x	x	x	x	x
90502S04	Water		7323-13 7329-1	-	x	x	x	x	x	x	x	x	x	x	x
90502R04	Water		7323-14 7329-2	-	x	x	x	x	x	x	x	x	x	x	x
90502S05	Water		7323-15 7329-3	-	x	x	x	x	x	x	x	x	x	x	x
90502R05	Water		7323-16 7329-4	-	x	x	x	x	x	x	x	x	x	x	x
90502S06	Water		7323-17 7329-5	-	x	x	x	x	x	x	x	x	x	x	x
90502R07	Water	FDUP (2S06)	7323-18 7329-6	-	x	x	x	x	x	x	x	x	x	x	x
90502R09	Water	EQBLK	7323-19 7329-7	-	x	x	x	x	x	x	x	x	x	x	x
90502TB01	Water	TRBLK	7323-25	-	x	-	-	-	-	-	-	-	-	-	-
90503R00	Water	FLDBLK	7323-30	-	x	x	x	x	x	x	x	x	x	x	x
90503S00	Water		7323-31	-	x	x	x	x	x	x	x	x	x	x	x

Table 3.
List of Sample Numbers and Analyses Performed
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
(cont.'d)

Sample Number	Matrix Type	QC Type	Laboratory Number(s)	WET CAM Metals	CLP-VOC	CLP-SOC	CLP-Pest/PCB	CLP-Inorganics	CLP-Cyanide	LUFT-G (TPH-G)	LUFT-D (TPH-D)	EPA9070/71 (Oil&Grease)	EPA9045 (pH)	EPA7196 (Cr +6)	EPA300.0 (Anions)
Phase 4, Storm Event Water Samples and Quality Control Samples (cont.'d)															
90503R01	Water	TRBLK	7323-32	-	x										
90503S01	Water		7323-33	-	x	x	x	x	x	x	x	x	x	x	x
90503S02	Water		7323-34	-	x	x	x	x	x	x	x	x	x	x	x
90503S03	Water		7323-35	-	x	x	x	x	x	x	x	x	x	x	x
90503S04	Water		7323-36	-	x	x	x	x	x	x	x	x	x	x	x
90503S05	Water		7323-37	-	x	x	x	x	x	x	x	x	x	x	x
90503S06	Water		7323-38	-	x	x	x	x	x	x	x	x	x	x	x
90504R00	Water		7323-39 7329-9	-	x	x	x	x	x	x	x	x	-	x	-
90504S00	Water		7323-40 7329-10	-	x	x	x	x	x	x	x	x	-	x	x
90504R01	Water		7323-41 7329-11	-	x	x	x	x	x	x	x	x	-	x	x
90504S01	Water		7323-42 7329-12	-	x	x	x	x	x	x	x	x	-	x	x
90504R02	Water		7323-43 7329-13	-	x	x	x	x	x	x	x	x	-	x	x
90504S02	Water		7323-44 7329-14	-	x	x	x	x	x	x	x	x	-	x	x
90504R03	Water		7323-45 7329-15	-	x	x	x	x	x	x	x	x	-	x	x
90504S04	Water		7323-46 7329-16	-	x	x	x	x	x	x	x	x	-	x	x
90504R05	Water		7323-47 7329-17	-	x	x	x	x	x	x	x	x	-	x	x
90504S06	Water		7323-48 7329-18	-	x	x	x	x	x	x	x	x	-	x	x
90504R07	Water	EQBLK	7323-49 7329-19	-	x	x	x	x	x	x	x	x	-	x	x
90504R09	Water	FDUP (4S06)	7323-50 7329-20	-	x	x	x	x	x	x	x	x	-	x	x
90504T02	Water	TRBLK	7329-21	-	x	-	-	-	-	-	-	-	-	-	-

x: Analysis Performed
- : Analysis Not Performed
TRBLK: Trip Blank
EQBLK: Equipment Blank
FLDBLK: Field Blank
FDUP (4S06): Field matrix duplicate The last four characters of the original environmental sample number appear in parentheses.

Table 4
Storm Drain Station Field Parameter Data
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Measurements made on 12/27/89 following a high tide of 6.2 feet.

Station Number	Date	Electrical Conductivity (µmhos/cm)
SW1	12/27/89	25000
SW2	12/27/89	30000
SW3	12/27/89	30000
SW4	12/27/90	25000

Measurements made on 1/8/90 following a high tide of 7.9 feet at 08:43.

Station Number	Date	Time	Depth to Water (ft)[1]	Electrical Conductivity (µmhos/cm)
SW1	1/8/90	11:55	8.48	30800
SW1	1/8/90	12:43	8.48	29800
SW1	1/8/90	14:02	8.48	29000
SW2	1/8/90	11:36	6.88	33700
SW2	1/8/90	12:25	7.53	31600
SW2	1/8/90	13:45	7.58	32200
SW3	1/8/90	11:28	4.28	32000
SW3	1/8/90	12:19	5.72	32000
SW3	1/8/90	13:40	8.06	31500
SW4	1/8/90	11:45	6.83	9500
SW4	1/8/90	12:38	6.86	13500
SW4	1/8/90	13:53	6.80	9000

Measurements made on 10/31/90 after a light precipitation event of 0.09 inches.

Station Number	Date	Time	Depth to Water (ft)[1]	Electrical Conductivity (µmhos/cm)	Temperature (°C)	Specific Conductance (µmhos/cm2)
SW1a[2]	10/31/90	7:18	2.74	230	20	255
SW2	10/31/90	7:45	4.29	210	20	233
SW3	10/31/90	7:50	7.00	9500	20	10600
SW4	10/31/90	7:29	5.88	340	20	378

[1] : Depth to water is measured from rim of storm drain to surface of storm drain water
[2] : Sampling station SW1a is located ten feet up (westward) the drainage line from SW1 and was mistakenly measured instead of SW1 on 10/31/90.

Table 5
List of Organic Compounds Detected in Sediment Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:	SW1		SW2		SW3		SW4	
Sample Number:	89461SDS		89462SDS		89463SDS		89464SDS	
Matrix:	Sediment		Sediment		Sediment		Sediment	
Sample Date:	11/17/89		11/17/89		11/17/89		11/17/89	
Lab Sample Number:	5020-1		5020-2		5020-3		5020-4	
Test Method/Analyte Name	**Units**	**value**	**qual**	**value**	**qual**	**value**	**qual**	**value**	**qual**
CLP-VOC									
Vinyl chloride	ug/kg	ND(24)	U	ND(16)	U	ND(26)	U	14000	A
Methylene chloride	ug/kg	13	U1/B	9	U1/B	13	U1/BJ	8	U1/BJ
Acetone	ug/kg	37	U1/B	ND(16)	U	26	U1/BJ	16	U1/BJ
Carbon disulfide	ug/kg	4	J	ND(8)	U	ND(13)	U	4	J
1,1-Dichloroethene	ug/kg	ND(12)	U	ND(8)	U	ND(13)	U	62	A
1,1-Dichloroethane	ug/kg	ND(12)	U	ND(8)	U	ND(13)	U	5	J
1,2-Dichloroethene (total)	ug/kg	ND(12)	U	ND(8)	U	ND(13)	U	15000	A/E
Trichloroethene	ug/kg	ND(12)	U	ND(8)	U	ND(13)	U	9	A
Benzene	ug/kg	ND(12)	U	ND(8)	U	ND(13)	U	14	A
Toluene	ug/kg	ND(12)	U	ND(8)	U	ND(13)	U	600	A/E
Chlorobenzene	ug/kg	ND(12)	U	ND(8)	U	ND(13)	U	200	A
Ethyl benzene	ug/kg	ND(12)	U	ND(8)	U	ND(13)	U	330	A
Xylenes	ug/kg	ND(12)	U	ND(8)	U	ND(13)	U	1900	A/E
CLP-SOC									
Phenol	ug/kg	550	J	ND(2900)	J	ND(4700)	U	ND(3100)	U
1,4-Dichlorobenzene	ug/kg	ND(4400)	U	ND(2900)	U	ND(4700)	U	14000	A
1,2-Dichlorobenzene	ug/kg	ND(4400)	U	ND(2900)	U	ND(4700)	U	42000	A
4-Methylphenol	ug/kg	6900	A	ND(2900)	U	ND(4700)	U	ND(3100)	U
Benzoic acid	ug/kg	3600	J	ND(14000)	U	ND(23000)	U	ND(15000)	U
2-Methylnaphthalene	ug/kg	ND(4400)	U	ND(2900)	U	ND(4700)	U	390	J
Dimethyl phthalate	ug/kg	8800	A	ND(2900)	U	ND(4700)	U	ND(3100)	U
Fluorene	ug/kg	ND(4400)	U	ND(2900)	U	ND(4700)	U	770	J
Pentachlorophenol	ug/kg	3200	J	ND(14000)	U	ND(14000)	U	ND(14000)	U
Phenanthrene	ug/kg	1900	J	680	J	ND(4700)	U	2200	J
Anthracene	ug/kg	ND(4400)	U	ND(2900)	U	ND(4700)	U	1700	J
Fluoranthene	ug/kg	2600	J	1000	J	ND(4700)	U	4500	A
Pyrene	ug/kg	2400	J	580	J	610	J	4100	U
Butylbenzylphthalate	ug/kg	840	J	ND(2900)	U	880	J	1500	J
Benzo(a)anthracene	ug/kg	900	J	ND(2900)	U	ND(4700)	U	ND(3100)	U
Chrysene	ug/kg	1600	J	540	J	ND(4700)	U	4600	J
Bis(2-ethylhexyl)phthalate	ug/kg	7700	U1/B	2900	U1/BJ	4700	U1/BJ	3100	U1/BJ
Di-n-octylphthalate	ug/kg	ND(4400)	U	ND(2900)	U	ND(4700)	U	1800	J
Benzo(b)fluoranthene	ug/kg	1600	J/X	600	J/X	ND(4700)	U	3100	J/X
Benzo(k)fluoranthene	ug/kg	1600	J/X	600	J/X	ND(4700)	U	3100	J/X

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Table 5
List of Organic Compounds Detected in Sediment Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1		SW2		SW3		SW4	
Sample Number:		89461SDS		89462SDS		89463SDS		89464SDS	
Matrix:		Sediment		Sediment		Sediment		Sediment	
Sample Date:		11/17/89		11/17/89		11/17/89		11/17/89	
Lab Sample Number:		5020-1		5020-2		5020-3		5020-4	
Test Method/Analyte Name	**Units**	**value**	**qual**	**value**	**qual**	**value**	**qual**	**value**	**qual**
CLP-SOC (cont.)									
Benzo(a)pyrene	ug/kg	780	J	ND(2900)	U	ND(4700)	U	1500	J
CLP-PEST/PCB									
Aroclor-1260	ug/kg	6000	A/C	24000	A/C	4100	A/X	2800	A/X
TPH DIESEL									
TPH-Diesel	mg/kg	9900	A	850	A	840	A	4600	A
TPH GAS									
TPH-Gasoline	mg/kg	ND(20)	U	ND(20)	U	ND(20)	U	240	A
OIL & GREASE									
Oil & Grease	mg/kg	32500	A	4200	A	6400	A	39600	A

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Table 5
List of Organic Compounds Detected in Sediment Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Description of Qualifiers Used in Database

A: Analytical result for this analyte is qualified as acceptable and considered accurate.

U: Compound was analyzed but not detected.

U1: Compound is qualified as non-detected due to its occurrence in the laboratory blanks.

J: Result is detected below the reporting limit or is an estimated concentration.

B: Compound is also detected in the laboratory method blank.

X: Reporting limit raised due to high level of analyte present in sample.

C: Identification of this analyte was confirmed by GC/MS analysis.

E: This compound concentration exceeds the calibration range of the GC/MS instrument.

Table 6
List of Inorganic Compounds Detected in Sediment Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1		SW2		SW3		SW4	
Sample Number:		89461SDS		89462SDS		89463SDS		89464SDS	
Matrix:		Sediment		Sediment		Sediment		Sediment	
Sample Date:		11/17/89		11/17/89		11/17/89		11/17/89	
Lab Sample Number:		5020-1		5020-2		5020-3		5020-4	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-CVAA									
Mercury	mg/kg	0.3	A	0.76	A	0.66	A	0.98	A
CLP-FUAA									
Arsenic	mg/kg	9.3	J/S*	6.3	J/S	8.1	J/S	6.9	J/S
Lead	mg/kg	449	A	334	A	378	A	473	A
Selenium	mg/kg	ND(3.7)	R2/EN	ND(2.4)	R2/WN	5	R2/EN	ND(1.8)	R2/EN
CLP-ICP									
Aluminum	mg/kg	9000	A	11000	A	20800	A	7300	A
Antimony	mg/kg	2.4	R2/WN	3.4	R2/N	1.5	R2/N	6.6	R2/SN
Barium	mg/kg	98.7	A	78.7	A	366	A	393	A
Beryllium	mg/kg	0.41	A	0.9	A	1.3	A	0.49	A
Cadmium	mg/kg	2	J2/*	0.47	J2/*	1.3	J2/*	7.8	J2/*
Calcium	mg/kg	7200	A	5490	A	12200	A	11800	A
Chromium	mg/kg	99.8	A/*	692	A/*	200	A/*	135	A/*
Cobalt	mg/kg	10.4	A	16.8	A	30.3	A	10.9	A
Copper	mg/kg	573	A/*	204	A/*	268	A/*	1170	A/*
Iron	mg/kg	21600	A	23600	A	37300	A	24000	A
Magnesium	mg/kg	10800	A	21800	A	37000	A	8190	A
Manganese	mg/kg	220	A/*	521	A/*	924	A/*	306	A/*
Nickel	mg/kg	94.3	J4/*	152	J4/*	331	J4/*	89.4	J4/*
Potassium	mg/kg	1320	J4	1250	J4	3190	J4	969	J4
Silver	mg/kg	1.9	A	2	A	1.6	A	1.8	A
Sodium	mg/kg	9880	A	6110	A	14800	A	6050	A
Vanadium	mg/kg	33.7	A	43.4	A	71.2	A	34.3	A
Zinc	mg/kg	1490	J24/*	489	J24/*	545	J24/*	1470	J24/*
Molybdenum	mg/kg	16.5	A	11.1	A	3.8	U1/B	13.9	A
EPA-9045									
pH	ph	8.5	A	7.3	A	8	A	7.8	A

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific detection limit. Limit of detection is included in parenthesis.
qual: Validation Qualifier

Description of Qualifiers Used in Database

A: Analytical result for this analyte is qualified as acceptable and considered accurate.

U: Compound was analyzed but not detected.

U1: Compound is qualified as non-detected due to its occurrence in the laboratory blanks.

J2: Analytical results for this compound are qualified as estimated due to laboratory matrix duplicate quality control criteria exceedances.

J4: Analytical results for this compound are qualified as estimated due to ICP-serial dilution relative percent difference quality control criteria execeedances.

R2: Analytical results for this compound are qualified as rejected due to poor spike recoveries.

N: Spiked sample recovery not within control limits.

E: The serial dilution analysis did not meet the contractual requirement of +/- 10% (SOW 7/87 E-12)

W: Post-digestion spike for furnace AA analysis is outside of control limits.

B: Reported value is less than the CRDL and greater than or equal to the instrument detection limit.

S: The reported value was determined by the Method of Standard Additions (MSA).

*: Duplicate analysis not within control limits.

+: Correlation coefficient for the MSA is less than 0.995.

Table 7
Sediment Samples, Waste Extraction Test Results
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Soluble Thrshold Limit Concentration Criteria (1)	Station Number:	SW1	SW2	SW3	SW4
	Sample Number:	89461SDS	89462SDS	89463SDS	89464SDS
	Matrix:	Sediment	Sediment	Sediment	Sediment
	Sample Date:	11/17/89	11/17/89	11/17/89	11/17/89
	Lab Sample Number:	5020-1	5020-2	5020-3	5020-4
(mg/l)	Analyte (mg/l)				
5	Arsenic	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
15	Antimony	ND(0.2)	0.3	ND(0.2)	ND(0.2)
100	Barium	1.7	2.1	5.7	4
0.75	Beryllium	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
1	Cadmium	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
560	Chromium	1.3	11	0.77	2.7
5	Chromium VI	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
80	Cobalt	ND(0.25)	0.36	ND(0.25)	ND(0.25)
25	Copper	ND(0.25)	1.5	ND(0.25)	ND(0.25)
5	Lead	ND(0.1)	2	0.53	0.15
0.2	Mercury	ND(0.0008)	ND(0.0008)	ND(0.0008)	ND(0.0008)
350	Molybdenum	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
20	Nickel	1	2.7	1.7	1.5
1	Selenium	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
5	Silver	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
7	Thallium	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
24	Vanadium	0.048	0.8	0.92	0.82
250	Zinc	2.1	22	5.6	21

ND ( ) : Analyte was not detected and reporting limit appears in parentheses.
(1) : 1990, California Code of Regulations, Title 22 Section 66699.

Table 8
Pre-Event Storm Drain Sampling Station Field Parameter Data
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Measurements made on 11/16/90 during collection of pre-event storm drain water samples.

Station Number	Date	Time	Depth to Water (ft)[1]	Electrical Conductivity (µmhos/cm)	Temperature (°C)	Specific Conductance (µmhos/cm2)	Sample Number
SW1	11/16/90	15:58	7.38	39000	16	47500	9045E133
SW2	11/16/90	13.33	7.27	34000	15	42400	9045E137
SW3	11/16/90	12:57	6.69	31000	19.5	34800	9045E136
SW4	11/16/90	12:20	7.86	39000	15.5	48000	9045E134

[1] : Depth to water is measured from rim of storm drain to surface of storm drain water.

Table 9
List of Organic Compounds Detected in Pre-Event Storm Drain Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1SD		SW2SD		SW3SD		SW4SD	
Sample Number:		9046E133		9046E137		9046E136		9046E134	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		11/16/90		11/16/90		11/16/90		11/16/90	
Lab Sample Number:		7148-2		7148-6		7148-5		7148-3	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Vinyl chloride	ug/l	ND(10)	U	ND(10)	U	ND(10)	U	2	J
Methylene chloride	ug/l	5	U1/BJ	6	U1/B	5	U1/BJ	5	U1/BJ
1,2-Dichloroethene (total)	ug/l	ND(5)	U	14	A	ND(5)	U	16	A
Trichloroethene	ug/l	ND(5)	U	17	A	ND(5)	U	30	A
CLP-SOC									
4-Methylphenol	ug/l	5	J	ND(10)	U	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
CLP-PEST/PCB									
Aroclor-1260	ug/l	3.8	A	ND(1)	U	ND(1)	U	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	0.9	A	ND(0.05)	U	0.067	A	0.36	A

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Description of Qualifiers Used in Database

A: Analytical result for this analyte is qualified as acceptable and considered accurate.

U: Compound was analyzed but not detected.

U1: Compound is qualified as non-detected due to its occurrence in the laboratory blanks.

J: Result is detected below the reporting limit or is an estimated concentration.

B: Compound is also detected in the laboratory method blank.

Table 10
List of Inorganic Compounds Detected in Pre-Event Storm Drain Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
Date Range: 11/14/90 - 11/17/90
Report date: Jun 4, 1991

Station Number:	SW1SD		SW2SD		SW3SD		SW4SD	
Sample Number:	9046E133		9046E137		9046E136		9046E134	
Matrix:	H2O		H2O		H2O		H2O	
Sample Date:	11/16/90		11/16/90		11/16/90		11/16/90	
Lab Sample Number:	7148S-2		7148S-6		7148S-5		7148S-3	
Test Method/Analyte Name	**Units**	**value**	**qual**	**value**	**qual**	**value**	**qual**	**value**	**qual**
CLP-CVAA									
Mercury	ug/l	ND(0.2)	U/N	0.24	J3/N	ND(0.2)	U/N	ND(0.2)	U/N
CLP-FUAA									
Antimony	ug/l	ND(2)	U/W	ND(2)	U	ND(2)	U/W	3.5	J/B
Arsenic	ug/l	2.8	U1/BW	3.7	U1/BW	ND(1)	U/WN	2.3	U1/BW
Lead	ug/l	12.4	J/B	23.6	A	1.7	J/BW	17.6	A/SN
CLP-ICP									
Aluminum	ug/l	1650	J2/B	2770	J2/B	1370	J2/B	480	J2/B
Barium	ug/l	ND(50)	U/J24	ND(25)	U/J24	64	J24/B	30.8	J24/B
Calcium	ug/l	346000	J24	344000	J24	360000	J24	121000	J24/B
Chromium	ug/l	2360	A	2380	A	1580	A	772	A
Copper	ug/l	ND(150)	U/J2	115	J2/B	ND(75)	U/J2	168	J2/B
Iron	ug/l	616	J24/B	1220	J24/B	463	J24/B	647	J24/B
Magnesium	ug/l	1120000	J4	1110000	J4	808000	J4	355000	J4
Manganese	ug/l	ND(50)	U/J2	37.5	J2/B	3060	J2	85.8	J2/B
Potassium	ug/l	285000	A	317000	A	190000	A	102000	J/B
Sodium	ug/l	9120000	J2	9040000	J2	6060000	J2	3040000	J2
Zinc	ug/l	ND(150)	U/J24	ND(75)	U/J24	ND(75)	U/J24	644	J24
EPA-7196									
Chromium VI	ug/l	43	A	ND(20)	U	27	A	ND(20)	U
EPA-300.0									
Sulfate	mg/l	2420	A	2300	A	1320	A	704	A
Chloride	mg/l	31200	A	17400	A	12300	A	3260	A
EPA-9045									
pH	ph	7.5	A	7.8	A	7.7	A	7.3	A
CLP-FUAA TOTALS									
Antimony	ug/l	ND(2)	U/W	ND(10)	U	ND(10)	U	3.6	J/B
Arsenic	ug/l	2.7	U1/BW	2.4	U1/BW	1.2	U1/BW	1.6	U1/BW
Lead	ug/l	1.3	J/BW	ND(5)	U/W	ND(5)	U	9.9	A/W
Thallium	ug/l	ND(10)	U/WN	ND(10)	U/WN	5.3	J/BWN	ND(2)	U/N
CLP-ICP TOTALS									
Aluminum	ug/l	2870	J2/B	2280	J2/B	1520	J2/B	1390	J2/B
Barium	ug/l	ND(20)	U/J24	ND(50)	U/J24	73.8	J24/B	42.5	J24/B
Beryllium	ug/l	21	J/B	ND(50)	U	ND(25)	U	ND(25)	U
Calcium	ug/l	377000	J24	370000	J24	361000	J24	127000	J24

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific detection limit. Limit of detection is included in parenthesis.
qual: Validation Qualifier

Table 10
List of Inorganic Compounds Detected in Pre-Event Storm Drain Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1SD		SW2SD		SW3SD		SW4SD	
Sample Number:		9046E133		9046E137		9046E136		9046E134	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		11/16/90		11/16/90		11/16/90		11/16/90	
Lab Sample Number:		7148S-2		7148S-6		7148S-5		7148S-3	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-ICP TOTALS (cont.)									
Chromium	ug/l	2600	A	2640	A	1600	A	915	A
Copper	ug/l	ND(60)	U/J2	212	J2/B	ND(75)	U/J2	122	J2/B
Iron	ug/l	735	J4/B	376	J4/B	438	J4/B	715	J4/B
Magnesium	ug/l	1210000	J4	1210000	J4	795000	J4	375000	J4
Manganese	ug/l	ND(20)	U/J2	ND(50)	U/J2	3040	J2	139	J2/B
Potassium	ug/l	356000	A	335000	A	197000	A	122000	J/B
Sodium	ug/l	10000000	J24	9960000	J24	6140000	J24	3350000	J24
Zinc	ug/l	ND(60)	U/J24	ND(150)	U/J24	ND(75)	U/J24	604	J24

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific detection limit. Limit of detection is included in parenthesis.
qual: Validation Qualifier

Description of Qualifiers Used in Database

A: Analytical result for this analyte is qualified as acceptable and considered accurate.

U: Compound was analyzed but not detected.

U1: Compound is qualified as non-detected due to its occurrence in the laboratory blanks.

J2: Analytical results for this compound are qualified as estimated due to laboratory matrix duplicate quality control criteria exceedances.

J3: Analytical results for this compound are qualified as estimated due to poor spike recoveries.

J4: Analytical results for this compound are qualified as estimated due to ICP-serial dilution relative percent difference quality control criteria execeedances.

N: Spiked sample recovery not within control limits.

W: Post-digestion spike for furnace AA analysis is outside of control limits.

B: Reported value is less than the CRDL and greater than or equal to the instrument detection limit.

S: The reported value was determined by the Method of Standard Additions (MSA).

Table 11
Storm Event Field Parameter Data, December 15, 1990
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Sampling Station	Time	Depth To Water (ft)	Electrical Conductivity (umhos/cm)	Specific Conductance (umhos/cm)	pH (Units)	Temperature (°C)	Field Alkalinity (mg/l CaCO3)	Sample Number
Storm Drain Water Parameters								
SW1	1:30	7.1	40	57	5.1	9.5	25	90501S00
SW1	2:00	NM	35	50	5.9	9.25	NM	90501S01
SW1	3:00	NM	40	58	6.4	9	NM	90501S02
SW1	4:00	7.2	190	268	7.1	10	NM	*
SW1	5:00	7.9	140	198	6.6	10	NM	*
SW1	6:00	NM	160	220	6.6	11	NM	*
SW1	7:00	NM	70	99	7.8	10	NM	90501S07
SW1	8:00	NM	95	136	7.7	9.5	NM	90501S08
SW2	2:00	6.4	280	406	6.8	9	25	90502S00
SW2	3:00	7.19	130	188	6.7	9	12	90502S01
SW2	4:00	7.23	260	367	7.2	10	NM	90502S02
SW2	5:00	7.18	170	240	7.2	10	NM	90502S03
SW2	6:00	7.24	230	325	7.2	10	NM	90502S04
SW2	7:00	6.36	330	466	7.3	10	NM	90502S05
SW2	8:00	5.97	1300	1834	6.2	10	NM	90502S06
SW3	2:00	6.5	4900	6950	7.1	9.8	65	90503S00
SW3	3:00	4.8	4200	5957	6.6	9.8	60	90503S01
SW3	4:00	5.4	2550	3608	6.9	9.9	NM	90503S02
SW3	5:00	5.4	2100	2933	6.8	10.4	NM	90503S03
SW3	6:00	NM	1650	2347	6.8	9.7	NM	90503S04
SW3	7:00	4.7	1510	2125	6.9	10.1	NM	90503S05
SW3	8:00	4	1500	2173	6.9	9	NM	90503S06
SW4	2:00	5.38	350	507	6.29	9	4.8	90504S00
SW4	3:00	5.92	120	172	5.58	9.5	10	90504S01
SW4	4:00	6.5	75	109	6.98	9	NM	90504S02
SW4	5:00	6.04	20	30	7.44	8	NM	*
SW4	6:00	6.67	30	45	7.15	8	NM	90504S04
SW4	7:00	6.67	80	119	6.85	8	NM	*
SW4	8:00	5.96	35	51	6.16	8.5	NM	90504S06

* : Sample Not Submitted For Analysis.
NM: Not Measured
NA: Not applicable

Table 11
Storm Event Field Parameter Data, December 15, 1990
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
(cont.'d)

Sampling Station	Time	Depth To Water (ft)	Electrical Conductivity (umhos/cm2)	Specific Conductance (umhos/cm2)	pH (Units)	Temperature (°C)	Field Alkalinity (mg/l CaCO3)	Sample Number
Surface Runoff Water Parameters								
SW1	2:30	NA	20	30	7.2	7.5	18	90501R00
SW1	3:30	NA	30	45	5.9	8	20	90501R01
SW1	4:30	NA	30	45	6.4	8	NM	90501R02
SW1	5:30	NA	40	60	6.9	8	NM	90501R04
SW2	2:30	NA	40	60	7.1	9	4.8	90502R00
SW2	3:30	NA	30	43	7.8	9	12	90502R01
SW2	4:30	NA	30	42	7.7	10	NM	90502R02
SW2	5:30	NA	30	42	7.7	10	NM	90502R03
SW2	6:30	NA	30	42	7.6	10	NM	90502R04
SW2	7:30	NA	30	42	7.7	10	NM	90502R05
SW4	2:30	NA	115	166	7.3	9	16	90504R00
SW4	3:30	NA	110	157	6.28	9.5	18	90504R01
SW4	4:30	NA	20	29	7.31	8.5	NM	90504R02
SW4	5:30	NA	18	27	7.52	7.5	NM	90504R03
SW4	6:30	NA	70	104	6.15	8	NM	90504R05
SW4	7:30	NA	35	52	7.73	8	NM	90504R07
Bulk Precipitation Parameters								
BP	5:00	NA	32	43	6.72	12	12	9050BP01

* : Sample Not Submitted For Analysis.
NM: Not Measured
NA: Not applicable

Table 12
List of Organic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
Date Range: 12/14/90 - 12/16/90

Station Number:		BP1		SW1RO		SW1RO		SW1RO
Sample Number:		9050BP01		90501R00		90501R01		90501R02
Matrix:		H2O		H2O		H2O		H2O
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90
Lab Sample Number:		7329-8		7323-1		7323-3		7323-5
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Methylene chloride	ug/l	ND(5)	U	5	U1/BJ	5	U1/BJ	5	U1/BJ
Acetone	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
1,2-Dichloroethene (total)	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Trichloroethene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Benzene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
CLP-SOC									
Phenol	ug/l	NA		ND(10)	U	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	NA		10	U1/BJ	10	U1/BJ	10	U1/BJ
CLP-PEST/PCB									
Aroclor-1260	ug/l	NA		3.2	A	ND(1)	U	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	NA		0.16	U2	0.42	U2	0.29	U2
TPH GAS									
TPH-Gasoline	mg/l	NA		ND(0.05)	U	ND(0.05)	U	ND(0.05)	U
OIL & GREASE									
Oil & Grease	mg/l	NA		ND(5)	U	ND(5)	U	ND(5)	U

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Table 12
List of Organic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1RO		SW1SD		SW1SD		SW1SD	
Sample Number:		90501R04		90501S00		90501S01		90501S02	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		7323-8		7323-2		7323-4		7323-6	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Methylene chloride	ug/l	5	U1/BJ	5	U1/BJ	ND(5)	U	ND(5)	U
Acetone	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	ND(10)	U
1,2-Dichloroethene (total)	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Trichloroethene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Benzene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
CLP-SOC									
Phenol	ug/l	ND(10)	U	ND(10)	U	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	10	U1/BJ	ND(10)	U	10	U1/BJ	10	U1/BJ
CLP-PEST/PCB									
Aroclor-1260	ug/l	ND(1)	U	2.8	A	5	A	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	0.49	U2	0.25	U2	0.67	J6	3.4	J6
TPH GAS									
TPH-Gasoline	mg/l	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U	5	A
OIL & GREASE									
Oil & Grease	mg/l	ND(5)	U	ND(5)	U	8	A	65	A

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Table 12
List of Organic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1SD		SW1SD		SW2RO		SW2RO	
Sample Number:		90501S07		90501S08		90502R00		90502R01	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		7323-9		7323-10		7323-22		7323-24	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Methylene chloride	ug/l	5	U1/BJ	5	U1/BJ	5	U1/BJ	5	U1/BJ
Acetone	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
1,2-Dichloroethene (total)	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Trichloroethene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Benzene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
CLP-SOC									
Phenol	ug/l	ND(10)	U	ND(10)	U	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	11	U1/B	10	U1/BJ	10	U1/BJ	10	U1/BJ
CLP-PEST/PCB									
Aroclor-1260	ug/l	3.5	A	2.4	A	ND(1)	U	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	0.65	J6	0.3	U2	0.17	U2	0.17	U2
TPH GAS									
TPH-Gasoline	mg/l	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U
OIL & GREASE									
Oil & Grease	mg/l	6.7	A	ND(5)	U	ND(5)	U	ND(5)	U

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Table 12
List of Organic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW2RO		SW2RO		SW2RO		SW2RO
Sample Number:		90502R02		90502R03		90502R04		90502R05
Matrix:		H2O		H2O		H2O		H2O
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90
Lab Sample Number:		7323-27		7323-29		7329-2		7329-4
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Methylene chloride	ug/l	5	U1/BJ	5	U1/BJ	ND(5)	U	ND(5)	U
Acetone	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
1,2-Dichloroethene (total)	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Trichloroethene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Benzene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
CLP-SOC									
Phenol	ug/l	2	J	3	J	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	10	U1/BJ	10	U1/BJ	10	U1/B	12	U1/B
CLP-PEST/PCB									
Aroclor-1260	ug/l	ND(1)	U	ND(1)	U	ND(1)	U	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	0.16	U2	0.17	U2	0.2	U2	0.33	U2
TPH GAS									
TPH-Gasoline	mg/l	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U
OIL & GREASE									
Oil & Grease	mg/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Table 12
List of Organic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW2SD		SW2SD		SW2SD		SW2SD	
Sample Number:		90502S00		90502S01		90502S02		90502S03	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		7323-21		7323-23		7323-26		7323-28	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Methylene chloride	ug/l	5	U1/BJ	5	U1/BJ	5	U1/BJ	5	U1/BJ
Acetone	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	11	U1/B
1,2-Dichloroethene (total)	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Trichloroethene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Benzene	ug/l	1	J	ND(5)	U	ND(5)	U	ND(5)	U
CLP-SOC									
Phenol	ug/l	ND(10)	U	ND(10)	U	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
CLP-PEST/PCB									
Aroclor-1260	ug/l	ND(1)	U	ND(1)	U	2.2	A	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	0.91	J6	0.27	U2	0.31	U2	0.38	U2
TPH GAS									
TPH-Gasoline	mg/l	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U
OIL & GREASE									
Oil & Grease	mg/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

5

Table 12
List of Organic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW2SD		SW2SD		SW2SD		SW3SD	
Sample Number:		90502S04		90502S05		90502S06		90503S00	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		7329-1		7329-3		7329-5		7323-31	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Methylene chloride	ug/l	ND(5)	U	ND(5)	U	5	U1/BJ	5	U1/BJ
Acetone	ug/l	ND(10)	U	10	U1/BJ	ND(10)	U	10	U1/BJ
1,2-Dichloroethene (total)	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Trichloroethene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Benzene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
CLP-SOC									
Phenol	ug/l	ND(10)	U	ND(10)	U	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	ND(10)	U	10	U1/BJ	10	U1/BJ	ND(10)	U
CLP-PEST/PCB									
Aroclor-1260	ug/l	ND(1)	U	ND(1)	U	ND(1)	U	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	0.49	U2	0.4	U2	0.32	U2	0.64	J6
TPH GAS									
TPH-Gasoline	mg/l	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U
OIL & GREASE									
Oil & Grease	mg/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Table 12
List of Organic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW3SD		SW3SD		SW3SD		SW3SD
Sample Number:		90503S01		90503S02		90503S03		90503S04
Matrix:		H2O		H2O		H2O		H2O
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90
Lab Sample Number:		7323-33		7323-34		7323-35		7323-36
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Methylene chloride	ug/l	5	U1/BJ	5	U1/BJ	ND(5)	U	ND(5)	U
Acetone	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
1,2-Dichloroethene (total)	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Trichloroethene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Benzene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
CLP-SOC									
Phenol	ug/l	ND(10)	U	ND(10)	U	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
CLP-PEST/PCB									
Aroclor-1260	ug/l	ND(1)	U	ND(1)	U	ND(1)	U	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	1.1	J6	0.7	J6	0.54	U2	0.4	U2
TPH GAS									
TPH-Gasoline	mg/l	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U	0.25	A
OIL & GREASE									
Oil & Grease	mg/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Table 12
List of Organic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW3SD		SW3SD		SW4RO		SW4RO	
Sample Number:		90503S05		90503S06		90504R00		90504R01	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		7323-37		7323-38		7329-9		7329-11	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Methylene chloride	ug/l	5	U1/BJ	5	U1/BJ	ND(5)	U	ND(5)	U
Acetone	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
1,2-Dichloroethene (total)	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Trichloroethene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Benzene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
CLP-SOC									
Phenol	ug/l	ND(10)	U	ND(10)	U	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
CLP-PEST/PCB									
Aroclor-1260	ug/l	ND(1)	U	ND(1)	U	ND(1)	U	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	0.54	U2	0.28	U2	0.44	U2	0.18	U2
TPH GAS									
TPH-Gasoline	mg/l	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U
OIL & GREASE									
Oil & Grease	mg/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Table 12
List of Organic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW4RO		SW4RO		SW4RO		SW4SD	
Sample Number:		90504R02		90504R03		90504R05		90504S00	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		7329-13		7329-15		7329-17		7329-10	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Methylene chloride	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	5	U1/BJ
Acetone	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
1,2-Dichloroethene (total)	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
Trichloroethene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	3	J
Benzene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
CLP-SOC									
Phenol	ug/l	ND(10)	U	ND(10)	U	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
CLP-PEST/PCB									
Aroclor-1260	ug/l	ND(1)	U	ND(1)	U	ND(1)	U	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	0.3	U2	0.41	U2	0.51	U2	0.32	U2
TPH GAS									
TPH-Gasoline	mg/l	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U
OIL & GREASE									
Oil & Grease	mg/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Table 12
List of Organic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW4SD		SW4SD		SW4SD		SW4SD	
Sample Number:		90504S01		90504S02		90504S04		90504S06	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		7329-12		7329-14		7329-16		7329-18	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-VOC									
Methylene chloride	ug/l	5	U1/BJ	ND(5)	U	5	U1/BJ	ND(5)	U
Acetone	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
1,2-Dichloroethene (total)	ug/l	ND(5)	U	ND(5)	U	2	J	2	J
Trichloroethene	ug/l	1	J	1	J	ND(5)	U	5	A
Benzene	ug/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U
CLP-SOC									
Phenol	ug/l	ND(10)	U	ND(10)	U	ND(10)	U	ND(10)	U
Bis(2-ethylhexyl)phthalate	ug/l	10	U1/BJ	10	U1/BJ	10	U1/BJ	10	U1/BJ
CLP-PEST/PCB									
Aroclor-1260	ug/l	ND(1)	U	ND(1)	U	ND(1)	U	ND(1)	U
TPH DIESEL									
TPH-Diesel	mg/l	1	J6	0.41	U2	0.59	J6	0.4	U2
TPH GAS									
TPH-Gasoline	mg/l	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U	ND(0.05)	U
OIL & GREASE									
Oil & Grease	mg/l	ND(5)	U	ND(5)	U	ND(5)	U	ND(5)	U

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific reporting limit. Reporting limit is included in parenthesis.
qual: Validation Qualifier

Description of Qualifiers Used in Database

A: Analytical result for this analyte is qualified as acceptable and considered accurate.

U: Compound was analyzed but not detected.

U1: Compound is qualified as non-detected due to its occurrence in the laboratory blanks.

U2: Compound is qualified as non-detected due to its occurrence in the field blanks.

J: Result is detected below the reporting limit or is an estimated concentration.

J3: Analytical results for this compound are qualified as estimated due to poor spike recoveries.

J5: Analytical results for this compound are qualified as estimated due to holding time exceedances.

J6: Analytical results for this compound are qualified as estimated due to compound occurence in field blanks. Reported result is greater than five times that observed in the field blanks.

R2: Analytical results for this compound are qualified as rejected due to poor spike recoveries.

B: Compound is also detected in the laboratory method blank.

Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		BP1		SW1RO		SW1RO		SW1RO	
Sample Number:		9050BP01		90501R00		90501R01		90501R02	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		7323-20		01004-01S		01004-03S		01004-05S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-CVAA									
Mercury	ug/l	NA		ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA									
Arsenic	ug/l	NA		ND(2)	U	ND(2)	U	ND(2)	U
Lead	ug/l	NA		123	J2/*	67	J2/*	31.5	J2/*S
CLP-ICP									
Aluminum	ug/l	NA		220	U2/J4	289	U2/J4	99.6	U2/J4B
Antimony	ug/l	NA		ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	NA		16.1	U2/B	176	J/B	58.8	J/B
Calcium	ug/l	NA		1720	U2/B	3140	U2/B	2530	U2/B
Chromium	ug/l	NA		ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	NA		80.1	A	75.8	A	52.6	A
Iron	ug/l	NA		400	A	465	A	167	A
Magnesium	ug/l	NA		614	J4/B	754	J4/B	717	J4/B
Manganese	ug/l	NA		54.4	A	55.7	A	49.8	A
Nickel	ug/l	NA		4.6	U1/B	5	U1/B	ND(4)	U
Potassium	ug/l	NA		369	U2/B	433	U2/B	399	U2/B
Silver	ug/l	NA		ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	NA		2940	U2/B	3400	U2/B	3830	U2/B
Vanadium	ug/l	NA		2.9	J/B	2.5	J/B	ND(2)	U
Zinc	ug/l	NA		204	A	639	A	428	A
EPA-300.0									
Sulfate	mg/l	4.2	U2	6	U2	5.4	U2	6.7	U2
Nitrate as N	mg/l	0.35	A	0.6	A	0.59	A	0.65	A
Chloride	mg/l	6.7	U2	3.6	U2	7.4	U2	77	A
Orthophosphate as P	mg/l	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U
EPA-9045									
pH	mg/l	NA		NA		NA		NA	
CLP-CVAA TOTAL									
Mercury	ug/l	NA		0.38	J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA TOTALS									
Arsenic	ug/l	NA		3.1	J/B	ND(3)	U	ND(3)	U
Lead	ug/l	NA		158	A	79.4	A	34.7	A
Selenium	ug/l	NA		ND(4)	U	ND(4)	U/W	ND(4)	U/W

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific detection limit. Limit of detection is included in parenthesis.
qual: Validation Qualifier

Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		BP1		SW1RO		SW1RO		SW1RO	
Sample Number:		9050BP01		90501R00		90501R01		90501R02	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		7323-20		01004-01S		01004-03S		01004-05S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-ICP TOTALS									
Aluminum	ug/l	NA		1630	J2/*	1770	J2/*	700	J2/*
Antimony	ug/l	NA		ND(14)	U	20	J/B	ND(14)	U
Barium	ug/l	NA		26.2	J4/B	184	J4/B	63.3	J4/B
Calcium	ug/l	NA		2220	U2/B	3660	J/B	2960	U2/B
Chromium	ug/l	NA		23.2	A	16.9	A	7.6	J/B
Cobalt	ug/l	NA		ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	NA		112	A	88.5	A	60.5	A
Iron	ug/l	NA		3320	A	3480	A	1390	A
Magnesium	ug/l	NA		1580	J/B	1770	J/B	1170	J/B
Manganese	ug/l	NA		83	A	85.3	A	64	A
Nickel	ug/l	NA		19.7	J/B	16.6	J/B	8.3	J/B
Potassium	ug/l	NA		658	J4/B	699	J4/B	532	J4/B
Silver	ug/l	NA		ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	NA		3000	U2/B	3500	U2/B	3820	J/B
Vanadium	ug/l	NA		8.2	J/B	5.7	J/B	4.8	J/B
Zinc	ug/l	NA		248	J4	711	J4	455	J4

Notes:
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qual: Validation Qualifier

Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1RO		SW1SD		SW1SD		SW1SD	
Sample Number:		90501R04		90501S00		90501S01		90501S02	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01004-08S		01004-02S		01004-04S		01004-06S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-CVAA									
Mercury	ug/l	0.23	J5	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA									
Arsenic	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	2.2	J/B
Lead	ug/l	52	J2/*	72.2	J2/*	33	J2/*	36.8	J2/*
CLP-ICP									
Aluminum	ug/l	323	U2/J4	253	U2/J4	156	U2/J4B	355	U2/J4
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	94.1	J/B	27.4	U2/B	31.7	U2/B	20.7	U2/B
Calcium	ug/l	3480	J/B	3610	J/B	3750	J/B	7820	A
Chromium	ug/l	ND(4)	U	ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	89.9	A	45.8	A	34.3	A	36.1	A
Iron	ug/l	472	A	390	A	258	U2	863	A
Magnesium	ug/l	956	J4/B	982	J4/B	1410	J4/B	6070	J4
Manganese	ug/l	66.3	A	34.7	A	24.7	A	44.7	A
Nickel	ug/l	5.8	U1/B	ND(4)	U	ND(4)	U	4.2	U1/B
Potassium	ug/l	513	U2/B	684	J/B	784	J/B	2800	J/B
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	4630	U2/B	3680	U2/B	5140	U2	39100	A
Vanadium	ug/l	ND(2)	U	2.2	J/B	2.5	J/B	ND(2)	U
Zinc	ug/l	495	A	488	A	200	A	291	A
EPA-300.0									
Sulfate	mg/l	5.7	U2	8.3	U2	5.7	U2	16	U2
Nitrate as N	mg/l	0.65	A	0.26	A	0.25	A	0.33	A
Chloride	mg/l	40	A	8.6	U2	7.3	U2	4.7	U2
Orthophosphate as P	mg/l	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U
EPA-9045									
pH	mg/l	NA		NA		NA		NA	
CLP-CVAA TOTAL									
Mercury	ug/l	ND(0.2)	U/J5	0.32	J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA TOTALS									
Arsenic	ug/l	ND(3)	U	ND(3)	U	ND(3)	U	3.5	J/B
Lead	ug/l	64.6	A	124	A/S	38	A	50.8	A
Selenium	ug/l	ND(4)	U	ND(4)	U/W	ND(4)	U	ND(4)	U

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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1RO		SW1SD		SW1SD		SW1SD	
Sample Number:		90501R04		90501S00		90501S01		90501S02	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01004-08S		01004-02S		01004-04S		01004-06S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-ICP TOTALS									
Aluminum	ug/l	1210	J2/*	2600	J2/*	1090	J2/*	2070	J2/*
Antimony	ug/l	17.9	J/B	14.5	J/B	20.3	J/B	26.3	J/B
Barium	ug/l	106	J4/B	46.7	J4/B	38.9	J4/B	32.1	J4/B
Calcium	ug/l	3560	J/B	4260	J/B	4570	J/B	7250	A
Chromium	ug/l	9.9	J/B	16.9	A	8.9	J/B	15.4	A
Cobalt	ug/l	ND(4)	U	ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	97.9	A	77.5	A	41.6	A	76.5	A
Iron	ug/l	2050	A	4240	A	1760	A	3100	A
Magnesium	ug/l	1630	J/B	2520	J/B	2140	J/B	6860	A
Manganese	ug/l	80.3	A	79.4	A	44.5	A	60.5	A
Nickel	ug/l	10.5	J/B	18.9	J/B	11.8	J/B	13.9	J/B
Potassium	ug/l	780	J4/B	1060	J4/B	984	J4/B	3030	J4/B
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	4740	J/B	3630	J/B	5210	A	37600	A
Vanadium	ug/l	4.1	J/B	10.7	J/B	5.5	J/B	6.7	J/B
Zinc	ug/l	498	J4	607	J4	226	J4	290	J4

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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1SD		SW1SD		SW2RO		SW2RO	
Sample Number:		90501S07		90501S08		90502R00		90502R01	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01004-09S		01004-10S		01004-13S		01004-15S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-CVAA									
Mercury	ug/l	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA									
Arsenic	ug/l	ND(2)	U/W	ND(2)	U	ND(2)	U	ND(2)	U/W
Lead	ug/l	27.9	J2/*	46	J2/*	40.1	J2/*	32.7	J2/*
CLP-ICP									
Aluminum	ug/l	187	U2/B	458	U2	404	U2	277	U2
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	26.4	U2/J4B	26.4	U2/J4B	82.8	J4/B	26.1	U2/J4B
Calcium	ug/l	5040	A	6250	A	2440	U2/B	3250	J/B
Chromium	ug/l	ND(4)	U	4.1	U1/B	ND(4)	U	ND(4)	U
Copper	ug/l	35.2	A	13.9	J/B	47.5	A	48.3	A
Iron	ug/l	341	A	1640	A	601	A	506	A
Magnesium	ug/l	1920	J4/B	3640	J4/B	719	J4/B	929	J4/B
Manganese	ug/l	27.7	A	42	A	35.1	A	42.2	A
Nickel	ug/l	5.8	U1/J2B	6.9	U1/J2B	ND(4)	U/J2	ND(4)	U/J2
Potassium	ug/l	894	J/B	1330	J/B	451	U2/B	388	U2/B
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	6810	U2	16000	A	2510	U2	3560	U2
Vanadium	ug/l	ND(2)	U	3.3	J/B	ND(2)	U	ND(2)	U
Zinc	ug/l	230	A	292	A	219	A	232	A
EPA-300.0									
Sulfate	mg/l	7.9	U2	9.5	U2	3.6	U2	5.3	U2
Nitrate as N	mg/l	0.25	A	0.28	A	0.16	A	0.24	A
Chloride	mg/l	10	U2	20	A	1.8	U2	3.9	U2
Orthophosphate as P	mg/l	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U
EPA-9045									
pH	mg/l	NA		NA		6.8	A	6.9	A
CLP-CVAA TOTAL									
Mercury	ug/l	ND(0.2)	U/J5	0.49	J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA TOTALS									
Arsenic	ug/l	ND(3)	U	ND(3)	U	ND(3)	U	ND(3)	U
Lead	ug/l	31.7	A	72.4	A	46.4	A	43.5	A
Selenium	ug/l	ND(4)	U/MW	ND(4)	U/W	ND(4)	U/W	ND(4)	U/W

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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1SD		SW1SD		SW2RO		SW2RO	
Sample Number:		90501S07		90501S08		90502R00		90502R01	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01004-09S		01004-10S		01004-13S		01004-15S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-ICP TOTALS									
Aluminum	ug/l	619	J2/*	2180	J2/*	2010	J2/*	1590	J2/*
Antimony	ug/l	15.8	J/B	15.8	J/B	25	J/B	ND(14)	U
Barium	ug/l	28.8	J4/B	34.9	J4/B	36.9	J4/B	31.6	J4/B
Calcium	ug/l	4770	J/B	5850	A	2540	U2/B	3160	J/B
Chromium	ug/l	5.1	J/B	16.6	A	11	A	8.8	J/B
Cobalt	ug/l	ND(4)	U	ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	39.3	A	66.4	A	50	A	54	A
Iron	ug/l	969	A	3540	A	2850	A	2430	A
Magnesium	ug/l	2290	J/B	5190	A	1620	J/B	1700	J/B
Manganese	ug/l	34.4	A	61	A	58.2	A	59	A
Nickel	ug/l	8.8	J2/B	17.6	J2/B	10.5	J2/B	7.8	J2/B
Potassium	ug/l	1030	J4/B	1590	J4/B	858	J4/B	764	J4/B
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	6820	A	15900	A	2580	U2/B	3720	J/B
Vanadium	ug/l	4	J2/B	7.1	J2/B	7.3	J2/B	3.8	J2/B
Zinc	ug/l	215	J4	275	J4	205	J4	212	J4

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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW2RO		SW2RO		SW2RO		SW2RO
Sample Number:		90502R02		90502R03		90502R04		90502R05
Matrix:		H2O		H2O		H2O		H2O
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90
Lab Sample Number:		01004-17S		01005-01S		01006-02S		01006-04S
Test Method/Analyte Name	**Units**	**value**	**qual**	**value**	**qual**	**value**	**qual**	**value**	**qual**
CLP-CVAA									
Mercury	ug/l	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA									
Arsenic	ug/l	ND(2)	U/W	ND(2)	U/W	ND(3)	U	ND(3)	U/W
Lead	ug/l	32	J2/*	24.1	A	20.1	A/N	19.7	A/N
CLP-ICP									
Aluminum	ug/l	289	U2	186	U2/J4B	156	U2/J4B	151	U2/J4B
Antimony	ug/l	ND(14)	U	ND(14)	U	15.7	U1/B	16.2	U1/B
Barium	ug/l	44.4	J4/B	32.6	U2/J4B	26.3	U2/J4B	20.7	U2/J4B
Calcium	ug/l	2240	U2/B	2660	U2/B	2810	U2/B	2370	U2/B
Chromium	ug/l	ND(4)	U	ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	35.2	A	34.7	J4	35.7	J4	30.1	J4
Iron	ug/l	453	A	315	A	232	A	231	A
Magnesium	ug/l	664	J4/B	705	J/B	701	J/B	660	J/B
Manganese	ug/l	34	A	31.2	A	30.6	A	24.4	A
Nickel	ug/l	ND(4)	U/J2	ND(4)	U	4.8	U1/B	9.3	U1/B
Potassium	ug/l	490	U2/B	454	U2/J4B	459	U2/B	372	U2/B
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	3390	U2/B	3300	U2/B	3480	U2/B	3740	U2/B
Vanadium	ug/l	2.5	J/B	ND(2)	U/J4	ND(2)	U	ND(2)	U
Zinc	ug/l	214	A	196	A	204	A	163	A
EPA-300.0									
Sulfate	mg/l	2.8	U2	3	U2	3.3	U2	2.8	U2
Nitrate as N	mg/l	0.32	A	0.21	A	0.22	A	0.18	A
Chloride	mg/l	9	U2	8	U2	11	U2	7.6	U2
Orthophosphate as P	mg/l	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U
EPA-9045									
pH	mg/l	7.1	A	6.6	A	6.7	A	6.7	A
CLP-CVAA TOTAL									
Mercury	ug/l	ND(0.2)	U/J5J2	0.32	J35/N	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA TOTALS									
Arsenic	ug/l	ND(3)	U	ND(2)	U/J3NW	ND(2)	U	ND(2)	U
Lead	ug/l	41.5	A	22.8	J3/N	35.6	J3/N	25.5	J3/N
Selenium	ug/l	ND(4)	U/W	ND(3)	U/N	ND(3)	U/N	ND(3)	U/N

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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW2RO		SW2RO		SW2RO		SW2RO
Sample Number:		90502R02		90502R03		90502R04		90502R05
Matrix:		H2O		H2O		H2O		H2O
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90
Lab Sample Number:		01004-17S		01005-01S		01006-02S		01006-04S
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-ICP TOTALS									
Aluminum	ug/l	1680	J2/*	1010	J2/*	1330	A	1290	A
Antimony	ug/l	14.7	J/B	20.2	J/B	ND(14)	U	ND(14)	U
Barium	ug/l	52.6	J4/B	32.4	J4/B	33.8	J4/B	25.6	J4/B
Calcium	ug/l	2350	U2/B	2560	U2/B	2970	U2/B	2400	U2/B
Chromium	ug/l	12.5	A	6.7	J/B	12.2	J4	8.9	J4/B
Cobalt	ug/l	ND(4)	U	4	J/B	ND(4)	U	ND(4)	U
Copper	ug/l	46.8	A	38.2	J4	43.7	J4	35	J4
Iron	ug/l	2530	A	1480	A	2400	A	1860	A
Magnesium	ug/l	1550	J/B	1140	J/B	1500	J/B	1360	J/B
Manganese	ug/l	54.7	A	39.1	A	51.1	A	39.2	A
Nickel	ug/l	11.2	J2/B	9.5	J/B	10.6	J4/B	8.3	J4/B
Potassium	ug/l	782	J4/B	722	J24/B	668	J/B	554	J/B
Silver	ug/l	ND(2)	U	ND(2)	J/B	2.2	J/B	ND(2)	U
Sodium	ug/l	3440	U2/B	3270	U	3520	U2/B	3430	U2/B
Vanadium	ug/l	6.7	J24/B	5.1	J24/B	7	J24/B	6.2	J24/B
Zinc	ug/l	214	A	186	J4	207	J4/E	152	J4/E

Notes:
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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW2SD		SW2SD		SW2SD		SW2SD	
Sample Number:		90502S00		90502S01		90502S02		90502S03	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01004-12S		01004-14S		01004-16S		01004-18S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-CVAA									
Mercury	ug/l	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA									
Arsenic	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Lead	ug/l	70.6	J2/*	33.3	J2/*	58.8	J2/*S	44	J2/*
CLP-ICP									
Aluminum	ug/l	450	U2	387	U2	473	U2	303	U2
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	33.6	U2/J4B	20.9	U2/J4B	25	U2/J4B	21.3	U2/J4B
Calcium	ug/l	6790	A	6690	A	8670	A	7780	A
Chromium	ug/l	8.6	U1/B	10.7	U1	21.4	U1	14.8	U1
Copper	ug/l	93.5	A	46.1	A	68.5	A	59.2	A
Iron	ug/l	817	A	536	A	939	A	524	A
Magnesium	ug/l	3350	J4/B	3020	J4/B	6470	J4	3880	J4/B
Manganese	ug/l	56.5	A	41.8	A	71.6	A	46.1	A
Nickel	ug/l	8.8	U1/J2B	7.7	U1/J2B	9.6	U1/J2B	ND(4)	U/J2
Potassium	ug/l	2030	J/B	2110	J/B	3550	J/B	2410	J/B
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	26000	A	24200	A	54400	A	29900	A
Vanadium	ug/l	3.6	J/B	3.2	J/B	3	J/B	ND(2)	U
Zinc	ug/l	567	A	176	A	254	A	300	A
EPA-300.0									
Sulfate	mg/l	11	U2	8.9	U2	16	U2	15	U2
Nitrate as N	mg/l	0.58	A	0.52	A	0.7	A	0.78	A
Chloride	mg/l	30	A	29	A	49	A	59	A
Orthophosphate as P	mg/l	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U
EPA-9045									
pH	mg/l	7	A	7.1	A	6.4	A	7	A
CLP-CVAA TOTAL									
Mercury	ug/l	0.32	J5	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA TOTALS									
Arsenic	ug/l	ND(3)	U	ND(3)	U	ND(3)	U	ND(3)	U
Lead	ug/l	86	A	37.5	A	62.6	A	54.2	A
Selenium	ug/l	ND(4)	U/W	ND(4)	U/W	ND(4)	U/W	ND(4)	U

Notes:
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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW2SD		SW2SD		SW2SD		SW2SD
Sample Number:		90502S00		90502S01		90502S02		90502S03
Matrix:		H2O		H2O		H2O		H2O
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90
Lab Sample Number:		01004-12S		01004-14S		01004-16S		01004-18S
Test Method/Analyte Name	**Units**	**value**	**qual**	**value**	**qual**	**value**	**qual**	**value**	**qual**
CLP-ICP TOTALS									
Aluminum	ug/l	2580	J2/*	1890	J2/*	3360	J2/*	1600	J2/*
Antimony	ug/l	21.9	J/B	15.4	J/B	ND(14)	U	ND(14)	U
Barium	ug/l	49.6	J4/B	27.4	J4/B	38.1	J4/B	28.1	J4/B
Calcium	ug/l	7210	A	6840	A	9030	A	7450	A
Chromium	ug/l	23.5	A	19.8	A	62.4	A	26.8	A
Cobalt	ug/l	ND(4)	U	ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	106	A	49.8	A	80.3	A	65.5	A
Iron	ug/l	5240	A	3010	A	5540	A	2640	A
Magnesium	ug/l	4860	J/B	4510	J/B	9180	A	4780	J/B
Manganese	ug/l	96.9	A	73.2	A	119	A	67.2	A
Nickel	ug/l	17.6	J2/B	14.6	J2/B	33.9	J2/B	12.9	J2/B
Potassium	ug/l	2580	J4/B	2570	J4/B	4120	J4/B	2660	J4/B
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	26900	A	25300	A	54700	A	29900	A
Vanadium	ug/l	10.5	J24/B	4.8	J24/B	13.9	J24/B	5.8	J24/B
Zinc	ug/l	579	A	183	A	266	A	289	A

Notes:
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10 of

Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW2SD		SW2SD		SW2SD		SW3SD	
Sample Number:		90502S04		90502S05		90502S06		90503S00	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01006-01S		01006-03S		01006-05S		01005-03S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-CVAA									
Mercury	ug/l	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5	0.31	J5
CLP-FUAA									
Arsenic	ug/l	ND(3)	U	ND(3)	U	ND(3)	U	2.6	J/BW
Lead	ug/l	35.5	A/NS	25.2	A/N	26.4	A/N	60	A
CLP-ICP									
Aluminum	ug/l	215	U2/J4	151	U2/J4B	119	U2/J4B	681	U2/J4
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	25.1	U2/J4B	21.2	U2/J4B	32.9	U2/J4B	53.6	J4/B
Calcium	ug/l	9450	A	9040	A	8970	A	108000	A
Chromium	ug/l	16.1	A	9.4	J/B	7.1	J/B	7.6	J/B
Copper	ug/l	67.2	J4	83.5	J4	78.8	J4	52.9	A
Iron	ug/l	321	A	271	U2	243	U2	1510	A
Magnesium	ug/l	5320	A	7600	A	8960	A	202000	A
Manganese	ug/l	40.1	A	36.7	A	34.7	A	763	A
Nickel	ug/l	6.6	U1/B	6.6	U1/B	9.7	U1/B	11.1	J/B
Potassium	ug/l	3210	J/B	3860	J/B	3810	J/B	67200	A
Silver	ug/l	2.2	U1/B	ND(2)	U	ND(2)	U	ND(2)	U/J4
Sodium	ug/l	43100	A	66600	A	76900	A	1520000	A
Vanadium	ug/l	2	U1/B	ND(2)	U1	ND(2)	U1	4.7	U1/J4B
Zinc	ug/l	319	A	483	A	575	A	229	A
EPA-300.0									
Sulfate	mg/l	16	U1	20	U1	47	A	390	A
Nitrate as N	mg/l	0.94	A	0.85	A	0.74	A	0.71	A
Chloride	mg/l	86	A	170	A	420	A	3200	A
Orthophosphate as P	mg/l	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U
EPA-9045									
pH	mg/l	6.9	A	6.8	A	6.9	A	7.4	A
CLP-CVAA TOTAL									
Mercury	ug/l	0.32	J5	ND(0.2)	U/J5	ND(0.2)	U/J5	0.78	J35/N
CLP-FUAA TOTALS									
Arsenic	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	5.3	J3/BNW
Lead	ug/l	43.6	J3/NS	27.5	J3/N	36.1	J3/NS	73.2	J3/NS
Selenium	ug/l	3.4	J3/BNW	ND(3)	U/J3N	ND(3)	U/J3N	ND(3)	U/J3NW

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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW2SD		SW2SD		SW2SD		SW3SD	
Sample Number:		90502S04		90502S05		90502S06		90503S00	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01006-01S		01006-03S		01006-05S		01005-03S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-ICP TOTALS									
Aluminum	ug/l	1500	A	1120	A	600	A	3130	J4/*
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	28.9	J4/B	24.4	J4/B	33.8	J4/B	60.4	J4/B
Calcium	ug/l	9050	A	8810	A	8320	A	95300	A
Chromium	ug/l	28.7	J4	18.1	J4	7.6	J4/B	17.4	A
Cobalt	ug/l	ND(4)	U	ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	72.6	J4	85.1	J4	79.8	J4	62.5	J4
Iron	ug/l	2630	A	1870	A	1130	A	5750	A
Magnesium	ug/l	6290	A	8050	A	8790	A	189000	A
Manganese	ug/l	61.3	A	50.1	A	39.2	A	719	A
Nickel	ug/l	16.2	J4/B	13.4	J4/B	7.1	J4/B	24.5	J4/B
Potassium	ug/l	3290	J/B	3810	J/B	3690	J/B	65200	J24
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	42000	A	63600	A	72700	A	1480000	A
Vanadium	ug/l	5.3	U1/J4B	4.8	U1/J4B	3	U1/J4B	11.5	U1/J4B
Zinc	ug/l	302	J4/E	458	J4/E	515	J4/E	202	J4

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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW3SD		SW3SD		SW3SD		SW3SD	
Sample Number:		90503S01		90503S02		90503S03		90503S04	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01005-04S		01005-05S		01005-06S		01005-07S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-CVAA									
Mercury	ug/l	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA									
Arsenic	ug/l	ND(2)	U	2	J/BW	2.1	J/BW	ND(2)	U
Lead	ug/l	78.6	A	66.9	A	62.2	A	52.7	A/S
CLP-ICP									
Aluminum	ug/l	846	U2/J4	554	U2/J4	537	U2/J4	457	U2/J4
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	49.8	J4/B	51.7	J4/B	45.5	J4/B	34.5	J4/B
Calcium	ug/l	71900	A	45000	A	38700	A	31700	A
Chromium	ug/l	8.8	A	9	A	4.7	A	5.5	A
Copper	ug/l	81.6	A	60.2	A	56.9	A	47.9	A
Iron	ug/l	1840	A	1120	A	999	A	848	A
Magnesium	ug/l	123000	A	69500	A	55000	A	46300	A
Manganese	ug/l	766	A	318	A	264	A	213	A
Nickel	ug/l	16	J/B	14.2	J/B	12	J/B	12	J/B
Potassium	ug/l	47900	J4	37900	J4	39500	J4	29500	J4
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	866000	A	483000	A	378000	A	320000	A
Vanadium	ug/l	5.4	U1/J4	4	U1/J4	4.3	U1/J4B	4.6	U1/J4B
Zinc	ug/l	278	A	200	A	199	A	167	A
EPA-300.0									
Sulfate	mg/l	230	A	150	A	120	A	100	A
Nitrate as N	mg/l	0.81	A	0.7	A	0.74	A	0.78	A
Chloride	mg/l	1800	A	1100	A	740	A	650	A
Orthophosphate as P	mg/l	0.44	A	0.44	A	0.58	A	0.37	A
EPA-9045									
pH	mg/l	7.6	A	7.5	A	7.9	A	7.6	A
CLP-CVAA TOTAL									
Mercury	ug/l	0.38	J35/N	0.32	J35/N	0.32	J35/N	0.32	J35/N
CLP-FUAA TOTALS									
Arsenic	ug/l	4	J3/BNW	3.2	J3/BNW	2.6	J3/BNW	5.4	J3/BNW
Lead	ug/l	103	J3/N	78.7	J3/N	70.9	J3/N	53.4	J3/N
Selenium	ug/l	ND(3)	U/NW	ND(3)	U/NW	ND(3)	U/NW	ND(3)	U/N

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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW3SD		SW3SD		SW3SD		SW3SD	
Sample Number:		90503S01		90503S02		90503S03		90503S04	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01005-04S		01005-05S		01005-06S		01005-07S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-ICP TOTALS									
Aluminum	ug/l	4980	J2/*	3110	J2/*	2730	J2/*	2290	J2/*
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	73.8	J4/B	50.3	J4/B	45.8	J4/B	37.2	J4/B
Calcium	ug/l	65500	A	41800	A	35200	A	30300	A
Chromium	ug/l	31.3	A	17.6	A	18	A	16.4	A
Cobalt	ug/l	8.4	J/B	6	J/B	4.8	J/B	ND(4)	U
Copper	ug/l	158	J4	69.5	J4	67.5	J4	59.9	J4
Iron	ug/l	9190	A	5890	A	5200	A	4170	A
Magnesium	ug/l	122000	A	71700	A	54700	A	47300	A
Manganese	ug/l	779	A	348	A	287	A	240	A
Nickel	ug/l	151	A	33.3	J/B	32.9	J/B	29.7	J/B
Potassium	ug/l	48000	J24	39600	J24	39000	J24	29900	J24
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	857000	A	500000	A	369000	A	321000	A
Vanadium	ug/l	20	U1/J4B	11.9	U1/J4B	11.1	U1/J4B	10.3	U1/J4B
Zinc	ug/l	280	J4	204	J4	199	J4	169	J4

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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW3SD		SW3SD		SW4RO		SW4RO	
Sample Number:		90503S05		90503S06		90504R00		90504R01	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01005-08S		01005-09S		01006-08S		01006-10S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-CVAA									
Mercury	ug/l	0.27	J5	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA									
Arsenic	ug/l	2.2	J/BW	2.1	J/BW	ND(3)	U/W	ND(3)	U/W
Lead	ug/l	45.9	A	44.9	A	47.4	A/N+	59	A/N
CLP-ICP									
Aluminum	ug/l	367	U2/J4	346	U2/J4	201	U2/J4	209	U2/J4
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	31.7	J4/B	30.4	J4/B	31.5	J4/B	40.5	J4/B
Calcium	ug/l	30700	A	28900	A	4290	J/B	6750	A
Chromium	ug/l	4.7	J/B	4.3	J/B	ND(4)	U	ND(4)	U
Copper	ug/l	44.3	J4	43.8	J4	35.8	J4	33.2	J4
Iron	ug/l	700	A	641	A	403	A	358	A
Magnesium	ug/l	43300	A	41200	A	293	U2/B	367	J/B
Manganese	ug/l	202	A	184	A	20.8	A	20.5	A
Nickel	ug/l	8.2	J/B	8.2	J/B	ND(4)	U	ND(4)	U
Potassium	ug/l	28200	A	28900	A	193	U2/B	197	U2/B
Silver	ug/l	ND(2)	U	ND(2)	U	2.4	U1/B	ND(2)	U
Sodium	ug/l	299000	A	288000	A	894	U2/B	1070	U2/B
Vanadium	ug/l	3.9	U1/J4B	3.9	U1/J4B	2	U1/J4B	2	U1/J4B
Zinc	ug/l	157	A	154	A	123	A	104	A
EPA-300.0									
Sulfate	mg/l	130	A	100	A	NA		0.95	U2/B
Nitrate as N	mg/l	0.78	A	0.78	A	NA		ND(0.1)	U
Chloride	mg/l	610	A	580	A	NA		1.6	U2/B
Orthophosphate as P	mg/l	0.38	A	0.4	A	NA		ND(0.3)	U
EPA-9045									
pH	mg/l	7.4	A	7.4	A	NA		NA	
CLP-CVAA TOTAL									
Mercury	ug/l	0.38	J35/N	0.32	J35/N	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA TOTALS									
Arsenic	ug/l	4.1	J3/NWB	3.8	J3/NWB	ND(2)	U	ND(2)	U
Lead	ug/l	44	J3/N	42.3	J3/N	57	J3/N	68.6	J3/N
Selenium	ug/l	ND(3)	U/N	ND(3)	U/N	ND(3)	U/N	ND(3)	U/N

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15 of

Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW3SD		SW3SD		SW4RO		SW4RO	
Sample Number:		90503S05		90503S06		90504R00		90504R01	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01005-08S		01005-09S		01006-08S		01006-10S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-ICP TOTALS									
Aluminum	ug/l	1900	J2/*	1990	J2/*	1770	A	1510	A
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	18.7	U1/B
Barium	ug/l	32.6	J4/B	33.3	J4/B	42.4	J4/B	49.5	J4/B
Calcium	ug/l	27800	A	27500	A	4370	J/B	6880	A
Chromium	ug/l	14.2	A	12.2	A	13.1	J4	13.1	J4
Cobalt	ug/l	ND(4)	U	ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	50.4	J4	52.5	J4	47	J4	43.5	J4
Iron	ug/l	3450	A	3440	A	2860	A	2540	A
Magnesium	ug/l	43200	A	42400	A	1070	J/B	1130	J/B
Manganese	ug/l	214	A	205	A	42.6	A	40.2	A
Nickel	ug/l	23	J/B	22.2	J/B	11.4	J/B	11	J/B
Potassium	ug/l	28400	J24	29700	J24	434	J4/B	473	J4/B
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	299000	A	294000	A	1040	U2/B	1170	U2/B
Vanadium	ug/l	8.5	U1/J4B	7.7	U1/J4B	8.1	J4/B	6.3	J4/B
Zinc	ug/l	150	J4	150	J4	143	J4/E	143	J4/E

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Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW4RO		SW4RO		SW4RO		SW4SD	
Sample Number:		90504R02		90504R03		90504R05		90504S00	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01006-12S		01006-14S		01006-16S		01006-09S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-CVAA									
Mercury	ug/l	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA									
Arsenic	ug/l	ND(3)	U	ND(3)	U/W	ND(3)	U	3.4	J/BW
Lead	ug/l	12.6	U2/N	26.7	A/N	90.2	A/N	42.3	A/N
CLP-ICP									
Aluminum	ug/l	49.7	U2/J4B	91	U2/J4B	237	U2/J4	181	U2/J4B
Antimony	ug/l	ND(14)	U	21.2	U1/B	ND(14)	U	ND(14)	U
Barium	ug/l	10.2	U2/J4B	10.1	U2/J4B	41.2	J4/B	33.6	U2/J4B
Calcium	ug/l	5000	A	4630	J/B	17200	A	3250	J/B
Chromium	ug/l	ND(4)	U	ND(4)	U	4.2	J/B	ND(4)	U
Copper	ug/l	21.4	J4/B	16	J4/B	60.2	J4	79.3	J4
Iron	ug/l	76	U2/B	146	U2	436	A	394	A
Magnesium	ug/l	349	J/B	302	J/B	918	J/B	2000	J/B
Manganese	ug/l	16.6	A	15	A	33.3	A	40.4	A
Nickel	ug/l	9.3	U1/B	ND(4)	U	8.4	U1/B	14.6	U1/B
Potassium	ug/l	271	U2/B	215	U2/B	482	U2/B	1080	U2/B
Silver	ug/l	ND(2)	U	ND(2)	U	2.7	U1/B	2.3	U1/B
Sodium	ug/l	2000	U2/B	2090	U2/B	2990	U2/B	14100	A
Vanadium	ug/l	ND(2)	U	ND(2)	U	4	U1/B	4	U1/B
Zinc	ug/l	59.3	A	64.9	A	597	A	418	A
EPA-300.0									
Sulfate	mg/l	3	U2	1.2	U2	1.7	U2	5.4	U2
Nitrate as N	mg/l	0.16	A	0.12	A	0.19	A	0.28	A
Chloride	mg/l	2.9	U2	3.5	U2	4	U2	22	A
Orthophosphate as P	mg/l	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U
EPA-9045									
pH	mg/l	NA		NA		NA		NA	
CLP-CVAA TOTAL									
Mercury	ug/l	ND(0.2)	U/J5	ND(0.2)	U/J5	0.26	J5	0.32	J5
CLP-FUAA TOTALS									
Arsenic	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	3.3	J/B
Lead	ug/l	12.7	J3/N	30.4	J3/N	88.2	J3/N	51.5	J3/N
Selenium	ug/l	ND(3)	U/J3N	ND(3)	U/J3N	ND(3)	U/J3N	ND(3)	U/J3N

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific detection limit. Limit of detection is included in parenthesis.
qual: Validation Qualifier

Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW4RO		SW4RO		SW4RO		SW4SD	
Sample Number:		90504R02		90504R03		90504R05		90504S00	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01006-12S		01006-14S		01006-16S		01006-09S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-ICP TOTALS									
Aluminum	ug/l	218	U2	625	U2	1300	A	1160	A
Antimony	ug/l	ND(14)	U	ND(14)	U	15.6	U2/B	ND(14)	U
Barium	ug/l	13.8	U2/J4B	14.6	U2/J4B	53.2	J4/B	39.5	J4/B
Calcium	ug/l	5300	A	4520	J/B	17400	A	3110	J/B
Chromium	ug/l	ND(4)	U/J4	4.6	J4/B	14.1	J4	12.2	J4
Cobalt	ug/l	ND(4)	U	ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	25.4	J4	21.4	J4/B	77.5	J4	83.5	J4
Iron	ug/l	394	A	987	A	2510	A	2360	A
Magnesium	ug/l	479	J/B	557	J/B	1580	J/B	2650	J/B
Manganese	ug/l	20.1	A	23.1	A	54	A	53.8	A
Nickel	ug/l	4.7	J4/B	ND(4)	U/J4	14.8	J4/B	16.6	J4/B
Potassium	ug/l	279	J/B	314	J/B	602	J/B	1230	J/B
Silver	ug/l	ND(2)	U	ND(2)	U	ND(2)	U	2.7	J/B
Sodium	ug/l	1900	U2/B	2060	U2/B	3080	U2/B	13000	A
Vanadium	ug/l	4.7	U1/J4B	3.3	U1/J4B	8.8	U1/J4B	7.7	U1/J4B
Zinc	ug/l	62.6	U2/J4E	63.1	U2/J4E	598	J4/E	397	J4/E

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific detection limit. Limit of detection is included in parenthesis.
qual: Validation Qualifier

Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW4SD		SW4SD		SW4SD		SW4SD	
Sample Number:		90504S01		90504S02		90504S04		90504S06	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01006-11S		01006-13S		01006-15S		01006-17S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-CVAA									
Mercury	ug/l	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA									
Arsenic	ug/l	3.4	J/BW	3.9	J/B	6.5	J/B	ND(3)	U
Lead	ug/l	29.7	J3/NS	28.9	J3/N	29.7	J3/NS	18.6	J3/N
CLP-ICP									
Aluminum	ug/l	155	U2/J4B	128	U2/J4B	100	U2/J4B	87.3	U2/J4B
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	20.5	U2/J4	16.6	U2/J4	28.5	U2/J4	12.6	U2/J4
Calcium	ug/l	2860	U2/B	3390	J/B	4110	J/B	3280	J/B
Chromium	ug/l	ND(4)	U	ND(4)	U	5.6	J/B	ND(4)	U
Copper	ug/l	60.8	J4	84.4	J4	75.1	J4	80.4	J4
Iron	ug/l	265	U2	257	U2	212	U2	150	U2
Magnesium	ug/l	1250	J/B	1710	J/B	1820	J/B	1510	J/B
Manganese	ug/l	33.5	A	32.2	A	47.4	A	27.6	A
Nickel	ug/l	8.8	U1/B	10.2	U1/B	12.8	U1/B	6.2	U1/B
Potassium	ug/l	1000	J/B	1280	J/B	1230	J/B	1140	J/B
Silver	ug/l	2.7	U1/B	ND(2)	U	3.8	U1/B	ND(2)	U
Sodium	ug/l	8380	A	13300	A	13500	A	13100	A
Vanadium	ug/l	2.4	U1/B	2.8	U1/B	4	U1/B	ND(2)	U
Zinc	ug/l	345	A	457	A	547	A	410	A
EPA-300.0									
Sulfate	mg/l	4.5	U2	6.5	U2	6.4	U2	6.6	U2
Nitrate as N	mg/l	0.28	A	0.4	A	0.47	A	0.38	A
Chloride	mg/l	12	A	26	A	18	A	21	A
Orthophosphate as P	mg/l	ND(0.3)	U	ND(0.3)	U	ND(0.3)	U	ND(0.03)	U
EPA-9045									
pH	mg/l	NA		NA		NA		NA	
CLP-CVAA TOTAL									
Mercury	ug/l	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5	ND(0.2)	U/J5
CLP-FUAA TOTALS									
Arsenic	ug/l	2	J/B	3	J/B	5.3	J/B	3.3	J/B
Lead	ug/l	30.8	J3/N	37.9	J3/NS	26.9	J3/N	20.7	J3/N
Selenium	ug/l	ND(3)	U/J3N	ND(3)	U/J3N	ND(3)	U/J3N	ND(3)	U/J3N

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific detection limit. Limit of detection is included in parenthesis.
qual: Validation Qualifier

Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW4SD		SW4SD		SW4SD		SW4SD	
Sample Number:		90504S01		90504S02		90504S04		90504S06	
Matrix:		H2O		H2O		H2O		H2O	
Sample Date:		12/15/90		12/15/90		12/15/90		12/15/90	
Lab Sample Number:		01006-11S		01006-13S		01006-15S		01006-17S	
Test Method/Analyte Name	Units	value	qual	value	qual	value	qual	value	qual
CLP-ICP TOTALS									
Aluminum	ug/l	681	A	586	A	414	A	363	A
Antimony	ug/l	ND(14)	U	ND(14)	U	ND(14)	U	ND(14)	U
Barium	ug/l	24.2	J4/B	21.2	U2/J4	18.5	U2/J4	13.9	U2/J4
Calcium	ug/l	2930	U2/B	3470	J/B	3660	J/B	3230	J/B
Chromium	ug/l	8.8	J4/B	8	J4/B	7.6	J4/B	ND(4)	U/J4
Cobalt	ug/l	ND(4)	U	ND(4)	U	ND(4)	U	ND(4)	U
Copper	ug/l	69.9	J4	98.1	J4	74.4	J4	84.1	J4
Iron	ug/l	1350	A	1180	A	798	A	668	A
Magnesium	ug/l	1670	J/B	2070	J/B	2000	J/B	1700	J/B
Manganese	ug/l	42.6	A	41	A	47.7	A	33	A
Nickel	ug/l	11	J4/B	17.4	J4/B	8.3	J4/B	7.8	J4/B
Potassium	ug/l	1010	J/B	1330	J/B	1230	J/B	1140	J/B
Silver	ug/l	2.1	U1/B	ND(2)	U	ND(2)	U	ND(2)	U
Sodium	ug/l	8050	A	13300	A	12800	A	12600	A
Vanadium	ug/l	5.8	U1/J4B	3.3	U1/J4B	2.2	U1/J4B	4.2	U1/J4B
Zinc	ug/l	331	J4/E	426	J4/E	472	J4/E	375	J4/E

Notes:
NA: Not Analyzed.
ND(): Not Detected at a specific detection limit. Limit of detection is included in parenthesis.
qual: Validation Qualifier

Table 13
List of Inorganic Compounds Detected in Storm Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Description of Qualifiers Used in Database

A: Analytical result for this analyte is qualified as acceptable and considered accurate.

U: Compound was analyzed but not detected.

U1: Compound is qualified as non-detected due to its occurrence in the laboratory blanks.

U2: Compound is qualified as non-detected due to its occurrence in the field blanks.

J2: Analytical results for this compound are qualified as estimated due to laboratory matrix duplicate quality control criteria exceedances.

J3: Analytical results for this compound are qualified as estimated due to poor spike recoveries.

J4: Analytical results for this compound are qualified as estimated due to ICP-serial dilution relative percent difference quality control criteria execeedances.

J5: Analytical results for this compound are qualified as estimated due to holding time exceedances.

R2: Analytical results for this compound are qualified as rejected due to poor spike recoveries.

N: Spiked sample recovery not within control limits.

E: The serial dilution analysis did not meet the contractual requirement of +/- 10% (SOW 7/87 E-12)

W: Post-digestion spike for furnace AA analysis is outside of control limits.

B: Reported value is less than the CRDL and greater than or equal to the instrument detection limit.

S: The reported value was determined by the Method of Standard Additions (MSA).

*: Duplicate analysis not within control limits.

Table 14
Summary of Detected Chemicals, Sediment Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Analyte	Units	Station SW1	Station SW2	Station SW3	Station SW4
CLPVOC					
vinyl chloride	µg/kg	-	-	-	14000
carbon disulfide	µg/kg	4	-	-	4
1,1-dichloroethene	µg/kg	-	-	-	62
1,1-dichloroethane	µg/kg	-	-	-	5
1,2-dichloroethene (total)	µg/kg	-	-	-	15000
trichloroethene	µg/kg	-	-	-	9
benzene	µg/kg	-	-	-	14
toluene	µg/kg	-	-	-	600
chlorobenzene	µg/kg	-	-	-	200
ethyl benzene	µg/kg	-	-	-	330
xylenes	µg/kg	-	-	-	1900
CLPSOC					
phenol	µg/kg	550	-	-	-
1,4-dichlorobenzene	µg/kg	-	-	-	14000
1,2-dichlorobenzene	µg/kg	-	-	-	42000
4-methylphenol	µg/kg	6900	-	-	-
benzoic acid	µg/kg	3600	-	-	-
2-methylnapthalene	µg/kg	-	-	-	390
dimethyl phthalate	µg/kg	8800	-	-	-
fluorene	µg/kg	-	-	-	770
pentachlorophenol	µg/kg	3200	-	-	-
phenanthrene	µg/kg	1900	680	-	2200
anthracene	µg/kg	-	-	-	1700
fluoranthene	µg/kg	2600	1000	-	4500
pyrene	µg/kg	2400	580	610	4100
butylbenzylphthalate	µg/kg	840	-	880	1500
benzo(a)anthracene	µg/kg	900	-	-	-
chrysene	µg/kg	1600	540	-	4600
di-n-octylphthalate	µg/kg	-	-	-	1800
benzo(b)fluroanthene	µg/kg	1600	600	-	3100
benzo(k)fluoranthene	µg/kg	1600	600	-	3100
benzo(a)pyrene	µg/kg	780	-	-	1500
CLP Pesticides/PCBs					
aroclor-1260	µg/kg	6000	24000	4100	2800
TPH diesel	mg/kg	9900	850	840	4600
TPH gasoline	mg/kg	-	-	-	240
Oil & Grease	mg/kg	32500	4200	6400	39600

- : Not Detected.

Table 14
Summary of Detected Chemicals, Sediment Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
(cont.'d)

Analyte	Units	Station SW1	Station SW2	Station SW3	Station SW4
CLP-CVAA					
mercury	mg/kg	0.3	0.76	0.66	0.98
CLP-FUAA					
arsenic	mg/kg	9.3	6.3	8.1	6.9
lead	mg/kg	449	334	378	473
selenium	mg/kg	-	-	5	-
CLP-ICP					
aluminum	mg/kg	9000	11000	20800	7300
barium	mg/kg	98.7	78.7	366	393
beryllium	mg/kg	0.41	0.9	1.3	0.49
cadmium	mg/kg	2	0.47	1.3	7.8
calcium	mg/kg	7200	5490	12200	11800
chromium	mg/kg	99.8	692	200	135
cobalt	mg/kg	10.4	16.8	30.3	10.9
copper	mg/kg	573	204	268	1170
iron	mg/kg	21600	23600	37300	24000
magnesium	mg/kg	10800	21800	37000	8190
manganese	mg/kg	220	521	924	306
nickel	mg/kg	94.3	152	331	89.4
potassium	mg/kg	1320	1250	3190	969
silver	mg/kg	1.9	2	1.6	1.8
sodium	mg/kg	9880	6110	14800	6050
vanadium	mg/kg	33.7	43.4	71.2	34.3
zinc	mg/kg	1490	489	545	1470
molybdenum	mg/kg	16.5	11.1	-	13.9

- : Not Detected.

Table 15
Summary of Detected Chemicals, Pre-Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Analyte	Units	Station SW1	Station SW2	Station SW3	Station SW4
CLPVOC					
vinyl chloride	µg/l	-	-	-	2
1,2-dichloroethene (total)	µg/l	-	14	-	16
trichloroethene	µg/l	-	17	-	30
CLPSOC					
4-methylphenol	µg/l	5	-	-	-
CLP Pesticides/PCBs					
aroclor-1260	µg/l	3.8	-	-	-
TPH diesel	mg/l	0.9	-	0.067	0.36
TPH gasoline	mg/l	-	-	-	-
Oil & Grease	mg/l	-	-	-	-

* : Analysis Not Performed
- : Not Detected.

Table 15
Summary of Detected Chemicals, Pre-Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
(cont.'d)

Analyte	Units	Station SW1		Station SW2		Station SW3		Station SW4	
		Soluble	Total	Soluble	Total	Soluble	Total	Soluble	Total
CLP-CVAA									
mercury	µg/l	-	*	0.24	*	-	*	-	*
CLP-FUAA									
antimony	µg/l	-	-	-	-	-	-	3.5	3.6
arsenic	µg/l	-	-		-	-	-	-	-
lead	µg/l	12.4	1.3	23.6	-	1.7	-	17.6	9.9
selenium	µg/l	-	-	-	-	-	-	-	-
thallium	µg/l	-	-	-	-	-	5.3	-	-
CLP-ICP									
aluminum	µg/l	1650	2870	2770	2280	1370	1520	480	1390
barium	µg/l	-	-	-	-	64	73.8	30.8	42.5
beryllium	µg/l	-	21	-	-	-	-	-	-
cadmium	µg/l	-	-	-	-	-	-	-	-
calcium	µg/l	346000	377000	344000	370000	360000	361000	121000	127000
chromium	µg/l	2360	2600	2380	2640	1580	1600	772	915
cobalt	µg/l	-	-	-	-	-	-	-	-
copper	µg/l	-	-	115	212	-	-	168	122
iron	µg/l	616	735	1220	376	463	438	647	715
magnesium	µg/l	1120000	1210000	1110000	121000	808000	795000	355000	375000
manganese	µg/l	-	-	37.5	-	3060	3040	85.8	139
nickel	µg/l	-	-	-	-	-	-	-	-
potassium	µg/l	285000	356000	317000	335000	190000	197000	102000	122000
silver	µg/l	-	-	-	-	-	-	-	-

* : Analysis Not Performed
- : Not Detected.

Table 15
Summary of Detected Chemicals, Pre-Event Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
(cont.'d)

Analyte	Units	Station SW1		Station SW2		Station SW3		Station SW4	
		Soluble	Total	Soluble	Total	Soluble	Total	Soluble	Total
CLP-ICP (cont.'d)									
sodium	µg/l	9120000	10000000	9040000	9960000	6060000	6140000	3040000	3350000
vanadium	µg/l	-	-	-	-	-	-	-	-
zinc	µg/l	-	-	-	-	-	-	644	604
molybdenum	µg/l	-	-	-	-	-	-	-	-
chromium IV	µg/l	43	*	-	*	27	*	-	*
EPA 300.0									
sulfate	mg/l	2420	*	2300	*	1320	*	704	*
chloride	mg/l	31200	*	17400	*	12300	*	3260	*

* : Analysis Not Performed
- : Not Detected.

Table 16
Summary of Detected Chemicals, Storm Event Runoff and Storm Drain Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

		Station BP	Station SW1		Station SW2		Station SW3	Station SW4	
Analyte	**Units**	Bulk Precipitation	Runoff	Storm Drain	Runoff	Storm Drain	Storm Drain	Runoff	Storm Drain
CLPVOC									
1,2-dichloroethene (total)	µg/l	-	-	-	-	-	-	-	2.0-2.0
trichloroethene	µg/l	-	-	-	-	-	-	-	1.0-5.0
benzene	µg/l	-	-	-	-	1.0	-	-	-
CLPSOC									
phenol	µg/l	NA	-	-	2.0-3.0	-	-	-	-
CLP Pesticides/PCBs									
aroclor-1260	µg/l	NA	3.2	2.4-5.0	-	2.2	-	-	-
TPH diesel	mg/l	NA	-	0.65-3.4	-	0.91	0.64-1.1	-	0.59-1.0
TPH gasoline	mg/l	NA	-	5.0	-	-	0.25	-	-
Oil & Grease	mg/l	NA	-	6.7-65	-	-	-	-	-

- : Not Detected.
NA : Not Analyzed

Table 16
Summary of Detected Chemicals, Storm Event Runoff and Storm Drain Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
(cont.'d)

Analyte	Units	Station BP	Station SW1				Station SW2			
			Runoff		Storm Drain		Runoff		Storm Drain	
			Soluble	Total	Soluble	Total	Soluble	Total	Soluble	Total
CLP-CVAA										
mercury	µg/l	NA	0.23	0.38	-	0.32-0.49	-	0.32	-	0.32
CLP-FUAA										
arsenic	µg/l	NA	-	3.1	2.2	3.5	-	-	-	-
lead	µg/l	NA	31.5-123	34.7-158	27.9-72.2	72.4-124	19.7-40.1	25.5-46.4	25.2-70.6	27.5-86
selenium	µg/l	NA	-	-	-	-	-	-	-	3.4
CLP-ICP										
aluminum	µg/l	NA	-	700-1630	-	619-2600	-	1010-2010	-	600-3360
antimony	µg/l	NA	-	17.9-20	-	14.5-26.3	-	14.7-25	-	15.4-21.9
barium	µg/l	NA	58.8-176	26.2-184	-	28.8-46.7	44.4-82.8	25.6-52.6	-	24.4-49.6
beryllium	µg/l	NA	-	-	-	-	-	-	-	-
cadmium	µg/l	NA	-	-	-	-	-	-	-	-
calcium	µg/l	NA	3480	3560-3660	3610-7820	4260-7250	3250	3160	6690-9450	6840-9050
chromium	µg/l	NA	-	7.6-23.2	-	8.9-16.9	-	6.7-12.5	7.1-16.1	7.6-62.4
cobalt	µg/l	NA	-	-	-	-	-	-	-	-
copper	µg/l	NA	52.6-86.9	60.5-112	13.9-45.8	39.3-77.5	30.1-48.3	35-54	7.1-68.5	65.5-106
iron	µg/l	NA	167-472	1390-3480	341-1640	969-4240	231-601	1480-2850	321-939	1130-5540
magnesium	µg/l	NA	614-956	1170-1770	982-6070	2140-6860	660-929	1140-1700	3020-8960	4510-8790
manganese	µg/l	NA	49.8-66.5	64-85.3	24.7-42	34.4-61	24.4-42.2	39.1-59	34-7-71.6	39.2-119
nickel	µg/l	NA	-	8.3-19.7	-	8.8-18.9	-	7.8-11.2	-	7.1-33.9
potassium	µg/l	NA	-	532-780	684-2800	984-1590	-	554-858	2030-3860	2570-3810
silver	µg/l	NA	-	-	-	-	-	2.2	-	-

- : Not Detected.
NA : Not Analyzed

Table 16
Summary of Detected Chemicals, Storm Event Runoff and Storm Drain Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
(cont.'d)

Analyte	Units	Station BP	Station SW1				Station SW2			
			Runoff		Storm Drain		Runoff		Storm Drain	
			Soluble	Total	Soluble	Total	Soluble	Total	Soluble	Total
CLP-ICP (cont.'d)										
sodium	µg/l	NA	-	3820-4740	894-39100	3630-37600	-	2580-3720	7690-24200	26900-72700
vanadium	µg/l	NA	2.5-2.9	4.1-10.7	2.2-2.5	4-10.7	2.5	3.8-7.3	3-5.6	4.8-13.9
zinc	µg/l	NA	204-639	248-711	200-488	215-607	163-232	152-214	176-575	183-579
molybdenum	µg/l	NA	-	-	-	-	-	-	-	-
EPA 300.0										
sulfate	mg/l	-	-	NA	-	NA	-	NA	47	NA
nitrate as N	mg/l	0.35	0.66-0.59	NA	0.25-0.33	NA	0.16-0.32	NA	0.58-0.94	NA
chloride	mg/l	-	77	NA	20	NA	-	NA	29-420	NA
o-phosphate as P	mg/l	-	-	NA	-	NA	-	NA	-	NA
EPA 7196										
chromium VI	µg/l	NA	-	NA	-	NA	-	NA	-	NA

- : Not Detected.
NA : Not Analyzed

Table 16
Summary of Detected Chemicals, Storm Event Runoff and Storm Drain Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
(cont.'d)

Analyte	Units	Station SW3 Storm Drain Soluble	Station SW3 Storm Drain Total	Station SW4 Runoff Soluble	Station SW4 Runoff Total	Station SW4 Storm Drain Soluble	Station SW4 Storm Drain Total
CLP-CVAA							
mercury	µg/l	0.27-0.31	0.32-0.78	-	0.26	-	0.32
CLP-FUAA							
arsenic	µg/l	2-2.6	2.6-5.3	-	-	3.4-6.5	2-5.3
lead	µg/l	44.9-78.6	42.3-103	26.7-90.2	12.7-88.2	42.3-18.6	20.7-51.5
selenium	µg/l	-	-	-	-	-	-
CLP-ICP							
aluminum	µg/l	-	1900-4980	-	1300-1770	-	363-1160
antimony	µg/l	-	-	-	-	-	-
barium	µg/l	30.4-53.6	37.2-73.8	10.1-40.5	42.4-53.2	-	24.2-39.5
beryllium	µg/l	-	-	-	-	-	-
cadmium	µg/l	-	-	-	-	-	-
calcium	µg/l	108000-28900	27500-95300	4290-17200	4370-17400	3250-4110	2930-3660
chromium	µg/l	4.3-7.6	12.2-31.3	4.2	4.6-14.1	5.6	7.6-12.2
cobalt	µg/l	-	4.8-8.4	-	-	-	-
copper	µg/l	81.6-43.8	50.4-158	16-60.2	21.4-77.5	60.8-84.4	69.9-98.1
iron	µg/l	641-1840	3440-9190	358-436	394-2860	394	668-2360
magnesium	µg/l	41200-202000	43200-189000	302-918	479-1130	1250-2000	1670-2650
manganese	µg/l	184-766	205-779	15-33.3	20.1-54	27.6-47.4	33-53.8
nickel	µg/l	8.2-16	22.2-151	-	4.7-14.8	-	7.8-17.4
potassium	µg/l	28900-67200	28400-65200	-	279-602	1000-1280	1010-1330
silver	µg/l	-	-	-	-	-	2.7

- : Not Detected.
NA : Not Analyzed

Table 16
Summary of Detected Chemicals, Storm Event Runoff and Storm Drain Water Samples
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
(cont.'d)

Analyte	Units	Station SW3 Storm Drain Soluble	Station SW3 Storm Drain Total	Station SW4 Runoff Soluble	Station SW4 Runoff Total	Station SW4 Storm Drain Soluble	Station SW4 Storm Drain Total
sodium	µg/l	288000-1520000	294000-1480000	-	1040-3080	8380-14100	8050-13300
vanadium	µg/l	3.9-5.4	-	2.0-2.0	6.3-8.1	-	-
zinc	µg/l	154-278	150-280	59.3-597	143-598	345-547	331-472
molybdenum	µg/l	-	-	-	-	-	-
EPA 300.0							
sulfate	mg/l	100-390	NA	-	NA	-	NA
nitrate as N	mg/l	0.70-0.78	NA	0.12-0.19	NA	0.28-0.47	NA
chloride	mg/l	580-3200	NA	-	NA	12.0-26	NA
o-phosphate as P	mg/l	0.37-0.58	NA	-	NA	-	NA
EPA 7196							
chromium VI	µg/l	-	NA	-	NA	-	NA

- : Not Detected.
NA : Not Analyzed

ILLUSTRATIONS

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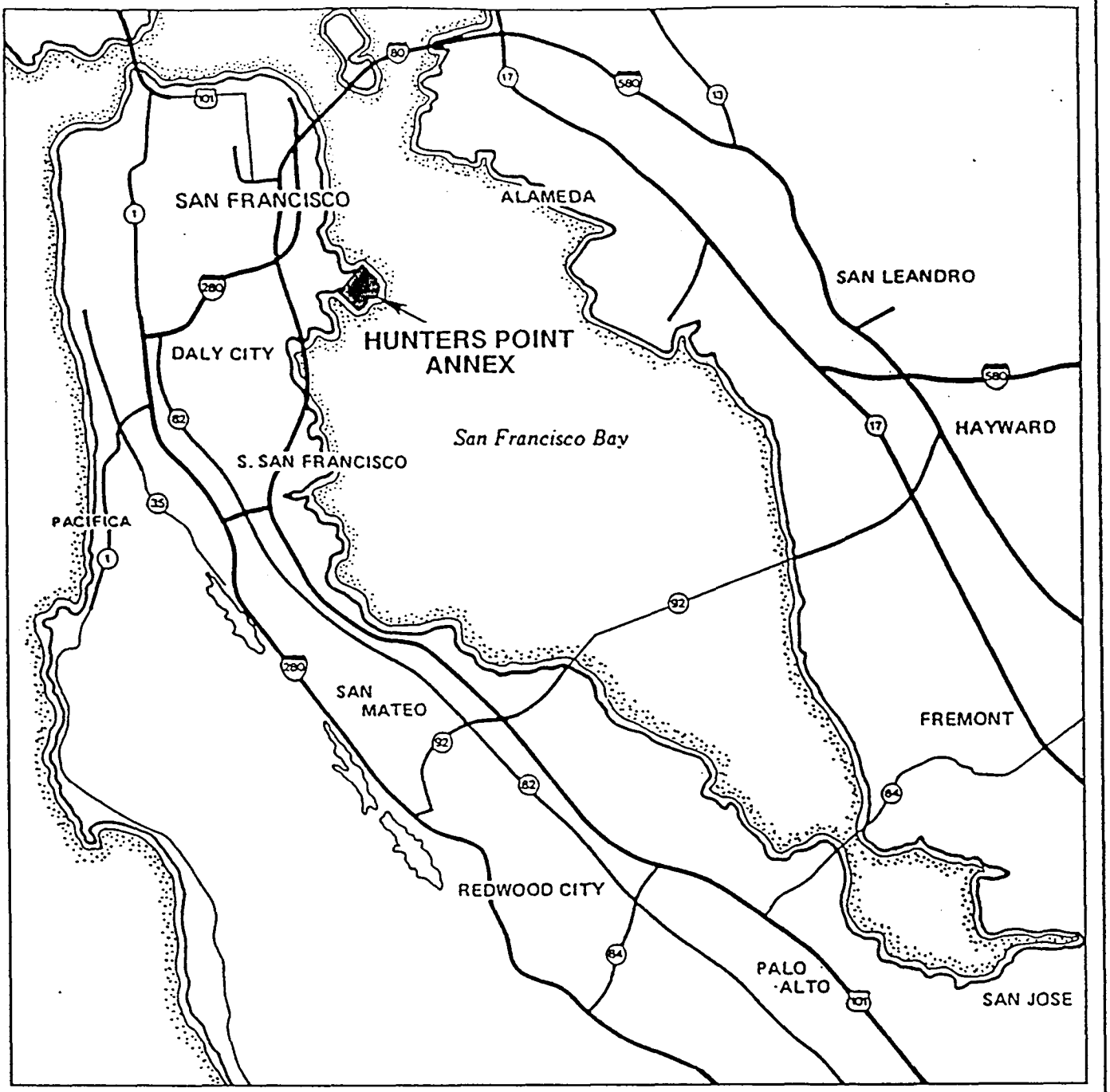

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SCALE IN MILES

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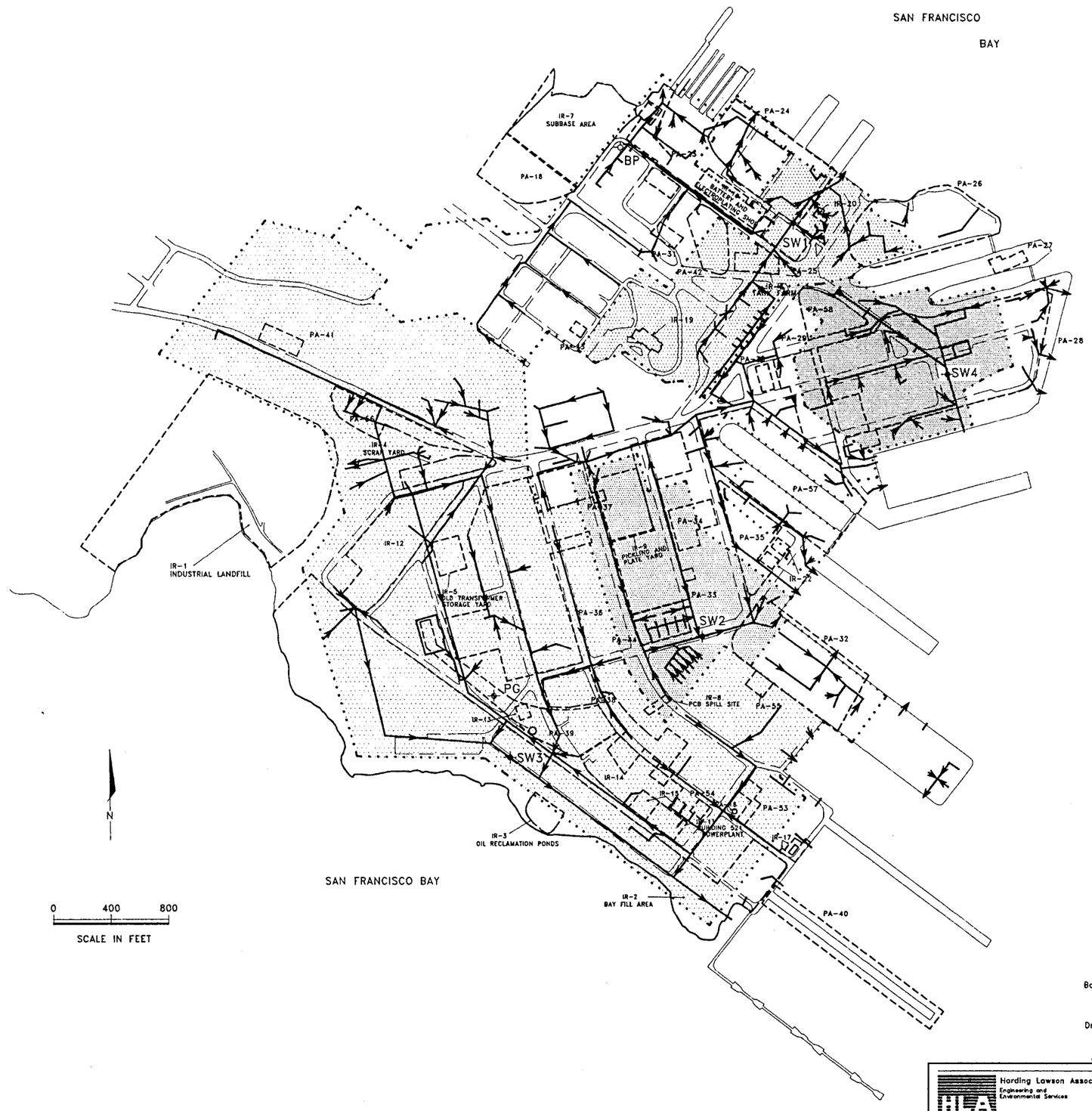
Harding Lawson Associates
Engineers, Geologists
& Geophysicists

Location Map
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
San Francisco, California

PLATE **1**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
DM	02176,339.02		5/91		



EXPLANATION

- Storm Sewer Drain Lines
- Boundaries of Drainage Areas
- SW1 Stormwater Sampling Station
- PG HPA Precipitation Gage
- BP Bulk Precipitation Station
- Boundaries of IR or PA Areas
- Drainage Area A
- Drainage Area D
- Drainage Area H
- Drainage Area E

Base Map taken from:
Topographic and Geologic Map, Scoping Document
Harding Lawson Associates, 02/88

Drainage Areas and Storm Sewer Drain Lines from
YEI, 1988.

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CAD FILE: HPA2W

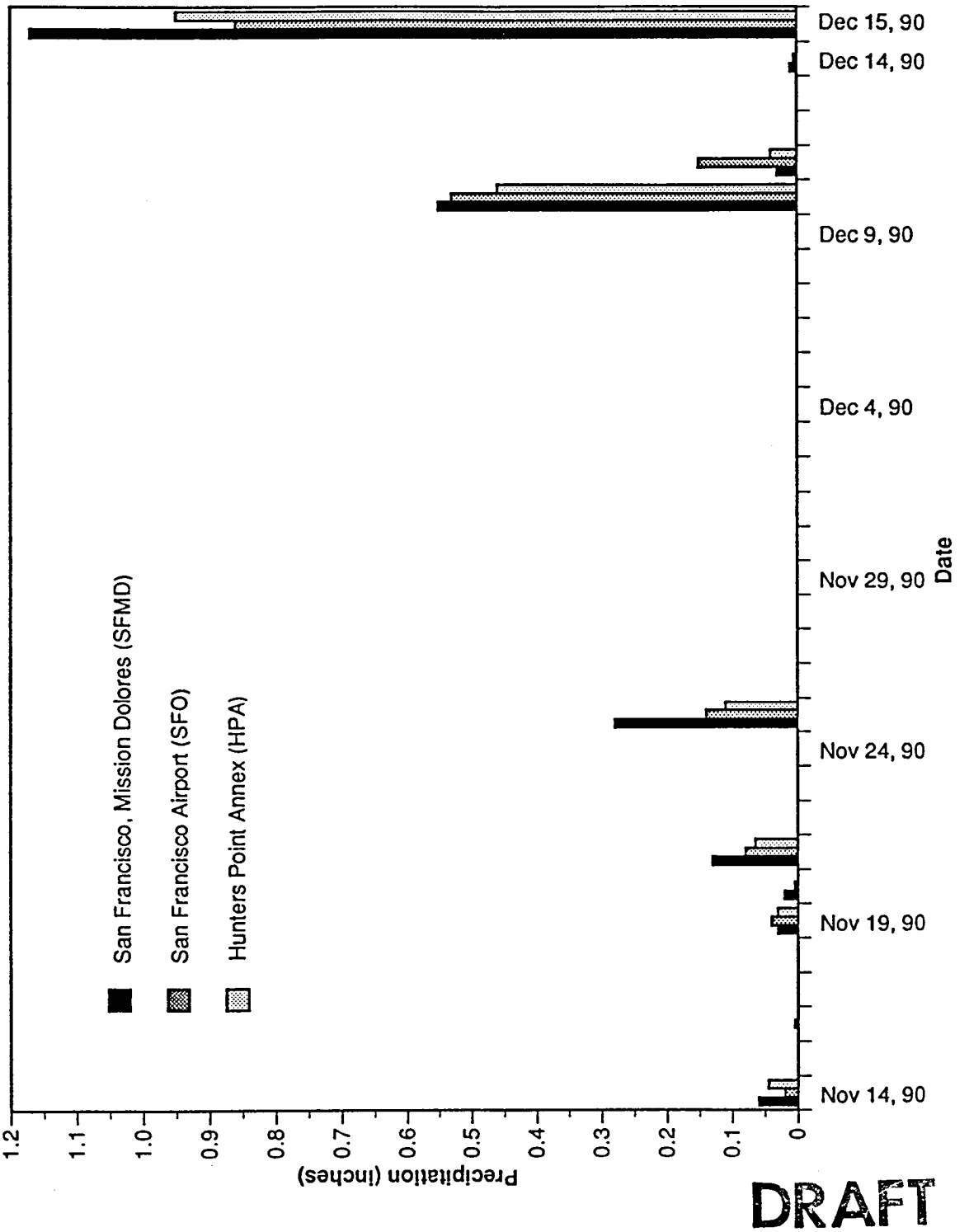
Harding Lawson Associates
Engineering and Environmental Services

Sampling Stations
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
San Francisco, California

PLATE 2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
CEG	02176,339.02		5/91	

22491



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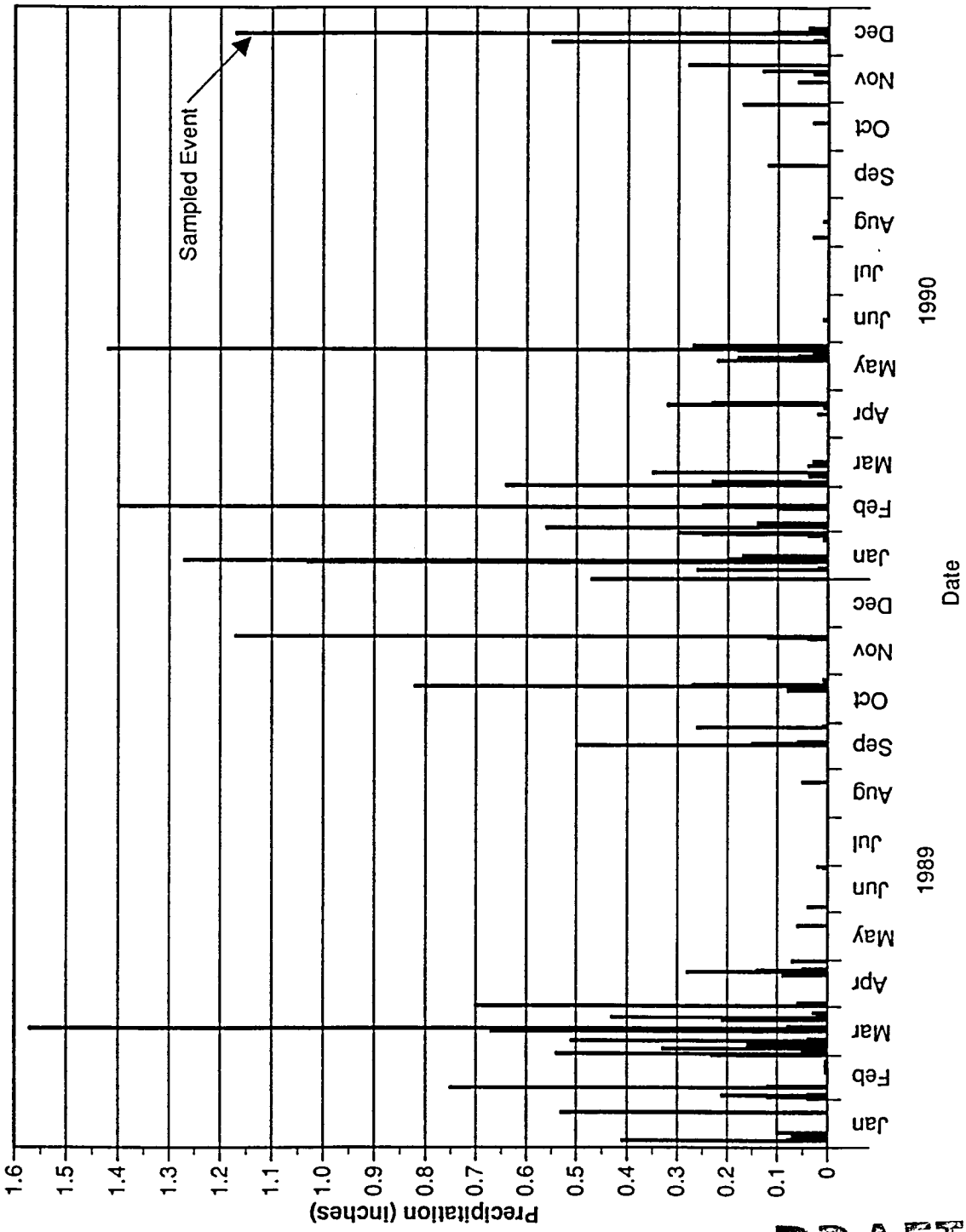
Engineering and Environmental Services

Precipitation Record from HPA, SFO, and SFMD
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
San Francisco, California

PLATE **3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
DLFc	02176,339.02		5/91	



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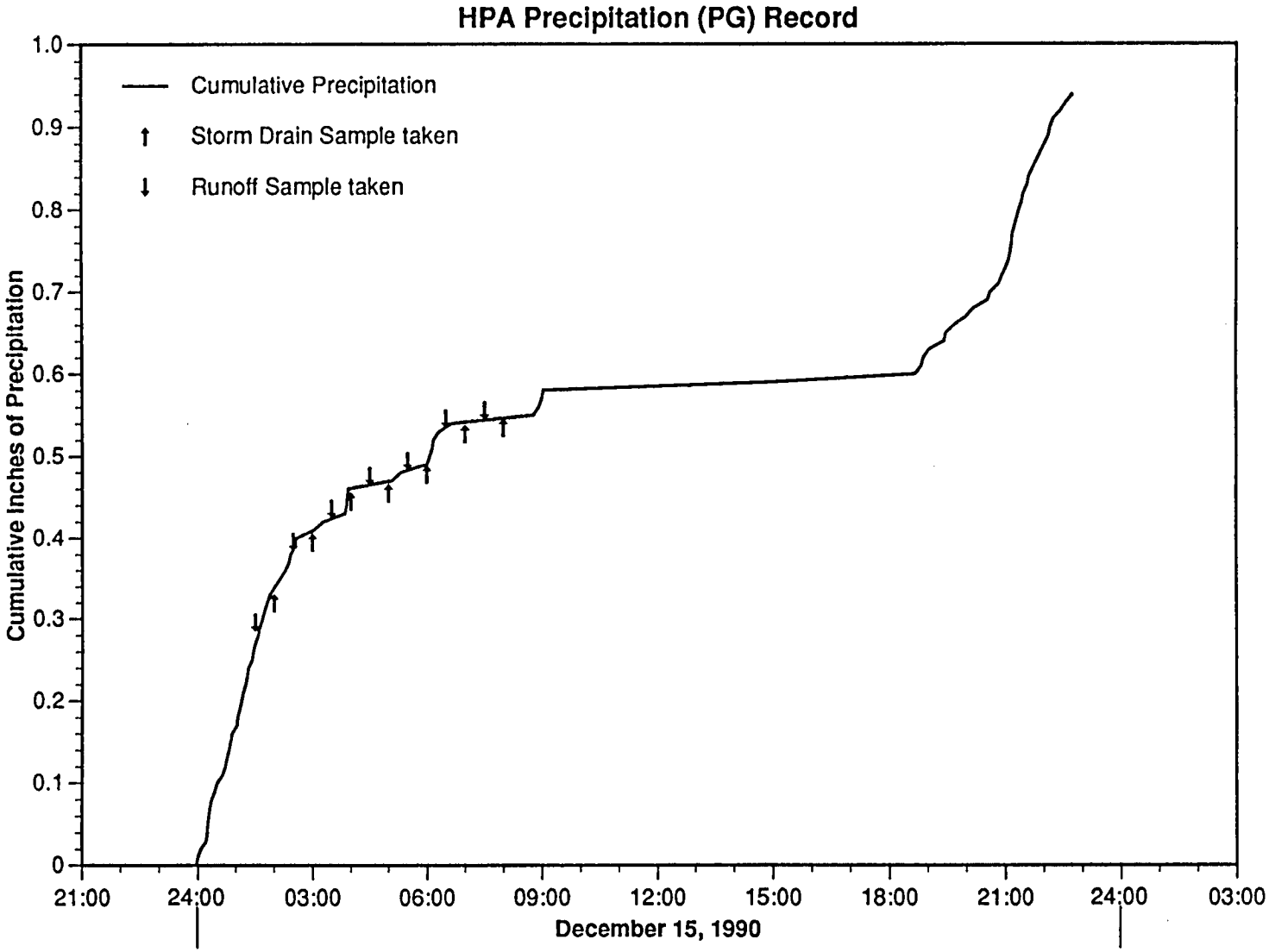
Engineering and Environmental Services

1989 and 1990 Precipitation Record for SF Airport (SFO)
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
San Francisco, California

PLATE **4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
DLFc	02176,339.02		5/91	



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Harding Lawson Associates
Engineering and
Environmental Services

Storm Event Precipitation Hydrograph
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex
San Francisco, California

PLATE **5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
DLFc	02176.339.02		5/91	

APPENDIX

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APPENDIX
DATA VALIDATION REPORT

TABLE OF CONTENTS

A.1.0 INTRODUCTION 1

A.1.1 Data Qualifiers 1

A.2.0 BLANKS 3

A.2.1 Laboratory Blanks 3
A.2.2 Field Blanks 5

A.3.0 DUPLICATES 11

A.3.1 Laboratory Duplicates 11
A.3.2 Field Duplicates 12

A.4.0 SPIKES 13

A.4.1 Laboratory Spikes 13
A.4.2 Surrogate Spike Review 14

A.5.0 HOLDING TIME REVIEW 15

A.6.0 ICP SERIAL DILUTION DATA 16

A.7.0 LABORATORY QC DATA REPORT FORMS 18

A.8.0 REFERENCES 19

TABLES

DRAFT

APPENDIX
DATA VALIDATION REPORT

LIST OF TABLES

A1 LIST OF ORGANIC COMPOUNDS DETECTED IN FIELD BLANKS

A2 LIST OF INORGANIC COMPOUNDS DETECTED IN FIELD BLANKS

A3 FIELD DUPLICATE WATER SAMPLES, RELATIVE PERCENT DIFFERENCE, ORGANIC COMPOUNDS

A4 FIELD DUPLICATE WATER SAMPLES, RELATIVE PERCENT DIFFERENCE, INORGANIC COMPOUNDS

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Appendix

Data Validation Report

A.1.0 INTRODUCTION

The following sections provide an evaluation and discussion of the internal and external Quality Control (QC) sample results. Laboratory QC results evaluated consist of blanks, matrix duplicates, matrix spike/matrix spike duplicates (MS/MSD), method blank spike/method blank spike duplicates (MBS/MBSD), ICP-serial dilution, surrogate spikes and holding times. Field QC results evaluated include blanks (trip, equipment, and field), and matrix duplicates.

The sample results and supporting QC sample results were analyzed in four laboratory batches. The four sediment sample results and supporting laboratory QC sample results appear under the Lab Batch 5020. The four pre-event water sample results and supporting laboratory QC sample results appear under the lab batch 7148. The forty storm event sample results and supporting laboratory QC sample results appear under lab batches 7323 and 7329.

A.1.1 Data Qualifiers

The analytical data has been qualified and appears in the data tables with both laboratory assigned qualifiers and project qualifiers. The qualifiers appear in a format which implies qualifier justification and prioritization. The first qualifier in the sequence is one of the four project assigned qualifiers A, J, U, or R. The four qualifiers imply that the data is (1) accepted and considered accurate (A), (2) considered qualitatively accurate but quantitatively estimated (J), (3) qualitatively undetected at the concentration presented (U), or (4) unusable and rejected (R). Following the project

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qualifier, either a back slash (/) and/or numerical characters (123456789) followed by back slash (/) or no back slash appear. The numerical characters relate to preceding project qualifier. Qualifiers appearing after the back slash are either project assigned qualifiers and/or laboratory assigned qualifiers. Explanations of the individual qualifiers appear at the end of the data tables. The following are presented as examples.

10 A:	The value 10 is accurate and acceptable
10 J:	The value 10 is considered an estimate due to its quantification being below the CRDL (CLP inorganics) or the CRQL (CLP organics)
10 J2:	The value 10 is considered estimated due to the defined meaning of the "2"
10 J23:	The value 10 is considered estimated due to the defined meaning of both the "2" and the "3"
10 J23/*N:	The value 10 is considered estimated due to the defined meaning of both the "2" and the "3". The "*" and the "N" are laboratory assigned qualifiers.
10 U1/J23*N:	The value 10 is considered undetected due to the defined meaning of the "1". The information encoded in the "J23" qualifiers applies to the data but takes lower priority to the information encoded in the "U1" qualifier. The "*N" are laboratory assigned qualifiers.

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A.2.0 BLANKS

A.2.1 Laboratory Blanks

Results for laboratory calibration and preparation blanks are reported in Section A.7.1. The results are summarized as follows:

- CLPVOC: Twelve method blanks were run as part of the CLPVOC analyses. Methlyene chloride appeared at low concentrations (2 ug/kg, 1-3 µg/l) in nine of the twelve blanks. Acetone appeared at low concentrations (4 ug/kg, 2-11 µg/l) in seven of the twelve blanks. 4-methyl-2-pentanone (2-6 µg/l), 2-hexanone (3-7 µg/l), 1,1,2,2-tetrachloroethane (1-4 µg/l) appeared in two of the twelve blanks. Bromoform (2 µg/l), 2-butanone (11 µg/l), 1,1,2-trichloroethane (2 µg/l) appeared in one of the twelve blanks. The CLPVOC method blank results required qualification of all the positive results for methlyene chloride and acetone as non-detected (*EPA, 1988a*).

- CLPSOC: Five method blanks were run as part of the CLPSOC analyses. Bis (2-ethylhexyl) phthalate appeared at low concentrations (79 ug/kg, 2-3 µg/l) in three of the five blanks. The CLPSOC method blank results required qualification of all the positive results for bis (2-ethylhexyl) phthalate as non-detected.

- CLP Pest/PCB: Five method blanks were run as part of the CLP Pest/PCB analyses. No target compounds were observed in the five method blanks.

- CLP metals: Copper, iron, lead, potassium, silver, sodium, zinc and molybdenum appear at low concentrations in the inorganic blank data for lab batch 5020. Comparison of inorganic blank results to environmental sample results indicates that an apparent positive result for molybdenum in sample 89463SDS be qualified as non-detected (*EPA, 1988*b). All other environmental sample results from lab batch 5020 are unaffected by the inorganic blank results.

  Calcium, iron, magnesium, sodium, zinc, arsenic, barium, copper, and vanadium appear at low concentrations in the inorganic blank data for lab batch 7148. Comparison of inorganic blank results to environmental sample results indicates that the apparent positive results for arsenic (total and soluble) in samples 9046E133, 9046E134, 9046E136, 9046E137 be qualified as non-detected (*EPA, 1988*b).

  Aluminum, antimony, arsenic, barium, calcium, copper, iron, magnesium, manganese, nickel, potassium, sodium, silver, and vanadium appeared in the inorganic blank data for lab batches 7323 and 7329. Comparison of inorganic blank results to environmental sample results indicates that the apparent positive results for total vanadium for samples 90502R04,

90502R05, 90502S04, 90502S05, 90502S06, 90504R00, 90504R01, 90504R02, 90504R03, 90504R05, 90504S01, 90504S02, and soluble vanadium 90504S04, 90504S06, 90502S04, 90503S00, 90503S01, 90503S03, 90503S04, 90503S05, 90503S06, 90504S00, 90504S01, 90504S02, 90504S02, 90504S04, 90504R00, 90504R01, and 90504R05 be qualified as non-detected (*EPA, 1988b*). Analysis of inorganic blank data indicates that the apparent positive results for total antimony in samples 90504R01, 90504R05 and soluble antimony in 90504R03 be qualified as non-detected. Analysis of inorganic blank data indicates that the apparent positive results for total silver in samples 90504S01 and soluble silver in samples 90504S00, 90504S01, 90504S04, 90504R05, 90502S04, 90504R00 be qualified as non-detected. Analysis of inorganic blank data indicates that the apparent positive results for soluble nickel in samples 90501R00, 90501R01, 90501R02, 90501R04, 90501S00, 90501S07, 90501S08, 90502S00, 90502S01, 90502S02, 90502R04, 90502R05, 90504S00, 90504S01, 90504S02, 90504S04, 90504S06, 90504R02, 90504R05, 90502S05, 90502S06 be qualified as non-detected. Analysis of inorganic blank data indicates that the apparent positive results for soluble chromium in samples 90501S08, 90502S00, 90502S01, 90502S02, 90502S03 be qualified as non-detected.

- CLPCN: Four method blanks were analyzed for cyanide. All blanks were free of the target analyte.

- Hexavalent chromium: Four method blanks were analyzed for hexavalent chromium during the analyses of the environmental samples. All blanks were free of the target analyte.

- TPH as Diesel: Six method blanks were analyzed for TPH-diesel during the analyses of the environmental samples. All blanks were free of the target analyte.

- TPH as Gasoline: Sixteen method blanks were analyzed for TPH-gasoline during the analyses of the environmental samples. All blanks were free of the target analyte.

- Oil and Grease: Five method blanks were analyzed for oil and grease during the analyses of the environmental samples. All blanks were free of the target analyte.

- Anions: Three method blanks were analyzed for chloride, nitrate, sulfate, and orthophosphate during the analyses of the environmental samples. All blanks were free of the target analytes.

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A.2.2 Field Blanks

Blank samples created during the investigation consisted of four trip blanks, three equipment blanks, and one field blank. The analytical results of the blank analyses appear in Tables A1 and A2.

The four trip blanks consisted of analytical laboratory-created distilled deionized organic free water provided by the contracting laboratory. Trip blanks were placed in the ice chests used for storm event sample storage and traveled with the samples to the analytical laboratory. Trip blanks were analyzed only for volatile organic compounds. All four trip blanks were free of CLP-VOC target analytes.

The three equipment blanks consisted of analytically certified distilled deionized organic free water poured through the precleaned PVC bailers and plastic beakers used for sample collection. One equipment blank was created during the pre-event sampling round and two equipment blank was created during the storm event sampling round. Equipment blanks were analyzed by the same methods used for the environmental samples. A summary of the equipment blank results follows:

- The equipment blanks were free of target analytes for these test methods; CLPVOC, CLPSOC, CLP Test/PCB, TPH-Gas, EPA 9070, CLPCN, EPA 7196.

- Total petroleum hydrocarbons as diesel appeared in the equipment blank 90502R09 at a concentration of 0.11 mg/l. The presence of TPH-Diesel in the field blank requires that all the TPH-Diesel storm event results be qualified. Storm event TPH-Diesel results less than five times the greatest concentration observed in any of the blanks (0.55 mg/l) be qualified with a "U" as undetected. TPH-Diesel results greater than five times the concentration observed in the blanks are qualified "J" as estimated. The following sample numbers are have TPH-Diesel results qualified as estimated: 90501S01, 90501S02, 90501S07, 90502S00, 90503S00, 90503S01, 90503S02, 90504S01, 90504S04. The other 30 storm event samples have TPH-Diesel results qualified as non-detected.

- Chloride appeared in the three equipment blanks 9046E132, 90502R09, and 90503R00 at the concentrations 22, 2.2, and 1.3 mg/l, respectively. Application of the validation criteria recommended for CLP data

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necessitates the qualification of chloride results with a "U" as non-detected for the following samples: 9050BP01, 90501R00, 90501R01, 90501S00, 90501S01, 90501S02, 90501S07, 90502R00, 90502R01, 90502R02, 90502R03, 90502R04, 90502R05, 90504R01, 90504R02, 90504R03, and 90504R05.

- Sulfate appeared in the two equipment blanks 90502R09 and 90503R00 at the concentrations 4.8, .52 mg/l, respectively. Application of the validation criteria recommended for CLP data necessitates the qualification of sulfate results with a "U" as non-detected for the following samples: 9050BP01, 90501R00, 90501R01, 90501R02, 90501R04, 90501S00, 90501S01, 90501S02, 90501S07, 90501S08, 90502R00, 90502R01, 90502R02, 90502R03, 90502R04, 90502R05, 90502S00, 90502S01, 90502S02, 90502S03, 90502S04, 90502S05, 90504R01, 90504R02, 90504R03, 90504R05, 90504S00, 90504S01, 90504S02, 90504S04, and 90504S06.

- Lead (soluble) appeared in the four equipment blanks 9046E132, 90501R09, 90502R09 and 90503R00 at the concentrations 3, 3.1, 3.9, and 2.4 μg/l, respectively. Application of the validation criteria recommended for CLP data necessitates the qualification of the lead (soluble) results with a "U" as non-detected for the following samples: 90504R02, 9046E133, 9046E136.

- Lead (total) appeared in the two equipment blanks 9046E132 and 90501R09 at the concentrations 1.4 and 2 μg/l, respectively. Application of the validation criteria recommended for CLP data necessitates the qualification of the lead (total) result with a "U" as non-detected for the sample 9046E133.

- Calcium (soluble) appeared in the three equipment blanks 9046E132, 90502R09, and 90503R00 at concentrations of 261, 268, and 413 μg/l, respectively. The calcium (soluble) concentrations observed in the equipment blanks were lower than that seen in the field blank. Data validation was based on field blank results.

- Calcium (total) appeared in the four equipment blanks 9046E132, 90501R09, and 90502R09, and 90503R00 at the concentrations 587, 84.6, 269 and 413 μg/l, respectively. The calcium (total) concentrations observed in the equipment blanks were lower than those seen in the field blank. Date validation was based on field blank results.

- Iron (soluble) appeared in the three equipment blanks 9046E132, 90502R09, 90503R00 at the concentrations 92.6,35.8, and 60.2 μg/l, respectively. Application of the validation criteria recommended for CLP data necessitates the qualification of iron (soluble) results with a "U" as non-detected for the following samples: 90501S01, 90502S05, 90502S06, 90504R02, 90504R03, 90504S01, 90504S02, 90504S04, and 90504S06.

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- Iron (total) appeared in the three equipment blanks 9046E132, 90501R09, 90503R00 at the concentrations 150, 25, and 43.8 μg/l, respectively. Application of the validation criteria recommended for CLP data necessitates the qualification of iron (totals) results with a "U" as non-detected for the following samples: 9046E133, 9046E134, 9046E136, and 9046E137.

- Magnesium (soluble) appeared in the two equipment blanks 9050E132 and 90502R09 at concentrations of 349.6 and 59.8 μg/l, respectively. Application of the validation criteria recommended for CLP data necessitates the qualification of magnesium (soluble) results with a "U" as non-detected for sample 90504R00.

- Magnesium (total) appeared in the two equipment blanks 90501R09 and 90502R09 at concentrations of 27.8 and 79.8 μg/l, respectively. Application of the validation criteria recommended for CLP data indicates that no qualification of magnesium (total) results are necessary.

- Sodium (soluble) appeared in the two equipment blanks 90501R09 and 90502R09 at concentrations of 167 and 719 μg/l, respectively. The sodium (soluble) concentrations observed in the equipment blanks were lower than those seen in the field blank. Date validation based on field blank results.

- Sodium (total) appeared in the three equipment blanks 90501R09, 90502R09 and 90503R00 at the concentrations 75.1, 705, and 615 μg/l, respectively. The sodium (total) concentrations observed in the equipment blanks were lower than those seen in the field blank. Data validation was based on field blank results.

- Manganese (soluble) appeared in the two equipment blanks 9046E132 and 90503R00 at the concentrations 43.7 and 1.6 μg/l, respectively. Application of the validation criteria recommended for CLP data necessitates the qualification of manganese (soluble) results with a "U" as non-detected for the following samples: 9046E134 and 9046E137.

- Manganese (total) appeared in the single equipment blanks 9046E132 at the concentration of 28.4 μg/l. Application of the validation criteria recommended for CLP data necessitates the qualification of manganese (total) results with a "U" as non-detected for the following samples: 9046E134, 9046E136, and 9046E137.

- Barium (soluble) appeared in the two equipment blanks 90502R09 and 90503R00 at the concentrations 3.0 and 7.2 μg/l, respectively. Application of the validation criteria recommended for CLP data necessitates the qualification of barium (soluble) results with a "U" as non-detected for the following samples: 90501R00, 90501S00, 90501S01,

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90501S02, 90501S07, 90501S08, 90502R01, 90502R03, 90502R04, 90502R05, 90502S00, 90502S01, 90502S02, 90502S03, 90502S04, 90502S05, 90502S06, 90504R02, 90504R03, 90504S00, 90504S01, 90504S02, 90504S04, and 90504S06.

- Barium (total) appeared in the two equipment blanks 90502R09 and 90503R00 at the concentrations 4.5 and 4.6 μg/l, respectively. Application of the validation criteria recommended for CLP data necessitates the qualification of barium (total) results with a "U" as non-detected for the following samples: 90504R02, 90504R03, 90504S02, 90504S04, and 90504S06.

- Zinc (soluble) appeared in the two equipment blanks 9046E132 and 90503R00 at the concentrations 38 and 10.5 μg/l, respectively. Application of the validation criteria recommended for CLP data indicates that no qualification of zinc (soluble) results is necessary.

- Zinc (total) appeared in the two equipment blanks 9046E132 and 90503R00 at the concentrations 75.2 and 12.9 μg/l, respectively. Application of the validation criteria recommended for CLP data necessitates the qualification of zinc (total) results with a "U" as non-detected for the following samples: 90504R02, 90504R03.

- Potassium (soluble) appeared in the single equipment blank 90502R09 at the concentration of 110 μg/l. Application of the validation criteria recommended for CLP data necessitates the qualification of potassium (soluble) results with a "U" as non-detected for the following samples: 90501R00, 90501R01, 90501R02, 90501R04, 90502R00, 90502R01, 90502R02, 90502R03, 90502R04, 90502R05, 90504R00, 90504R01, 90504R02 90504R03, 90504R05.

- Aluminum (soluble) appeared in the single equipment blank 90503R00 at the concentration of 171 μg/l. Application of the validation criteria recommended for CLP data necessitates the qualification of aluminum (soluble) results with a "U" as non-detected for the following samples: 90501R00, 90501R01, 90501R02, 90501R04, 90501S00, 90501S01, 90501S02, 90501S07, 90501S08, 90502R00, 90502R01, 90502R02, 90502R03, 90502R04, 90502R05, 90502S00, 90502S01, 90502S02, 90502S03, 90502S04, 90502S05, 90502S06, 90503S00, 90503S01, 90503S02, 90503S03, 90503S04, 90503S05, 90503S06, 90504R00, 90504R01, 90504R02, 90504R03, 90504R05, 90504S00, 90504S01, 90504S02, 90504S04, 90504S06.

- Aluminum (total) appeared in the single equipment blank 90503R00 at the concentration of 47.6 μg/l. Application of the validation criteria recommended for CLP data necessitates the qualification of aluminum (soluble) results with a "U" as non-detected for the following samples: 90504R02, and 90504R03.

A field blank (90504R07) was generated during the storm event sampling portion of this investigation. The field blank consisted of pouring analytically certified distilled deionized organic free water directly into sample bottles during the storm event sampling at station SW4. The field blank was analyzed by the same methods used for the environmental samples. A summary of the field blank results follows:

- The field blank was free of target analytes for the test methods; CLPVOC, CLPSOC, CLPPest/PCB, TPH-Gas, EPA 9070, CLPCN, EPA 7196.

- Total petroleum hydrocarbons as diesel appeared in these field blanks at a concentration of 0.095 mg/l. The concentration observed in field blank is lower than that observed in the equipment blank. TPH-Diesel validation is based on equipment blank results.

- Lead (soluble) appeared in the field blank at the concentration 3.1 μg/l. The lead (soluble) result observed in the field blank is lower than those observed in equipment blanks. Lead (soluble) data validation was based on equipment blank results.

- Lead (total) appeared in the field blank at the concentration 2 μg/l. The lead (total) results observed in the field blank is lower than those observed in the equipment blanks. Lead (total) results validation was based on equipment blank results.

- Calcium (total) appeared in the field blank at the concentration of 608 μg/l. Application of the validation criteria recommended for CLP data necessitates the qualification of calcium (total) results with a "U" as non-detected for the following samples: 90501R00, 90501R02, 90502R00, 90502R02, 90504R03, 90504R04, 90504R05, and 90504S01.

- Calcium (soluble) appeared in the field blank at the concentration of 641 μg/l. Application of the validation criteria recommended for CLP data necessitates the qualification of calcium (soluble) results with a "U" as non-detected for the following samples: 90501R00, 90501R01, 90501R02, 90502R00, 90504R03, 90504R04, 90504R05, and 90504S01.

- Sodium (total) appeared in the field blank at the concentration of 1360 μg/l. Application of the validation criteria recommended for CLP data necessitates the qualification of sodium (total) results with a "U" as non-detected for the following samples: 90501R00, 90501R01, 90502R00, 90502R02, 90502R03, 90502R04, 90502R05, 90504R00, 90504R01, 90504R02, 90504R03, and 90504R05.

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- Sodium (soluble) appeared in the field blank at the concentration of 1440 μg/l. Application of the validation criteria recommended for CLP data necessitates the qualification of sodium (soluble) results with a "U" as non-detected for the following samples: 90501R00, 90501R01, 90501R02, 90501R04, 90501S00, 90501S01, 90501S07, 90502R00, 90502R01, 90502R02, 90502R03, 90502R4, 90502R05, 90504R00, 90504R01, 90504R02, 90504R03, and 90504R05.

- Manganese (total) appeared in the field blank at the concentration 1 μg/l, but required no data qualification.

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A.3.0 DUPLICATES

A.3.1 Laboratory Duplicates

Four sets of matrix duplicates were analyzed as part of the CLP inorganic analyses. Calculated RPD values were within the CLP defined criteria of 20 percent for water or 35 percent for soil in all cases except the following:

- Duplicate analyses of sediment sample 89461SDS from Lab Batch 5020 produced RPD values in excess of 35 percent for arsenic (72.0 percent), cadmium (178 percent), copper (59.3 percent), and zinc (52.9 percent). These duplicate results require that arsenic, cadmium, copper and zinc results for samples 89461SDS, 89462SDS, 89463SDS and 89464SDS be qualified with a "J" as estimated.

- Duplicate analyses of water sample 9046E132 from Lab Batch 7148 produced RPD values in excess of 20 percent for aluminum (67.9 percent), barium (62.1 percent), calcium (61.8 percent), copper (51.9 percent), iron (59.2 percent), manganese (58.8 percent), sodium (48 percent) and zinc (45.4 percent). The duplicate results require that the aluminum, barium, calcium, copper, iron, manganese, sodium and zinc results (soluble and total) for samples 9046E132, 9046E133, 9046E134, 9046E135 and 9046E136 will be qualified with a "J" as estimated.

- Duplicate analyses of water sample 90501R00 from Lab Batch 7323t produced RPD values in excess of 20 percent for aluminum (23 percent), mercury (25.3 percent), nickel (24.7 percent) and vanadium (49.3 percent). The duplicate results require that the aluminum, mercury, nickel and vanadium results (total) for samples 90501R00, 90501R01, 90501R02, 90501R04, 90501R09, 90501S00, 90501S01, 90501S02, 90501S03, 90501S07, 90501S08, 90502R00, 90502R01, 90502R02, 90502S00, 90502S01, 90502S02 be qualified with a "J" as estimated.

- Duplicate analyses of water sample 90501R00 from Lab Batch 7323s produced RPD values in excess of 20 percent for lead (26.5 percent) and nickel (62.9 percent). The duplicate results require that the lead and nickel results (soluble) for samples 90501R00, 90501R01, 9050R02, 90501R04, 90501R09, 90501S00, 90501S01, 90501S02, 90501S03, 90501S07, 90501S08, 90502R00, 90502R01, 90502R02, 90502S00, 90502S01, 90502S02 be qualified with a "J" as estimated.

- Duplicate analyses of water sample 90502R03 from Lab Batch 7323t produced RPD values in excess of 20 percent for aluminum (30.7 percent) and potassium (20.5 percent). The duplicate results require that the

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aluminum and potassium results (total) for samples (90502R03, 90503R00, 90503S00, 90503S01, 90503S02, 90503S03, 90503S04, 90503S05, 90503S06 be qualified with a "J" as estimated.

A.3.2 Field Duplicates

Four field duplicates were collected during the investigation and submitted for analysis as separate samples. Tables A3 and A4 present the relative percent difference (RPD) values for the organic and inorganic results, respectively. Due to the large volume of water required for a single sample and its duplicate, the duplicate samples consisted of water collected from replicate bailer samples that occurred within five minutes of each other.

All of the field duplicate RPD values were below the project goal of 100 percent for external water duplicates except for the following:

- The duplicate samples from SW2 (90502S06 and 90502R07) possessed RPD values for the soluble concentrations of calcium, magnesium, potassium, and sodium of 104 percent, 153 percent, 141 percent, and 151 percent, respectively. The RPD values for the total concentrations of calcium, magnesium, potassium, and sodium also exceeded the project goal of 100 percent with the values 110 percent, 154 percent, 142 percent, 153 percent.

- The duplicate samples from SW1 (90501S02 and 90501S03) possessed RPD values for chloride of 170 percent.

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A.4.0 SPIKES

A.4.1 Laboratory Spikes

The results of laboratory matrix spike, blank spike, and surrogate spikes are included in Section A.7.3. A summary of the matrix spike results follows:

- The six CLPVOC matrix-spike (MS) and matrix-spike-duplicate (MSD) sample pair percent recovery (% R) and duplicate relative percent difference (RPD) values were within the CLP quality control limits.

- The two CLPVOC method-blank-spike (MBS) and method-blank-spike-duplicate (MBSD) sample pair % R or RPD values were within the CLP and quality control limits. No action was taken based on these results.

- Three of the four CLPSOC MS/MSD sample pairs displayed % R or RPD values outside of CLP quality control limits. No action was taken based on these results.

- Four of the five CLPSOC MBS/MBSD sample pairs displayed % R or RPD values outside of CLP quality control limits. No action was taken based on these results.

- Two of the four CLP-Pest/PCB MS/MSD sample pairs displayed % R or RPD values outside of CLP quality control limits. No actions was taken based on these results.

- Four of the five CLPPest/PCB MBS/MBSD sample pairs displayed % R or RPD values outside of CLP quality control limits. No action was taken based on these results.

- Seven of the nine CLP inorganic matrix spike samples displayed % R values which fell outside of CLP QC limits and necessitated the qualification of the environmental sample results. QC sample 90502R03S (total) displayed % R values exceeding 125 percent for lead (total), thallium (total), and arsenic (total). QC sample 90502R03S necessitates the qualification of the lead (total), thallium (total), and arsenic (total) detected values with a "J" as estimated for samples: 90502R03, 90503R00, 90503S00, 90503S01 90503S02, 90503S03, 90503S04, 90503S05, 90503S06.

- QC sample 90502S04S (total) displayed % R values less than 75 percent for lead (total), thallium (total), and selenium (total). QC sample 90502S04S necessitates the qualification of the lead (total), thallium (total), and selenium (total) values with a "J" as estimated for samples: 90502R04, 90503R05, 90502R07, 90502R09 90502S04, 90502S05, 90502S06, 90504R00, 90504R01, 90504R02, 90504R03, 90504R05, 90504R07, 90504R09, 90504S01, 90504S02. 90504S04, 90504S06.

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- QC sample 90502S04S (soluble) displayed % R values less than 75 percent for lead (soluble) and thallium (soluble). QC sample 90502S04S necessitates the qualification of the lead (soluble) and thallium (soluble) values with a "J" as estimated for samples: 90502R04, 90503R05, 90502R07, 90502R09 90502S04, 90502S05, 90502S06, 90504R00, 90504R01, 90504R02, 90504R03, 90504R05, 90504R07, 90504R09, 90504S01, 90504S02.

- QC sample 90503R00S (total) displayed % R values greater than 125 percent for mercury. QC sample 90503R00S necessitates the qualification of the mercury (total) detected values with a "J" as estimated for samples: 90502R03, 90503R00, 90503S00, 90503S01, 90503S02, 90503S03, 90503S04, 90503S05, 90503S06.

- QC sample 9046E132S (total) displayed % R values greater than 125 percent for mercury. QC sample 9046E132S necessitates the qualification of the mercury (total) detected values with a "J" as estimated for samples: 9046E132, 9046E133, 9046E134, 9046E135, 9046E136, 9046E137.

- QC sample 9046E132S (soluble) displayed % R values less than 30 percent for thallium (soluble). QC sample 9046E132S necessitates the qualification of the thallium (soluble) values with an "R" as rejected for samples: 9046E132, 9046E133, 9046E134, 9046E135, 9046E136, 9046E137.

- QC sample 89461SDSS (soil) displayed % R values less than 30 percent for selenium and antimony. QC sample 89461SDSS necessitates the qualification of the selenium and antimony values with an "R" as rejected for samples: 8946SDS1, 8946SDS2, 8946SDS3, 8946SDS4.

- Eight CLP inorganic laboratory control samples (method blank spike) displayed % R values that met CLP QC criteria and warranted no sample qualification.

A.4.2 Surrogate Spike Review

Review of surrogate spike data for the following analyses indicates that the following samples require qualification:

- Sample 90501R02 displayed 2 acid surrogates out of limits (phenol being below 10 percent) requiring that all detected values in the acid fraction be flag with a "J" and all non-detects be flagged with an "R" for sample 90501R02.

- Samples 90504R07, 90504R09, and 90504S06 displayed base fraction surrogates out of limits requiring that all base fraction results for the three samples be flagged with a "J".

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A.5.0 HOLDING TIME REVIEW

A review of analytical holding times has generated the following qualifiers:

- All storm event CLPCVAA (mercury) results are qualified "J" due to holding times of 37 to 41 days.

- The CLPCN results are qualified with a "J" and considered estimated due to holding times of 20 days for the following samples: 90502R07, 90502R09, 90504R07, 90502R04, 90502R05, 90502R07, 90502S04, 90502S06, 90504R01, 90504R02, 90504R03, 90504R05, 90504S00, 90504S01, 90504S02, 90504S04, and 90504S06.

- The EPA 300.0 nitrate and phosphate results for the following samples have been qualified with an "R" as unusable due to holding times of 20 days for the following samples: 9046E132, 9046E133, 9046E134, 9046E135, 9046E136, and 9046E137.

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A.6.0 ICP SERIAL DILUTION DATA

The ICP serial dilution data sheets are presented in section 7.4. The following sample results require qualification due to ICP serial dilution percent difference values in excess of ten percent:

- ICP serial dilution sample 89461SDSL requires that the results for nickel, potassium, and zinc require a "J" qualifier for the following samples: 89461SDS, 89462SDS, 890463SDS, and 89464SDS.

- ICP serial dilution sample 9046E1326 requires that the results for barium, calcium, iron, magnesium, sodium, zinc require a "J" qualifier for the following samples: 9046E132, 9046E133, 9046E134, 9046E135, 9046E136, and 9046E137.

- ICP serial dilution sample 502R032 requires that the results for barium (total), copper (total), potassium (total), vanadium (total), and zinc (total) require a "J" qualifier for the following samples: 90502R03, 90503R00, 90503S00, 90503S01, 90503S02, 90503S03, 90503S04, 90503S05, and 90503S06.

- ICP serial dilution sample 502S042 requires that the results for barium (total), chromium (total), copper (total), nickel (total), vanadium (total), and zinc (total) require a "J" qualifier for the following samples: 90502R04, 90502R05, 90502R07, 90502R09, 90502S04, 90502S05, 90502S06, 90504R00, 90504R01, 90504R02, 90504R03, 90504R05, 90504R07, 90504R09, 90504S00, 90504S01, 90504S02, 90504S04, and 90504S06.

- ICP serial dilution sample 501R006 requires that the results for barium (total), potassium (total), and vanadium (total) require a "J" qualifier for the following samples: 90501R00, 90501R01, 90501R02, 90501R04, 90501R09, 90501S00, 90501S01, 90501S02, 90501S03, 90501S07, 90501S08, 90502R00, 90502R01, 90502R02, 90502S00, 90502S01, 90502S02, and 90502S03.

- ICP serial dilution sample 502R036 requires that the results for aluminum (soluble), barium (soluble), copper (soluble), potassium (soluble) require a "J" qualifier for the following samples: 90502R03, 90503R00, 90503S00, 90503S01, 90503S02, 90503S03, 90503S04, 90503S05, and 90503S06.

- ICP serial dilution sample 501R0096 requires that the results for aluminum (soluble) and magnesium (soluble) require a "J" qualifier for the following: 90501R00, 90501R01, 90501R02, 90501R04, 90501R09, 90501S00, 90501S01, 90501S02, 90501S03, 90501S07, 90501S08, 90502R00, 90502R01, 90502R02, 90502S00, 90502S01, 90502S02, and 90502S03.

- ICP serial dilution sample 502S0042 requires that the results for aluminum (soluble), barium (soluble), copper (soluble) require a "J" qualifier for the following samples: 90502R04, 90502R05, 90502R07, 90502R09, 90502S04, 90502S05, 90502S06, 90504R00, 90504R01, 90504R02, 90504R03, 90504R05, 90504R07, 90504R09, 90504S00, 90504S01, 90504S02, 90504S04, and 90504S06.

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A.7.0 LABORATORY QC DATA REPORT FORMS

Copies of the original QC data sheets provided by the laboratory are presented in the following subsections. Form number references to specific data sheets are adopted from the CLP SOW.

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APPENDIX
DATA VALIDATION REPORT

PAGE 19

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FOR ADDITIONAL INFORMATION, CONTACT:

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SAN DIEGO, CA 92132

TELEPHONE: (619) 532-3676
E-MAIL: diane.silva@navy.mil

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1

Lab Name: CHEMWEST LABS Contract: _____

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix: (soil/water) SOIL Lab Sample ID: VB41206

Sample wt/vol: 4.0 (g/mL) G Lab File ID: VB41206

Level: (low/med) MED Date Received: 12/06/89

% Moisture: not dec. ____ Date Analyzed: 12/06/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	620	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	620	U
75-35-4	1,1-Dichloroethene	620	U
75-34-3	1,1-Dichloroethane	620	U
540-59-0	1,2-Dichloroethene (total)	620	U
67-66-3	Chloroform	620	U
107-06-2	1,2-Dichloroethane	620	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	620	U
56-23-5	Carbon Tetrachloride	620	U
108-05-4	Vinyl Acetate	1200	U
75-27-4	Bromodichloromethane	620	U
78-87-5	1,2-Dichloropropane	620	U
10061-01-5	cis-1,3-Dichloropropene	620	U
79-01-6	Trichloroethene	620	U
124-48-1	Dibromochloromethane	620	U
79-00-5	1,1,2-Trichloroethane	620	U
71-43-2	Benzene	620	U
10061-02-6	Trans-1,3-Dichloropropene	620	U
75-25-2	Bromoform	620	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	620	U
79-34-5	1,1,2,2-Tetrachloroethane	620	U
108-88-3	Toluene	620	U
108-90-7	Chlorobenzene	620	U
100-41-4	Ethylbenzene	620	U
100-42-5	Styrene	620	U
1330-20-7	Total Xylenes	620	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK2

ab Name: CHEMWEST LABS Contract: _____

ab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

atrix: (soil/water) SOIL Lab Sample ID: VVB41127

ample wt/vol: 5.0 (g/mL) G Lab File ID: VVB41127

evel: (low/med) LOW Date Received: 11/27/89

Moisture: not dec. ____ Date Analyzed: 11/27/89

olumn: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix: (soil/water) WATER Lab Sample ID: VB31126A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: VB31126A

Level: (low/med) LOW Date Received: _____

Moisture: not dec. ____ Date Analyzed: 11/26/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	11	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix: (soil/water) WATER Lab Sample ID: VB31203A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: VB31203A

Level: (low/med) LOW Date Received: _____

Moisture: not dec. ____ Date Analyzed: 12/03/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK21

.b Name: CHEMWEST LABS Contract: (2-88)-REVS

.b Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

trix: (soil/water) WATER Lab Sample ID: VB31221A

mple wt/vol: 5.0 (g/mL) ML Lab File ID: VB31221A

vel: (low/med) LOW Date Received: _____

Moisture: not dec. ____ Date Analyzed: 12/21/90

lumn: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	3	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	2	J
591-78-6	2-Hexanone	3	J
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	1	J
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK22

ıb Name: CHEMWEST LABS Contract: (2-88)-REVS

ıb Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

ıtrix: (soil/water) WATER Lab Sample ID: VB31222A

ımple wt/vol: 5.0 (g/mL) ML Lab File ID: VB31222A

ɜvel: (low/med) LOW Date Received: _____

Moisture: not dec. ____ Date Analyzed: 12/22/90

ɔlumn: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	6	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK23

b Name: CHEMWEST LABS Contract: (2-88)-REVS

b Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

trix: (soil/water) WATER Lab Sample ID: VB31223A

mple wt/vol: 5.0 (g/mL) ML Lab File ID: VB31223A

vel: (low/med) LOW Date Received: _____

Moisture: not dec. ____ Date Analyzed: 12/23/90

lumn: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK26

ab Name: CHEMWEST LABS Contract: (2-88)-REVS

ab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

atrix: (soil/water) WATER Lab Sample ID: VB31226

ample wt/vol: 5.0 (g/mL) ML Lab File ID: VB31226

evel: (low/med) LOW Date Received: _____

Moisture: not dec. ____ Date Analyzed: 12/26/90

olumn: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Matrix: (soil/water) WATER Lab Sample ID: VB30102

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: VB30102

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 01/02/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	2	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	2	J
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	2	J
108-10-1	4-Methyl-2-Pentanone	6	J
591-78-6	2-Hexanone	7	J
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	4	J
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK21

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Matrix: (soil/water) WATER Lab Sample ID: VB31221

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: VB31221

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 12/21/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK40

ab Name: CHEMWEST LABS Contract: (2-88)-REVS

ab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

atrix: (soil/water) WATER Lab Sample ID: VB31220C

ample wt/vol: 5.0 (g/mL) ML Lab File ID: VB31220C

evel: (low/med) LOW Date Received: _____

Moisture: not dec. ____ Date Analyzed: 12/20/90

olumn: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKA2

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Matrix: (soil/water) WATER Lab Sample ID: VB31220A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: VB31220A

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 12/20/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

A.7.1. Laboratory Generated Blanks

This section contains the following laboratory blank data sheets:

- CLP Form I (VOC, SOC, Pest) blank results
- CLP Form IV (VOC, SOC, Pest) method blank summary
- TPH-Diesel spike results
- TPH-Gasoline spike results
- Oil and Grease spike results
- CLP Form III (inorganic) blank results

DRAFT

4A
VOLATILE METHOD BLANK SUMMARY

ab Name: CHEMWEST LABS Contract: (2-88)-REVS

ab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

ab File ID: VB31203A Lab Sample ID: VB31203A

ate Analyzed: 12/03/90 Time Analyzed: 1200

atrix: (soil/water) WATER Level:(low/med) LOW

nstrument ID: CW3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK02MS	7148-MBS	VB31203MSD	1652
02	9046E132MS	7148-1MS	714801AMS	1318
03	9046E132MSD	7148-1MSD	714801AMSDA	1540

OMMENTS: VBLK 5ML
CW1 1% SP1000 6FT X 2MM ID GLASS

FORM IV VOA 1/87 Rev.

4A
VOLATILE METHOD BLANK SUMMARY

ab Name: CHEMWEST LABS Contract: (2-88)-REVS

ab Code: CHEMW Case No.: 7148 SAS No.: SDG No.: 46E132

ab File ID: VB31126A Lab Sample ID: VB31126A

ate Analyzed: 11/26/90 Time Analyzed: 1532

atrix: (soil/water) WATER Level:(low/med) LOW

nstrument ID: CW3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	9046E132	7148-1	714801AV	1618
02	9046E133	7148-2	714802AV	1650
03	9046E134	7148-3	714803AV	1725
04	9046E135	7148-4	714804AV	1757
05	9046E136	7148-5	714805AV	1830
06	9046E137	7148-6	714806AV	1902

OMMENTS: VBLK 5ML
CW3, 6' X 1/4" SP1000 CARBOPACK

4A
VOLATILE METHOD BLANK SUMMARY

ab Name: CHEMWEST LABS Contract: _____

ab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

ab File ID: VVB41127 Lab Sample ID: VVB41127

ate Analyzed: 11/27/89 Time Analyzed: 2001

atrix: (soil/water) SOIL Level:(low/med) LOW

nstrument ID: CW4

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	89461SDS	5020-1	502001VV	2138
02	89462SDS	5020-2	502002VV	2032
03	89462SDSD	5020-2D	502002VVR	2247
04	89463SDS	5020-3	502003VV	2105
05	89464SDS	5020-4	502004VV	2212
06	VBLKMS	VV41128MBMS	VV41128MBMS	0547
07	VBLKMSD	VV41128MBSD	VV41128MBSD	0619
08	89462SDSMS	5020-2MS	502002MSVV	2321
09	89462SDSMSD	5020-2MSD	502002MSDVV	2355

OMMENTS: VBLK2 5ML\
CW4,6'X1/4"GLASS,60/80 1%SP1000 CARBOPACK

4A
VOLATILE METHOD BLANK SUMMARY

ab Name: CHEMWEST LABS Contract: _____

ab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

ab File ID: VB41206 Lab Sample ID: VB41206

ate Analyzed: 12/06/89 Time Analyzed: 1613

atrix: (soil/water) SOIL Level:(low/med) MED

nstrument ID: CW4

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	89464SDS	5020-4	502004VVR2	1705
02	89464SDSMS	5020-4MS	502004MSVVR	1739
03	89464SDSMSD	5020-4MSD	502004MSDVR	1810

OMMENTS: VBLK1 100UL MEOH
CW4,6'X1/4"GLASS,60/80 1%SP1000 CARBOPACK

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Lab File ID: VB31220A Lab Sample ID: 7329-2

Date Analyzed: 12/20/90 Time Analyzed: 1409

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: CW3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	90502R04	7329-2	732902AV	1539
02	90502R05	7329-4	732904CV	1940
03	90502S04	7329-1	732901AV	1442
04	90502S05	7329-3	732903AV	1612
05	90502S06	7329-5	732905AV	2011

COMMENTS: VBLK, 5MLS
CW3 1% SP1000 6'X 1/4"

FORM IV VOA 1/87 Rev.

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Lab File ID: VB31220C Lab Sample ID: VB31220C

Date Analyzed: 12/20/90 Time Analyzed: 2314

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: CW3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	90502R07	7329-6	732906DV	2348
02	90502R09	7329-7	732907AV	0023
03	90504R00	7329-9	732909AV	0213
04	90504S00	7329-10	7329010AV	0245
05	9050BP01	7329-8	732908AV	0141

COMMENTS: VBLK 5ML
CW3 1% SP1000 6'X 1/4"

FORM IV VOA 1/87 Rev.

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Lab File ID: VB31221 Lab Sample ID: 7329-11

Date Analyzed: 12/21/90 Time Analyzed: 1141

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: CW3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	90504R01	7329-11	7329011BVRI	1327
02	90504R02	7329-13	7329013BVRI	1701
03	90504R03	7329-15	7329015BV	1507
04	90504R05	7329-17	7329017BV	1733
05	90504R07	7329-19	7329019AV	1837
06	90504R09	7329-20	7329020AV	1908
07	90504S01	7329-12	7329012BV	1254
08	90504S02	7329-14	7329014BV	1435
09	90504S04	7329-16	7329016BV	1601
10	90504S06	7329-18	7329018BV	1805
11	90504T02	7329-21	7329021AV	1940
12	90504R07MS	7329-19MS	7329019BMSV	2012
13	90504R07MSD	7329-19MSD	7329019BMSD	2045

COMMENTS: VBLK 5ML
CW1 1% SP1000 CARBOPACK 6FT GLASS

FORM IV VOA 1/87 Rev.

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Lab File ID: VB30102 Lab Sample ID: 7329-12RE

Date Analyzed: 01/02/91 Time Analyzed: 1942

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: CW3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	90504S01RE	7329-12RE	7329012DVRI	2017
02	VBLK02MS	V30102F	V30102F	2055
03	VBLK02MSD	V30102G	V30102G	2128

COMMENTS: VBLK 5ML
CW3 1% SP1000 CARBOPACK 6'X1/4"

4A
VOLATILE METHOD BLANK SUMMARY

ab Name: CHEMWEST LABS Contract: (2-88)-REVS

ab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

ab File ID: VB31221A Lab Sample ID: VB31221A

ate Analyzed: 12/21/90 Time Analyzed: 2243

atrix: (soil/water) WATER Level:(low/med) LOW

nstrument ID: CW3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	90501R00	7323-1	732301BV	2315
02	90501R01	7323-3	732303BV	0018
03	90501R02	7323-5	732305BV	0120
04	90501R04	7323-8	732308BV	0254
05	90501R09	7323-12	7323012BV	0458
06	90501S00	7323-2	732302BV	2346
07	90501S01	7323-4	732304BV	0049
08	90501S02	7323-6	732306BV	0151
09	90501S03	7323-7	732307BV	0223
10	90501S07	7323-9	732309BV	0325
11	90501S08	7323-10	7323010BV	0356
12	90501S09	7323-11	7323011BV	0427
13	90502R00	7323-22	7323022BV	0913
14	90502S00	7323-21	7323021BV	0842

OMMENTS: VBLK 5ML

FORM IV VOA 1/87 Rev.

4A
VOLATILE METHOD BLANK SUMMARY

b Name: CHEMWEST LABS Contract: (2-88)-REVS

b Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

b File ID: VB31222A Lab Sample ID: VB31222A

te Analyzed: 12/22/90 Time Analyzed: 1148

trix: (soil/water) WATER Level:(low/med) LOW

strument ID: CW3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	90502R01	7323-24	7323024BV	1252
02	90502R02	7323-27	7323027BV	2031
03	90502R03	7323-29	7323029BV	2134
04	90502S02	7323-26	7323026BV	1356
05	90502S03	7323-28	7323028BV	2103
06	90502TB01	7323-25	7323025BV	1324
07	90503R00	7323-30	7323030BV	2206
08	90503R01	7323-32	7323032BV	1648
09	90503S00	7323-31	7323031BV	1616
10	90503S01	7323-33	7323033BV	1720
11	90503S02	7323-34	7323034BV	1752
12	90503S03	7323-35	7323035BV	1824
13	90503S04	7323-36	7323036BV	1856
14	90503S05	7323-37	7323037BV	1927
15	90503S06	7323-38	7323038BV	1959

MMENTS: VBLK2 5ML
CW1 1% SP1000 6FT X 2MM ID GLASS

FORM IV VOA 1/87 Rev.

4A
VOLATILE METHOD BLANK SUMMARY

ab Name: CHEMWEST LABS Contract: (2-88)-REVS

ab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

ab File ID: VB31223A Lab Sample ID: VB31223A

ate Analyzed: 12/23/90 Time Analyzed: 1249

atrix: (soil/water) WATER Level:(low/med) LOW

nstrument ID: CW3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	90501R00MS	7323-1MS	732301CVMSD	1354
02	90501R00MSD	7323-1MSD	73231CVMSDA	1842
03	90502S02MS	7323-26MS	732326CVMSD	1502
04	90502S02MSD	7323-26MSD	732326CVSDA	1914

OMMENTS: VBLK 5ML
CW1 1% SP1000 6FT X 2MM ID GLASS

4A
VOLATILE METHOD BLANK SUMMARY

ab Name: CHEMWEST LABS Contract: (2-88)-REVS

ab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

ab File ID: VB31226 Lab Sample ID: 7323-23RE

ate Analyzed: 12/26/90 Time Analyzed: 0927

atrix: (soil/water) WATER Level:(low/med) LOW

nstrument ID: CW3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	90502S01RE	7323-23RE	7323023CVRI	1750
02	VBLK26MS		VB31226MS	1033
03	VBLK26MSD		VB31226MSD	1106

OMMENTS: VBLK 5ML
CW1 1% SP1000 CARBOPACK 6FT GLASS

FORM IV VOA 1/87 Rev.

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SBLK01

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix: (soil/water) WATER Lab Sample ID: 7148-1MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 714801MB

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/20/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 11/26/90

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix: (soil/water) WATER Lab Sample ID: 7148-1MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 714801MB

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/20/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 11/26/90

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	3	J
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 1/87 Rev.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix: (soil/water) WATER Lab Sample ID: 7323-1MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 732301MB

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/11/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix: (soil/water) WATER Lab Sample ID: 7323-1MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 732301MB

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/11/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK24

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix: (soil/water) WATER Lab Sample ID: 7323-24MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 7323024MB

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/14/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK24

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix: (soil/water) WATER Lab Sample ID: 7323-24MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 7323024MB

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/14/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	2	J
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Matrix: (soil/water) WATER Lab Sample ID: 7329-1MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 732901MB

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 12/21/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/15/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Matrix: (soil/water) WATER Lab Sample ID: 7329-1MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 732901MB

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 12/21/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/15/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

89461SDSMB

Lab Name: COMPUCHEM LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 18704 SAS No.: _____ SDG No.: 01

Matrix: (soil/water) SOIL Lab Sample ID: 308437

Sample wt/vol: 27.0 (g/mL) G Lab File ID: GH008437B06

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/27/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/15/89

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
100-51-6	Benzyl Alcohol	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
39638-32-9	bis(2-Chloroisopropyl)Ether	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-Di-n-Propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
65-85-0	Benzoic Acid	1800	U
111-91-1	bis(2-Chloroethoxy)Methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-Methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	1800	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	1800	U
131-11-3	Dimethyl Phthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

89461SDSMB

Lab Name: COMPUCHEM LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 18704 SAS No.: _____ SDG No.: 01

Matrix: (soil/water) SOIL Lab Sample ID: 308437

Sample wt/vol: 27.0 (g/mL) G Lab File ID: GH008437B06

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/27/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/15/89

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1800	U
83-32-9	Acenaphthene	370	U
51-28-5	2,4-Dinitrophenol	1800	U
100-02-7	4-Nitrophenol	1800	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	1800	U
534-52-1	4,6-Dinitro-2-Methylphenol	1800	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
84-74-2	Di-n-Butylphthalate	370	U
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	730	U
56-55-3	Benzo(a)Anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)Phthalate	79	J
117-84-0	Di-n-Octyl Phthalate	370	U
205-99-2	Benzo(b)Fluoranthene	370	U
207-08-9	Benzo(k)Fluoranthene	370	U
50-32-8	Benzo(a)Pyrene	370	U
193-39-5	Indeno(1,2,3-cd)Pyrene	370	U
53-70-3	Dibenzo(a,h)Anthracene	370	U
191-24-2	Benzo(g,h,i)Perylene	370	U

(1) - Cannot be separated from Diphenylamine

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Lab File ID: 714801MB Lab Sample ID: 7148-1MB

Date Extracted: 11/20/90 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 11/26/90 Time Analyzed: 1444

Matrix: (soil/water) WATER Level: (low/med) LOW

Instrument ID: CW5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9046E132	7148-1	714801AB	11/26/90
02	9046E133	7148-2	714802AB	11/26/90
03	9046E134	7148-3	714803ABRI	11/27/90
04	9046E135	7148-4	714804ABRI	11/27/90
05	9046E136	7148-5	714805AB	11/26/90
06	9046E137	7148-6	714806AB	11/26/90
07	SBLK01MS	7148-1MBS	714801MBS	11/26/90
08	SBLK01MSD	7148-1MBSD	714801MBSD	11/26/90

COMMENTS: SBLK 1L/2ML
CW-5 30M DB-5

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Lab File ID: 7323024MB Lab Sample ID: 7323-24MB

Date Extracted: 12/17/90 Extraction:(SepF/Cont/Sonc) SEPF

Date Analyzed: 01/14/91 Time Analyzed: 1533

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: CW7

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	90502R01	7323-24	7323024AB	01/14/91
02	90502R02	7323-27	7323027AB	01/14/91
03	90502R03	7323-29	7323029AB	01/14/91
04	90502S02	7323-26	7323026AB	01/14/91
05	90502S03	7323-28	7323028AB	01/14/91
06	90503R00	7323-30	7323030AB	01/15/91
07	90503S00	7323-31	7323031AB	01/15/91
08	90503S01	7323-33	7323033AB	01/15/91
09	90503S02	7323-34	7323034AB	01/15/91
10	90503S02DU	7323-34DU	7323034DUP	01/15/91
11	90503S03	7323-35	7323035AB	01/15/91
12	90503S04	7323-36	7323036AB	01/15/91
13	90503S05	7323-37	7323037AB	01/15/91
14	90503S06	7323-38	7323038AB	01/15/91
15	SBLK24MS	7323-31MBS	7323031MBS	01/15/91
16	SBLK24MSD	7323-31MBSD	7323031MBSD	01/15/91
17	90503S00MS	7323-31MS	7323031MS	01/15/91
18	90503S00MSD	7323-31MSD	7323031MSD	01/15/91

COMMENTS: SBLK7A 1L/2ML
CW7 30M DB-5

FORM IV SV 1/87 Rev.

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Lab File ID: 732301MB Lab Sample ID: 7323-1MB

Date Extracted: 12/17/90 Extraction:(SepF/Cont/Sonc) SEPF

Date Analyzed: 01/11/91 Time Analyzed: 1022

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: CW7

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	90501R00	7323-1	732301AB	01/11/91
02	90501R00DU	7323-1DU	732301DUP	01/11/91
03	90501R01	7323-3	732303AB	01/12/91
04	90501R02	7323-5	732305AB	01/12/91
05	90501R02RE	7323-5RE	732305ABRI	01/15/91
06	90501R04	7323-8	732308AB	01/12/91
07	90501R09	7323-12	7323012AB	01/12/91
08	90501S00	7323-2	732302AB	01/11/91
09	90501S01	7323-4	732304AB	01/12/91
10	90501S02	7323-6	732306ABRI	01/14/91
11	90501S03	7323-7	732307ABRI	01/14/91
12	90501S07	7323-9	732309AB	01/12/91
13	90501S08	7323-10	7323010AB	01/12/91
14	90502R00	7323-22	7323022AB	01/14/91
15	90502S00	7323-21	7323021AB	01/12/91
16	90502S01	7323-23	7323023AB	01/14/91
17	SBLK01MS	7323-1MBS	732301MBS	01/11/91
18	SBLK01MSD	7323-1MBSD	732301MBSD	01/11/91
19	90501R01MS	7323-3MS	732303MS	01/12/91
20	90501R01MSD	7323-3MSD	732303MSD	01/12/91

COMMENTS: SBLK7A 1L/2ML
CW7 30M DB-5

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Lab File ID: 732901MB Lab Sample ID: 7329-1MB

Date Extracted: 12/21/90 Extraction:(SepF/Cont/Sonc) SEPF

Date Analyzed: 01/15/91 Time Analyzed: 1922

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: CW7

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	90502R04	7329-2	732902AB	01/16/91
02	90502R05	7329-4	732904ABRI	01/17/91
03	90502R05DU	7329-4DU	732904DUPRI	01/17/91
04	90502R05DURE	7329-4DURE	732904DUPR2	01/18/91
05	90502R05RE	7329-4RE	732904ABR2	01/18/91
06	90502R07	7329-6	732906AB	01/16/91
07	90502R09	7329-7	732907AB	01/16/91
08	90502S04	7329-1	732901AB	01/15/91
09	90502S05	7329-3	732903ABR2	01/17/91
10	90502S05RE	7329-3RE	732903ABR4	01/18/91
11	90502S06	7329-5	732905AB	01/16/91
12	90504R00	7329-9	732909AB	01/16/91
13	90504R01	7329-11	7329011ABRI	01/17/91
14	90504R01RE	7329-11RE	7329011ABR3	01/18/91
15	90504R02	7329-13	7329013AB	01/17/91
16	90504R02RE	7329-13RE	7329013ABRI	01/18/91
17	90504R03	7329-15	7329015AB	01/18/91
18	90504R05	7329-17	7329017AB	01/21/91
19	90504R07	7329-19	7329019ABRI	01/22/91
20	90504R07RE	7329-19RE	7329019ABR2	01/22/91
21	90504R09	7329-20	7329020ABRI	01/22/91
22	90504R09RE	7329-20RE	7329020ABR2	01/22/91
23	90504S00	7329-10	7329010AB	01/16/91
24	90504S01	7329-12	7329012AB	01/17/91
25	90504S01RE	7329-12RE	7329012ABRI	01/18/91
26	90504S02	7329-14	7329014AB	01/17/91
27	90504S02RE	7329-14RE	7329014ABRI	01/18/91
28	90504S04	7329-16	7329016AB	01/21/91
29	90504S06	7329-18	7329018ABR2	01/22/91
30	90504S06RE	7329-18RE	7329018ABR3	01/22/91

COMMENTS: SBLK7E 1L/2ML
CW7 30M DB-5

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Lab File ID: 732901MB Lab Sample ID: 7329-1MB

Date Extracted: 12/21/90 Extraction:(SepF/Cont/Sonc) SEPF

Date Analyzed: 01/15/91 Time Analyzed: 1922

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: CW7

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SBLK01MS	7329-1MBS	732901MBS	01/15/91
02	SBLK01MSD	7329-1MBSD	732901MBSD	01/15/91
03	90502S04MS	7329-1MS	732901MSRI3	01/18/91
04	90502S04MSD	7329-1MSD	732901MSDR3	01/18/91

COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: COMPUCHEM LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 18704 SAS No.: _____ SDG No.: 01

Lab File ID: GH008437B06 Lab Sample ID: 308437

Date Extracted: 11/27/89 Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 12/15/89 Time Analyzed: 2008

Matrix: (soil/water) SOIL Level: (low/med) LOW

Instrument ID: 0006

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	89461SDS	308451	GJ008451A06	12/17/89
02	89461SDSDUP	308453	GH008453B06	12/15/89
03	89462SDS	308468	GH008468C06	12/16/89
04	89463SDS	308470	GH008470C06	12/16/89
05	89464SDS	308471	GH008471C06	12/16/89
06	89461SDSMBS	308439	GH008439B06	12/15/89
07	89461SDSMBSD	308445	GH008445B06	12/15/89
08	89461SDSMS	308465	GH008465C06	12/16/89
09	89461SDSMSD	308467	GH008467C06	12/16/89

COMMENTS: CLP ,1870,41,B, , ,308437,BNA, ,
TUNE: 0006 121589 1748

FORM IV SV

1/87 Rev.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK1

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7148 SAS No.: 02176 SDG No.: 02176

Matrix: (soil/water) WATER Lab Sample ID: 7148-1MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/20/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/05/90

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	Gamma-BHC	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor Epoxide	0.050	U
959-98-8	Alpha-Endosulfan	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Beta-Endosulfan	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	p,p'-Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
5103-71-9	Alpha-Chlordane	0.50	U
5103-74-2	Gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK1

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 90502

Matrix: (soil/water) WATER Lab Sample ID: 732901MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 12/20/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/15/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	Gamma-BHC	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor Epoxide	0.050	U
959-98-8	Alpha-Endosulfan	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Beta-Endosulfan	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	p,p'-Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
5103-71-9	Alpha-Chlordane	0.50	U
5103-74-2	Gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK2

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix: (soil/water) WATER Lab Sample ID: 7323-24MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 12/18/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/10/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	Gamma-BHC	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor Epoxide	0.050	U
959-98-8	Alpha-Endosulfan	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Beta-Endosulfan	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	p,p'-Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
5103-71-9	Alpha-Chlordane	0.50	U
5103-74-2	Gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK1

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix: (soil/water) WATER Lab Sample ID: 7323-1MB

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 12/18/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/21/90

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	Gamma-BHC	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor Epoxide	0.050	U
959-98-8	Alpha-Endosulfan	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Beta-Endosulfan	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	p,p'-Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
5103-71-9	Alpha-Chlordane	0.50	U
5103-74-2	Gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK1

Lab Name: CHEMWEST Contract: _____

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix: (soil/water) SOIL Lab Sample ID: CW5020-1MB

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 11/27/89

% Moisture: not dec. ____ dec. _____ Date Extracted: 11/27/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/18/89

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.0	U
319-85-7	beta-BHC	8.0	U
319-86-8	delta-BHC	8.0	U
58-89-9	gamma-BHC	8.0	U
76-44-8	Heptachlor	8.0	U
309-00-2	Aldrin	8.0	U
1024-57-3	Heptachlor epoxide	8.0	U
959-98-8	Endosulfan I	8.0	U
60-57-1	Dieldrin	16.	U
72-55-9	4,4'-DDE	16.	U
72-20-8	Endrin	16.	U
33213-65-9	Endosulfan II	16.	U
72-54-8	4,4'-DDD	16.	U
1031-07-8	Endosulfan sulfate	16.	U
50-29-3	4-4'-DDT	16.	U
72-43-5	Methoxychlor	80.	U
53494-70-5	Endrin ketone	16.	U
5103-71-9	alpha-Chlordane	80.	U
5103-74-2	gamma-Chlordane	80.	U
8001-35-2	Toxaphene	160	U
12674-11-2	Aroclor-1016	80.	U
11104-28-2	Aroclor-1221	80.	U
11114-16-5	Aroclor-1232	80.	U
53469-21-9	Aroclor-1242	80.	U
12672-29-6	Aroclor-1248	80.	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

4C

PESTICIDE METHOD BLANK SUMMARY

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 02176

Lab Sample ID: 7148-1MB Lab File ID: _____

Matrix:(soil/water) WATER Level:(low/med) LOW

Date Extracted: 11/20/90 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed (1): 12/05/90 Date Analyzed (2): 12/05/90

Time Analyzed (1): 0130 Time Analyzed (2): 0130

Instrument ID (1): 16 Instrument ID (2): 17

GC Column ID (1): DB-608 GC Column ID (2): DB-1701

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	9046E132	7148-1	12/05/90	12/05/90
02	9046E133	7148-2	12/05/90	12/05/90
03	9046E134	7148-3	12/05/90	12/05/90
04	9046E135	7148-4	12/05/90	12/05/90
05	9046E136	7148-5	12/05/90	12/05/90
06	9046E137	7148-6	12/05/90	12/05/90
07	7148-1MBS	7148-1MBS	12/05/90	12/05/90
08	7148-1MBSD	7148-1MBSD	12/05/90	12/05/90
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

OMMENTS: _____

4C
PESTICIDE METHOD BLANK SUMMARY

ab Name: CHEMWEST Contract: 68-W8-0010

ab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 90502

ab Sample ID: 732901MB Lab File ID: _____

atrix:(soil/water) WATER Level:(low/med) LOW

ate Extracted: 12/20/90 Extraction: (SepF/Cont/Sonc) SEPF

ate Analyzed (1): 01/15/91 Date Analyzed (2): 01/15/91

ime Analyzed (1): 0815 Time Analyzed (2): 0815

nstrument ID (1): 16 Instrument ID (2): 17

C Column ID (1): DB-608 GC Column ID (2): DB-1701

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	90502S04	732901	01/15/91	01/15/91
02	90502R04	732902	01/15/91	01/15/91
03	90502R04MS	732902MS	01/15/91	01/15/91
04	90502R04MSD	732902MSD	01/15/91	01/15/91
05	90502S05	732903	01/21/91	01/21/91
06	90502R05	732904	01/21/91	01/21/91
07	90502S06	732905	01/21/91	01/21/91
08	90502S06D	732905D	01/21/91	01/21/91
09	90502507	732906	01/22/91	01/22/91
10	90502R09	732907	01/22/91	01/22/91
11	90504R00	732909	01/22/91	01/22/91
12	90504S00	732910	01/22/91	01/22/91
13	90504R01	732911	01/22/91	01/22/91
14	90504S01	732912	01/22/91	01/22/91
15	90504R02	732913	01/22/91	01/22/91
16	90504S02	732914	01/22/91	01/22/91
17	90504R03	732915	01/22/91	01/22/91
18				
19				
20				
21				
22				
23				
24				
25				
26				

OMMENTS: _____

4C
PESTICIDE METHOD BLANK SUMMARY

ab Name: CHEMWEST Contract: 68-W8-0010

ab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

ab Sample ID: 7323-1MB Lab File ID: _____

atrix:(soil/water) WATER Level:(low/med) LOW

ate Extracted: 12/18/90 Extraction: (SepF/Cont/Sonc) SEPF

ate Analyzed (1): 12/21/90 Date Analyzed (2): 12/21/90

ime Analyzed (1): 1333 Time Analyzed (2): 1333

nstrument ID (1): 16 Instrument ID (2): 17

C Column ID (1): DB-608 GC Column ID (2): DB-1701

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	90501B00	7323-1	12/21/90	12/21/90
02	90501S00	7323-2	12/21/90	12/21/90
03	90501S00MSD	7323-2MSD	01/10/91	01/10/91
04	90501S00MS	7323-2MS	01/10/91	01/10/91
05	90501B01	7323-3	12/21/90	12/21/90
06	90501S01	7323-4	12/21/90	12/21/90
07	90501S01D	7323-4D	12/21/90	12/21/90
08	90501R02	7323-5	01/10/91	01/10/91
09	90501S02	7323-6	01/10/91	01/10/91
10	90501S03	7323-7	01/10/91	01/10/91
11	90501R04	7323-8	01/10/91	01/10/91
12	90501S07	7323-9	01/10/91	01/10/91
13	90501S08	7323-10	01/10/91	01/10/91
14	90501R09	7323-12	01/10/91	01/10/91
15	90502S00	7323-21	01/10/91	01/10/91
16	90502R00	7323-22	01/10/91	01/10/91
17	90502S01	7323-23	01/10/91	01/10/91
18				
19				
20				
21				
22				
23				
24				
25				
26				

MMENTS: _____

4C
PESTICIDE METHOD BLANK SUMMARY

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Lab Sample ID: 7323-24MB Lab File ID: _____

Matrix:(soil/water) WATER Level:(low/med) LOW

Date Extracted: 12/18/90 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed (1): 01/10/91 Date Analyzed (2): 01/10/91

Time Analyzed (1): 1959 Time Analyzed (2): 1959

Instrument ID (1): 16 Instrument ID (2): 17

GC Column ID (1): DB-608 GC Column ID (2): DB-1701

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	90502R01	7323-24	01/10/91	01/10/91
02	90502S02	7323-26	01/14/91	01/14/91
03	90502R02	7323-27	01/14/91	01/14/91
04	90502S03	7323-28	01/15/91	01/15/91
05	90502R03	7323-29	01/15/91	01/15/91
06	90503R00	7323-30	01/15/91	01/15/91
07	90503S00	7323-31	01/15/91	01/15/91
08	90503S01	7323-33	01/15/91	01/15/91
09	90503S01MS	7323-33MS	01/11/91	01/11/91
10	90503S02	7323-34	01/11/91	01/11/91
11	90503S03	7323-35	01/11/91	01/11/91
12	90503S03D	7323-35D	01/15/91	01/15/91
13	90503S04	7323-36	01/11/91	01/11/91
14	90503S05	7323-37	01/11/91	01/11/91
15	90503S06	7323-38	01/11/91	01/11/91
16	90503S01MSD	7323-33MSD	01/14/91	01/14/91
17				
18				
19				
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21				
22				
23				
24				
25				
26				

COMMENTS: _____

4C
PESTICIDE METHOD BLANK SUMMARY

Lab Name: CHEMWEST Contract: _____

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Lab Sample ID: CW5020-1MB Lab File ID: _____

Matrix:(soil/water) SOIL Level:(low/med) LOW

Date Extracted: 11/27/89 Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed (1): 12/18/89 Date Analyzed (2): 12/18/89

Time Analyzed (1): 0915 Time Analyzed (2): 0915

Instrument ID (1): 16 Instrument ID (2): 17

GC Column ID (1): DB-608 GC Column ID (2): DB-1701

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	89461SDS	CW5020-1	12/18/89	12/18/89
02	89462SDS	CW5020-2	12/18/89	12/18/89
03	89463SDS	CW5020-3	12/18/89	12/18/89
04	89464SDS	CW5020-4	12/18/89	12/18/89
05	89461SDSMS	CW5020-1MS	12/18/89	12/18/89
06	CW5020-1MBS	CW5020-1MBS	12/18/89	12/18/89
07	CW5020-1MBSD	CW5020-1MBSD	12/18/89	12/18/89
08				
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25				
26				

OMMENTS: _____

1

TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE

CLIENT ID

DBLK01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7148 SAS No: SDG No.: 46E132

Matrix: (soil/water) WATER Lab Sample ID: 7148-1MB

Sample wt/vol: 1000 (g/mL) ML Date Received: NA

% Moisture: Date Extracted: 11/21/90

Extraction: SEPEF Date Analyzed: 11/28/90

Dilution : 1.0

COMPOUND	CONCENTRATION UNITS: (mg/L or mg/Kg) UG/L	Q
Diesel	50	U

U: not detected at indicated value.

FORM I TPH 1/90 Rev.

1

TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE

CLIENT ID

DBLK02

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: 7323-28MB

Sample wt/vol: 1000 (g/mL): ML Date Received:

Extraction: SEPF Date Extracted: 12/26/90

Dilution : 1.0 Date Analyzed: 01/06/91

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg): UG/L	Q
Diesel	50	U

U: Not detected at indicated value.

1

TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE

CLIENT ID

DBLK01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No: SDG No.: 90502S04

Matrix: (soil/water) WATER Lab Sample ID: 7329-1MB

Sample wt/vol: 1000 (g/mL): ML Date Received:

Extraction: SEPF Date Extracted: 12/27/90

Dilution : 1.0 Date Analyzed: 01/07/91

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg): UG/L	Q
Diesel	50	U

U: Not detected at indicated value.

FORM I 1/90 Rev.

1

TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE

CLIENT ID

DBLK01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: 7323-1MB

Sample wt/vol: 1000 (g/mL): ML Date Received:

Extraction: SEPF Date Extracted: 12/26/90

Dilution : 1.0 Date Analyzed: 01/05/91

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg): UG/L	Q
Diesel	50	U

U: Not detected at indicated value.

1

TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE

HLA I.D.

5020-MB

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: SAS No: SDG No.: 5020

Matrix: (soil/water) SOIL Lab Sample ID: 5020-MB

Sample wt/vol: 30.00 (g/mL) G Date Received: NA

% Moisture: NA Date Extracted: 11/27/89

Extraction: JAR Date Analyzed: 12/06/89

Dilution Procedure: NA

COMPOUND	CONCENTRATION UNITS: (mg/L or mg/Kg) MG/KG	Q
Diesel	6	U

U: not detected at indicated value.

1

TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE

CLIENT ID

DBLK01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No: SDG No.: 90502S04

Matrix: (soil/water) WATER Lab Sample ID: 7329-1MB

Sample wt/vol: 1000 (g/mL): ML Date Received:

Extraction: SEPF Date Extracted: 12/27/90

Dilution : 1.0 Date Analyzed: 01/07/91

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg): UG/L	Q
Diesel	50	U

U: Not detected at indicated value.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No: SDG No.: 90502S04

Matrix: (soil/water) WATER Lab Sample ID: MB-12/27/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/27/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

FORM I TPH 12/90 Rev.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK02

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No: SDG No.: 90502S04

Matrix: (soil/water) WATER Lab Sample ID: MB1-12/28/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/28/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

FORM I TPH 12/90 Rev.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK03

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No: SDG No.: 90502S04

Matrix: (soil/water) WATER Lab Sample ID: MB2-12/28/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/28/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK02

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: MB2-12/23/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/23/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK04

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: MB2-12/24/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/24/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

HLA I.D.

GBLK02

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7148 SAS No: SDG No.: 46E132

Matrix: (soil/water) WATER Lab Sample ID: MB-11/26/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 11/26/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

FORM I TPH 12/90 Rev.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

HLA I.D.

GBLK01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7148 SAS No: SDG No.: 46E122

Matrix: (soil/water) WATER Lab Sample ID: MB-11/21/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 11/21/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

FORM I TPH 12/90 Rev.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK05

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: MB-12/27/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/27/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

FORM I TPH 12/90 Rev.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK06

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: MB1-12/28/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/28/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

FORM I TPH 12/90 Rev.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK07

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: MB2-12/28/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/28/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK08

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: MB3-12/28/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/28/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

FORM I TPH 12/90 Rev.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK09

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: MB4-12/28/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/28/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK010

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: MB-01/10/91

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 01/10/91

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

FORM I TPH 12/90 Rev.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Client I.D.

GBLK01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: MB1-12/23/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 12/23/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or mg/Kg):UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

FORM I TPH 12/90 Rev.

1

SOIL TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

HLA I.D.

Instrument Blank

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: HPA SAS No: SDG No.:5020

Matrix: (soil/water) SOIL Lab Sample ID: 5020-IB

Sample wt/vol: 10.0 (g/mL) G Date Received: NA

% Moisture: NA Date Extracted: NA

Extraction: Purge & Trap/MeOH Ext. Date Analyzed: 12/13/89

Dilution Procedure:NA

COMPOUND	CONCENTRATION UNITS: (mg/L or mg/Kg) MG/KG Wet Weight	Q
Gasoline	1	U

U: not detected at indicated value.

1

TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

HLA I.D.

GBLK03

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7148 SAS No: SDG No.: 46E132

Matrix: (soil/water) WATER Lab Sample ID: MB-11/29/90

Sample wt/vol: 5.0 (g/mL) ML Date Received:

% Moisture: Date Analyzed: 11/29/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
Gasoline	50	U

U: Not detected at indicated value.

FORM I TPH 12/90 Rev.

1
OIL & GREASE

CLIENT ID

OBLK01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No: SDG No.: 90502S04

Matrix: (soil/water) WATER Lab Sample ID: 7329-1MB

Sample wt/vol: 1000 (g/mL) ML Date Received:

% Moisture: Date Extracted: 01/04/91

Extraction: 9070 Date Analyzed: 01/07/91

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (mg/L or mg/Kg) MG/L	Q
OIL & GREASE	5.0	U

U: Not detected at indicated value.

1
OIL & GREASE

CLIENT I.D.

OBLK24

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: 7323-24MB

Sample wt/vol: 1000 (g/mL) ML Date Received:

% Moisture: Date Extracted: 12/28/90

Extraction: 9070 Date Analyzed: 01/03/91

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (mg/L or mg/Kg) MG/L	Q
OIL & GREASE	5.0	U

U: Not detected at indicated value.

1
OIL & GREASE

CLIENT I.D.

OBLK01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No: SDG No.: 90501R00

Matrix: (soil/water) WATER Lab Sample ID: 7323-1MB

Sample wt/vol: 1000 (g/mL) ML Date Received:

% Moisture: Date Extracted: 12/28/90

Extraction: 9070 Date Analyzed: 01/02/91

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (mg/L or mg/Kg) MG/L	Q
OIL & GREASE	5.0	U

U: Not detected at indicated value.

1
OIL & GREASE

HLA I.D.

OBLK01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7148 SAS No: SDG No.: 46E132

Matrix: (soil/water) WATER Lab Sample ID: 7148-1MB

Sample wt/vol: 1000 (g/mL) ML Date Received: NA

% Moisture: Date Extracted: 11/28/90

Extraction: 9070 Date Analyzed: 12/04/90

Dilution: 1.0

COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
OIL & GREASE	5.0	U

U: Not detected at indicated value.

1
OIL & GREASE

HLA I.D.

Method Blank

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: HPA SAS No: SDG No.: 5020

Matrix: (soil/water) SOIL Lab Sample ID: 5020-MB

Sample wt/vol: 20 (g/mL) G Date Received: NA

% Moisture: NA Date Extracted: 11/27/89

Extraction: 9071 Date Analyzed: 11/28/89

Dilution Procedure: NA

COMPOUND	CONCENTRATION UNITS: (mg/L or mg/Kg) MG/KG	Q
Oil & Grease	50	U

U: not detected at indicated value.

COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: S01R00T

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	19.0	U	19.0	U	19.0	U	19.0	U	19.0	U	P
Antimony	14.0	U	14.0	U	14.0	U	14.0	U	14.0	U	P
Arsenic	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	F
Barium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Cadmium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	P
Calcium	19.0	U	19.0	U	19.0	U	19.0	U	19.0	U	P
Chromium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Cobalt	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Copper	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Iron	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	F
Magnesium	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	P
Manganese	1.0	U	1.0	B	1.0	U	1.0	U	1.0	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Potassium	68.0	U	68.0	U	68.0	U	68.0	U	68.0	U	P
Selenium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	F
Silver	-2.5	B	2.0	U	2.0	U	-2.5	B	-2.6	B	P
Sodium	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Vanadium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Zinc	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Cyanide											NR
Molybd'm	35.0	U	35.0	U	35.0	U	35.0	U	35.0	U	P

COMPUCHEM - COMPUCHEM - CHEMWEST

3 BLANKS

Lab Name: SKINNER & SHERMAN LABS Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 501R00T

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			19.0	U	19.0	U					P
Antimony			14.0	U	14.0	U					P
Arsenic			3.0	U	3.0	U	3.0	U			F
Barium			2.0	U	2.0	U					P
Beryllium			1.0	U	1.0	U					P
Cadmium			3.0	U	3.0	U					P
Calcium			19.0	U	19.0	U					F
Chromium			4.0	U	4.0	U					P
Cobalt			4.0	U	4.0	U					F
Copper			2.0	U	2.0	U					P
Iron			7.0	U	7.0	U					P
Lead			1.0	U	1.0	U	1.0	U			F
Magnesium			17.0	U	17.0	U					P
Manganese			1.0	U	1.0	U					P
Mercury			0.2	U							CV
Nickel			4.0	U	4.0	U					P
Potassium			83.1	B	68.0	U					P
Selenium			4.0	U	4.0	U	4.0	U			F
Silver			2.0	U	-2.6	B					P
Sodium			50.0	U	50.0	U					P
Thallium			2.0	U	2.0	U	2.0	U			F
Vanadium			2.0	U	2.0	U					P
Zinc			5.0	U	5.0	U					P
Cyanide											NR
Molybd'm			35.0	U	35.0	U					P

000028

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 501R20T

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead			1.0	U	1.0	U	1.0	U			F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	4.0	U	4.0	U	4.0	U					F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybd'm											NR

COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329T SAS No.: SDG No.: 502S04T

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	19.0	U	19.0	U	19.0	U	19.0	U	22.6	B	P
Antimony	14.0	U	14.0	U	14.0	U	14.0	U	14.0	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Barium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Cadmium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	P
Calcium	19.0	U	19.0	U	19.0	U	19.0	U	19.0	U	P
Chromium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	F
Cobalt	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Copper	2.0	U	2.0	U	2.0	U	2.0	U	2.2	B	P
Iron	7.0	U	7.0	U	7.0	U	7.0	U	12.8	B	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	F
Magnesium	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Potassium	68.0	U	68.0	U	68.0	U	68.0	U	68.0	U	P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	F
Silver	2.0	U	2.2	B	2.4	B	2.0	U	2.0	U	P
Sodium	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	P
Thallium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	F
Vanadium	2.0	U	2.0	U	2.1	B	2.0	U	2.0	U	P
Zinc	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Cyanide											NR
Molybd'm	35.0	U	35.0	U	35.0	U	35.0	U	35.0	U	P

000029

COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329T SAS No.: SDG No.: 502504T

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			19.0	U	19.0	U					P
Antimony			14.0	U	18.7	B					P
Arsenic			2.0	U	2.0	U					F
Barium			2.0	U	2.0	U					F
Beryllium			1.0	U	1.0	U					P
Cadmium			3.0	U	3.0	U					P
Calcium			19.0	U	19.0	U					P
Chromium			4.0	U	4.0	U					P
Cobalt			4.0	U	4.0	U					P
Copper			2.0	U	2.0	U					P
Iron			7.0	U	7.0	U					P
Lead			1.0	U	1.0	U	1.0	U			F
Magnesium			17.0	U	17.0	U					P
Manganese			1.0	U	1.0	U					P
Mercury			0.2	U	0.2	U	0.2	U			CV
Nickel			4.0	U	4.0	U					P
Potassium			68.0	U	68.0	U					P
Selenium			3.0	U	3.0	U					F
Silver			2.0	U	2.0	U					P
Sodium			50.0	U	50.0	U					P
Thallium			3.0	U	3.0	U	3.0	U			F
Vanadium			2.0	U	2.0	U					P
Zinc			5.0	U							P
Cyanide											NR
Molybd'm			35.0	U	35.0	U					P

000030

COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-C066

Lab Code: SKINER Case No.: 7329T SAS No.: SDG No.: 502SC4T

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic	2.0	U	2.0	U	2.0	U					F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	1.0	U	1.0	U	1.0	U	1.0	U			F
Magnesium											NR
Manganese											NR
Mercury			0.2	U	0.2	U	0.2	U			CV
Nickel											NR
Potassium											NR
Selenium	3.0	U	3.0	U	3.0	U					F
Silver											NR
Sodium											NR
Thallium	3.0	U	3.0	U	3.0	U					F
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybd'm											NR

000031

COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329T SAS No.: SDG No.: 502S04T

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury			0.2	U							CV
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybd'm											NR

000032

COMPUCHEM - CHEMWEST

3

BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 503P00

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	19.0	U	19.0	U	19.0	U	19.0	U	19.0	U	P
Antimony	14.0	U	14.0	U	14.0	U	14.0	U	14.0	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Barium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Cadmium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	P
Calcium	19.0	U	19.0	U	19.0	U	19.0	U	34.2	B	P
Chromium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Cobalt	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Copper	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Iron	7.8	B	-9.3	B	-13.2	B	-13.9	B	7.0	U	P
Lead	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	F
Magnesium	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Potassium	68.0	U	68.0	U	68.0	U	68.0	U	68.0	U	P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	F
Silver	4.1	B	2.0	U	2.0	U	2.0	U	2.0	U	P
Sodium	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Vanadium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Zinc	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	F
Cyanide											NR

CONTRACT LABORATORY PROGRAM

BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0038

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 5042R00

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			19.0	U							P
Antimony			14.0	U							P
Arsenic	2.0	U	2.0	U	2.0	U					F
Barium			2.0	U							P
Beryllium			1.0	U							P
Cadmium			3.0	U							P
Calcium			19.0	U							P
Chromium			4.0	U							P
Cobalt			4.0	U							P
Copper			2.0	U							P
Iron			-13.5	B							P
Lead			3.0	U	3.0	U					F
Magnesium			17.0	U							P
Manganese			1.0	U							P
Mercury			0.2	U	0.2	U	0.2	U			CV
Nickel			4.0	U							P
Potassium			68.0	U							P
Selenium	3.0	U	3.0	U	3.0	U					F
Silver			2.0	U							P
Sodium			50.0	U							P
Thallium			2.0	U	2.0	U	2.0	U			F
Vanadium			2.0	U							P
Zinc			5.0	U							P
Cyanide											AS

COMPUCHEM - CPENUE-T

3

BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 503R00

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	3.0	U	3.0	U	3.0	U					F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 501R000

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	-22.8	B	19.0	U	-24.1	B	-23.4	B	19.0	U	P
Antimony	14.0	U	14.0	U	14.0	U	14.0	U	14.0	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Barium	-2.7	B	2.0	U	-2.2	B	-2.7	B	-2.2	B	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Cadmium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	F
Calcium	-21.0	B	-22.2	B	-25.8	B	-27.6	B	19.0	U	P
Chromium	4.0	U	4.0	U	4.0	U	-4.5	B	4.0	U	P
Cobalt	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Copper	2.0	U	2.0	U	2.0	U	-2.2	B	2.0	U	P
Iron	-13.8	B	-11.0	B	-13.0	B	-14.0	B	7.0	U	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	F
Magnesium	-34.1	B	-29.8	B	-29.0	B	-40.6	B	-23.2	B	P
Manganese	1.0	U	-1.0	B	-1.0	B	-1.2	B	-1.2	B	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel	4.0	U	4.0	U	4.0	U	-5.8	B	4.0	U	P
Potassium	68.0	U	68.0	U	68.0	U	68.0	U	68.0	U	P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	F
Silver	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Sodium	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	P
Thallium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	F
Vanadium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Zinc	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Cyanide											NR
Molybd'm	35.0	U	35.0	U	35.0	U	35.0	U	35.0	U	P

000029

COMPUCHEM - CHEMNEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 501R00S

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			-25.1	B	-24.7	B					P
Antimony			14.0	U	-14.8	B					P
Arsenic			2.0	U	2.0	U	2.0	U			F
Barium			2.0	U	-2.7	B					P
Beryllium			1.0	U	1.0	U					P
Cadmium			3.0	U	3.0	U					P
Calcium			-24.6	B	-21.8	B					P
Chromium			4.0	U	4.0	U					P
Cobalt			4.0	U	4.0	U					P
Copper			2.0	U	2.0	U					P
Iron			-12.8	B	-11.3	B					P
Lead			1.0	U	1.0	U	1.0	U			F
Magnesium			17.0	U	-29.0	B					P
Manganese			-1.4	B	-1.4	B					P
Mercury			0.2	U							CV
Nickel			4.0	U	4.0	U					P
Potassium			68.0	U	68.0	U					P
Selenium			3.0	U	3.0	U	3.0	U			F
Silver			2.0	U	2.0	U					P
Sodium			50.0	U	50.0	U					P
Thallium			3.0	U	3.0	U	3.0	U			F
Vanadium			2.0	U	2.0	U					P
Zinc			5.0	U	5.0	U					P
Cyanide											NR
Molybd'm			35.0	U	35.0	U					F

000030

FORM III - IN 7/88

000088

[illegible] - [illegible]

[illegible] BLANKS

Lab Name: SKINNER & SHERMAN LABS [illegible] Contract: 68-D9-0088

Lab Code: SKINER [illegible] Case No.: 73235 SAS No.: SDG No.: 501R00S

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead			1.0	U	1.0	U	1.0	U			F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	3.0	U	3.0	U	3.0	U					F
Silver											NR
Sodium											NR
Thallium			3.0	U	3.0	U	3.0	U			F
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybd'm											NR

000031

COMPOSITE

BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 501R00S

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead			1.0	U	1.0	U					F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybd'm											NR

000032

COMPUCHEM - CHEMLAB

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329S SAS No.: SDG No.: 502S045

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic			3.0	U							F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead			1.0	U	1.0	U	1.0	U			F
Magnesium											NR
Manganese											NR
Mercury			0.2	U							CV
Nickel											NR
Potassium											NR
Selenium	4.0	U	4.0	U	4.0	U	4.0	U			F
Silver											NR
Sodium											NR
Thallium			3.0	U	3.0	U	3.0	U			F
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybd'm											NR

COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329S SAS No.: SDG No.: 502S04S

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead			1.0	U							F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium			4.0	U	4.0	U	4.0	U			F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybd'm											NR

COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329S SAS No.: SDG No.: 5025045

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			19.0	U	26.2	B					P
Antimony			14.0	U	14.0	U					P
Arsenic			3.0	U	3.0	U	3.0	U			F
Barium			2.0	U	2.0	U					P
Beryllium			1.0	U	1.0	U					P
Cadmium			3.0	U	3.0	U					F
Calcium			19.0	U	19.0	U					P
Chromium			4.0	U	4.0	U					F
Cobalt			4.0	U	4.0	U					P
Copper			2.0	U	2.2	B					P
Iron			7.0	U	7.0	U					P
Lead	1.0	U	1.0	U	1.0	U	1.0	U			F
Magnesium			17.0	U	29.9	B					P
Manganese			1.0	U	1.0	U					P
Mercury			0.2	U	0.2	U	0.2	U			CV
Nickel			4.0	U	4.0	U					P
Potassium			68.0	U	68.0	U					P
Selenium			4.0	U							F
Silver			3.8	B	3.3	B					P
Sodium			50.0	U	50.0	U					P
Thallium	3.0	U	3.0	U	3.0	U	3.0	U			F
Vanadium			2.0	U	2.4	B					P
Zinc			5.0	U	5.0	U					P
Cyanide											NR
Molybd'm			35.0	U	35.0	U					P

COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 73295 SAS No.: SDG No.: 502S04S

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	19.0	U	19.0	U	19.0	U	19.0	U	35.6	B	P
Antimony	14.0	U	15.1	B	14.0	U	16.2	B	14.0	U	P
Arsenic	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	F
Barium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Cadmium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	P
Calcium	19.0	U	19.0	U	19.0	U	19.0	U	54.0	B	P
Chromium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Cobalt	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Copper	2.0	U	2.0	U	2.0	U	2.0	U	2.5	B	P
Iron	7.0	U	7.0	U	7.0	U	7.0	U	16.3	B	P
Lead	1.0	U	1.0	U	1.0	U			1.0	U	F
Magnesium	17.0	U	17.0	U	20.9	B	17.0	U	20.2	B	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel	4.0	U	4.0	U	4.4	B	4.0	U	6.2	B	P
Potassium	68.0	U	68.0	U	68.0	U	68.0	U	68.0	U	P
Selenium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	F
Silver	2.0	U	2.0	U	3.6	B	2.0	U	2.0	U	P
Sodium	50.0	U	50.0	U	50.0	U	50.0	U	134.6	B	P
Thallium	3.0	U	3.0	U	3.0	U			3.0	U	F
Vanadium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Zinc	5.0	U	5.0	U	5.0	U	5.0	U	11.0	B	P
Cyanide											NR
Molybd'm	35.0	U	35.0	U	35.0	U	35.0	U	35.0	U	P

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COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 502R03

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	19.0	U	19.0	U	19.0	U	19.0	U	19.0	U	P
Antimony	14.0	U	14.0	U	14.0	U	14.0	U	14.0	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Barium	2.0	U	2.0	U	4.0	B	4.0	B	2.0	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Cadmium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	P
Calcium	19.0	U	19.0	U	19.0	U	19.0	U	19.0	U	P
Chromium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Cobalt	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Copper	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	P
Iron	7.0	U	7.0	U	7.0	U	7.0	U	16.5	B	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	F
Magnesium	-22.3	B	17.0	U	17.0	U	17.0	U	17.0	U	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Potassium	68.0	U	68.0	U	68.0	U	68.0	U	-75.6	B	P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	F
Silver	-2.5	B	-3.0	B	2.0	U	-2.0	B	2.0	U	P
Sodium	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Vanadium	2.0	U	2.0	U	2.0	U	-2.1	B	2.0	U	P
Zinc	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Cyanide											NR
Molybd'm	35.0	U	35.0	U	35.0	U	35.0	U	35.0	U	P

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COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 502R03

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			19.0	U							P
Antimony			14.0	U							P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U			F
Barium			2.0	U							P
Beryllium			1.0	U							P
Cadmium			3.0	U							P
Calcium			19.0	U							P
Chromium			4.0	U							P
Cobalt			4.0	U							P
Copper			2.0	U							P
Iron			7.0	U							P
Lead	1.0	U	1.0	U	-1.0	B	1.0	U			F
Magnesium			17.0	U							P
Manganese			1.0	U							P
Mercury			0.2	U	0.2	U	0.2	U			CV
Nickel			4.0	U							P
Potassium			68.0	U							P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U			F
Silver			2.0	U							P
Sodium			50.0	U							P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U			F
Vanadium			2.0	U							P
Zinc			5.0	U							P
Cyanide											NR
Molybd'm			35.0	U							F

000019

000096

COMPUCHEM - CHEMWEST

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 73235 SAS No.: SDG No.: 502R03

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic			2.0	U							F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead			1.0	U	1.0	U	1.0	U			F
Magnesium											NR
Manganese											NR
Mercury			0.2	U	0.2	U					CV
Nickel											NR
Potassium											NR
Selenium			3.0	U							F
Silver											NR
Sodium											NR
Thallium			2.0	U							F
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybd'm											NR

000020

3
BLANKS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: SDG No.: 46E132

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	17.0	U	17.0	U	-21.0	B	-19.1	B	17.0	U	P
Antimony	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Arsenic	1.4	B	1.2	B	1.0	U	1.0	U	1.0	U	F
Barium	2.3	B	1.3	B	1.0	U	1.0	U	1.0	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Cadmium	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	P
Calcium	10.0	U	17.6	B	10.0	U	10.0	U	25.1	B	P
Chromium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	P
Cobalt	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	P
Copper	12.3	B	3.0	U	3.0	U	3.0	U	3.0	U	P
Iron	6.0	U	6.0	U	6.0	U	6.0	U	12.0	B	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	F
Magnesium	22.0	U	40.4	B	22.0	U	22.0	U	23.2	B	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	P
Potassium	681.0	U	681.0	U	681.0	U	681.0	U	681.0	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Silver	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	P
Sodium	17.0	U	88.5	B	409.5	B	133.4	B	51.1	B	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Vanadium	3.0	U	3.4	B	3.0	U	3.0	U	3.0	U	P
Zinc	3.0	U	3.0	U	3.0	U	3.0	U	3.8	B	P
Cyanide	50.0	U	50.0	U	50.0	U			10.0	U	AS

3
BLANKS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			17.0	U							P
Antimony	2.0	U	2.0	U	2.0	U	2.0	U			F
Arsenic	1.0	U	1.0	U	1.0	U					F
Barium			1.0	U							P
Beryllium			1.0	U							P
Cadmium			3.0	U							P
Calcium			10.0	U							P
Chromium			4.0	U							P
Cobalt			3.0	U							P
Copper			-3.5	B							P
Iron			6.0	U							P
Lead	1.0	U	1.0	U	1.0	U	1.0	U			F
Magnesium			22.0	U							P
Manganese			1.0	U							P
Mercury	0.2	U	0.2	U	0.2	U					CV
Nickel			8.0	U							P
Potassium			681.0	U							P
Selenium	2.0	U	2.0	U	2.0	U					F
Silver			3.0	U							P
Sodium			78.9	B							P
Thallium	2.0	U	2.0	U							F
Vanadium			3.0	U							P
Zinc			3.0	U							P
Cyanide	50.0	U	50.0	U							AS

3
BLANKS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											P
Antimony	2.0	U	2.0	U	2.0	U					F
Arsenic	1.0	U	1.0	U	1.0	B					F
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead			1.0	U							F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium	2.0	U	2.0	U	2.0	U					F
Silver											P
Sodium											P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U			F
Vanadium											P
Zinc											P
Cyanide											AS

3
BLANKS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											P
Antimony											F
Arsenic											F
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead	1.0	U	1.0	U	1.0	U					F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											F
Silver											P
Sodium											P
Thallium			2.0	U							F
Vanadium											P
Zinc											P
Cyanide											AS

3
BLANKS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7146 SAS No.: _____ SDG No.: 46E132

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											P
Antimony											F
Arsenic											F
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											F
Silver											P
Sodium											P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U			F
Vanadium											P
Zinc											P
Cyanide											AS

3
BLANKS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum											P
Antimony											F
Arsenic											F
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium											F
Silver											P
Sodium											P
Thallium	2.0	U	2.0	U							F
Vanadium											P
Zinc											P
Cyanide											AS

3
BLANKS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	14.0	U	14.0	U	14.0	U	14.0	U	1.400	U	P
Antimony	3.0	U	3.0	U					0.300	U	F
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	0.200	U	F
Barium	2.0	U	2.0	U	2.0	U	2.0	U	0.200	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	0.100	U	P
Cadmium	2.0	U	2.0	U	2.0	U	2.0	U	0.200	U	P
Calcium	10.0	U	10.0	U	10.0	U	10.5	B	1.000	U	P
Chromium	6.0	U	6.0	U	6.0	U	6.0	U	0.600	U	P
Cobalt	5.0	U	5.0	U	5.0	U	5.0	U	0.500	U	P
Copper	3.0	U	3.0	U	3.0	U	3.0	U	0.510	B	P
Iron	3.0	U	3.0	U	6.1	B	5.5	B	1.403	B	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	0.182	B	F
Magnesium	17.0	U	17.0	U	17.0	U	17.0	U	1.700	U	P
Manganese	2.0	U	2.0	U	2.0	U	2.0	U	0.200	U	P
Mercury	0.2	U	0.2	U	0.2	U			0.100	U	CV
Nickel	10.0	U	10.0	U	10.0	U	10.0	U	1.000	U	P
Potassium	398.0	U	398.0	U	398.0	U	398.0	U	-76.227	B	P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U	0.300	U	F
Silver	1.0	U	1.0	U	1.8	B	1.0	U	-0.184	B	P
Sodium	12.0	U	12.0	U	12.0	U	12.0	U	3.517	B	P
Thallium	4.0	U	4.0	U	4.0	U	4.0	U	0.400	U	F
Vanadium	3.0	U	3.0	U	3.0	U	3.0	U	0.300	U	P
Zinc	3.0	U	3.0	U	3.0	U	3.0	U	1.344	B	P
Cyanide	10.0	U	10.0	U	10.0	U			0.500	U	AS
Molybdenum	7.7	B	5.0	U	5.0	U	5.0	U	0.858	B	P
Chromium+6	50.0	U	50.0	U	50.0	U			1.000	U	C

3
BLANKS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum											P
Antimony	3.0	U	3.0	U	3.0	U	3.0	U			F
Arsenic			2.0	U	2.0	U					F
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead	1.0	U	1.0	U							F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium			3.0	U							F
Silver											P
Sodium											P
Thallium			4.0	U							F
Vanadium											P
Zinc											P
Cyanide											AS
Molybdenum											P
Chromium+6											C

3
BLANKS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											P
Antimony			3.0	U							F
Arsenic	2.0	U	2.0	U							F
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium	3.0	U	3.0	U							F
Silver											P
Sodium											P
Thallium											F
Vanadium											P
Zinc											P
Cyanide											AS
Molybdenum											P
Chromium+6											C

A.7.2 Laboratory Duplicates

- CLP Form VI (inorganic) duplicates

DRAFT

U.S. EPA - CLP

6
DUPLICATES

CLIENT SAMPLE NO.

89461SDSD

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 40.7 % Solids for Duplicate: 40.7

Concentration Units: MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		9001.7197		7635.8721		16.4		P
Antimony	14.7	2.3759	B	2.7420	B			F
Arsenic	2.5	6.7300		14.3071		72.0	*	F
Barium	49.1	98.6732		91.4496				P
Beryllium	1.2	0.4079	B	0.3047	B			P
Cadmium	1.2	1.9779		34.9828		178.	*	P
Calcium		7204.9141		6224.0786		14.6		P
Chromium		99.7813		73.7838		30.0	*	P
Cobalt	12.3	10.3685	B	8.9066	B			P
Copper		573.3169		311.2531		59.3	*	P
Iron		21615.9707		18079.6074		17.8		P
Lead		4.4939		4.4939		0.0		F
Magnesium		10781.5723		9684.7666		10.7		P
Manganese		220.2015		168.3882		26.7	*	P
Mercury	0.2	0.3029		0.4399		23.2		CV
Nickel		94.3170		76.5823		20.8	*	P
Potassium	1228.5	1322.8256		1216.9287	B			P
Selenium	1.2	0.8845	B	0.9263	B			F
Silver	2.5	1.8550	B	0.5897	B			P
Sodium		9881.0811		10360.1963		4.7		P
Thallium	2.5	0.9828	U	0.9828	U			F
Vanadium	12.3	33.6707		30.6929				P
Zinc		1491.3267		867.1744		52.9	*	P
Cyanide								AS
Molybdenum	12.3	16.5307		24.6585		39		P
Chromium+6								C

Comments:
FORM 6 - PAGE 1 Dup. Sample Lab ID:5020-1D Sample Lab ID:5020-1

U.S. EPA - CLP

6
DUPLICATES

CLIENT SAMPLE NO.

89463SDSD

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 39.2 % Solids for Duplicate: 39.2

Concentration Units: MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								P
Antimony								F
Arsenic							*	F
Barium								P
Beryllium								P
Cadmium							*	P
Calcium								P
Chromium							*	P
Cobalt								P
Copper							*	P
Iron								P
Lead								F
Magnesium								P
Manganese							*	P
Mercury								CV
Nickel							*	P
Potassium								P
Selenium								F
Silver								P
Sodium								P
Thallium								F
Vanadium								P
Zinc							*	P
Cyanide	1.3	1.2755	U	1.2755	U			AS
Molybdenum								P
Chromium+6								C

Comments:
FORM 6 - PAGE 2 Dup. Sample Lab ID:5020-3D Sample Lab ID:5020-3

U.S. EPA - CLP

6
DUPLICATES

CLIENT SAMPLE NO.

89462SDSD

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 62.0 % Solids for Duplicate: 62.0

Concentration Units: MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								P
Antimony								F
Arsenic							*	F
Barium								P
Beryllium								P
Cadmium							*	P
Calcium								P
Chromium							*	P
Cobalt								P
Copper							*	P
Iron								P
Lead								F
Magnesium								P
Manganese							*	P
Mercury								CV
Nickel							*	P
Potassium								P
Selenium								F
Silver								P
Sodium								P
Thallium								F
Vanadium								P
Zinc							*	P
Cyanide								AS
Molybdenum								P
Chromium+6	1.6	1.6129	U	1.6129				C

Comments:
FORM 6 - PAGE 3 Dup. Sample Lab ID:5020-2D Sample Lab ID:5020-2

6
DUPLICATES

CLIENT SAMPLE NO.

9046E132D

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units: UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		62.5800		30.8500	B	67.9		P
Antimony		2.0000	U	2.0000	U			F
Arsenic		1.0000	U	1.0000	B	0		F
Barium		17.8000	B	9.3700	B	62.1		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		3.0000	U	3.0000	U			P
Calcium		587.0000	B	309.7300	B	61.8		P
Chromium		4.0000	U	4.0000	U			P
Cobalt		3.0000	U	3.0000	U			P
Copper		9.3000	B	5.4700	B	51.9		P
Iron	100.0	150.0000		81.4800	B	59.2		P
Lead		1.3500	B	1.5200	B	11.8		F
Magnesium		148.0000	B	124.9300	B	16.9		P
Manganese	15.0	28.4000		15.4900		58.8		P
Mercury		0.2000	U	0.2000	U			CV
Nickel		8.0000	U	8.0000	U			P
Potassium		681.0000	U	681.0000	U			P
Selenium		2.0000	U	2.0000	U			F
Silver		3.0000	U	3.0000	U			P
Sodium		741.0000	B	454.2000	B	48.0		P
Thallium		2.0000	U	2.0000	U			F
Vanadium		3.0000	U	3.0000	U			P
Zinc	20.0	75.2000		47.3700		45.4	*	P
Cyanide		50.0000		50.0000				AS

Comments:
FORM 6 - PAGE 1 Dup. Sample Lab ID:7148T-1D Sample Lab ID:7148T-1

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6
DUPLICATES

CLIENT SAMPLE NO.

9046E132D

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units: UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		17.0000	U	17.0000	U			P
Antimony		2.0000	U	2.0000	U			F
Arsenic	10.0	1.0000	U	1.1100	B	0		F
Barium		4.5000	B	4.5800	B	1.8		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		3.0000	U	3.0000	U			P
Calcium		261.0000	B	247.6500	B	5.2		P
Chromium		4.0000	U	4.0000	U			P
Cobalt		3.0000	U	3.0000	U			P
Copper	25.0	45.2000		41.0200		9.7		P
Iron		92.6000	B	94.1700	B	3.6		P
Lead	3.0	3.0400		2.9800	B	1.7		F
Magnesium		349.0000	B	354.6300	B	1.6		P
Manganese	15.0	43.7000		43.1200		1.3		P
Mercury		0.2000	U	0.2000	U			CV
Nickel		8.0000	U	8.0000	U			P
Potassium		681.0000		681.0000	U			P
Selenium		2.0000	U	2.0000	U			F
Silver		3.0000	U	3.0000	U			P
Sodium		687.0000	B	596.7800	B	14.1		P
Thallium		2.0000	U	2.0000	U			F
Vanadium		3.0000	U	3.0000	U			P
Zinc		38.8000		36.3800		6.4		P
Cyanide								AS

Comments:
FORM 6 - PAGE 2 Dup. Sample Lab ID:7148S-1D Sample Lab ID:7148S-1

6
DUPLICATES

SAMPLE NUMBER:

502S04D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329S SAS No.: SDG No.: 502S04S

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	200.0	215.3500		198.2200	B	8.3		P
Antimony		14.0000	U	14.0000	U			P
Arsenic		3.0000	U	3.0000	U			F
Barium		25.1000	B	24.0400	B	4.3		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		3.0000	U	3.0000	U			P
Calcium	5000.0	9448.9000		9086.2000		3.9		P
Chromium	10.0	16.0700		13.7100		15.8		P
Cobalt		4.0000	U	4.0000	U			P
Copper	25.0	67.2400		64.1500		4.7		P
Iron	100.0	321.4800		325.2900		1.2		P
Lead		35.5000		29.1500		19.6		F
Magnesium	5000.0	5316.5000		5206.5000		2.1		P
Manganese	15.0	40.1400		38.3100		4.7		P
Mercury								NR
Nickel		6.6200	B	7.0600	B	6.4		P
Potassium		3212.5000	B	3145.3000	B	2.1		P
Selenium		4.0000	U	4.0000	U			F
Silver		2.1800	B	2.0000	U	200.0		P
Sodium		43111.0000		42882.0000		0.5		P
Thallium		15.0000	U	3.0000	U			F
Vanadium		2.0500	B	2.0000	U	200.0		P
Zinc		319.0500		310.0700		2.9		P
Cyanide								NR
Molybd'm		35.0000	U	35.0000	U			P

6
DUPLICATES

SAMPLE NUMBER:

502S04D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329T SAS No.: SDG No.: 502S04T

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		1499.6000		1290.8000		15.0		P
Antimony		14.0000	U	14.0000	U			P
Arsenic		2.0000	U	2.0000	U			F
Barium		28.9300	B	26.2400	B	9.8		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		3.0000	U	3.0000	U			P
Calcium	5000.0	9046.4000		8432.8000		7.0		P
Chromium	10.0	28.6800		27.8300		3.0		P
Cobalt		4.0000	U	4.0000	U			P
Copper	25.0	72.5500		68.4800		5.8		P
Iron		2630.2000		2426.3000		8.1		P
Lead		43.6000		42.0000		3.7		F
Magnesium	5000.0	6288.7000		5821.3000		7.7		P
Manganese	15.0	61.2900		57.0300		7.2		P
Mercury	0.2	0.3200		0.3200		0.0		CV
Nickel		16.1800	B	16.1800	B	0.0		P
Potassium		3292.3000	B	3021.8000	B	8.6		P
Selenium		3.3850	B	3.0000	U	200.0		F
Silver		2.0000	U	2.0000	U			P
Sodium		41977.0000		38846.0000		7.7		P
Thallium		3.0000	U	3.0000	U			F
Vanadium		5.2800	B	5.6200	B	6.2		P
Zinc		301.9800		279.6300		7.7		P
Cyanide								NR
Molybd'm		35.0000	U	35.0000	U			P

000035

COMPUCHEM - CHEMWEST

6
DUPLICATES

SAMPLE NUMBER:

502R03D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 502R03

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		186.1800	B	196.6900	B	5.5		P
Antimony		14.0000	U	14.0000	U			P
Arsenic		2.0000	U	2.0000	U			F
Barium		32.5900	B	30.3500	B	7.1		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		3.0000	U	3.0000	U			P
Calcium		2658.8000	B	2522.4000	B	5.3		P
Chromium		4.0000	U	4.0000	U			P
Cobalt		4.0000	U	4.0000	U			P
Copper	25.0	34.7000		33.8800		2.4		P
Iron	100.0	315.2900		304.6800		3.4		P
Lead		24.0750		23.0150		4.5		F
Magnesium		705.4400	B	675.9800	B	4.3		P
Manganese	15.0	31.2200		29.8300		4.6		P
Mercury		0.2000	U	0.2000	U			CV
Nickel		4.0000	U	4.0000	U			P
Potassium		453.5700	B	400.2100	B	12.5		P
Selenium		3.0000	U	3.0000	U			F
Silver		2.0000	U	2.0000	U			P
Sodium		3297.5000	B	3153.6000	B	4.5		P
Thallium		2.0000	U	2.0000	U			F
Vanadium		2.0000	U	2.0000	U			P
Zinc		195.8900		195.9000		0.0		P
Cyanide								NR
Molybd'm		35.0000	U	35.0000	U			P

000023

COMPUCHEM - CHEMWEST

5
DUPLICATES

SAMPLE NUMBER:

503R03D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINEP Case No.: 7323T SAS No.: SDG No.: 503R00

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	200.0	1010.2000		741.2700		30.7	*	P
Antimony		20.1800	B	14.0000	U	200.0		P
Arsenic		2.0000	U	2.0000	U			F
Barium		32.4300	B	30.2800	B	6.9		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		3.0000	U	3.0000	U			P
Calcium		2558.9000	B	2579.9000	B	0.8		P
Chromium		6.7400	B	7.1600	B	6.0		P
Cobalt		4.0100	B	4.0000	U	200.0		P
Copper	25.0	38.2500		36.6400		4.3		P
Iron		1478.9000		1403.8000		5.2		P
Lead		22.8500		21.5000		6.1		F
Magnesium		1140.5000	B	1093.9000	B	4.2		P
Manganese	15.0	39.0600		37.0900		5.2		P
Mercury								NR
Nickel		9.5200	B	7.9300	B	18.2		P
Potassium		721.9700	B	587.4400	B	20.5		P
Selenium		3.0000	U	3.0000	U			F
Silver		2.0000	U	2.0000	U			P
Sodium		3269.2000	B	3108.4000	B	5.0		P
Thallium		2.0000	U	2.0000	U			F
Vanadium		5.0700	B	4.0200	B	23.1		P
Zinc		186.2800		184.3500		1.0		P
Cyanide								NR

6
DUPLICATES

SAMPLE NUMBER:

501R00D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 501R00S

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	200.0	220.0200		189.6700	B	14.8		P
Antimony		14.0000	U	14.0000	U			P
Arsenic		2.0000	U	2.0000	U			F
Barium		16.1100	B	14.9100	B	7.7		P
Beryllium		1.0000	U	1.0000	U			F
Cadmium		3.0000	U	3.0000	U			P
Calcium		1720.3000	B	1705.9000	B	0.8		P
Chromium		4.0000	U	4.0000	U			P
Cobalt		4.0000	U	4.0000	U			P
Copper	25.0	80.0900		79.2800		1.0		P
Iron	100.0	399.6200		396.7700		0.7		P
Lead		123.1000		160.7000		26.5	*	F
Magnesium		613.5600	B	604.1200	B	1.6		P
Manganese	15.0	54.4500		53.6300		1.5		P
Mercury								NR
Nickel		4.6000	B	8.8200	B	62.9		P
Potassium		369.3900	B	369.3900	B	0.0		P
Selenium		3.0000	U	3.0000	U			F
Silver		2.0000	U	3.2300	B	200.0		P
Sodium		2942.5000	B	2872.6000	B	2.4		P
Thallium		3.0000	U	3.0000	U			F
Vanadium		2.8700	B	2.0000	U	200.0		P
Zinc		203.9900		202.1000		0.9		P
Cyanide								NR
Molybd'm		35.0000	U	35.0000	U			P

000036

6

DUPLICATES

SAMPLE NUMBER:

501R00D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 501R00T

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		1629.3000		1289.7000		23.3	*	P
Antimony		14.0000	U	14.0000	U			P
Arsenic		3.1150	B	3.0000	U	200.0		F
Barium		26.1500	B	23.2600	B	11.7		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		3.0000	U	3.0000	U			P
Calcium		2220.8000	B	2217.1000	B	0.2		P
Chromium	10.0	23.2200		21.5200		7.6		P
Cobalt		4.0000	U	4.0000	U			P
Copper	25.0	111.5900		100.1300		10.8		P
Iron		3319.4000		2967.7000		11.2		P
Lead		157.5500		167.1500		5.9		F
Magnesium		1583.9000	B	1489.8000	B	6.1		P
Manganese		83.0000		79.6100		4.2		P
Mercury	0.2	0.3800		0.4900		25.3		CV
Nickel		19.7100	B	15.3700	B	24.7		P
Potassium		658.1000	B	624.4100	B	5.3		P
Selenium		4.0000	U	4.0000	U			F
Silver		2.0000	U	2.0000	U			P
Sodium		3005.0000	B	3160.4000	B	5.0		P
Thallium		2.0000	U	2.0000	U			F
Vanadium		8.2200	B	4.9700	B	49.3		P
Zinc		248.0100		243.6600		1.8		P
Cyanide								NR
Molybd'm		35.0000	U	35.0000	U			P

000032

COMPUCHEM - CHEMWEST

6
DUPLICATES

SAMPLE NUMBER

502R04D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329S SAS No.: SDG No.: 502S04S

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury		0.2000	U	0.2000	U			CV
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide								NR
Molybd'm								NR

00036

COMPUCHEM - CHEMNET

DUPLICATES

SAMPLE NUMBER: 503R00D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-09-0088

Lab Code: SKINER Case No.: 7423T SAS No.: SDG No.: 503R00

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury		0.2000	U	0.2000	U			CV
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide								NR

000024

6
DUPLICATES

SAMPLE NUMBER:

501S00D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 501R00S

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury		0.2000	U	0.2000	U			CV
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide								NR
Molybd'm								NR

000037

A.7.3 Spike and Spike Duplicates

- CLP Form III (organic) spike results
- CLP Form II (organic) surrogate spike results
- TPH-Diesel spike results
- TPH-Gasoline spike results
- Oil & Grease spike results
- CLP Form VII (inorganic) spike results

DRAFT

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: _____

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix Spike - EPA Sample No.: 89464SDS Level:(low/med) MED

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	10600	0	10500	99	59-172
Trichloroethene	10600	0	11100	105	62-137
Benzene	10600	0	11100	105	66-142
Toluene	10600	1340	12200	103	59-139
Chlorobenzene	10600	0	11900	112	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	10600	10000	94	5	22	59-172
Trichloroethene	10600	10000	94	11	24	62-137
Benzene	10600	9920	94	11	21	66-142
Toluene	10600	12200	103	0	21	59-139
Chlorobenzene	10600	11900	112	0	21	60-133

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

COMMENTS: 89464SDS 50UL 4.0G/5MLS
CW4,6'X1/4"GLASS,60/80 1%SP1000 CARBOPACK

‡‡

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: _____

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix Spike - EPA Sample No.: 89462SDS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	80.6	0	71.0	88	59-172
Trichloroethene	80.6	0	93.9	117	62-137
Benzene	80.6	0	90.8	113	66-142
Toluene	80.6	0	97.9	122	59-139
Chlorobenzene	80.6	0	94.4	117	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	80.6	81.3	101	-14	22	59-172
Trichloroethene	80.6	99.2	123	-5	24	62-137
Benzene	80.6	104	129	-13	21	66-142
Toluene	80.6	98.5	122	0	21	59-139
Chlorobenzene	80.6	107	133	-13	21	60-133

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

COMMENTS: 89462SDS 4.99G/5ML
CW4,6'X1/4"GLASS,60/80 1%SP1000 CARBOPACK

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix Spike - EPA Sample No.: 9046E132

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0	47.1	94	61-145
Trichloroethene	50.0	0	48.0	96	71-120
Benzene	50.0	0	50.4	101	76-127
Toluene	50.0	0	52.9	106	76-125
Chlorobenzene	50.0	0	50.0	100	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.0	49.2	98	-4	14	61-145
Trichloroethene	50.0	51.6	103	-7	14	71-120
Benzene	50.0	53.4	107	-6	11	76-127
Toluene	50.0	55.4	111	-5	13	76-125
Chlorobenzene	50.0	53.1	106	-6	13	75-130

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

COMMENTS: 9046E132 5ML
CW3, 6' X 1/4" SP1000 CARBOPACK

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix Spike - EPA Sample No.: 90501R00

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0	52.4	105	61-145
Trichloroethene	50.0	0	47.6	95	71-120
Benzene	50.0	0	50.7	101	76-127
Toluene	50.0	0	53.1	106	76-125
Chlorobenzene	50.0	0	48.2	96	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.0	48.1	96	9	14	61-145
Trichloroethene	50.0	43.4	87	9	14	71-120
Benzene	50.0	45.9	92	9	11	76-127
Toluene	50.0	48.7	97	9	13	76-125
Chlorobenzene	50.0	44.0	88	9	13	75-130

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

COMMENTS: 1R00 5ML

FORM III VOA-1 1/87 Rev.

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix Spike - EPA Sample No.: 90502S02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0	55.9	112	61-145
Trichloroethene	50.0	0	48.1	96	71-120
Benzene	50.0	0	51.5	103	76-127
Toluene	50.0	0	54.3	109	76-125
Chlorobenzene	50.0	0	49.7	99	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.0	48.5	97	14	14	61-145
Trichloroethene	50.0	47.0	94	2	14	71-120
Benzene	50.0	49.9	100	3	11	76-127
Toluene	50.0	52.2	104	5	13	76-125
Chlorobenzene	50.0	47.3	95	4	13	75-130

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

COMMENTS: 2S02 5ML
CW3 1% SP1000 6'X 1/4"

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Matrix Spike - EPA Sample No.: 90504R07

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0	49.8	100	61-145
Trichloroethene	50.0	0	45.4	91	71-120
Benzene	50.0	0	45.5	91	76-127
Toluene	50.0	0	49.1	98	76-125
Chlorobenzene	50.0	0	46.8	94	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.0	50.3	101	-1	14	61-145
Trichloroethene	50.0	45.6	91	0	14	71-120
Benzene	50.0	46.1	92	-1	11	76-127
Toluene	50.0	49.7	99	-1	13	76-125
Chlorobenzene	50.0	46.9	94	0	13	75-130

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

COMMENTS: 904R07 5ML
CW1 1% SP1000 CARBOPACK 6FT GLASS

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: _____

Lab Code: _____ Case No.: ~~BLANK~~ 7323 JBH 1/24/91 SAS No.: _____ SDG No.: 1R00

Matrix Spike - EPA Sample No.: VBLK26

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0	47.2	94	61-145
Trichloroethene	50.0	0	45.7	91	71-120
Benzene	50.0	0	43.9	88	76-127
Toluene	50.0	0	50.2	100	76-125
Chlorobenzene	50.0	0	46.1	92	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.0	49.5	99	-5	14	61-145
Trichloroethene	50.0	45.4	91	0	14	71-120
Benzene	50.0	43.6	87	1	11	76-127
Toluene	50.0	50.2	100	0	13	76-125
Chlorobenzene	50.0	46.0	92	0	13	75-130

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

COMMENTS: VBLK 5ML
CW1 1% SP1000 CARBOPACK 6FT GLASS

VOLATILE ORGANICS ANALYSIS
METHOD BLANK SPIKE/METHOD BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No.: SDG No.: 902S04

COMPOUND	SPIKE ADDED (ug/L)	MBS CONC (ug/L)	MBS % REC	SPIKE ADDED (ug/L)	MBS CONC (ug/L)	MBS % REC	RPD
CHLOROMETHANE	80	77.9	97%	80	64.9	81%	18%
BROMOMETHANE	50	46.7	93%	50	51.4	103%	10%
VINYL CHLORIDE	50	52.4	105%	50	51.0	102%	3%
CHLOROETHANE	50	48.5	97%	50	52.5	105%	8%
METHYLENE CHLORIDE	50	48.4	97%	50	51.8	104%	7%
ACETONE	50	39.7	79%	50	42.3	85%	6%
CARBON DISULFIDE	50	50.4	101%	50	54.0	108%	7%
1,1-DICHLOROETHENE	50	48.1	96%	50	52.3	105%	8%
1,1-DICHLOROETHANE	50	49.6	99%	50	53.3	107%	7%
1,2-DICHLOROETHENE(TOTAL)	50	49.8	100%	50	53.5	107%	7%
CHLOROFORM	50	49.5	99%	50	42.1	84%	16%
1,2-DICHLOROETHANE	50	46.5	93%	50	49.4	99%	6%
2-BUTANONE	50	43.8	88%	50	42.5	85%	3%
1,1,1-TRICHLOROETHANE	50	47.1	94%	50	47.1	94%	0%
CARBON TETRACHLORIDE	50	47.2	94%	50	53.9	108%	13%
VINYL ACETATE	50	48.0	96%	50	48.1	96%	0%
BROMODICHLOROMETHANE	50	48.5	97%	50	48.4	97%	0%
1,2-DICHLOROPROPANE	50	48.4	97%	50	48.9	98%	1%
CIS-1,3-DICHLOROPROPENE	80	77.1	96%	80	78.6	98%	2%
TRICHLOROETHENE	50	51.4	103%	50	47.4	95%	8%
BENZENE	50	47.1	94%	50	47.1	94%	0%
DIBROMOCHLOROMETHANE	50	45.9	92%	50	46.1	92%	0%
1,1,2-TRICHLOROETHANE	50	43.8	88%	50	44.3	89%	1%
TRANS-1,3-DICHLOROPROPENE	20	19.3	97%	20	19.6	98%	2%
BROMOFORM	50	47.2	94%	50	47.8	96%	1%
4-METHYL-2-PENTANONE	50	44.9	90%	50	45.8	92%	2%
2-HEXANONE	50	42.9	86%	50	41.4	83%	4%
TETRACHLOROETHENE	50	47.4	95%	50	46.9	94%	1%
1,1,2,2-TETRACHLOROETHANE	50	46.9	94%	50	46.9	94%	0%
TOLUENE	50	47.5	95%	50	47.1	94%	1%
CHLOROBENZENE	50	47.5	95%	50	46.8	94%	1%
ETHYLBENZENE	50	47.6	95%	50	48.1	96%	1%
STYRENE	50	47.7	95%	50	48.2	96%	1%
TOTAL XYLENES	50	47.4	95%	50	47.7	95%	1%

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: COMPUCHEM LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 18704 SAS No.: _____ SDG No.: 01

Matrix Spike - EPA Sample No.: 89461SDS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMIT. REC.
Phenol	16100	549	11000	65	26- 9
2-Chlorophenol	16100	0	9690	60	25-10
1,4-Dichlorobenzene	8030	0	5000	62	28 104
N-Nitroso-di-n-prop.(1)	8030	0	5400	67	41 126
1,2,4-Trichlorobenzene	8030	0	5580	69	38 107
4-Chloro-3-methylphenol	16100	0	11500	71	26 103
Acenaphthene	8030	0	5400	67	31-137
4-Nitrophenol	16100	0	11800	73	11-114
2,4-Dinitrotoluene	8030	0	6030	75	28- 89
Pentachlorophenol	16100	3240	14300	69	17-109
Pyrene	8030	2360	6780	55	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	16000	10300	61	6	35	26- 90
2-Chlorophenol	16000	8830	55	9	50	25-102
1,4-Dichlorobenzene	7980	4430	56	10	27	28 104
N-Nitroso-di-n-prop.(1)	7980	5060	63	6	38	41 126
1,2,4-Trichlorobenzene	7980	5020	63	9	23	38 107
4-Chloro-3-methylphenol	16000	11400	71	0	33	26 103
Acenaphthene	7980	5150	65	3	19	31-137
4-Nitrophenol	16000	9280	58	23	50	11-114
2,4-Dinitrotoluene	7980	6130	77	-3	47	28- 89
Pentachlorophenol	16000	11600	52	28	47	17-109
Pyrene	7980	7720	67	-20	36	35-142

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

COMMENTS: CLP
TUNE: 0006 121789 0736

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Matrix Spike - EPA Sample No.: 90502S04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	200	0	134	67	12- 86
2-Chlorophenol	200	0	186	93	27-123
1,4-Dichlorobenzene	100	0	80.0	80	36 97
N-Nitroso-di-n-prop.(1)	100	0	88.4	88	41 116
1,2,4-Trichlorobenzene	100	0	89.0	89	39 98
4-Chloro-3-methylphenol	200	0	189	94	23 97
Acenaphthene	100	0	111	111	46-118
4-Nitrophenol	200	0	136	68	10- 80
2,4-Dinitrotoluene	100	0	106	106 *	24- 96
Pentachlorophenol	200	0	246	123 *	9-103
Pyrene	100	0	119	119	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200	138	69	-3	42	12- 86
2-Chlorophenol	200	177	88	6	40	27-123
1,4-Dichlorobenzene	100	68.2	68	16	28	36 97
N-Nitroso-di-n-prop.(1)	100	76.4	76	15	38	41 116
1,2,4-Trichlorobenzene	100	70.8	71	22	28	39 98
4-Chloro-3-methylphenol	200	180	90	4	42	23 97
Acenaphthene	100	94.6	95	16	31	46-118
4-Nitrophenol	200	147	74	-8	50	10- 80
2,4-Dinitrotoluene	100	94.8	95	11	38	24- 96
Pentachlorophenol	200	244	122 *	1	50	9-103
Pyrene	100	110	110	8	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 3 out of 22 outside limits

COMMENTS: 902S04 1L/2ML
CW7 30M DB-5

FORM III SV-1 1/87 Rev.

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ab Name: CHEMWEST LABS Contract: (2-88)-REVS

ab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

atrix Spike - EPA Sample No.: 90501R01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	200	0	102	51	12- 86
2-Chlorophenol	200	0	143	72	27-123
1,4-Dichlorobenzene	100	0	64.0	64	36 97
N-Nitroso-di-n-prop.(1)	100	0	76.2	76	41 116
1,2,4-Trichlorobenzene	100	0	69.0	69	39 98
4-Chloro-3-methylphenol	200	0	145	72	23 97
Acenaphthene	100	0	90.6	91	46-118
4-Nitrophenol	200	0	89.8	45	10- 80
2,4-Dinitrotoluene	100	0	93.2	93	24- 96
Pentachlorophenol	200	0	166	83	9-103
Pyrene	100	0	78.6	79	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200	94.8	47	8	42	12- 86
2-Chlorophenol	200	139	70	3	40	27-123
1,4-Dichlorobenzene	100	48.0	48	29 *	28	36 97
N-Nitroso-di-n-prop.(1)	100	78.8	79	-4	38	41 116
1,2,4-Trichlorobenzene	100	50.6	51	30 *	28	39 98
4-Chloro-3-methylphenol	200	142	71	1	42	23 97
Acenaphthene	100	91.4	91	0	31	46-118
4-Nitrophenol	200	99.8	50	-11	50	10- 80
2,4-Dinitrotoluene	100	101	101 *	-8	38	24- 96
Pentachlorophenol	200	176	88	-6	50	9-103
Pyrene	100	86.6	87	-10	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

PD: 2 out of 11 outside limits
pike Recovery: 1 out of 22 outside limits

OMMENTS: 1R01 1L/2ML
CW7 30M DB-5

FORM III SV-1 1/87 Rev.

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix Spike - EPA Sample No.: 90503S00

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	200	0	84.0	42	12- 86
2-Chlorophenol	200	0	127	64	27-123
1,4-Dichlorobenzene	100	0	26.2	26 *	36 97
N-Nitroso-di-n-prop.(1)	100	0	45.0	45	41 116
1,2,4-Trichlorobenzene	100	0	25.0	25 *	39 98
4-Chloro-3-methylphenol	200	0	137	68	23 97
Acenaphthene	100	0	44.2	44 *	46-118
4-Nitrophenol	200	0	75.0	38	10- 80
2,4-Dinitrotoluene	100	0	56.0	56	24- 96
Pentachlorophenol	200	0	20.8	10	9-103
Pyrene	100	0	48.0	48	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200	70.8	35	18	42	12- 86
2-Chlorophenol	200	120	60	6	40	27-123
1,4-Dichlorobenzene	100	32.6	33 *	-24	28	36 97
N-Nitroso-di-n-prop.(1)	100	53.0	53	-16	38	41 116
1,2,4-Trichlorobenzene	100	34.0	34 *	-31 *	28	39 98
4-Chloro-3-methylphenol	200	126	63	8	42	23 97
Acenaphthene	100	52.2	52	-17	31	46-118
4-Nitrophenol	200	68.6	34	11	50	10- 80
2,4-Dinitrotoluene	100	63.0	63	-12	38	24- 96
Pentachlorophenol	200	20.8	10	0	50	9-103
Pyrene	100	51.4	51	-6	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

PD: 1 out of 11 outside limits
pike Recovery: 5 out of 22 outside limits

OMMENTS: 3S00 1L/2ML
CW7 30M DB-5

FORM III SV-1 1/87 Rev.

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix Spike - EPA Sample No.: SBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	200	0	115	58	12- 86
2-Chlorophenol	200	0	135	68	27-123
1,4-Dichlorobenzene	100	0	37.8	38	36 97
N-Nitroso-di-n-prop.(1)	100	0	35.4	35 *	41 116
1,2,4-Trichlorobenzene	100	0	33.8	34 *	39 98
4-Chloro-3-methylphenol	200	0	151	76	23 97
Acenaphthene	100	0	49.2	49	46-118
4-Nitrophenol	200	0	76.0	38	10- 80
2,4-Dinitrotoluene	100	0	50.8	51	24- 96
Pentachlorophenol	200	0	170	85	9-103
Pyrene	100	0	56.0	56	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200	117	58	0	42	12- 86
2-Chlorophenol	200	144	72	-6	40	27-123
1,4-Dichlorobenzene	100	74.4	74	-64 *	28	36 97
N-Nitroso-di-n-prop.(1)	100	76.6	77	-75 *	38	41 116
1,2,4-Trichlorobenzene	100	69.4	69	-68 *	28	39 98
4-Chloro-3-methylphenol	200	158	79	-4	42	23 97
Acenaphthene	100	89.4	89	-58 *	31	46-118
4-Nitrophenol	200	75.4	38	0	50	10- 80
2,4-Dinitrotoluene	100	82.2	82	-47 *	38	24- 96
Pentachlorophenol	200	171	86	-1	50	9-103
Pyrene	100	90.0	90	-47 *	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 6 out of 11 outside limits
Spike Recovery: 2 out of 22 outside limits

COMMENTS: SBLK 1L/2ML
CW-5 30M DB-5

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: COMPUCHEM LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 18704 SAS No.: _____ SDG No.: 01

Matrix Spike - EPA Sample No.: 89461SDSMB Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMIT. REC.
Phenol	6660	0	4700	71	26- 9(
2-Chlorophenol	6660	0	4860	73	25-10:
1,4-Dichlorobenzene	3330	0	2610	78	28 104
N-Nitroso-di-n-prop.(1)	3330	0	2730	82	41 12(
1,2,4-Trichlorobenzene	3330	0	3140	94	38 107
4-Chloro-3-methylphenol	6660	0	5230	79	26 103
Acenaphthene	3330	0	2760	83	31-137
4-Nitrophenol	6660	0	5760	86	11-114
2,4-Dinitrotoluene	3330	0	2910	87	28- 89
Pentachlorophenol	6660	0	6160	92	17-109
Pyrene	3330	0	2450	74	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	6660	2870	43	49 *	35	26- 90
2-Chlorophenol	6660	2570	39	61 *	50	25-102
1,4-Dichlorobenzene	3330	1330	40	64 *	27	28 104
N-Nitroso-di-n-prop.(1)	3330	1500	45	58 *	38	41 126
1,2,4-Trichlorobenzene	3330	1580	47	67 *	23	38 107
4-Chloro-3-methylphenol	6660	3560	53	39 *	33	26 103
Acenaphthene	3330	1790	54	42 *	19	31-137
4-Nitrophenol	6660	3800	57	41	50	11-114
2,4-Dinitrotoluene	3330	2070	62	34	47	28- 89
Pentachlorophenol	6660	3070	46	67 *	47	17-109
Pyrene	3330	1430	43	53 *	36	35-142

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 9 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

COMMENTS: CLP ,1870,41,B, , ,308437,BNA, ,
TUNE: 0006 121589 1748

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

Matrix Spike - EPA Sample No.: SBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	200	0	46.0	23	12- 86
2-Chlorophenol	200	0	101	50	27-123
1,4-Dichlorobenzene	100	0	40.8	41	36 97
N-Nitroso-di-n-prop.(1)	100	0	36.2	36 *	41 116
1,2,4-Trichlorobenzene	100	0	36.8	37 *	39 98
4-Chloro-3-methylphenol	200	0	95.2	48	23 97
Acenaphthene	100	0	42.0	42 *	46-118
4-Nitrophenol	200	0	25.0	12	10- 80
2,4-Dinitrotoluene	100	0	45.8	46	24- 96
Pentachlorophenol	200	0	83.6	42	9-103
Pyrene	100	0	56.4	56	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200	44.2	22	4	42	12- 86
2-Chlorophenol	200	93.0	46	8	40	27-123
1,4-Dichlorobenzene	100	42.2	42	-2	28	36 97
N-Nitroso-di-n-prop.(1)	100	43.4	43	-18	38	41 116
1,2,4-Trichlorobenzene	100	41.4	41	-10	28	39 98
4-Chloro-3-methylphenol	200	80.2	40	18	42	23 97
Acenaphthene	100	49.2	49	-15	31	46-118
4-Nitrophenol	200	29.4	15	-22	50	10- 80
2,4-Dinitrotoluene	100	43.8	44	4	38	24- 96
Pentachlorophenol	200	80.8	40	5	50	9-103
Pyrene	100	54.0	54	4	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 3 out of 22 outside limits

COMMENTS: SBLK7E 1L/2ML
CW7 30M DB-5

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix Spike - EPA Sample No.: SBLK24

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	200	0	64.4	32	12- 86
2-Chlorophenol	200	0	118	59	27-123
1,4-Dichlorobenzene	100	0	39.8	40	36 97
N-Nitroso-di-n-prop.(1)	100	0	56.8	57	41 116
1,2,4-Trichlorobenzene	100	0	40.4	40	39 98
4-Chloro-3-methylphenol	200	0	114	57	23 97
Acenaphthene	100	0	60.6	61	46-118
4-Nitrophenol	200	0	48.8	24	10- 80
2,4-Dinitrotoluene	100	0	59.2	59	24- 96
Pentachlorophenol	200	0	110	55	9-103
Pyrene	100	0	67.6	68	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200	57.0	28	13	42	12- 86
2-Chlorophenol	200	99.8	50	17	40	27-123
1,4-Dichlorobenzene	100	32.4	32 *	22	28	36 97
N-Nitroso-di-n-prop.(1)	100	48.2	48	17	38	41 116
1,2,4-Trichlorobenzene	100	34.0	34 *	16	28	39 98
4-Chloro-3-methylphenol	200	96.2	48	17	42	23 97
Acenaphthene	100	52.4	52	16	31	46-118
4-Nitrophenol	200	45.0	22	9	50	10- 80
2,4-Dinitrotoluene	100	50.8	51	15	38	24- 96
Pentachlorophenol	200	98.2	49	12	50	9-103
Pyrene	100	58.0	58	16	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

PD: 0 out of 11 outside limits
pike Recovery: 2 out of 22 outside limits

OMMENTS: SBLK7A 1L/2ML
CW7 30M DB-5

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix Spike - EPA Sample No.: SBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	200	0	89.6	45	12- 86
2-Chlorophenol	200	0	157	78	27-123
1,4-Dichlorobenzene	100	0	56.4	56	36 97
N-Nitroso-di-n-prop.(1)	100	0	61.0	61	41 116
1,2,4-Trichlorobenzene	100	0	54.6	55	39 98
4-Chloro-3-methylphenol	200	0	157	78	23 97
Acenaphthene	100	0	78.2	78	46-118
4-Nitrophenol	200	0	55.0	28	10- 80
2,4-Dinitrotoluene	100	0	81.6	82	24- 96
Pentachlorophenol	200	0	134	67	9-103
Pyrene	100	0	80.4	80	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200	82.6	41	9	42	12- 86
2-Chlorophenol	200	139	70	11	40	27-123
1,4-Dichlorobenzene	100	53.6	54	4	28	36 97
N-Nitroso-di-n-prop.(1)	100	70.4	70	-14	38	41 116
1,2,4-Trichlorobenzene	100	57.6	58	-5	28	39 98
4-Chloro-3-methylphenol	200	142	71	9	42	23 97
Acenaphthene	100	81.8	82	-5	31	46-118
4-Nitrophenol	200	52.4	26	7	50	10- 80
2,4-Dinitrotoluene	100	81.6	82	0	38	24- 96
Pentachlorophenol	200	116	58	14	50	9-103
Pyrene	100	84.8	85	-6	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

PD: 0 out of 11 outside limits
pike Recovery: 0 out of 22 outside limits

OMMENTS: SBLK7A 1L/2ML
CW7 30M DB-5

3E
WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 90502

Matrix Spike - EPA Sample No.: 90502R04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	0.200	0.000	0.280	140 *	56-123
Heptachlor	0.200	0.000	0.257	128	40-131
Aldrin	0.200	0.000	0.212	106	40-120
Dieldrin	0.500	0.000	0.722	144 *	52-126
Endrin	0.500	0.000	0.895	179 *	56-121
4,4'-DDT	0.500	0.000	0.490	98	38-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	0.200	0.278	139 *	1	15	56-123
Heptachlor	0.200	0.257	129	0	20	40-131
Aldrin	0.200	0.200	100	6	22	40-120
Dieldrin	0.500	0.709	142 *	2	18	52-126
Endrin	0.500	0.899	180 *	0	21	56-121
4,4'-DDT	0.500	0.590	118	18	27	38-127

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

Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 6 out of 12 outside limits

COMMENTS: _____

000138

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix Spike - EPA Sample No.: 90501S00 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	2.0	0.0	1.7	85	46-127
Heptachlor	2.0	0.0	1.6	80	35-130
Aldrin	2.0	0.0	1.5	75	34-132
Dieldrin	5.0	0.0	4.1	82	31-134
Endrin	5.0	0.0	6.0	120	42-139
4,4'-DDT	5.0	0.0	3.6	72	23-134

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	2.0	1.7	85	0	50	46-127
Heptachlor	2.0	1.6	80	0	31	35-130
Aldrin	2.0	1.5	75	0	43	34-132
Dieldrin	5.0	4.0	80	2	38	31-134
Endrin	5.0	6.1	122	2	45	42-139
4,4'-DDT	5.0	4.0	80	11	50	23-134

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

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS: _____

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

Matrix Spike - EPA Sample No.: 90503S01 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	2.0	0.0	0.94	47	46-127
Heptachlor	2.0	0.0	0.85	43	35-130
Aldrin	2.0	0.0	0.68	34	34-132
Dieldrin	5.0	0.0	1.6	32	31-134
Endrin	5.0	0.0	3.2	64	42-139
4,4'-DDT	5.0	0.0	1.4	28	23-134

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	2.0	0.78	39	19	50	46-127
Heptachlor	2.0	0.60	30 *	36 *	31	35-130
Aldrin	2.0	0.74	30 *	12	43	34-132
Dieldrin	5.0	1.5	31	3	38	31-134
Endrin	5.0	2.4	49	29	45	42-139
4,4'-DDT	5.0	1.3	27	4	50	23-134

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

Values outside of QC limits

PD: 1 out of 6 outside limits
pike Recovery: 2 out of 12 outside limits

OMMENTS: _____

000140

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST Contract: _____

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix Spike - EPA Sample No.: 89461SDS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	26.298	0.000	0.000	0 *	46-127
Heptachlor	26.298	0.000	0.000	0 *	35-130
Aldrin	26.298	0.000	0.000	0 *	34-132
Dieldrin	65.746	0.000	0.000	0 *	31-134
Endrin	65.746	0.000	0.000	0 *	42-139
4,4'-DDT	65.746	0.000	0.000	0 *	23-134

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	26.135	0.000	0 *	0	50	46-127
Heptachlor	26.135	0.000	0 *	0	31	35-130
Aldrin	26.135	0.000	0 *	0	43	34-132
Dieldrin	65.338	0.000	0 *	0	38	31-134
Endrin	66.338	0.000	0 *	0	45	42-139
4,4'-DDT	66.338	0.000	0 *	0	50	23-134

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

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 12 out of 12 outside limits

COMMENTS: THERE WERE NO SPIKE RECOVERIES DUE TO THE HIGH LEVEL OF AROCLOR IN THE SAMPLE.

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST Contract: _____

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix Spike - EPA Sample No.: CW5020-1MBS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	26.667	0.000	17.670	66	46-127
Heptachlor	26.667	0.000	18.142	68	35-130
Aldrin	26.667	0.000	15.168	57	34-132
Dieldrin	66.667	0.000	30.530	46	31-134
Endrin	66.667	0.000	80.861	121	42-139
4,4'-DDT	66.667	0.000	24.652	37	23-134

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	26.667	10.921	41 *	47	50	46-127
Heptachlor	26.667	11.963	45	41 *	31	35-130
Aldrin	26.667	9.916	37	42	43	34-132
Dieldrin	66.667	19.144	29 *	45 *	38	31-134
Endrin	66.667	45.495	68	56 *	45	42-139
4,4'-DDT	66.667	24.652	27	31	50	23-134

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

* Values outside of QC limits

RPD: 3 out of 6 outside limits
Spike Recovery: 2 out of 12 outside limits

COMMENTS: _____

PESTICIDE BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract:

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 1R00

Matrix Spike - Lab Sample No.: 7323-1MBS/7323-1MBSD

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	2.00	0	1.60	80	46-127
Heptachlor	2.00	0	1.52	76	35-130
Aldrin	2.00	0	1.52	76	34-132
Dieldrin	5.00	0	3.15	63	31-134
Endrin	5.00	0	5.04	101	42-139
4,4'-DDT	5.00	0	4.05	81	23-134

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	2.00	1.63	81	2	15	56-123
Heptachlor	2.00	1.50	75	1	20	40-131
Aldrin	2.00	1.52	76	0	22	40-120
Dieldrin	5.00	2.12	42*	40*	18	52-126
Endrin	5.00	5.07	101	0	21	56-121
4,4'-DDT	5.00	4.20	84	4	27	38-127

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

* Values outside of QC limits

RPD: 1 out of 6 outside limits
Spike Recovery: 1 out of 12 outside limits

COMMENTS:

PESTICIDE BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract:

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 1R00

Matrix Spike - Lab Sample No.: 7323-31MBS/7323-31MBSD

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	2.00	0	2.14	107	46-127
Heptachlor	2.00	0	1.84	92	35-130
Aldrin	2.00	0	1.80	90	34-132
Dieldrin	5.00	0	4.60	92	31-134
Endrin	5.00	0	7.77	155*	42-139
4,4'-DDT	5.00	0	4.33	87	23-134

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	2.00	1.68	84	24*	15	56-123
Heptachlor	2.00	1.27	64	36*	20	40-131
Aldrin	2.00	1.22	61	38*	22	40-120
Dieldrin	5.00	3.19	64	36*	18	52-126
Endrin	5.00	6.65	133*	15	21	56-121
4,4'-DDT	5.00	3.68	74	16	27	38-127

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

* Values outside of QC limits

RPD: 4 out of 6 outside limits
Spike Recovery: 2 out of 12 outside limits

COMMENTS:

PESTICIDE BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS Contract:

Lab Code: CHEMW Case No.: 7329 SAS No.: SDG No.: 90502

Matrix Spike - Lab Sample No.: 7329-1MBS/7329-1MBSD

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	0.200	0	0.242	121	46-127
Heptachlor	0.200	0	0.185	92	35-130
Aldrin	0.200	0	0.222	111	34-132
Dieldrin	0.500	0	0.613	123	31-134
Endrin	0.500	0	0.509	102	42-139
4,4'-DDT	0.500	0	0.456	91	23-134

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	0.200	0.244	122	1	15	56-123
Heptachlor	0.200	0.186	93	1	20	40-131
Aldrin	0.200	0.221	110	1	22	40-120
Dieldrin	0.500	0.606	121	2	18	52-126
Endrin	0.500	0.514	103	1	21	56-121
4,4'-DDT	0.500	0.450	90	1	27	38-127

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

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

PESTICIDE BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LAB. Contract:

Lab Code: CHEMW Case No.: 7148 SAS No.: SDG No.: 02176

Matrix Spike - EPA Sample No.: 7148-1MBS/7148-1MBSD

Lab Sample No.: 7148-1MBS/7148-1MBSD

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	0.20	0	0.26	130*	46-127
Heptachlor	0.20	0	0.20	100	35-130
Aldrin	0.20	0	0.16	80	34-132
Dieldrin	0.50	0	0.47	94	31-134
Endrin	0.50	0	0.43	86	42-139
4,4'-DDT	0.50	0	0.45	90	23-134

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	0.20	0.26	130*	0	15	56-123
Heptachlor	0.20	0.20	100	0	20	40-131
Aldrin	0.20	0.16	80	0	22	40-120
Dieldrin	0.50	0.49	98	4	18	52-126
Endrin	0.50	0.44	88	2	21	56-121
4,4'-DDT	0.50	0.47	94	4	27	38-127

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

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 2 out of 12 outside limits

COMMENTS:

‡

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: _____

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Level:(low/med) MED

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	89464SDS	120 *	130 *	89		2
02	89464SDSMS	112	134 *	92		1
03	89464SDSMSD	116	116	90		0
04	VBLK1	105	111	86		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

‡‡

2B

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: _____

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	89461SDS	114	93	78		0
02	89462SDS	102	94	82		0
03	89462SDSD	106	94	71		0
04	89463SDS	107	80	74		0
05	89464SDS	112	85	83		0
06	VBLKMS	108	110	113		0
07	VBLKMSD	113	105	116		0
08	89462SDSMS	111	99	77		0
09	89462SDSMSD	113	99	76		0
10	VBLK2	100	87	75		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	9046E132	89	110	101	0	0
02	9046E133	110	115	107	0	0
03	9046E134	110	109	104	0	0
04	9046E135	104	111	102	0	0
05	9046E136	109	113	106	0	0
06	9046E137	110	113	106	0	0
07	VBLK02MS	105	104	109	0	0
08	9046E132MS	108	107	106	0	0
09	9046E132MSD	106	108	107	0	0
10	VBLK01	110	112	104	0	0
11	VBLK02	105	100	104	0	0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

FORM II VOA-1 1/87 Rev.

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	90501R00	104	101	108	0	0
02	90501R01	101	101	102	0	0
03	90501R02	105	101	105	0	0
04	90501R04	110	106	113	0	0
05	90501R09	101	95	105	0	0
06	90501S00	103	99	104	0	0
07	90501S01	103	100	102	0	0
08	90501S02	104	99	105	0	0
09	90501S03	103	102	108	0	0
10	90501S07	101	97	105	0	0
11	90501S08	104	99	107	0	0
12	90501S09	109	104	110	0	0
13	90502R00	107	105	107	0	0
14	90502R01	102	105	111	0	0
15	90502R02	104	104	113	0	0
16	90502R03	104	105	114	0	0
17	90502S00	107	99	100	0	0
18	90502S01	104	105	100	0	0
19	90502S02	105	106	111	0	0
20	90502S03	107	110	113	0	0
21	90502TB01	103	104	112	0	0
22	90503R00	102	103	112	0	0
23	90503R01	105	106	112	0	0
24	90503S00	108	109	111	0	0
25	90503S01	104	107	114	0	0
26	90503S02	101	104	111	0	0
27	90503S03	104	104	113	0	0
28	90503S04	106	106	113	0	0
29	90503S05	107	108	114	0	0
30	90503S06	104	107	114	0	0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

FORM II VOA-1 1/87 Rev.

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	VBLK26MS	97	97	89	0	0
02	VBLK26MSD	98	101	103	0	0
03	90501R00MS	107	110	111	0	0
04	90501R00MSD	105	108	111	0	0
05	90502S02MS	107	109	111	0	0
06	90502S02MSD	110	114	110	0	0
07	VBLK21	103	103	99	0	0
08	VBLK22	103	104	112	0	0
09	VBLK23	108	110	108	0	0
10	VBLK26	101	104	95	0	0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	90502R04	91	93	90	0	0
02	90502R05	99	103	103	0	0
03	90502R07	103	103	99	0	0
04	90502R09	103	103	100	0	0
05	90502S04	94	96	92	0	0
06	90502S05	100	103	113	0	0
07	90502S06	97	100	103	0	0
08	90504R00	97	99	101	0	0
09	90504R01	106	107	113	0	0
10	90504R02	90	87	86	0	0
11	90504R03	96	94	98	0	0
12	90504R05	93	91	90	0	0
13	90504R07	98	94	100	0	0
14	90504R09	89	88	94	0	0
15	90504S00	100	102	109	0	0
16	90504S01	103	103	108	0	0
17	90504S01RE	103	104	112	0	0
18	90504S02	93	91	94	0	0
19	90504S04	105	101	101	0	0
20	90504S06	92	89	95	0	0
21	90504T02	100	100	92	0	0
22	9050BP01	103	105	104	0	0
23	VBLK02MS	89	88	87	0	0
24	VBLK02MSD	91	91	95	0	0
25	90504R07MS	88	88	96	0	0
26	90504R07MSD	92	91	99	0	0
27	VBLKA2	99	102	100	0	0
28	VBLK40	106	104	91	0	0
29	VBLK21	90	89	87	0	0
30	VBLK02	101	102	100	0	0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

FORM II VOA-1 1/87 Rev.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	9046E132	86	91	89	30	51	81	0	0
02	9046E133	81	77	93	36	55	86	0	0
03	9046E134	78	84	102	30	53	85	0	0
04	9046E135	80	84	99	31	54	99	0	0
05	9046E136	73	80	88	19	31	46	0	0
06	9046E137	75	76	78	30	49	65	0	0
07	SBLK01MS	37	47	56	47	67	85	0	0
08	SBLK01MSD	82	85	86	48	68	89	0	0
09	SBLK01	71	83	82	42	59	77	0	0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(35-114)
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)
S3 (TPH)	= Terphenyl	(33-141)
S4 (PHL)	= Phenol-d5	(10-94)
S5 (2FP)	= 2-Fluorophenol	(21-100)
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	SBLK01MS	68	67	78	40	57	78	0	0
02	SBLK01MSD	75	72	80	36	54	66	0	0
03	SBLK24MS	53	57	63	27	42	45	0	0
04	SBLK24MSD	44	50	55	24	37	41	0	0
05	90501R01MS	75	84	79	43	56	94	0	0
06	90501R01MSD	80	90	84	41	56	88	0	0
07	90503S00MS	44	45	43	36	49	63	0	0
08	90503S00MSD	54	50	49	31	42	61	0	0
09	SBLK01	74	72	79	34	56	75	0	0
10	SBLK24	64	58	70	24	42	63	0	0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(35-114)
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)
S3 (TPH)	= Terphenyl	(33-141)
S4 (PHL)	= Phenol-d5	(10-94)
S5 (2FP)	= 2-Fluorophenol	(21-100)
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	90501R00	75	74	73	30	50	63	0	0
02	90501R00DU	72	79	81	28	49	66	0	0
03	90501R01	68	84	79	26	47	88	0	0
04	90501R02	70	76	68	9 *	18 *	81	0	2
05	90501R02RE	59	66	65	8 *	13 *	49	0	2
06	90501R04	67	69	68	32	52	96	0	0
07	90501R09	66	68	77	30	47	83	0	0
08	90501S00	69	68	64	25	43	60	0	0
09	90501S01	80	90	78	26	44	98	0	0
10	90501S02	80	91	72	29	52	110	0	0
11	90501S03	56	63	55	26	48	104	0	0
12	90501S07	67	70	64	32	52	98	0	0
13	90501S08	66	67	66	36	57	93	0	0
14	90502R00	68	76	74	27	44	71	0	0
15	90502R01	68	72	69	25	42	78	0	0
16	90502R02	66	68	69	24	41	80	0	0
17	90502R03	60	65	67	29	47	75	0	0
18	90502S00	68	71	66	27	45	94	0	0
19	90502S01	66	76	71	25	40	77	0	0
20	90502S02	68	71	67	26	42	77	0	0
21	90502S03	61	72	70	27	43	72	0	0
22	90503R00	58	60	66	26	45	70	0	0
23	90503S00	46	42 *	40	21	34	60	0	1
24	90503S01	43	44	35	21	35	61	0	0
25	90503S02	46	44	36	16	29	61	0	0
26	90503S02DU	97	94	67	42	72	115	0	0
27	90503S03	55	45	40	22	37	70	0	0
28	90503S04	52	48	37	20	34	67	0	0
29	90503S05	47	46	37	20	31	64	0	0
30	90503S06	50	48	39	23	38	70	0	0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(35-114)
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)
S3 (TPH)	= Terphenyl	(33-141)
S4 (PHL)	= Phenol-d5	(10-94)
S5 (2FP)	= 2-Fluorophenol	(21-100)
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	90502R04	51	56	56	20	34	50	0	0
02	90502R05	83	88	104	33	53	104	0	0
03	90502R05DU	87	93	108	32	51	93	0	0
04	90502R05DURE	101	101	123	33	53	100	0	0
05	90502R05RE	91	92	114	36	56	100	0	0
06	90502R07	87	69	62	33	56	94	0	0
07	90502R09	84	88	95	31	56	93	0	0
08	90502S04	35	39 *	38	18	32	38	0	1
09	90502S05	74	65	83	30	49	98	0	0
10	90502S05RE	68	63	73	26	46	83	0	0
11	90502S06	87	80	72	34	58	118	0	0
12	90504R00	87	94	94	30	50	88	0	0
13	90504R01	77	83	110	31	52	92	0	0
14	90504R01RE	79	88	106	29	50	92	0	0
15	90504R02	73	72	116	33	50	91	0	0
16	90504R02RE	84	84	124	32	54	105	0	0
17	90504R03	82	79	109	29	49	107	0	0
18	90504R05	88	91	105	35	59	99	0	0
19	90504R07	123 *	127 *	151 *	35	66	115	0	3
20	90504R07RE	124 *	122 *	190 *	38	68	113	0	3
21	90504R09	117 *	126 *	132	41	72	120	0	2
22	90504R09RE	122 *	126 *	142 *	43	76	129 *	0	4
23	90504S00	82	88	79	32	50	100	0	0
24	90504S01	83	84	109	32	54	93	0	0
25	90504S01RE	104	111	130	32	55	105	0	0
26	90504S02	91	86	111	32	50	95	0	0
27	90504S02RE	109	103	123	33	54	115	0	0
28	90504S04	83	93	98	36	64	106	0	0
29	90504S06	131 *	137 *	127	44	81	137 *	0	3
30	90504S06RE	132 *	139 *	158 *	45	79	142 *	0	4

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(35-114)
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)
S3 (TPH)	= Terphenyl	(33-141)
S4 (PHL)	= Phenol-d5	(10-94)
S5 (2FP)	= 2-Fluorophenol	(21-100)
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CHEMWEST LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 902S04

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	SBLK01MS	39	39 *	57	20	34	41	0	1
02	SBLK01MSD	43	45	49	19	32	38	0	0
03	90502S04MS	87	104	108	54	74	110	0	0
04	90502S04MSD	76	86	101	55	75	102	0	0
05	SBLK01	40	44	49	28	43	35	0	0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(35-114)
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)
S3 (TPH)	= Terphenyl	(33-141)
S4 (PHL)	= Phenol-d5	(10-94)
S5 (2FP)	= 2-Fluorophenol	(21-100)
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: COMPUCHEM LABS Contract: (2-88)-REVS

Lab Code: CHEMW Case No.: 18704 SAS No.: _____ SDG No.: 01

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	OTHER	TOT OUT
01	89461SDS	121 *	105	78	96	67	87		1
02	89461SDSDUP	83	63	54	61	57	62		0
03	89462SDS	84	72	50	73	67	64		0
04	89463SDS	62	64	47	59	47	59		0
05	89464SDS	231 *	78	54	77	67	59		1
06	89461SDSMBS	93	92	73	87	82	105		0
07	89461SDSMBSD	47	56	42	47	40	68		0
08	89461SDSMS	88	73	54	71	64	69		0
09	89461SDSMSD	93	65	56	66	57	45		0
10	89461SDSMB	90	88	77	88	83	97		0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(23-120)
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)
S3 (TPH)	= Terphenyl	(18-137)
S4 (PHL)	= Phenol-d5	(24-113)
S5 (2FP)	= 2-Fluorophenol	(25-121)
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 02176

	EPA SAMPLE NO.	S1 (DBC)#	OTHER
01	PBLK1	93	
02	7148-1MBS	89	
03	7148-1MBSD	91	
04	9046E132	90	
05	9046E133	50	
06	9046E134	55	
07	9046E135	49	
08	9046E136	80	
09	9046E137	71	
10			
11			
12			
13			
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25			
26			
27			
28			
29			
30			

ADVISORY QC LIMITS (24-154)

S1 (DBC) = Dibutylchlorendate

Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

FORM II PEST-2 1/87 Rev.

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7329 SAS No.: _____ SDG No.: 90502

	EPA SAMPLE NO.	S1 (DBC)#	OTHER
01	PBLK1	135	
02	732901MBS	126	
03	732901MBSD	127	
04	90502S04	83	
05	90502R04	47	
06	90502R04MS	72	
07	90502R04MSD	56	
08	90502S05	73	
09	90502R05	60	
10	90502S06	83	
11	90502S06D	80	
12	90502R07	87	
13	90502R09	118	
14	90504R00	69	
15	90504S00	91	
16	90504R01	78	
17	90504S01	99	
18	90504S02	87	
19	90504R03	82	
20	90504S04	84	
21	90504R05	71	
22	90504S06	59	
23	90504R07	73	
24	90504R09	125	
25	90504T02	83	
26			
27			
28			
29			
30			

ADVISORY QC LIMITS (24-154)

S1 (DBC) = Dibutylchlorendate

Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

	EPA SAMPLE NO.	S1 (DBC)#	OTHER
01	90503S02	119	
02	90503S06	101	
03	90503S03	89	
04	90503S04	90	
05	90503S05	112	
06	7323-1MBS	106	
07	7323-1MBSD	150	
08	7323-31MBS	99	
09	7323-31MBSD	103	
10	90503S03D	45	
11			
12			
13			
14			
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ADVISORY QC LIMITS (24-154)

S1 (DBC) = Dibutylchlorendate

Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

000161

FORM II PEST-2 1/87 Rev.

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: CHEMWEST Contract: 68-W8-0010

Lab Code: CHEMW Case No.: 7323 SAS No.: _____ SDG No.: 1R00

	EPA SAMPLE NO.	S1 (DBC)#	OTHER
01	PBLK1	107	
02	90501S00	88	
03	90501R01	122	
04	90501S01	87	
05	90501S01D	85	
06	90501R02	70	
07	PBLK2	152	
08	90501R00	123	
09	90501S00MSD	69	
10	90501S00MS	75	
11	90501S02	71	
12	90501S03	113	
13	90501R04	132	
14	90501S07	141	
15	90501S08	148	
16	90501R09	142	
17	90502S00	140	
18	90502R00	80	
19	90502S01	149	
20	90502R01	117	
21	90502S02	118	
22	90502R02	98	
23	90502S03	98	
24	90502R03	83	
25	90503R00	102	
26	90503S00	69	
27	90503S01	51	
28	90503S01MS	50	
29	90503S01MSD	38	
30			

ADVISORY QC LIMITS (24-154)

S1 (DBC) = Dibutylchlorendate

Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

000162

FORM II PEST-2 1/87 Rev.

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: CHEMWEST Contract: _____

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (DBC)#	OTHER
01	PBLK1	106	
02	89461SDS	0D*	
03	89462SDS	0D*	
04	89463SDS	0D*	
05	89464SDS	0D*	
06	89461SDSDUP	0D*	
07	89461SDSMS	0D*	
08	89461SDSMSD	0D*	
09	CW5020-1MBS	88	
10	CW5020-1MBSD	51	
11			
12			
13			
14			
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19			
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21			
22			
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24			
25			
26			
27			
28			
29			
30			

ADVISORY QC LIMITS (20-150)

S1 (DBC) = Dibutylchlorendate

Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

581

3 - MS
SOIL TOTAL PETROLEUM HYDROCARBONS - PURGEABLE
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERRY

HLA Reference Sample ID.
9046E136

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7148 SAS No.: SDG No.: 46E132

Matrix: (soil/water) WATER Date Recieved: 11/16/90

Sample wt/vol: 2.5 (g/mL) ML Lab Sample ID: 7148-5MS

Dilution: 2.0 Date Analyzed: 11/29/90

COMPOUND	SAMPLE AMOUNT (ug/L)	SPIKE ADDED (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	#
Gasoline	0	250	232	93%	

Sample wt/vol: 2.5 (g/mL) ML Lab Sample ID: 7148-5MSD

Dilution: 2.0 Date Analyzed: 11/29/90

COMPOUND	SPIKE ADDED (ug/L)	MSD ~~MBSD~~ CONCENTRATION (ug/L)	MSD ~~MBSD~~ % REC	#	RPD
Gasoline	250	241	96%		4%

JT 12/31/90

FORM III 12/90 Rev.

3 - MS
SOIL TOTAL PETROLEUM HYDROCARBONS - PURGEABLE
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client Reference Sample ID.
90502R05

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No.: SDG No.: 90502S04

Matrix: (soil/water) WATER Date Recieved: 12/17/90

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7329-4MS

Dilution: 1.0 Date Analyzed: 12/28/90

COMPOUND	SAMPLE AMOUNT (ug/L)	SPIKE ADDED (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	#
Gasoline	0	250	204	82%	

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7329-4MSD

Dilution: 1.0 Date Analyzed: 12/28/90

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	#	RPD
Gasoline	250	258	103%		23%

FORM III 12/90 Rev.

3 - MBS
TOTAL PETROLEUM HYDROCARBONS - PURGEABLE
METHOD BLANK SPIKE/METHOD BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 90501R00

Matrix: (soil/water) WATER

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7323-2MBS

Dilution: 1.0 Date Analyzed: 12/28/90

COMPOUND	SPIKE ADDED (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC	#
Gasoline	250	234	94%	

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7323-2MBSD

Dilution: 1.0 Date Analyzed: 11/29/90

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC	#	RPD
Gasoline	250	241	96%		2%

3 - MBS
TOTAL PETROLEUM HYDROCARBONS - PURGEABLE
METHOD BLANK SPIKE/METHOD BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 90~~0~~51R00 50

Matrix: (soil/water) WATER

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7323-1MBS

Dilution: 1.0 Date Analyzed: 12/24/90

COMPOUND	SPIKE ADDED (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC	#
Gasoline	250	258	103%	

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7323-1MBSD

Dilution: 1.0 Date Analyzed: 12/24/90

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC	#	RPD
Gasoline	250	254	102%		1%

3 - MS
SOIL TOTAL PETROLEUM HYDROCARBONS - PURGEABLE
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client Reference
Sample ID.
90501R01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 90501R00

Matrix: (soil/water) WATER Date Recieved: 12/15/90

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7323-3MS

Dilution: 1.0 Date Analyzed: 12/28/90

COMPOUND	SAMPLE AMOUNT (ug/L)	SPIKE ADDED (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	#
Gasoline	0	250	272	109%	

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7323-3MSD

Dilution: 1.0 Date Analyzed: 12/28/90

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	#	RPD
Gasoline	250	258	103%		5%

FORM III 12/90 Rev.

3 - MS
SOIL TOTAL PETROLEUM HYDROCARBONS - PURGEABLE
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client Reference Sample ID.
90502R01

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 90501R00

Matrix: (soil/water) WATER Date Recieved: 12/15/90

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7323-24MS

Dilution: 1.0 Date Analyzed: 12/28/90

COMPOUND	SAMPLE AMOUNT (ug/L)	SPIKE ADDED (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	#
Gasoline	0	250	261	104%	

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7323-24MSD

Dilution: 1.0 Date Analyzed: 12/28/90

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	#	RPD
Gasoline	250	264	106%		1%

FORM III 12/90 Rev.

3 - DUP
SOIL TOTAL PETROLEUM HYDROCARBONS - PURGEABBLE
SAMPLE/MATRIX DUPLICATE RPD

HLA I.D.

89461SDSD

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: SAS No.: SDG No.:5020

Matrix: (soil/water) SOIL Date Received: 11/17/89

% Moisture: NA

Lab Sample ID: 5020-1 Lab Duplicate ID: 5020-1D

Sample wt/vol: 10.6 (g/mL) G Duplicate wt/vol: 10.6 (g/mL) G

Sample Extraction:Purge&Trap/ MeOH Ext. Duplicate Extraction:Purge & Trap/MeOH Ext.

Sample Date Extracted: 11/21/89 Duplicate Date Extracted: 11/21/89

Sample Date Analyzed: 11/30/89 Duplicate Date Analyzed: 11/30/89

COMPOUND	SAMPLE CONCENTRATION (mg/Kg)	Wet/wt	DUPLICATE CONCENTRATION (mg/Kg)	% RPD
Gasoline	20 U		20 U	--

2

SOIL TOTAL PETROLEUM HYDROCARBONS - PURGEABLE

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: HPA SAS No.: SDG No.: 5020

	HLA SAMPLE NO.	CHEMWEST ID.	S1 BROMOFLUOROBENZENE PERCENT RECOVERY
01	89461SDS	5020-1	121%
02	89462SDS	5020-2	121%
03	89463SDS	5020-3	108%
04	89464SDS	5020-4	116%
05	89461SDSD	5020-1DUP	134%
06	89461SDSMS	5020-1MS	131%
07	89461SDSMSD	5020-1MSD	128%
08			
09			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Quality Control Limits for Bromofluorobenzene = 50-150 %

3-MBS

SOIL TOTAL PETROLEUM HYDROCARBONS - PURGEABLE
METHOD BLANK SPIKE/METHOD BLANK SPIKE DUP

HLA I.D.

MBS
& MBSD

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: HPA SAS No.: SDG No.: 5020

Matrix: (soil/water) SOIL Lab Sample ID: 5020-MBS/MBSD

Sample wt/vol: 10 (g/mL) G Date Received: NA

% Moisture: NA Date Extracted: 12/13/89

Extraction: Purge & Trap/MeOH Ext. Date Analyzed: 12/13/89

COMPOUND	SPIKE ADDED (mg/Kg)	MBS CONCENTRATION (mg/Kg)	MBS % REC #
Gasoline	12.5	12.9	103%

COMPOUND	SPIKE ADDED (mg/Kg)	MBS CONCENTRATION (mg/Kg)	MBSD % REC #	% RPD #
Gasoline	12.5	12.9	103%	0%

3-MS

SOIL TOTAL PETROLEUM HYDROCARBONS - PURGEABLE
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

HLA I.D.
89461SDSMS
& MSD

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: HPA SAS No.: SDG No.: 5020

Matrix: (soil/water) SOIL Lab Sample ID: 5020-1MS/MSD

Sample wt/vol: 10.6 (g/mL) G Date Received: 11/17/89

% Moisture: NA Date Extracted: 11/21/89

Extraction: Purge & Trap/MeOH Ext. Date Analyzed: 12/12/89

COMPOUND	SPIKE ADDED (mg/Kg)	SAMPLE CONCENTRATION (mg/Kg)	MS CONCENTRATION (mg/Kg)	MS % REC #
Gasoline	250 (1)	50 U	261	104%

COMPOUND	SPIKE ADDED (mg/Kg)	SAMPLE CONCENTRATION (mg/Kg)	MSD CONCENTRATION (mg/Kg)	MSD % REC #	% RPD #
Gasoline	250 (1)	50 U	239	96%	8%

(1) Spike elevated due to sample dilution.

000173

FORM III TPH-3 1.90 Rev.

3 - MBS
TOTAL PETROLEUM HYDROCARBONS - PURGEABLE
METHOD BLANK SPIKE/METHOD BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7148 SAS No.: SDG No.: 46E132

Matrix: (soil/water) WATER

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7148-1MBS

Dilution: 1.0 Date Analyzed: 11/29/90

COMPOUND	SPIKE ADDED (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC	#
Gasoline	250	275	110%	

Sample wt/vol: 5.0 (g/mL) ML Lab Sample ID: 7148-1MBSD

Dilution: 1.0 Date Analyzed: 11/29/90

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC	#	RPD
Gasoline	250	263	105%		5%

FORM III - MBS 12/90 Rev.

3 - MBS
TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE
BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7148 SAS No.: SDG No.: 46E132

Matrix: (soil/water) WATER Date Recieved: NA

Extraction: SEPEF Date Extracted: 11/21/90

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7148-1MBS

Dilution: 1.0 Date Analyzed: 11/28/90

COMPOUND	SAMPLE AMOUNT (ug/L)	SPIKE ADDED (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC	#
Diesel	0	500	345	79%	

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7148-1MBSD

Extraction: SEPEF Date Extracted: 11/21/90

Dilution: 1.0 Date Analyzed: 11/28/90

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC	#	RPD
Diesel	500	319	64%		8%

FORM III 12/90 Rev.

COMPUCHEM WESTERN DIVISION

3 - MS

SOIL TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

HLA I.D.
89463SDS
MS & MSD

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: HPA SAS No.: SDG No.: 5020

Matrix: (soil/water) SOIL Lab Sample ID: 5020-3MS/MSD

Sample wt/vol: 30.00 (g/mL) G Date Received: 11/17/89

% Moisture: 59.30% Date Extracted: 11/27/89

Extraction: JAR Date Analyzed: 12/06/89

COMPOUND	SPIKE ADDED (mg/Kg)	SAMPLE CONCENTRATION (mg/Kg)	MS CONCENTRATION (mg/Kg)	MS % REC #
Diesel	50	840	*	*

COMPOUND	SPIKE ADDED (mg/Kg)	MSD CONCENTRATION (mg/Kg)	MSD % REC #	% RPD #
Diesel	50	*	*	*

*: Spikes diluted out due to matrix interference.

3 - MBS

SOIL TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE
METHOD BLANK SPIKE/METHOD BLANK SPIKE DUPLICATE RECOVERY

HLA I.D.

MBS/MBSD

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: HPA SAS No.: SDG No.: 5020

Matrix: (soil/water) SOIL Lab Sample ID: 5020-MBS/MBSD

Sample wt/vol: 30.00 (g/mL) G Date Received: NA

% Moisture: NA Date Extracted: 11/27/89

Extraction: JAR Date Analyzed: 12/06/89

COMPOUND	SPIKE ADDED (mg/Kg)	MBS CONCENTRATION (mg/Kg)	MBS % REC #
Diesel	50	56	112%

COMPOUND	SPIKE ADDED (mg/Kg)	MBSD CONCENTRATION (mg/Kg)	MBSD % REC #	% RPD #
Diesel	50	48	96%	15%

FORM III TPH-2 1.89 Rev.

3 - MBS
TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE
BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 90501R00

Matrix: (soil/water) WATER

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7323-31MBS

Extraction: SEPF Date Extracted: 12/26/90

Dilution: 1.0 Date Analyzed: 01/06/91

COMPOUND	SPIKE ADDED (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC	#
Diesel	1000	515	52%	

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7323-31MBSD

Extraction: SEPF Date Extracted: 12/26/90

Dilution: 1.0 Date Analyzed: 01/06/91

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC	#	RPD
Diesel	1000	641	64%		22%

FORM III 12/90 Rev.

3 - MBS
TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE
BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 90501R00

Matrix: (soil/water) WATER

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7323-1MBS

Extraction: SEPF Date Extracted: 12/26/90

Dilution: 1.0 Date Analyzed: 01/06/91

COMPOUND	SPIKE ADDED (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC	#
Diesel	1000	806	81%	

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7323-1MBSD

Extraction: SEPF Date Extracted: 12/26/90

Dilution: 1.0 Date Analyzed: 01/06/91

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC	#	RPD
Diesel	1000	860	86%		6%

FORM III 12/90 Rev.

3 - MBS
TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE
BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No.: SDG No.: 90502S04

Matrix: (soil/water) WATER

Extraction: SEPF Date Extracted: 12/27/90

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7329-1MBS

Dilution: 1.0 Date Analyzed: 01/07/91

COMPOUND		SPIKE ADDED (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC	#
Diesel	0	1000	1157	116%	

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7329-1MBSD

Extraction: SEPF Date Extracted: 12/27/90

Dilution: 1.0 Date Analyzed: 01/07/91

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC	#	RPD
Diesel	1000	1173	117%		1%

FORM III 12/90 Rev.

3 - MBS
TOTAL PETROLEUM HYDROCARBONS - EXTRACTABLE
BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No.: SDG No.: 90502S04

Matrix: (soil/water) WATER

Extraction: SEPF Date Extracted: 12/27/90

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7329-1MBS

Dilution: 1.0 Date Analyzed: 01/07/91

COMPOUND		SPIKE ADDED (ug/L)	MBS CONCENTRATION (ug/L)	MBS % REC	#
Diesel	0	1000	1157	116%	

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7329-1MBSD

Extraction: SEPF Date Extracted: 12/27/90

Dilution: 1.0 Date Analyzed: 01/07/91

COMPOUND	SPIKE ADDED (ug/L)	MBSD CONCENTRATION (ug/L)	MBSD % REC	#	RPD
Diesel	1000	1173	117%		1%

FORM III 12/90 Rev.

3 - MS
OIL & GREASE

Client Reference
Sample ID
90502S04

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No.: SDG No.: 90502S04

Matrix: (soil/water) WATER Date Recieved: 12/17/90

Sample wt/vol: 500 (g/mL) ML Lab Sample ID: 7329-1MS

Extraction: 9070 Date Extracted: 01/04/91

Dilution: 1.0 Date Analyzed: 01/07/91

COMPOUND	SAMPLE CONC. (mg/L)	SPIKE ADDED (mg/L)	MS CONCENTRATION (mg/L)	MS % REC	#
OIL & GREASE	0	100	103	104	

Sample wt/vol: 500 (g/mL) ML Lab Sample ID: 7329-1MSD

Extraction: 9070 Date Extracted: 01/04/91

Dilution: 1.0 Date Analyzed: 01/07/91

COMPOUND	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC	#	RPD
OIL & GREASE	100	103	103%		1%

3 - MBS
OIL & GREASE
METHOD BLANK SPIKE/METHOD BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7329 SAS No.: SDG No.: 90502S04

Matrix: (soil/water) WATER

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7329-1MBS

Extraction: 9070 Date Extracted: 01/04/91

Dilution: 1.0 Date Analyzed: 01/07/91

COMPOUND	SPIKE ADDED (mg/L)	MBS CONCENTRATION (mg/L)	MBS % REC	#
OIL & GREASE	100	105	105%	

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7329-1MBSD

Extraction: 9070 Date Extracted: 01/04/91

Dilution: 1.0 Date Analyzed: 01/07/91

COMPOUND	SPIKE ADDED (mg/L)	MBSD CONCENTRATION (mg/L)	MBSD % REC	#	RPD
OIL & GREASE	100	105	105%		0%

3 - MS
OIL & GREASE

Client Reference Sample ID

90503S00

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 90501R00

Matrix: (soil/water) WATER Date Recieved: 12/15/90

Sample wt/vol: 500 (g/mL) ML Lab Sample ID: 7323-31MS

Extraction: 9070 Date Extracted: 12/28/90

Dilution: 1.0 Date Analyzed: 01/03/91

COMPOUND	SAMPLE CONC. (mg/L)	SPIKE ADDED (mg/L)	MS CONCENTRATION (mg/L)	MS % REC	#
OIL & GREASE	0	100	97	97%	

Sample wt/vol: 500 (g/mL) ML Lab Sample ID: 7323-31MSD

Extraction: 9070 Date Extracted: 12/28/90

Dilution: 1.0 Date Analyzed: 01/03/91

COMPOUND	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC	#	RPD
OIL & GREASE	100	111	111%		13%

3 - MS
OIL & GREASE

Client Reference Sample ID

90501R00

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 90501R00

Matrix: (soil/water) WATER Date Recieved: 12/15/90

Sample wt/vol: 500 (g/mL) ML Lab Sample ID: 7323-1MS

Extraction: 9070 Date Extracted: 12/28/90

Dilution: 1.0 Date Analyzed: 01/02/91

COMPOUND	SAMPLE CONC. (mg/L)	SPIKE ADDED (mg/L)	MS CONCENTRATION (mg/L)	MS % REC	#
OIL & GREASE	0	100	104	104%	

Sample wt/vol: 500 (g/mL) ML Lab Sample ID: 7323-1MSD

Extraction: 9070 Date Extracted: 12/28/90

Dilution: 1.0 Date Analyzed: 01/02/91

COMPOUND	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC	#	RPD
OIL & GREASE	100	106	106%		2%

3 - MBS
OIL & GREASE
METHOD BLANK SPIKE/METHOD BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 90501R00

Matrix: (soil/water) WATER

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7323-31MBS

Extraction: 9070 Date Extracted: 12/28/90

Dilution: 1.0 Date Analyzed: 01/03/91

COMPOUND	SPIKE ADDED (mg/L)	MBS CONCENTRATION (mg/L)	MBS % REC	#
OIL & GREASE	100	110	110%	

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7323-31MBSD

Extraction: 9070 Date Extracted: 12/28/90

Dilution: 1.0 Date Analyzed: 01/03/91

COMPOUND	SPIKE ADDED (mg/L)	MBSD CONCENTRATION (mg/L)	MBSD % REC	#	RPD
OIL & GREASE	100	108	108%		2%

3 - MBS
OIL & GREASE
METHOD BLANK SPIKE/METHOD BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7323 SAS No.: SDG No.: 90501R00

Matrix: (soil/water) WATER

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7323-1MBS

Extraction: 9070 Date Extracted: 12/28/90

Dilution: 1.0 Date Analyzed: 01/02/91

COMPOUND	SPIKE ADDED (mg/L)	MBS CONCENTRATION (mg/L)	MBS % REC	#
OIL & GREASE	100	104	104%	

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7323-1MBSD

Extraction: 9070 Date Extracted: 12/28/90

Dilution: 1.0 Date Analyzed: 01/02/91

COMPOUND	SPIKE ADDED (mg/L)	MBSD CONCENTRATION (mg/L)	MBSD % REC	#	RPD
OIL & GREASE	100	105	105%		1%

3 - MBS
OIL & GREASE
METHOD BLANK SPIKE/METHOD BLANK SPIKE DUPLICATE RECOVERY

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: 7148 SAS No.: SDG No.: 46E132

Matrix: (soil/water) WATER

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7148-1MBS

Extraction: 9070 Date Extracted: 11/28/90

Dilution: 1.0 Date Analyzed: 12/04/90

COMPOUND	SPIKE ADDED (mg/L)	MBS CONCENTRATION (mg/L)	MBS % REC	#
OIL & GREASE	100	115	115%	

Sample wt/vol: 1000 (g/mL) ML Lab Sample ID: 7148-1MBSD

Extraction: 9070 Date Extracted: 11/28/90

Dilution: 1.0 Date Analyzed: 12/04/90

COMPOUND	SPIKE ADDED (mg/L)	MBSD CONCENTRATION (mg/L)	MBSD % REC	#	RPD
OIL & GREASE	100	120	120%	*	4%

% Recovery Limits: 85-115

3-MS

HLA I.D.

OIL AND GREASE
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

89462SDS
MS & MSD

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: HPA SAS No.: SDG No.: 5020

Matrix: (soil/water) SOIL Lab Sample ID: 5020-2MS & MSD

Sample wt/vol: 20.16/20.30 (g/mL) G Date Received: 11/17/89

% Moisture: 38.16 Date Extracted: 11/27/89

Extraction: 9071 Date Analyzed: 11/28/89

COMPOUND	SPIKE ADDED (mg/Kg)	SAMPLE CONCENTRATION (mg/Kg	MS CONCENTRATION (mg/Kg)	MS % REC #
Oil & Grease	802	4200	6400	274% *

COMPOUND	SPIKE ADDED (mg/Kg)	MSD CONCENTRATION (mg/Kg)	MSD % REC #	% RPD #
Oil & Grease	797	5600	176% *	44% *

000189

3-MBS
SOIL
OIL AND GREASE
METHOD BLANK/METHOD BLANK SPIKE DUPLICATE RECOVERY

HLA I.D.

MB/MBS

Lab Name: CHEMWEST LABS

Lab Code: CHEMW Case No.: HPA SAS No.: SDG No.: 5060

Matrix: (soil/water) SOIL Lab Sample ID: 5020-MB/MBS

Sample wt/vol: 20/20 (g/mL) G Date Received: NA

% Moisture: NA Date Extracted: 11/27/89

Extraction: 9071 Date Analyzed: 11/28/89

COMPOUND	SPIKE ADDED (mg/Kg)	MBS CONCENTRATION (mg/Kg)	MBS % REC
Oil & Grease	500	485	97%

COMPOUND	SPIKE ADDED (mg/Kg)	MBSD CONCENTRATION (mg/Kg)	MBSD % REC #	% RPD #
Oil & Grease	500	500	100%	3%

000160

COMPUCHEM - CHEMW 97

5A

SPIKE SAMPLE RECOVERY

SAMPLE NUMBER:

Lab Name: SKINNER & SHERMAN LABS Contract: 68-D9-0039 | 502R03S

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 503R00

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2915.5000		1010.2000		2000.00	95.3		P
Antimony	75-125	454.9400		20.1800	B	500.00	87.0		P
Arsenic	75-125	56.9850		2.0000	U	40.00	142.5	N	F
Barium	75-125	1952.8000		32.4300	B	2000.00	96.0		P
Beryllium	75-125	46.0900		1.0000	U	50.00	92.2		P
Cadmium	75-125	47.4000		3.0000	U	50.00	94.8		P
Calcium									NR
Chromium	75-125	193.8800		6.7400	B	200.00	93.6		P
Cobalt	75-125	463.9600		4.0100	B	500.00	92.0		P
Copper	75-125	276.6600		38.2500		250.00	95.4		P
Iron	75-125	2569.3000		1478.9000		1000.00	109.0		P
Lead	75-125	53.8700		22.8500		20.00	155.1	N	F
Magnesium									NR
Manganese	75-125	504.3400		39.0600		500.00	93.1		P
Mercury									NR
Nickel	75-125	476.4100		9.5200	B	500.00	93.4		P
Potassium									NR
Selenium	75-125	14.5300		3.0000	U	10.00	145.3	N	F
Silver	75-125	45.1900		2.0000	U	50.00	90.4		P
Sodium									NR
Thallium	75-125	67.9950		2.0000	U	50.00	136.0	N	F
Vanadium	75-125	470.4600		5.0700	B	500.00	93.1		P
Zinc	75-125	658.9500		186.2800		500.00	94.5		P
Cyanide									NR

Comments:

COMPUCHEM - CHEMWEST

5A
SPIKE SAMPLE RECOVERY

SAMPLE NUMBER: 502S04S

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329T SAS No.: SDG No.: 502S04T

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	3454.5000		1499.6000		2000.00	97.7		P
Antimony	75-125	468.0900		14.0000	U	500.00	93.6		P
Arsenic	75-125	42.9000		2.0000	U	40.00	107.2		F
Barium	75-125	1924.2000		28.9300	B	2000.00	94.8		P
Beryllium	75-125	45.9900		1.0000	U	50.00	92.0		P
Cadmium	75-125	48.0300		3.0000	U	50.00	96.1		P
Calcium									NR
Chromium	75-125	217.1200		28.6800		200.00	94.2		P
Cobalt	75-125	461.1100		4.0000	U	500.00	92.2		P
Copper	75-125	305.7600		72.5500		250.00	93.3		P
Iron	75-125	3690.4000		2630.2000		1000.00	106.0		P
Lead	75-125	53.0900		43.6000		20.00	47.4	N	F
Magnesium									NR
Manganese	75-125	526.2400		61.2900		500.00	93.0		P
Mercury	75-125	1.1700		0.3200		1.00	85.0		CV
Nickel	75-125	485.6900		16.1800	B	500.00	93.9		P
Potassium									NR
Selenium	75-125	10.4800		3.3850	B	10.00	71.0	N	F
Silver	75-125	45.8000		2.0000	U	50.00	91.6		P
Sodium									NR
Thallium	75-125	28.0200		3.0000	U	50.00	56.0	N	F
Vanadium	75-125	471.9400		5.2800	B	500.00	93.3		P
Zinc	75-125	788.4500		301.9800		500.00	97.3		P
Cyanide									NR
Molybd'm	75-125	448.9000		35.0000	U	500.00	89.8		P

Comments:

COMPUCHEM - CHEMWEST

SPIKE SAMPLE RECOVERY

SAMPLE NUMBER:

502S04S

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 73295 SAS No.: SDG No.: 502S04S

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2171.6000		215.3500		2000.00	97.8		P
Antimony	75-125	498.0500		14.0000	U	500.00	99.6		P
Arsenic	75-125	41.6850		3.0000	U	40.00	104.2		F
Barium	75-125	1996.6000		25.1000	B	2000.00	98.6		P
Beryllium	75-125	48.7500		1.0000	U	50.00	97.5		P
Cadmium	75-125	54.2300		3.0000	U	50.00	108.5		P
Calcium									NR
Chromium	75-125	216.0100		16.0700		200.00	100.0		P
Cobalt	75-125	491.6400		4.0000	U	500.00	98.3		P
Copper	75-125	306.9200		67.2400		250.00	95.9		P
Iron	75-125	1309.7000		321.4800		1000.00	98.8		P
Lead	75-125	47.6750		35.5000		20.00	60.9	N	F
Magnesium									NR
Manganese	75-125	527.5500		40.1400		500.00	97.5		P
Mercury									NR
Nickel	75-125	515.3700		6.6200	B	500.00	101.8		P
Potassium									NR
Selenium	75-125	12.0250		4.0000	U	10.00	120.2		F
Silver	75-125	50.8300		2.1800	B	50.00	97.3		P
Sodium									NR
Thallium	75-125	21.8500		15.0000	U	50.00	43.7	N	F
Vanadium	75-125	497.2100		2.0500	B	500.00	99.0		P
Zinc	75-125	811.3600		319.0500		500.00	98.5		P
Cyanide									NR
Molybd'm	75-125	478.8800		35.0000	U	500.00	95.8		P

Comments:

COMPUCHEM - CHEMWEST

5A

SPIKE SAMPLE RECOVERY

SAMPLE NUMBER:

501R00S

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 501R00T

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	3455.5000		1629.3000		2000.00	91.3		P
Antimony	75-125	495.3500		14.0000	U	500.00	99.1		P
Arsenic	75-125	39.4550		3.1150	B	40.00	90.8		F
Barium	75-125	2009.2000		26.1500	B	2000.00	99.2		P
Beryllium	75-125	48.6800		1.0000	U	50.00	97.4		P
Cadmium	75-125	51.7400		3.0000	U	50.00	103.5		P
Calcium									NR
Chromium	75-125	221.8200		23.2200		200.00	99.3		F
Cobalt	75-125	499.4900		4.0000	U	500.00	99.9		P
Copper	75-125	345.4900		111.5900		250.00	93.6		F
Iron	75-125	4247.7000		3319.4000		1000.00	92.8		P
Lead		181.2500		157.5500		20.00	118.5		F
Magnesium									NR
Manganese	75-125	580.7400		83.0000		500.00	99.5		P
Mercury	75-125	1.4000		0.3800		1.00	102.0		CV
Nickel	75-125	519.2800		19.7100	B	500.00	99.9		P
Potassium									NR
Selenium	75-125	10.8600		4.0000	U	10.00	108.6		F
Silver	75-125	46.2500		2.0000	U	50.00	92.5		P
Sodium									NR
Thallium	75-125	48.5000		2.0000	U	50.00	97.0		F
Vanadium	75-125	502.5000		8.2200	B	500.00	98.9		P
Zinc	75-125	736.9000		248.0100		500.00	97.8		P
Cyanide									NR
Molybd'm	75-125	482.8400		35.0000	U	500.00	96.6		P

Comments:

000031

COMPUCHEM - CHEMWEST

5A

SPIKE SAMPLE RECOVERY

SAMPLE NUMBER:

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0028 503R005

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 503R00

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury	75-125	1.6300		0.2000	U	1.00	163.0	N	CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

FORM V [illegible]

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5A
SPIKE SAMPLE RECOVERY

SAMPLE NUMBER:

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088 | 501R00S

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 501R00S

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2282.7000		220.0200		2000.00	103.1		P
Antimony	75-125	467.7000		14.0000	U	500.00	93.5		P
Arsenic	75-125	37.7700		2.0000	U	40.00	94.4		F
Barium	75-125	2023.0000		16.1100	B	2000.00	100.3		F
Beryllium	75-125	47.6800		1.0000	U	50.00	95.4		F
Cadmium	75-125	50.3400		3.0000	U	50.00	100.7		F
Calcium									NR
Chromium	75-125	202.4700		4.0000	U	200.00	101.2		F
Cobalt	75-125	489.5500		4.0000	U	500.00	97.9		P
Copper	75-125	322.8200		80.0900		250.00	97.1		F
Iron	75-125	1479.9000		399.6200		1000.00	108.0		P
Lead		201.9000		123.1000		20.00	394.0		F
Magnesium									NR
Manganese	75-125	546.1700		54.4500		500.00	98.3		F
Mercury									NR
Nickel	75-125	499.7900		4.6000	B	500.00	99.0		P
Potassium									NR
Selenium	75-125	10.6100		3.0000	U	10.00	106.1		F
Silver	75-125	49.2100		2.0000	U	50.00	98.4		P
Sodium									NR
Thallium	75-125	43.5850		3.0000	U	50.00	87.2		F
Vanadium	75-125	496.5500		2.8700	B	500.00	98.7		P
Zinc	75-125	696.4500		203.9900		500.00	98.5		P
Cyanide									NR
Molybd'm	75-125	481.2900		35.0000	U	500.00	96.3		P

Comments:

000034

COMPUCHEM -- CHEMWEST

5A

SPIKE SAMPLE RECOVERY

SAMPLE NUMBER: 501S00S

Lab Name. SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 501R00S

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury	75-125	0.8500		0.2000	U	1.00	85.0		CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR
Molybd'm									NR

Comments:

000035

FORM V (PART 1) - IN 7/88

000157

COMPUCHEM - CHEMWEST

5A
SPIKE SAMPLE RECOVERY

SAMPLE NUMBER:

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088 | 502R035

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 502R03

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2234.7000		186.1800	B	2000.00	102.4		P
Antimony	75-125	482.5700		14.0000	U	500.00	96.5		P
Arsenic	75-125	39.8400		2.0000	U	40.00	99.6		F
Barium	75-125	2082.1000		32.5900	B	2000.00	102.5		P
Beryllium	75-125	49.3300		1.0000	U	50.00	98.7		P
Cadmium	75-125	49.0700		3.0000	U	50.00	98.1		P
Calcium									NR
Chromium	75-125	207.1100		4.0000	U	200.00	103.6		P
Cobalt	75-125	492.7500		4.0000	U	500.00	98.6		P
Copper	75-125	285.3700		34.7000		250.00	100.3		P
Iron	75-125	1327.8000		315.2900		1000.00	101.3		P
Lead	75-125	41.9850		24.0750		20.00	89.6		F
Magnesium									NR
Manganese	75-125	527.4800		31.2200		500.00	99.3		P
Mercury	75-125	1.1400		0.2000	U	1.00	114.0		CV
Nickel	75-125	504.5000		4.0000	U	500.00	100.9		P
Potassium									NR
Selenium	75-125	10.9800		3.0000	U	10.00	109.8		F
Silver	75-125	45.9400		2.0000	U	50.00	91.9		P
Sodium									NR
Thallium	75-125	47.0500		2.0000	U	50.00	94.1		F
Vanadium	75-125	500.8500		2.0000	U	500.00	100.2		P
Zinc	75-125	681.3100		195.8900		500.00	97.1		P
Cyanide									NR
Molybd'm	75-125	493.4100		35.0000	U	500.00	98.7		P

Comments:

COMPUCHEM - CHEMWEST

5A

SPIKE SAMPLE RECOVERY

SAMPLE NUMBER:

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088 | 502R04S

Lab Code: SKINER Case No.: 7329S SAS No.: SDG No.: 502S04S

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury	75-125	1.2200		0.2000	U	1.00	122.0		CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR
Molybd'm									NR

Comments:

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5A
SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.

89461SDSS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 40.7

Concentration Units: MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	8.6560	B	2.3759	B	24.57	25.6	N	F
Arsenic	75-125	17.6880		9.2875		9.83	85.5		F
Barium	75-125	564.0049		98.6732		491.40	94.7		P
Beryllium	75-125	12.2088		0.4079	B	12.29	96.0		P
Cadmium	75-125	12.2138		1.9779		12.29	83.3		P
Calcium									NR
Chromium	75-125	145.1941		99.7813		49.14	92.4		P
Cobalt	75-125	131.5061		10.3686	B	122.85	98.6		P
Copper		389.5086		573.3169		61.43	-299.2		P
Iron									NR
Lead		561.4250		449.3858		4.91	2281.9		F
Magnesium									NR
Manganese	75-125	318.9189		220.2015		122.85	80.4		P
Mercury	75-125	1.8371		0.3029		1.23	124.7		CV
Nickel	75-125	212.4251		94.3170		122.85	96.1		P
Potassium									NR
Selenium	75-125	0.7371	U	3.6855	U	2.46	0.0	N	F
Silver	75-125	11.8575		1.8550	B	12.29	81.4		P
Sodium									NR
Thallium	75-125	11.2678		0.9828	U	12.29	91.7		F
Vanadium	75-125	149.7764		33.6708		122.85	94.5		P
Zinc		1004.5454		1491.3267		122.85	-396.2		P
Cyanide									AS
Molybdenum	75-125	126.1597		16.5307		122.85	89.2		P
Chromium+6									NR

Comments:
FORM 5A -PAGE 1 Spiked Sample Lab ID:5020-1S Sample Lab ID:5020-1

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.

89463SDSS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 39.2

Concentration Units: MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony								N	F
Arsenic									F
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									F
Magnesium									NR
Manganese									NR
Mercury									CV
Nickel									NR
Potassium									NR
Selenium								N	F
Silver									NR
Sodium									NR
Thallium									F
Vanadium									NR
Zinc									NR
Cyanide	75-125	10.3686		1.2755	U	12.76	81.3		AS
Molybdenum									NR
Chromium+6									NR

omments:
FORM 5A -PAGE 2 Spiked Sample Lab ID:5020-3S Sample Lab ID:5020-3

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.

9046E132S

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units: UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2032.9001		17.0	B	2000.00	101.6		P
Antimony	75-125	99.3000		2.0000	U	100.00	99.3		F
Arsenic	75-125	33.4900		1.0000	U	40.00	83.7		F
Barium	75-125	1855.9000		4.5000	B	2000.00	92.5		P
Beryllium	75-125	50.1600		1.0000	U	50.00	100.3		P
Cadmium	75-125	53.3200		3.0000	U	50.00	106.6		P
Calcium									NR
Chromium	75-125	188.4000		4.0000	U	200.00	94.2		P
Cobalt	75-125	491.2400		3.0000	U	500.00	98.2		P
Copper	75-125	280.3200		45.2500	B	250.00	93.9		P
Iron	75-125	1047.1000		92.6000	B	1000.00	95.4		P
Lead	75-125	20.8400		3.0400		20.00	89.2		F
Magnesium									NR
Manganese	75-125	499.3700		43.7000	B	500.00	91.4		P
Mercury	75-125	1.2793		0.2000	U	1.00	127.9	N	CV
Nickel	75-125	492.0200		8.0000	U	500.00	98.4		P
Potassium									NR
Selenium	75-125	10.2500		2.0000	U	10.00	102.5		F
Silver	75-125	52.7400		3.0000	U	50.00	105.5		P
Sodium									NR
Thallium	75-125	48.8100		2.0000	U	50.00	96.4		F
Vanadium	75-125	487.2300		3.0000	U	500.00	97.4		P
Zinc	75-125	515.8900		38.8000	B	500.00	95.4		P
Cyanide									AS

Comments:
FORM 5A -PAGE 2 Spiked Sample Lab ID:7148S-1MS Sample Lab ID:7148S-1

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.

9046E134S

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units: UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									F
Arsenic									F
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									F
Magnesium									NR
Manganese									NR
Mercury									CV
Nickel									NR
Potassium									NR
Selenium									F
Silver									NR
Sodium									NR
Thallium									F
Vanadium									NR
Zinc									NR
Cyanide	75-125	80.7		50.0	U	100.00	80.7	N	AS

omments:
FORM 5A -PAGE 3 Spiked Sample Lab ID:7148T-3MS Sample Lab ID:7148T-3

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5A
SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.

9046E132T

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units: UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2001.4999		62.4800	B	2000.00	97.0		P
Antimony	75-125	103.3000		2.0000	U	100.00	103.3		F
Arsenic	75-125	38.0300		1.0000	U	40.00	95.1		F
Barium	75-125	1918.1000		17.8400	B	2000.00	95.0		P
Beryllium	75-125	47.7900		1.0000	U	50.00	95.6		P
Cadmium	75-125	52.5900		3.0000	U	50.00	105.2		P
Calcium									NR
Chromium	75-125	187.1200		4.0000	U	200.00	93.6		P
Cobalt	75-125	485.9400		3.0000	U	500.00	97.2		P
Copper	75-125	242.8700		9.2900	B	250.00	93.4		P
Iron	75-125	1001.2000		149.5800		1000.00	85.2		P
Lead	75-125	21.9800		1.3500	B	20.00	103.2		F
Magnesium									NR
Manganese	75-125	498.4400		28.3700		500.00	94.0		P
Mercury	75-125	1.1106		0.2000	U	1.00	111.1		CV
Nickel	75-125	487.2100		8.0000	U	500.00	97.4		P
Potassium									NR
Selenium	75-125	10.0800		2.0000	U	10.00	100.8		F
Silver	75-125	46.3200		3.0000	U	50.00	92.6		P
Sodium									NR
Thallium	75-125	12.6600		2.0000	U	50.00	25.3	N	F
Vanadium	75-125	486.4500		3.0000	U	500.00	97.3		P
Zinc	75-125	494.2800		75.2200		500.00	83.8		P
Cyanide	75-125								AS

Comments:
FORM 5A -PAGE 1 Spiked Sample Lab ID:7148T-1MS Sample Lab ID:7148T-1

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.

5020MBSD

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix: SOIL Level (low/med): MED

% Solids for Sample: 100.0

Concentration Units: MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	8.6280		0.3000	U	10.00	86.3		F
Arsenic	75-125	3.9100		0.2000	U	4.00	97.8		F
Barium	75-125	186.3900		0.2000	U	200.00	93.2		P
Beryllium	75-125	4.6570		0.1000	U	5.00	93.1		P
Cadmium	75-125	4.9740		0.2000	U	5.00	99.5		P
Calcium									NR
Chromium	75-125	20.0760		0.6000	U	20.00	100.4		P
Cobalt	75-125	50.2100		0.5000	U	50.00	100.4		P
Copper	75-125	25.5070		0.5100	B	25.00	100.0		P
Iron									NR
Lead	75-125	2.1620		0.1820	B	2.00	99.0		F
Magnesium									NR
Manganese	75-125	47.5970		0.2000	U	50.00	95.2		P
Mercury	75-125	1.0040		0.1000	U	1.00	100.4		CV
Nickel	75-125	49.4210		1.0000	U	50.00	98.8		P
Potassium									NR
Selenium	75-125	0.8040		0.3000	U	1.00	80.4		F
Silver	75-125	5.6950		0.1000	U	5.00	113.9		P
Sodium									NR
Thallium	75-125	4.5890		0.0000	U	5.00	91.8		F
Vanadium	75-125	46.1160		0.3000	U	50.00	92.2		P
Zinc	75-125	54.4800		1.3440	B	50.00	106.3		P
Cyanide	75-125	4.7180		0.5000	U	5.00	94.4		AS
Molybdenum	75-125	46.1260		0.8580	B	50.00	92.2		P
Chromium+6	75-125	3.9040		1.0000	U	4.00	97.6		C

Comments:
FORM 5A -PAGE 5 Spiked Sample Lab ID:5020MBSD Sample Lab ID:5020MB

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.

5020MBS

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix: SOIL Level (low/med): MED

% Solids for Sample: 100.0

Concentration Units: MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	8.9900		0.3000	U	10.00	89.9		F
Arsenic	75-125	3.2090		0.2000	U	4.00	80.2		F
Barium	75-125	179.8900		0.2000	U	200.00	89.9		P
Beryllium	75-125	4.5910		0.1000	U	5.00	91.8		P
Cadmium	75-125	5.0520		0.2000	U	5.00	101.0		P
Calcium									NR
Chromium	75-125	20.3540		0.6000	U	20.00	101.8		P
Cobalt	75-125	50.2160		0.5000	U	50.00	100.4		P
Copper	75-125	25.0520		0.5100	B	25.00	98.2		P
Iron									NR
Lead	75-125	2.2430		0.1820	B	2.00	103.0		F
Magnesium									NR
Manganese	75-125	46.9210		0.2000	U	50.00	93.8		P
Mercury	75-125	1.0042		0.1000	U	1.00	100.4		CV
Nickel	75-125	49.1420		1.0000	U	50.00	98.3		P
Potassium									NR
Selenium	75-125	0.7650		0.3000	U	1.00	76.5		F
Silver	75-125	6.2350		0.1000	U	5.00	124.7		P
Sodium									NR
Thallium	75-125	4.8260		0.0000	U	5.00	96.5		F
Vanadium	75-125	45.3880		0.3000	U	50.00	90.8		P
Zinc	75-125	54.8870		1.3440	B	50.00	107.1		P
Cyanide	75-125	4.3185		0.5000	U	5.00	86.4		AS
Molybdenum	75-125	45.1320		0.8580	B	50.00	92.2		P
Chromium+6	75-125	3.9220		1.0000	U	4.00	98.0		C

Comments:
FORM 5A -PAGE 4 Spiked Sample Lab ID:5020MBS Sample Lab ID:5020MB

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No: 5020

Solid LCS Source: EPA-LV

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				325.0	382.0		225.0	424.0	117.5
Antimony				211.0	173.6	B	127.0	294.0	82.3
Arsenic				917.0	904.8		635.0	1199.0	98.7
Barium				4.8	6.4	B	0.0	40.0	133.3
Beryllium				19.4	21.2		16.5	22.3	109.3
Cadmium				45.4	42.8		35.7	55.1	94.3
Calcium				196200.0	192780.0		166800.0	225600.0	98.3
Chromium				99.6	106.6		79.2	120.0	107.0
Cobalt				144.0	138.3		125.0	162.0	96.0
Copper				6910.0	6985.5		6006.0	7820.0	101.1
Iron				22430.0	18366.0		17770.0	27080.0	82.0
Lead				236.0	219.6		188.0	285.0	93.1
Magnesium				118100.0	122130.0		100400.0	129900.0	103.4
Manganese				208.0	213.4		177.0	239.0	102.6
Mercury				12.7	9.4		8.5	17.0	74.0
Nickel				60.9	50.3		49.2	72.6	82.6
Potassium				50.0	199.0	U	40.0	1000.0	0.0
Selenium				39.2	25.9		19.1	59.4	66.1
Silver				22.2	26.4		15.5	29.0	118.9
Sodium				50.0	68.6	B	40.0	1000.0	137.2
Thallium				39.2	38.5		24.6	53.5	98.2
Vanadium				65.8	65.7		51.7	79.9	99.8
Zinc				187.0	149.8		138.0	236.0	80.1
Cyanide				5.6	5.4		4.3	6.9	96.4
Molybdenum				50.0	47.9		40.0	60.0	95.8
Chromium+6									

Comments:
Form 7 - Page 1 Lab Sample ID:5020LCSS

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

Lab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No: 46E132

Solid LCS Source: _____

Aqueous LCS Source: SPEX ICV-1

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	10000.0	10491.00	104.9						
Antimony	600.0	594.70	99.0						
Arsenic	20.0	20.21	101.0						
Barium	10000.0	9881.70	98.8						
Beryllium	250.0	242.34	96.9						
Cadmium	250.0	245.73	98.3						
Calcium	250000.	240668.0	96.3						
Chromium	500.0	526.23	105.2						
Cobalt	2500.0	2386.70	95.5						
Copper	1250.0	1260.90	100.9						
Iron	5000.0	4743.70	94.9						
Lead	20.0	20.47	102.4						
Magnesium	250000.	265636.0	106.3						
Manganese	750.0	723.84	96.5						
Mercury									
Nickel	2000.0	1883.20	94.2						
Potassium	250000.	259514.0	103.8						
Selenium	20.0	19.16	95.8						
Silver	500.0	518.56	103.7						
Sodium	250000.	263674.0	105.5						
Thallium	20.0	19.64	95.2						
Vanadium	2500.0	2422.10	~~0.0~~	96.9					
Zinc	1000.0	957.25	~~0.0~~	95.7					
Cyanide	100.0	81.07	81.1						

omments:
Form 7 - Page 1 Lab Sample ID:7148T-LCS

FORM VII - IN 7/88

000208

COMPUCHEM - CHEMWEST

LABORATORY CONTROL SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 501R00T

Solid LCS Source:

Aqueous LCS Source: EPA-LV 0690

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	2172.0	2040.30	93.9						
Antimony	978.0	992.64	101.5						
Arsenic	47.4	49.71	104.9						
Barium	2041.0	1981.50	97.1						
Beryllium	510.0	490.60	96.2						
Cadmium	498.0	482.51	96.9						
Calcium	51519.0	51870.00	100.7						
Chromium	510.0	469.60	92.1						
Cobalt	520.0	491.89	94.6						
Copper	519.0	473.79	91.3						
Iron	2044.0	2057.70	100.7						
Lead	48.8	52.86	108.3						
Magnesium	25745.0	24294.00	94.4						
Manganese	516.0	480.57	93.1						
Mercury									
Nickel	497.0	474.31	95.4						
Potassium	52068.0	48924.00	94.0						
Selenium	52.6	46.96	89.3						
Silver	500.0	468.20	93.6						
Sodium	51368.0	48635.00	94.7						
Thallium	48.5	51.56	106.3						
Vanadium	507.0	482.83	95.2						
Zinc	3316.0	3097.10	93.4						
Cyanide									
Molybd'm	1000.0	950.01	95.0						

COMPUCHEM - CHEMWEST

LABORATORY CONTROL SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0090

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 503F00

Solid LCS Source:

Aqueous LCS Source: EPA-LV 0690

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	2172.0	1955.90	90.1						
Antimony	978.0	881.05	90.1						
Arsenic	47.4	44.76	94.4						
Barium	2041.0	1874.20	91.8						
Beryllium	510.0	442.47	86.8						
Cadmium	498.0	418.56	84.0						
Calcium	51519.0	43858.00	85.1						
Chromium	510.0	415.77	81.5						
Cobalt	520.0	430.06	82.7						
Copper	519.0	452.13	87.1						
Iron	2044.0	1833.20	89.7						
Lead	48.8	52.68	108.0						
Magnesium	25745.0	23112.00	89.8						
Manganese	516.0	425.19	82.4						
Mercury									
Nickel	497.0	418.84	84.3						
Potassium	52068.0	48170.00	92.5						
Selenium	52.6	51.30	97.5						
Silver	500.0	435.20	87.0						
Sodium	51368.0	48571.00	94.6						
Thallium	48.5	47.90	98.8						
Vanadium	507.0	438.73	86.5						
Zinc	3316.0	2753.20	83.0						
Cyanide									

COMPUCHEM - CHEMWEST

7

LABORATORY CONTROL SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329T SAS No.: SDG No.: 502S04T

Solid LCS Source:

Aqueous LCS Source: EPA-LV 0690

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	2172.0	2017.70	92.9						
Antimony	978.0	970.01	99.2						
Arsenic	47.4	45.16	95.3						
Barium	2041.0	1938.50	95.0						
Beryllium	510.0	476.24	93.4						
Cadmium	498.0	464.78	93.3						
Calcium	51519.0	49583.00	96.2						
Chromium	510.0	455.09	89.2						
Cobalt	520.0	464.71	89.4						
Copper	519.0	468.00	90.2						
Iron	2044.0	2023.10	99.0						
Lead	48.8	49.20	100.8						
Magnesium	25745.0	23949.00	93.0						
Manganese	516.0	461.90	89.5						
Mercury									
Nickel	497.0	456.87	91.9						
Potassium	52068.0	48137.00	92.5						
Selenium	52.6	47.53	90.4						
Silver	500.0	451.97	90.4						
Sodium	51368.0	48045.00	93.5						
Thallium	48.5	47.72	98.4						
Vanadium	507.0	466.26	92.0						
Zinc	3316.0	3017.40	91.0						
Cyanide									
Molybd'm	1000.0	935.38	93.5						

000036

COMPUCHEM - CHEMWEST

LABORATORY CONTROL SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0038

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 501R005

Solid LCS Source:

Aqueous LCS Source: EPA-LV 0690

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	2172.0	2031.70	93.5						
Antimony	978.0	959.01	98.1						
Arsenic	47.4	48.51	102.3						
Barium	2041.0	2016.30	98.8						
Beryllium	510.0	484.81	95.1						
Cadmium	498.0	469.30	94.2						
Calcium	51519.0	48430.00	94.0						
Chromium	510.0	460.83	90.4						
Cobalt	520.0	481.66	92.6						
Copper	519.0	479.15	92.3						
Iron	2044.0	1978.50	96.8						
Lead	48.8	47.96	98.3						
Magnesium	25745.0	24288.00	94.3						
Manganese	516.0	472.75	91.6						
Mercury									
Nickel	497.0	463.30	93.2						
Potassium	52068.0	49786.00	95.6						
Selenium	52.6	48.80	92.8						
Silver	500.0	466.91	93.4						
Sodium	51368.0	50329.00	98.0						
Thallium	48.5	44.26	91.3						
Vanadium	507.0	479.86	94.6						
Zinc	3316.0	3027.80	91.3						
Cyanide									
Molybd'm	1000.0	957.55	95.8						

COMPUCHEM - CHEMWEST

7

LABORATORY CONTROL SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 502R03

Solid LCS Source:

Aqueous LCS Source: EPA-LV 0690

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	2172.0	2022.60	93.1						
Antimony	978.0	960.71	98.2						
Arsenic	47.4	45.40	95.8						
Barium	2041.0	2001.40	98.1						
Beryllium	510.0	490.18	96.1						
Cadmium	498.0	479.66	96.3						
Calcium	51519.0	49484.00	96.1						
Chromium	510.0	470.64	92.3						
Cobalt	520.0	477.10	91.8						
Copper	519.0	478.40	92.2						
Iron	2044.0	2004.70	98.1						
Lead	48.8	53.15	108.9						
Magnesium	25745.0	24288.00	94.3						
Manganese	516.0	473.78	91.8						
Mercury									
Nickel	497.0	466.21	93.8						
Potassium	52068.0	49028.00	94.2						
Selenium	52.6	50.44	95.9						
Silver	500.0	466.90	93.4						
Sodium	51368.0	49302.00	96.0						
Thallium	48.5	45.48	93.8						
Vanadium	507.0	479.09	94.5						
Zinc	3316.0	3114.80	93.9						
Cyanide									
Molybd'm	1000.0	969.51	97.0						

000024

CONDUCHEM - CHEMWEST

7

LABORATORY CONTROL SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329S SAS No.: SDG No.: 502S04S

Solid LCS Source:

Aqueous LCS Source: EPA-LV 0690

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	2172.0	2004.30	92.3						
Antimony	978.0	990.84	101.3						
Arsenic	47.4	44.84	94.6						
Barium	2041.0	1970.00	96.5						
Beryllium	510.0	487.58	95.6						
Cadmium	498.0	479.73	96.3						
Calcium	51519.0	48472.00	94.1						
Chromium	510.0	466.94	91.6						
Cobalt	520.0	482.77	92.8						
Copper	519.0	469.80	90.5						
Iron	2044.0	1962.70	96.0						
Lead	48.8	52.46	107.5						
Magnesium	25745.0	23654.00	91.9						
Manganese	516.0	472.81	91.6						
Mercury									
Nickel	497.0	470.73	94.7						
Potassium	52068.0	48123.00	92.4						
Selenium	52.6	50.94	96.8						
Silver	500.0	467.18	93.4						
Sodium	51368.0	48143.00	93.7						
Thallium	48.5	48.31	99.6						
Vanadium	507.0	479.31	94.5						
Zinc	3316.0	3080.40	92.9						
Cyanide									
Molybd'm	1000.0	949.32	94.9						

00038

A.7.4 ICP Serial Dilution Data

- CLP Form IX (inorganic)

DRAFT

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

CLIENT SAMPLE NO.

9046E132L

ab Name: CHEMWEST LABORATORIES Contract: 7/88 REV

ab Code: CHEMW Case No.: 7148 SAS No.: _____ SDG No.: 46E132

atrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Differ-ence	Q	M
Aluminum	17.00	U	536.80	B			P
Antimony							NR
Arsenic							NR
Barium	4.49	B	5.50	B	22.5		P
Beryllium	1.00	U	5.00	U			P
Cadmium	3.00	U	15.00	U			P
Calcium	260.83	B	1407.50	B	439.6		P
Chromium	4.00	U	20.00	U			P
Cobalt	3.00	U	15.00	U			P
Copper	45.21		45.45	B	0.5		P
Iron	92.62	B	134.75	B	45.5		P
Lead							NR
Magnesium	349.27	B	397.30	B	13.8		P
Manganese	43.73		42.55	B	2.7		P
Mercury							NR
Nickel	8.00	U	40.00	U			P
Potassium	681.00	U	3405.00	U			P
Selenium							NR
Silver	3.00	U	15.00	U			P
Sodium	686.86	B	1223.70	B	78.2		P
Thallium							NR
Vanadium	3.00	U	15.00	U			P
Zinc	38.75		50.55	B	30.5		P

mments:
FORM 9 - PAGE 1 Lab Sample ID:7148S-1

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

CLIENT SAMPLE NO.

89461SDSL

Lab Name: CHEMWEST LABORATORIES Contract: 7/88

Lab Code: CHEMW Case No.: 5020 SAS No.: _____ SDG No.: 5020

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Differ-ence	Q	M
Aluminum	36637.00		38515.00		5.1		P
Antimony							NR
Arsenic							NR
Barium	401.60		416.50	B	3.7		P
Beryllium	1.66	B	5.00	U	100.0		P
Cadmium	8.05		10.00	U	100.0		P
Calcium	29324.00		31423.00		7.2		P
Chromium	406.11		426.85		5.1		P
Cobalt	42.20	B	41.15	B	2.5		P
Copper	2333.40		2454.85		5.2		P
Iron	87977.00		94885.00		7.9		P
Lead							NR
Magnesium	43881.00		46884.00		6.8		P
Manganese	896.22		952.40		6.3		P
Mercury							NR
Nickel	383.87		427.65		11.4		P
Potassium	5383.90		3436.50	B	36.2		P
Selenium							NR
Silver	7.55	B	5.00	U	100.0		P
Sodium	40216.00		42618.50		6.0		P
Thallium							NR
Vanadium	137.04		142.85	B	4.2		P
Zinc	6069.70		6707.00		10.5		P
Cyanide							NR
Molybdenum	67.28		65.50		2.6		P
Chromium+6							NR

omments:
FORM 9 - PAGE 1 Lab Sample ID:5020-1

COMPUGHEM - CHEMWEST

ICP SERIAL DILUTIONS

SAMPLE NUMBER:

502R03L

Lab Name: SKINNER & SHERMAN LABS Contract: 68-D9-0038

Lab Code: SKINER Case No.: 7723[SAS No.: SDG No.: 503R00

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/l

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	1010.20		1032.30		2.2		P
Antimony	20.18	B	70.00	U	100.0		P
Arsenic							NR
Barium	32.43	B	43.85	B	35.2		P
Beryllium	1.00	U	5.00	U			P
Cadmium	3.00	U	15.00	U			P
Calcium	2558.90	B	2793.70	B	9.2		P
Chromium	6.74	B	20.00	U	100.0		P
Cobalt	4.01	B	20.00	U	100.0		P
Copper	38.25		52.40	B	37.0		P
Iron	1478.90		1483.55		0.3		P
Lead							NR
Magnesium	1140.50	B	1242.50	B	8.9		P
Manganese	39.06		39.45	B	1.0		P
Mercury							NR
Nickel	9.52	B	20.00	U	100.0		P
Potassium	721.97	B	941.70	B	30.4		P
Selenium							NR
Silver	2.00	U	10.00	U			P
Sodium	3269.20	B	3525.50	B	7.8		P
Thallium							NR
Vanadium	5.07	B	10.75	B	112.0		P
Zinc	186.28		239.35		28.5		P

COMPUCHEM - CHEMWEST

9

ICP SERIAL DILUTIONS

SAMPLE NUMBER:

502S04L

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7329T SAS No.: SDG No.: 502S04T

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	O	M
Aluminum	1499.60		1607.00		7.2		P
Antimony	14.00	U	70.00	U			P
Arsenic							NR
Barium	28.93	B	39.50	B	36.5		P
Beryllium	1.00	U	5.00	U			P
Cadmium	3.00	U	15.00	U			P
Calcium	9046.40		9547.50	B	5.5		P
Chromium	28.68		42.15	B	47.0		P
Cobalt	4.00	U	20.00	U			P
Copper	72.55		81.15	B	11.9		P
Iron	2630.20		2722.05		3.5		P
Lead							NR
Magnesium	6288.70		6488.50	B	3.2		P
Manganese	61.29		65.95	B	7.6		P
Mercury							NR
Nickel	16.18	B	31.55	B	95.0		P
Potassium	3292.30	B	3163.55	B	3.9		P
Selenium							NR
Silver	2.00	U	13.05	B			P
Sodium	41977.00		42367.50		0.9		P
Thallium							NR
Vanadium	5.28	B	18.10	B	242.8		P
Zinc	301.98		347.95		15.2	E	P
Molybd'm	35.00	U	175.00	U			P

000038

COMPUCHEM - CHEMWEST

9

ICP SERIAL DILUTIONS

SAMPLE NUMBER:

502R03L

ab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

ab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 502R03

atrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	186.18	B	247.90	B	33.2		P
Antimony	14.00	U	70.00	U			P
Arsenic							NR
Barium	32.59	B	50.85	B	56.0		P
Beryllium	1.00	U	5.00	U			P
Cadmium	3.00	U	15.00	U			P
Calcium	2658.80	B	2771.50	B	4.2		P
Chromium	4.00	U	20.00	U			P
Cobalt	4.00	U	20.00	U			P
Copper	34.70		38.25	B	10.2		P
Iron	315.29		327.40	B	3.8		P
Lead							NR
Magnesium	705.44	B	718.35	B	1.8		P
Manganese	31.22		34.80	B	11.5		P
Mercury							NR
Nickel	4.00	U	20.00	U			P
Potassium	453.57	B	344.60	B	24.0		P
Selenium							NR
Silver	2.00	U	10.00	U			P
Sodium	3297.50	B	3474.85	B	5.4		P
Thallium							NR
Vanadium	2.00	U	10.00	U			P
Zinc	195.89		210.15		7.3		P
Molybd'm	35.00	U	175.00	U			P

COMPUCHEM - CHEMWEST

9

ICP SERIAL DILUTIONS

SAMPLE NUMBER:

501R009L

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323S SAS No.: SDG No.: 501R009

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	220.02		130.25	B	40.8		P
Antimony	14.00	U	70.00	U			P
Arsenic							NR
Barium	16.11	B	16.25	B	0.9		P
Beryllium	1.00	U	5.00	U			P
Cadmium	3.00	U	15.00	U			P
Calcium	1720.30	B	1690.95	B	1.7		P
Chromium	4.00	U	20.00	U			P
Cobalt	4.00	U	20.00	U			P
Copper	80.09		74.90	B	6.5		P
Iron	399.62		367.80	B	8.0		P
Lead							NR
Magnesium	613.56	B	428.45	B	30.2		P
Manganese	54.45		53.00	B	2.7		P
Mercury							NR
Nickel	4.60	B	20.00	U	100.0		P
Potassium	369.39	B	340.00	U	100.0		P
Selenium							NR
Silver	2.00	U	10.00	U			P
Sodium	2942.50	B	3030.30	B	3.0		P
Thallium							NR
Vanadium	2.87	B	10.00	U	100.0		P
Zinc	203.99		219.05		7.4		P
Molybd'm	35.00	U	175.00	U			P

000040

COMPUCHEM - CHEMWEST

9

ICP SERIAL DILUTIONS

SAMPLE NUMBER:

502S04L

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 73299 SAS No.: SDG No.: 502S04S

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	215.35		347.75	B	61.5		P
Antimony	14.00	U	70.00	U			P
Arsenic							NR
Barium	25.10	B	33.55	B	33.7		P
Beryllium	1.00	U	5.00	U			P
Cadmium	3.00	U	15.00	U			P
Calcium	9448.90		9460.00	B	0.1		P
Chromium	16.07		20.00	U	100.0		P
Cobalt	4.00	U	20.00	U			P
Copper	67.24		75.95	B	13.0		P
Iron	321.48		330.00	B	2.7		P
Lead							NR
Magnesium	5316.50		5336.50	B	0.4		P
Manganese	40.14		39.90	B	0.6		P
Mercury							NR
Nickel	6.62	B	20.00	U	100.0		P
Potassium	3212.50	B	3169.90	B	1.3		P
Selenium							NR
Silver	2.18	B	10.00	U	100.0		P
Sodium	43111.00		42892.50		0.5		P
Thallium							NR
Vanadium	2.05	B	10.00	U	100.0		P
Zinc	319.05		341.75		7.1		P
Molybd'm	35.00	U	175.00	U			P

COMPUCHEM - CHEMWEST

9

ICP SERIAL DILUTIONS

SAMPLE NUMBER:

501R00L

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: 7323T SAS No.: SDG No.: 501R00T

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	1629.30		1719.15		5.5		P
Antimony	14.00	U	142.10	B			P
Arsenic							NR
Barium	26.15	B	32.25	B	23.3		P
Beryllium	1.00	U	5.00	U			P
Cadmium	3.00	U	15.00	U			P
Calcium	2220.80	B	2293.15	B	3.3		P
Chromium	23.22		20.00	U	100.0		P
Cobalt	4.00	U	20.00	U			P
Copper	111.59		113.20	B	1.4		P
Iron	3319.40		3445.55		3.8		P
Lead							NR
Magnesium	1583.90	B	1615.25	B	2.0		P
Manganese	83.00		89.95		8.4		P
Mercury							NR
Nickel	19.71	B	20.00	U	100.0		P
Potassium	658.10	B	932.10	B	41.6		P
Selenium							NR
Silver	2.00	U	10.00	U			P
Sodium	3005.00	B	3178.90	B	5.8		P
Thallium							NR
Vanadium	8.22	B	14.60	B	77.6		P
Zinc	248.01		256.20		3.3		P
Molybd'm	35.00	U	175.00	U			P

A.8.0 REFERENCES

U.S. Environmental Protection Agency, 1988a. *Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses.* February 1, Draft.

U.S. Environmental Protection Agency, 1988b. *Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.* July 1, Draft.

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Table A1
List of Organic Compounds Detected in Field Blanks
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Sample Number	Sample Date	QC Type	Test Method	Chemical Name	Units	Value	Qualifier
9046E132	11/16/90	EQBLK	CLPVOC	Methylene chloride	µg/l	3	U1/JB
			CLPSOC	Bis(2-ethylhexyl)phthalate	µg/l	5	U1/JB
90501R09	12/15/90	EQBLK	CLPVOC	Methylene chloride	µg/l	200	U1/B
				Acetone	µg/l	6	U1/JB
			CLPSOC	Bis(2-ethylhexyl)phthalate	µg/l	4	U1/JB
			LUFTD	TPH-Diesel	µg/l	110	A
90501S09	12/15/90	TRBLK	CLPVOC	Methylene chloride	µg/l	1	U1/JB
				Acetone	µg/l	2	U1/JB
90502R09	12/15/90	EQBLK	CLPVOC	Acetone	µg/l	2	U1/JB
			CLPSOC	Bis(2-ethylhexyl)phthalate	µg/l	3	U1/JB
90502TB01	12/15/90	TRBLK	CLPVOC	Methylene chloride	µg/l	2	U1/JB
				Acetone	µg/l	6	U1/JB
90503R00	12/15/90	EQBLK	CLPVOC	Methylene chloride	µg/l	3	U1/JB
				Acetone	µg/l	5	U1/JB
90503R01	12/15/90	TRBLK	CLPVOC	Methylene chloride	µg/l	3	U1/JB
				Acetone	µg/l	5	U1/JB
90504R07	12/15/90	FBLK	CLPVOC	Methylene chloride	µg/l	66	U1/B
				Acetone	µg/l	3	U1/JB
			CLPSOC	Bis(2-ethylhexyl)phthalate		5	U1/JB
			LUFTD	TPH-Diesel	µg/l	95	A
90504T02	12/15/90	TRBLK	CLPVOC	Methylene chloride	µg/l	2	U1/JB
				Acetone	µg/l	4	U1/JB

FBLK : Field Blank
EQBLK : Equipment Blank
TRBLK : Trip Blank

A : Analyte concentration is accurate and valid.
U1 : Analyte is qualified as non-detected due to its appearance in laboratory method blanks.
B : Analyte appeared in the laboratory method blanks.
J: Concentration is below the CRQL and is considered to be an estimate.

Table A2
List of Inorganic Compounds Detected in Field Blanks
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Sample Number		9046E132		90501R09		90502R09		90503R00		90504R07	
Matrix		Water		Water		Water		Water		Water	
Sample Date		11/16/90		12/15/90		12/15/90		12/15/90		12/15/90	
QC Type		EQBLK		EQBLK		EQBLK		EQBLK		FBLK	
Test Method/Analyte	Units	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q
EPA 300.0											
Chloride	mg/l	22.000	A	ND(0.1)	U	2.200	A	1.300	A	ND(0.1)	U
Orthophosphate as P	mg/l	ND(0.1)	U	ND(0.1)	U	ND(0.1)	U	ND(0.1)	U	ND(0.1)	U
Sulfate	mg/l	ND(1)	U	ND(1)	U	4.800	A	0.520	A	1.800	A
CLPFUAA (Soluble)											
Lead	µg/l	3.000	J/B	3.100	A/*	3.900	A/N	2.400	J/B	2.300	J/B
CLPICP (Soluble)											
Aluminum	µg/l	ND(17)	U	ND(19)	U	65.500	U1/B	171.000	B	77.300	U1/B
Antimony	µg/l	ND(1)	U	ND(14)	U	14.500	U1/B	ND(14)	U	ND(14)	U
Barium	µg/l	4.500	U1/B	ND(2)	U	3.000	J/B	7.200	J/B	ND(2)	U
Calcium	µg/l	261.000	J/B	61.900	J/B	268.000	J/B	413.000	J/B	641.000	U1/B
Copper	µg/l	45.200	U1	ND(2)	U	7.300	U1/B	ND(2)	U	ND(2)	U
Iron	µg/l	92.600	J/B	ND(7)	U	35.800	J/B	60.200	J/B	15.100	U1/B
Magnesium	µg/l	349.000	J/B	ND(17)	U	59.800	J/B	ND(17)	U	59.800	U1/B
Manganese	µg/l	43.700	A	ND(1)	U	ND(1)	U	1.600	B	ND(1)	U
Potasium	µg/l	ND(681)	U	ND(68)	U	110.000	J/B	ND(68)	U	ND(68)	U
Silver	µg/l	ND(3)	U	ND(2)	U	2.800	U1/B	ND(2)	U	ND(2)	U
Sodium	µg/l	687.000	U1/B	167.000	J/B	719.000	J/B	694.000	J/B	1440.000	J/B
Zinc	µg/l	38.800	A	ND(5)	U	20.700	U1	10.500	J/B	13.100	U1/B
CLPFUAA (Total)											
Lead	µg/l	1.400	J/B	2.000	J/B	ND(3)	U	ND(3)	U	3.800	A/N
CLPICP (Total)											
Aluminum	µg/l	62.500	U1/B	ND(19)	U	44.800	U1/B	47.600	J/B	85.400	U1/B
Barium	µg/l	17.800	J/B	ND(14)	U	4.500	J/B	4.600	J/B	ND(14)	U
Calcium	µg/l	587.000	J/B	84.600	J/B	269.000	J/B	392.000	J/B	608.000	J/B
Copper	µg/l	9.300	U1/B	ND(2)	U	ND(2)	U	ND(2)	U	3.000	U1/B
Iron	µg/l	150.000	A	25.200	J/B	32.200	J/B	43.800	U1/B	37.200	U1/B
Magnesium	µg/l	148.000	U1/B	27.800	J/B	79.800	U1/B	ND(17)	U	55.900	U1/B
Manganese	µg/l	28.400	J/B	ND(1)	U	ND(1)	U	ND(1)	U	1.100	J/B
Silver	µg/l	ND(3)	U	ND(2)	U	2.100	U1/B	ND(2)	U	ND(2)	U
Sodium	µg/l	741.000	U1/B	75.100	J/B	705.000	J/B	615.000	J/B	1360.000	J/B
Zinc	µg/l	75.200	A	ND(5)	U	ND(5)	U	12.900	B	ND(5)	U

FBLK : Field Blank
EQBLK : Equipment Blank
ND: Not Detected

Q : Qualifier
A : Analyte concentration is accurate and valid.
J/B : Analyte concentration is below CRDL and the value is considered an estimate.
U: Analyte analyzed but not detected.
U1: Analyte qualified as undetected due to its presence in laboratory blanks.
* : Duplicate analysis not within control limits.
N : Spike sample recovery not within control limits

Table A3
Field Duplicate Water Samples, Relative Percent Difference, Organic Compounds
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1		SW1			SW2		SW2		
Sample Number:		90501S02		90501S03			90502S06		90502R07		
Sample Date:		12/15/90		12/15/90			12/15/90		12/15/90		
Lab Sample Number:		7323-6		7323-7			7323-17		7323-18		
Test Method/Analyte Name	Units	Value	Q	Value	Q	RPD%	Value	Q	Value	Q	RPD%
CLP-VOC											
Methylene Chloride	µg/l	ND (5)	U	1	U1/JB	-	1	U1/JB	1	U1/JB	0
1,2-Dichloroethane (total)	µg/l	ND (5)	U	ND (5)	U	-	ND (5)	U	2	J	-
Trichloroethane	µg/l	ND (5)	U	ND (5)	U	-	ND (5)	U	1	J	-
CLP-SOC											
Bis(2ethylhexyl) phthlate	µg/l	9	U1/BJ	1	U1/BJ	160	3	U1/BJ	6	U1/BJ	67
TPH-Gasoline	µg/l	500	A	100	A	133	ND(50)	U	ND(50)	U	-
TPH-Diesel	µg/l	3400	A	2700	A	23	320	U2	430	U2	29

RPD: Relative Percent difference
Q: Qualifier
A : Analyte concentration is accurate and valid.
U: Analyte was undetected, Reporting Limit appears in parentheses.
U1: Analyte qualified as undetected due to its presence in laboratory blanks.
U2 : Analyte qualified as undetected due to its presence in field blanks.
J: Analyte concentration is below CRDL and is an estimated value.
J6 : Analyte qualified as estimated due to its presence in field blanks. Analyte concentration is at least five time greater than that observed in the field blanks.
B: Analyte was detected in laboratory method blank.
- : Relative percent difference is not calculated.

Table A3
Field Duplicate Water Samples, Relative Percent Difference, Organic Compounds
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW4		SW4			SW4		SW4		
Sample Number:		9046E134		9046E135			90504S06		90504R09		
Sample Date:		11/16/90		11/16/90			12/15/90		12/15/90		
Lab Sample Number:		7148-3		7148-4			7323-48		7323-50		
Test Method/Analyte Name	Units	Value	Q	Value	Q	RPD%	Value	Q	Value	Q	RPD%
CLP-VOC											
Vinyl chloride	µg/l	2	J	ND(10)	U	-	ND(10)	U	ND(10)	U	-
Methylene Chloride	µg/l	2	U1/JB	ND(5)	U	-	ND(5)	U	1	U1/BJ	-
Acetone	µg/l	ND(10)	U	ND(10)	U	-	2	U1/BJ	3	U1/BJ	40
Chloroform	µg/l	ND(5)	U	1	J	-	ND(5)	U	ND(5)	U	-
1,2-Dichloroethane (total)	µg/l	16	A	15	A	6	2	J	2	J	0
Trichloroethane	µg/l	30	A	28	A	7	5	A	4	J	22
CLP-SOC											
Bis(2ethylhexyl) phthlate	µg/l	7	JB	ND(10)	U	-	7	J	5	J	33
TPH-Gasoline	µg/l	ND(50)	U	ND(50)	U	-	ND(50)	U	ND(50)	U	-
TPH-Diesel	µg/l	360	U2	660	J6	59	400	U2	420	U2	5

RPD: Relative Percent difference
Q: Qualifier
A : Analyte concentration is accurate and valid.
U: Analyte was undetected, Reporting Limit appears in parentheses.
U1: Analyte qualified as undetected due to its presence in laboratory blanks.
U2 : Analyte qualified as undetected due to its presence in field blanks.
J: Analyte concentration is below CRDL and is an estimated value.
J6 : Analyte qualified as estimated due to its presence in field blanks. Analyte concentration is at least five time greater than that observed in the field blanks.
B: Analyte was detected in laboratory method blank.
- : Relative percent difference is not calculated.

Table A4
Field Duplicate Water Samples, Relative Percent Difference, Inorganic Compounds
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1		SW1			SW2		SW2		
Sample Number:		90501S02		90501S03			90502S06		90502R07		
Matrix:		Water		Water			Water		Water		
Sample Date:		12/15/90		12/15/90			12/15/90		12/15/90		
Lab Sample Number:		7323-6		7323-7			7323-17		7323-18		
Test Method/Analyte Name	Units	Value	Q	Value	Q	RPD %	Value	Q	Value	Q	RPD %
CLP-CVAA (Soluble)											
Mercury	µg/l	ND(0.2)	U/J5	ND(0.2)	U/J5	-	ND(0.2)	U/J5	ND(0.2)	U/J5	-
CLP-FUAA (Soluble)											
Antimony	µg/l	NA		NA		NA	NA		NA		NA
Arsenic	µg/l	2.2	U/J/B	ND(2)	U	NC	ND(3)	U	ND(3)	U	-
Lead	µg/l	36.8	J2/*	53.8	J2/*	37.53%	26.4	A/N	23.1	A/N	13.33%
Selenium	µg/l	ND(3)	U	ND(3)	U	-	ND(3)	U	ND(3)	U	-
Thallium	µg/l	ND(3)	U	ND(3)	U	-	ND(3)	U	ND(3)	U	-
CLP-ICP (Soluble)											
Aluminum	µg/l	355	U2/J4	414	U2/J4	15.34%	119	U2/J4B	171	U2/J4	35.86%
Antimony	µg/l	ND(14)	U	ND(14)	U	-	ND(14)	U	ND(14)	U	-
Barium	µg/l	20.7	U2/B	23.3	U2/J4	11.82%	32.9	U2/J4B	26	U2/J4E	23.43%
Beryllium	µg/l	ND(1)	U	ND(1)	U	-	ND(1)	U	ND(1)	U	-
Cadmium	µg/l	ND(3)	U	ND(3)	U	-	ND(3)	U	ND(3)	U	-
Calcium	µg/l	7820	A	7540	A	3.65%	8970	A	28500	A	104.24%
Chromium	µg/l	ND(4)	U	ND(4)	U	-	7.1	J/B	9.9	J/B	32.94%
Cobalt	µg/l	ND(4)	U	ND(4)	U	-	ND(4)	U	ND(4)	U	-
Copper	µg/l	36.1	A	42.9	A	17.22%	78.8	J4	65.3	J4	18.74%
Iron	µg/l	863	A	1090	A	23.25%	243	U2	306	A	22.95%
Magnesium	µg/l	6070	J4	5430	J4	11.13%	8960	A	67300	A	153.00%
Manganese	µg/l	44.7	A	45.7	A	2.21%	34.7	A	61.1	A	55.11%
Nickel	µg/l	4.2	U1/B	11.9	U1/B	95.65%	9.7	U1/B	5.7	U1/B	51.95%
Potassium	µg/l	2800	J/B	2510	J/B	10.92%	3810	J/B	22200	A	141.41%
Silver	µg/l	ND(2)	U	ND(2)	U	-	ND(2)	U	ND(2)	U	-
Sodium	µg/l	39100	A	33200	A	16.32%	76900	A	560000	A	151.70%
Vanadium	µg/l	ND(2)	U	ND(2)	U	-	ND(2)	U	3.6	A	NC
Zinc	µg/l	291	A	330	A	12.56%	575	A	394	A	37.36%
Molybdenum	µg/l	ND(35)	U	ND(35)	U	-	ND(35)	U	ND(35)	U	-

Table A4
Field Duplicate Water Samples, Relative Percent Difference, Inorganic Compounds (cont.'d)
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1		SW1			SW2		SW2		
Sample Number:		90501S02		90501S03			90502S06		90502R07		
Matrix:		Water		Water			Water		Water		
Sample Date:		12/15/90		12/15/90			12/15/90		12/15/90		
Lab Sample Number:		7323-6		7323-7			7323-17		7323-18		
Test Method/Analyte Name	Units	Value	Q	Value	Q	RPD %	Value	Q	Value	Q	RPD %
CLPCN											
Cyanide	µg/l	ND(50)	U	ND(50)	U	-	ND(50)	U	ND(50)	U	-
CLP-CVAA (Total)											
Mercury	µg/l	ND(0.2)	U/J5	0.32	J5	-	ND(0.2)	U	0.38	J35/N	-
CLP-FUAA (Total)											
Antimony	µg/l	NA		NA		NA	NA		NA		NA
Arsenic	µg/l	3.5	B	3.6	B	2.82%	ND(2)	U	ND(2)	U	-
Lead	µg/l	50.8	A	60.9	A	18.08%	36.1	J3/NS	29.1	J3/NS	21.47%
Selenium	µg/l	ND(4)	U	ND(4)	U	-	ND(3)	U/N	ND(3)	U/N	-
Thallium	µg/l	ND(2)	U/W	ND(2)	U/W	-	ND(3)	U/NW	ND(3)	U/NW	-
CLP-ICP (Total)											
Aluminum	µg/l	2070	J2/*	1700	J2/*	19.63%	600	A	1130	A	61.27%
Antimony	µg/l	26.3	J/B	14.7	J/B	56.59%	ND(14)	U	ND(14)	U	-
Barium	µg/l	32.1	J4/B	31.1	J4/B	3.16%	33.8	J4/B	30.4	J4/B	10.59%
Beryllium	µg/l	ND(1)	U	ND(1)	U	-	ND(1)	U	ND(1)	U	-
Cadmium	µg/l	ND(3)	U	ND(3)	U	-	ND(3)	U	ND(3)	U	-
Calcium	µg/l	7250	A	7320	A	0.96%	8320	A	28900	A	110.59%
Chromium	µg/l	15.4	A	11	A	33.33%	7.6	B	16.4	A	73.33%
Cobalt	µg/l	ND(4)	U	ND(4)	U	-	ND(4)	U	ND(4)	U	-
Copper	µg/l	76.5	A	67.1	A	13.09%	79.8	A	69.5	A	13.80%
Iron	µg/l	3100	A	2630	A	16.40%	1130	A	1980	A	54.66%
Magnesium	µg/l	6860	A	6200	A	10.11%	8790	A	68300	A	154.39%
Manganese	µg/l	60.5	A	57.3	A	5.43%	39.2	A	50.5	A	25.20%

Table A4
Field Duplicate Water Samples, Relative Percent Difference, Inorganic Compounds (cont.d)
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW1		SW1			SW2		SW2		
Sample Number:		90501S02		90501S03			90502S06		90502R07		
Matrix:		Water		Water			Water		Water		
Sample Date:		12/15/90		12/15/90			12/15/90		12/15/90		
Lab Sample Number:		7323-6		7323-7			7323-17		7323-18		
Test Method/Analyte Name	Units	Value	Q	Value	Q	RPD %	Value	Q	Value	Q	RPD %
CLP-ICP (Total) (cont.'d)											
Nickel	µg/l	13.9	J/B	13.6	J/B	2.18%	7.1	J4/B	8.7	J4/B	20.25%
Potassium	µg/l	3030	J4/B	2690	J4/B	11.89%	3690	J/B	22100	A	142.77%
Silver	µg/l	ND(2)	U	ND(2)	U	-	ND(2)	U	ND(2)	U	-
Sodium	µg/l	37600	A	33500	A	11.53%	72700		550000		153.30%
Vanadium	µg/l	6.7	J/B	6	J/B	11.02%	3	U1/B	6.2	U1/B	69.57%
Zinc	µg/l	290	J4	291	J4	0.34%	515	J4/E	407	J4/E	23.43%
Molybdenum	µg/l	ND(35)	U	ND(35)	U	-	ND(35)	U	ND(35)	U	-
Chromium IV	mg/l	ND(0.05)	U	ND(0.05)	U	-	ND(0.05)	U	ND(0.05)	U	-
Sulfate	mg/l	16	U2	13	U2	20.69%	47	A	140	A	99.47%
Phosphate	mg/l	ND(0.3)	U	ND(0.3)	U	-	ND(0.3)	U	ND(0.3)	U	-
Nitrate	mg/l	0.33	A	0.33	A	0.00%	0.74	A	0.86	A	15.00%
Chloride	mg/l	4.7	U2	59	A	170.49%	420	A	1100	A	89.47%

Table A4
Field Duplicate Water Samples, Relative Percent Difference, Inorganic Compounds (cont.d)
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW4		SW4			SW4		SW4		
Sample Number:		9046E134		9046E135			90504S06		90504R09		
Matrix:		Water		Water			Water		Water		
Sample Date:		11/16/90		11/16/90			12/15/90		12/15/90		
Lab Sample Number:		7148-3		7148-4			7323-48		7323-50		
Test Method/Analyte Name	Units	Value	Q	Value	Q	RPD %	Value	Q	Value	Q	RPD %
CLP-CVAA (Soluble)											
Mercury	µg/l	ND(0.2)	U/N	ND(0.2)	U/N	-	ND(0.2)	U/J5	ND(0.2)	U/J5	-
CLP-FUAA (Soluble)											
Antimony	µg/l	3.5	J/B	3.4	J/B	2.90%	NA		NA		NA
Arsenic	µg/l	2.3	U1/BW	1.9	U1/BW	19.05%	ND(3)	U	3.3		-
Lead	µg/l	17.6	A/SN	21.5	A/SN	19.95%	18.6	J3/N	21.6		14.93%
Selenium	µg/l	ND(2)	U	ND(2)	U	-	ND(4)	U	ND(4)	U	-
Thallium	µg/l	ND(10)	U	ND(10)	U	-	ND(3)	U	ND(3)	U	-
CLP-ICP (Soluble)											
Aluminum	µg/l	480	J2/B	ND(425)	U	-	87.3	U2/J4B	124		34.74%
Antimony	µg/l	NA				NA	ND(14)	U	16.9		-
Barium	µg/l	30.8	J24/B	ND(25)	U	-	12.6	U2/J4B	17.7		33.66%
Beryllium	µg/l	ND(25)	U	ND(25)	U	-	ND(1)	U	ND(1)	U	-
Cadmium	µg/l	ND(75)	U	ND(75)	U	-	ND(3)	U	ND(3)	U	-
Calcium	µg/l	121000	J/B	118000	J/B	2.51%	3280	J/B	3690		11.76%
Chromium	µg/l	772	A	600	A	25.07%	ND(4)	U	4.7		-
Cobalt	µg/l	ND(75)	U	ND(75)	U	-	ND(4)	U	ND(4)	U	-
Copper	µg/l	168	J2/B	ND(75)	U	-	80.4	J4	75.9	J4	5.76%
Iron	µg/l	647	J24/B	697	J24/B	7.44%	150	U2	250	U2	50.00%
Magnesium	µg/l	355000	J4	346000	J4	2.57%	1510	J/B	1710	J/B	12.42%
Manganese	µg/l	85.8	J2/B	69.5	J2/B	20.99%	27.6	A	33.3	A	18.72%
Nickel	µg/l	ND(200)	U	ND(200)	U	-	6.2	U1/B	10.2	U1/B	48.78%
Potassium	µg/l	102000	J/B	85200	J/B	17.95%	1140	J/B	1300	J/B	13.11%
Silver	µg/l	ND(75)	U	ND(75)	U	-	ND(2)	U	3.5	U1/B	NC
Sodium	µg/l	3040000	J2	2980000	J2	1.99%	13100	A	14300	A	8.76%
Vanadium	µg/l	ND(75)	U	ND(75)	U	-	ND(2)	U	4.8	U1/B	NC
Zinc	µg/l	644	J24	628	J24	2.52%	410	A	408	A	0.49%
Molybdenum	µg/l	ND(50)	U	ND(50)	U	-	ND(35)	U	ND(35)	U	-

Table A4
Field Duplicate Water Samples, Relative Percent Difference, Inorganic Compounds (cont.d)
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW4		SW4			SW4		SW4		
Sample Number:		9046E134		9046E135			90504S06		90504R09		
Matrix:		Water		Water			Water		Water		
Sample Date:		11/16/90		11/16/90			12/15/90		12/15/90		
Lab Sample Number:		7148-3		7148-4			7323-48		7323-50		
Test Method/Analyte Name	Units	Value	Q	Value	Q	RPD %	Value	Q	Value	Q	RPD %
CLPCN											
Cyanide	µg/l	ND(50)	U	ND(50)	U	-	ND(50)	U	ND(50)	U	-
CLP-CVAA (Total)											
Mercury	µg/l	ND(0.2)	U/J25	ND(0.2)	U/J5	-	ND(0.2)	U/J5	ND(0.2)	U/J5	ND
CLP-FUAA (Total)											
Antimony	µg/l	3.6	J/B	4.3	J/B	17.72%	NA		NA		NA
Arsenic	µg/l	1.6	U1/BW	2	U1/BW	22.22%	3.3	J/B	3.9	J/B	16.67%
Lead	µg/l	9.9	A/W	6.2	A/W	45.96%	20.7	J3/N	26.4	J3/N	24.20%
Selenium	µg/l	ND(2)	U/W	ND(2)	U/W	-	ND(3)	U/NW	ND(3)	U	-
Thallium	µg/l	ND(2)	U/N	ND(2)	U/W	-	ND(3)	U/NW	ND(3)	U	-
CLP-ICP (Total)											
Aluminum	µg/l	1390	J2/B	943	J2/B	38.32%	363	A	605		50.00%
Antimony	µg/l	NA		NA		NA	ND(14)	U	14.4	U1/B	-
Barium	µg/l	42.5	J24/B	37.8	J24/B	11.71%	13.9	U2/J4	19.4	U2/B	33.03%
Beryllium	µg/l	ND(25)	U	ND(25)	U	-	ND(1)	U	ND(1)	U	-
Cadmium	µg/l	ND(75)	U	ND(75)	U	-	ND(3)	U	ND(3)	U	-
Calcium	µg/l	127000	J24	125000	J24	1.59%	3230	J/B	3390	J/B	4.83%
Chromium	µg/l	915	A	914	A	0.11%	ND(4)	U	7.5	J/B	-
Cobalt	µg/l	ND(75)	U	ND(75)	U	-	ND(4)	U	ND(4)	U	-
Copper	µg/l	122	J2/B	86.2	J2/B	34.39%	84.1	J4	92.2	J4	9.19%
Iron	µg/l	715	J4/B	412	J4/B	53.77%	668	A	1070	A	46.26%
Magnesium	µg/l	375000	J4	365000	J4	2.70%	1700	J/B	1970	J/B	14.71%
Manganese	µg/l	139	J2/B	95.5	J2/B	37.10%	33	A	40.1	A	19.43%

Table A4
Field Duplicate Water Samples, Relative Percent Difference, Inorganic Compounds (cont.d)
Water Quality Investigation of Stormwater Drainage
Hunters Point Annex

Station Number:		SW4		SW4			SW4		SW4		
Sample Number:		9046E134		9046E135			90504S06		90504R09		
Matrix:		Water		Water			Water		Water		
Sample Date:		11/16/90		11/16/90			12/15/90		12/15/90		
Lab Sample Number:		7148-3		7148-4			7323-48		7323-50		
Test Method/Analyte Name	Units	Value	Q	Value	Q	RPD %	Value	Q	Value	Q	RPD %
CLP-ICP (Total) (cont.'d)											
Nickel	µg/l	ND(200)	U	ND(200)	U	-	7.8	J4/B	11.9	J/B	41.62%
Potassium	µg/l	122000	J/B	117000	J/B	4.18%	1140	J/B	1300	J/B	13.11%
Silver	µg/l	ND(75)	U	ND(75)	U	-	ND(2)	U	ND(2)	U	-
Sodium	µg/l	3350000	J24	3340000	J24	0.30%	12600	A	13600	A	7.63%
Vanadium	µg/l	ND(75)	U	ND(75)	U	-	4.2	U1/J4B	4.6	U1/J4B	9.09%
Zinc	µg/l	604	J24	728	J24	18.62%	375	J4/E	370	J4/E	1.34%
Molybdenum	µg/l	ND(50)	U	ND(50)	U	-	ND(35)	U	ND(35)	U	-
						-					
Hexavalent Chromium	mg/l	ND(0.02)	U	ND(0.02)	U	-	ND(0.05)	U	ND(0.05)	U	-
						-					
Sulfate	mg/l	704	A	620	A	12.69%	6.6	U2	6.0	U2	9.52%
Phosphate	mg/l	ND(2)	R3/U	ND(2)	R3/U	-	ND(0.3)	U	ND(0.3)	U	-
Nitrate	mg/l	ND(1)	R3/U	ND(1)	R3/U	-	0.38	A	0.35	A	8.22%
Chloride	mg/l	6260	A	6410	A	2.37%	21	A	22	A	4.65%

Q: Qualifier.
A: Analyte concentration is accurate and valid.
B: Analyte concentration is below CRDL.
E: Serial dilution analysis did not meet the contractual requirements.
J: Concentration is considered to be an estimate.
U: Parameter analyzed but not detected.
U1: Compound is qualified as non-detected due to its occurence in the laboratory blanks
U2: Compound is qualified as non-detected due to its occurence in the field blanks
W: Post-digestion spike for furnace AA analysis is outside control limits.
*: Duplicate analysis not within control limits
J2: Analytical results for this compound are qualified as estimated due to laboratory matrix
J3: Analytical results for this compound are qualified as estimated due to poor spike recoveries.
J4: Analytical results for this compound are qualified as estimated due to ICP-serial dilution relative percent difference quality control criteria exceedances.
J5: Analytical results for this compound are qualified as estimated due to holding time exceedances
N: Spiked sample recovery not within control limits.
R: Rejected sample; holding time exceeded.
R3: Analytical results for this compound are qualified as rejected due to sample holding time exceedance.

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