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**Final Report of
Storm Drain Emergency Response Activities and
Corrective Actions
Sherwin-Williams Facility
Emeryville, California**

**June 30, 1998
3435.00-006**

Prepared for
The Sherwin-Williams Company
101 Prospect Avenue
Cleveland, Ohio 44115

 **Levine-Fricke-Recon**
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

June 30, 1998

3435.00-006

Mr. Mark Johnson
California Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, California 94612

Subject: Report of Storm Drain Emergency Response Activities and Corrective Actions,
Sherwin-Williams Facility, Emeryville, California

Dear Mark:

Enclosed is the subject report, which details the emergency response activities and corrective actions undertaken at the Sherwin-Williams Facility in Emeryville, California. The work was implemented in order to prevent the release of contaminated groundwater to Temescal Creek, which was discovered to be infiltrating the storm-drain system in October 1997. The work was performed on an emergency basis and, as you are aware, Sherwin-Williams and Levine·Fricke·Recon Inc. (LFR) worked closely with the Regional Water Quality Control Board (RWQCB) in making decisions on all actions taken based on results, ongoing work, and data received. This report serves to document, in detail, the actions implemented and sampling data where applicable.

If you have any comments or questions, please call Larry Mencin of Sherwin-Williams at (216) 566-1768 or Michael Marsden or the undersigned of LFR at (510) 652-4500.

Sincerely,

Handwritten signature of Michael Marsden in cursive, followed by the word "for" in a smaller, less distinct script.

Mark D. Knox, P.E.
Principal Engineer

Enclosure

cc: Larry Mencin, Sherwin-Williams
George Stavnes, Sherwin-Williams
Ric Notini, Chiron Corporation
Susan Hugo, Alameda County Health Agency
Barbara Cook, Department of Toxic Substances Control
Ignacio Dayrit, City of Emeryville

Mara Feeney, Mara Feeney & Associates
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CERTIFICATION

All information, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a Levine·Fricke·Recon Inc. (LFR) California Registered Civil Engineer.

Mark D. Knox

6/30/98
Date

Mark D. Knox, P.E.
Principal Engineer
California Registered Civil Engineer (No. 33194)

EXECUTIVE SUMMARY

This report summarizes emergency response activities and the various corrective actions implemented on the storm-drain system at the Sherwin-Williams facility in Emeryville, California ("the Site") during the period October 1, 1997 through June 14, 1998. The activities were conducted following the discovery of elevated concentrations of arsenic present in water in the on-site storm-drain system. The arsenic contamination was discovered while conducting activities for the Regional Water Quality Control Board (RWQCB; the lead agency) under Cleanup and Abatement Order No. 97-047 issued April 7, 1997. The RWQCB was immediately notified after arsenic was discovered in the storm drain. Sherwin-Williams and Levine·Fricke·Recon Inc. (LFR) kept in close contact with the RWQCB throughout the course of the project to review status, and discuss planned actions and sampling results.

As part of the reporting requirements under the National Pollutant Discharge Elimination System (NPDES) storm-water discharge permit for the Site, a water sample was previously collected in June 1997 from the storm-drain system. Arsenic was not detected in the sample at concentrations above the reporting limit of 0.1 milligrams per liter (mg/l; equivalent to parts per million [ppm]).

The October 1997 concentrations of arsenic were unanticipated and discovered in samples collected for disposal of water and sediment that were generated during the hydroflush and video survey activities for the human-made conduit evaluation of the storm-drain system.

The primary objective of the emergency response activities and temporary corrective actions was to promptly abate the drainage of arsenic-affected water into Temescal Creek from the leaking storm-drain system at the Site while more permanent options could be evaluated. The goal, to achieve "acceptable" concentrations of arsenic in the discharge to Temescal Creek, was defined as the NPDES limit (0.025 ppm of arsenic) allowed for the groundwater treatment system (GWTS). This concentration is one-half of the drinking water standard limit and is protective of human health and the environment. The corrective actions included keeping site personnel and the public safe from storm-water response actions during the daily operations of the paint facility.

Following the discovery of arsenic in the storm drain in October 1997, LFR immediately implemented emergency response actions and for several months was on call 24 hours a day to respond to rain events. This report presents the detailed actions taken and data collected. The following briefly summarizes the actions implemented for the storm-drain system.

- Following the discovery of arsenic in the storm drain, the first actions taken were to close the valve at the end of the storm-drain line and insert inflatable plugs in the storm-drain line to prevent discharges to the creek. The actions occurred before the onset of winter rains.

- The source of the groundwater infiltration was initially unknown. Sampling and pipe video surveys were conducted to identify the source. Pending discovery of the source and development of a system to prevent groundwater infiltration into the storm drain, a “first flush” concept was developed as a short-term response to handle the first rain events of the winter season. The plan involved collecting the initial groundwater that was held in the pipes from the storm-drain system in tanks and then allowing the remaining water from a storm event to pass through the storm drain. This water was anticipated to contain low concentrations of arsenic. Other alternatives were also evaluated including lining the storm drains or installing shallow surface trench drains to handle on-site storm water. All of these alternatives were later rejected because they were determined to be ineffective or infeasible to implement rapidly.
- It was determined that the source of arsenic in the storm water was infiltration of the rising groundwater table inside the slurry wall into joints in the piping and catch basins of the storm-drain system. Pending development of a system to lower the groundwater table below the level of the storm-drain system, it was determined that segregating the storm water from the groundwater at the surface was necessary. This was accomplished by installing a multipoint storm-water collection system (“multipoint system”) with steel inserts in the storm-drain manholes and pumping any water from rain events directly to Temescal Creek. The multipoint system was designed and installed during November and December 1997 as a feasible short-term solution to handle the rainwater during the 1997/1998 wet season. The system was fully operational by the beginning of January 1998.
- While the multipoint system was being designed and installed, record rainfall was experienced. This water was initially (for the first storm events in November) handled by collecting water from the “first flush” in tanks and then discharging subsequent rainfall to Temescal Creek. Samples were collected to monitor the storm-water discharges. Although the groundwater containing the higher concentrations of arsenic was collected in tanks, the “first flush” system was not able to reduce the concentration of arsenic in storm water discharges to acceptable levels. On several occasions between November 10 and November 24, 1998, storm water with elevated arsenic concentrations was discharged to the creek. Thereafter, every reasonable effort was made to collect not just the “first flush” but all storm water mixed with groundwater in tanks. Ultimately, over 360,000 gallons of water were collected in tanks, in addition to 470,000 gallons of water that were treated through the on-site GWTS.
- The initial portion of the water collected in the tanks was treated by the GWTS. By January 1998, twenty-one 21,000-gallon tanks were located in the employee parking lot area and an additional tank was located adjacent to the GWTS. The groundwater extraction system (GWES) was shut down in order to devote the treatment system’s capacity to treatment of elevated arsenic groundwater pumped from the storm drain line into the tanks. All accumulated water in the tanks was analyzed on several occasions and by February 1998 all accumulated water in excess of hazardous levels was treated and 60,000 gallons of nonhazardous water were transported to a

permitted off-site facility to allow for emergency storage of water. On February 20, 1998, the extraction system was returned to operation to lower groundwater levels and no more storm water was treated in the on-site treatment system. Sherwin-Williams decided to dispose of the nonhazardous water in the remaining Rain-for-Rent tanks ("RFR tanks") at a permitted off-site facility. Sherwin-Williams notified the RWQCB and the Department of Toxic Substances Control (DTSC) of its intention to dispose of the water off site. The RWQCB immediately approved the request for off-site disposal.

- The DTSC performed an inspection of the multipoint system in March 1998. The DTSC also sampled various catch basins and the treatment system effluent. Based on Sherwin-Williams' request to dispose of stored storm water off site, the DTSC requested to sample the water in the RFR tanks. The tanks were sampled on May 12, 1998 and the DTSC provided approval to dispose of the tanks off site on May 29, 1998 based on its review of the data. All storm water collected in tanks was disposed of off site by June 9, 1998.
- The multipoint groundwater collection and discharge system has operated effectively since the beginning of 1998. From January 2, 1998 until May 12, 1998, discharges from the multipoint system have been below the 0.025 ppm NPDES discharge limit in 32 of 36 discharge samples collected. Four samples were slightly above the NPDES limit but in all cases, except one, samples were not above the drinking water action levels for arsenic (0.050 ppm). No exceedances above the 0.025 ppm NPDES discharge limit have occurred in the 11 samples collected since March 31, 1998 and no further exceedances are expected.

At the same time the emergency actions were implemented, alternative long-term solutions were evaluated. The groundwater infiltration to the storm drain appears to be a recent phenomenon and historic samples obtained for the storm-water NPDES permit for the Site have not indicated a problem. The optimum solution is to expand the groundwater extraction and treatment system (GWETS) to permanently lower water levels within the slurry wall to below the storm-drain pipe. This will be accomplished by increasing the number of extraction wells from three to ten and designing and installing a new treatment system with a capacity of 30 gallons per minute. In order to achieve this goal sooner, Sherwin-Williams submitted an application in 1997 to the East Bay Municipal Utility District (EBMUD) to allow for discharge of treated groundwater to the sanitary sewer at a higher arsenic concentration. This has not been accomplished as the City of Emeryville has not issued an encroachment permit to allow the service connection. The long-term solutions to address the storm-drain issues are discussed in more detail in the May 20, 1998 Evaluation of Interim Remedial Measures (EIRM) Report (LFR 1998), which includes an evaluation of existing IRMs as well as a work plan for future IRMs.

The multipoint system will remain in place until the expansion of the GWETS is complete. The expanded GWETS should be installed and operating by the end of 1998. It is anticipated that the multipoint system will be operated into the next rainy season

and will then be removed after groundwater elevations have been lowered beneath potential conduits.

1.0 INTRODUCTION

Levine·Fricke·Recon Inc. (LFR) has prepared this report on behalf of the Sherwin-Williams Company ("Sherwin-Williams") to summarize emergency response activities and corrective actions implemented on the storm-drain system at the Sherwin-Williams facility in Emeryville, California ("the Site"). The report covers the response and corrective actions that were conducted during the period from October 1, 1997 through June 14, 1998, following the discovery of elevated concentrations of arsenic present in water in the on-site storm-drain system.

The objective of the work was to prevent the release of contaminated water to Temescal Creek. The elevated concentrations of arsenic present in water in the on-site storm drain were unanticipated and discovered in samples collected to profile, for disposal, water and sediment that would be generated during the hydroflush and video survey of the storm-drain system. The hydroflush and video survey of the storm-drain system was a component of the conduit evaluation as required in the Regional Water Quality Control Board (RWQCB) Cleanup and Abatement Order to investigate unknown or undocumented storm-drain lines at the Site. The work was previously proposed in a work plan dated June 2, 1997 (LFR 1997), which was submitted and approved by the RWQCB.

The storm-drain response and corrective action work at the Site has been presented in this report to explain the actions taken in response to developments at the Site. Additionally, the chronological description of events will illustrate the rapidity with which these developments unfolded. The corrective action was developed based on immediate responses to data collected as an iterative process. Throughout the response activities as new data were collected, each action was an attempt to respond to changing conditions and increase the effectiveness of the overall corrective action. Sherwin-Williams and LFR were in continuous contact with the RWQCB to discuss each action, review its anticipated outcome, and reach agreement.

Figure 1 presents a site location map indicating the location of the Site in relation to regional landmarks. Figure 2 presents a site plan showing the storm-drain system, multipoint system, and groundwater treatment system (GWTS) effluent pumping system, including sample locations. Figure 3 presents a site plan showing the layout of the 21 Rain-for-Rent tanks ("RFR tanks") (i.e., portable steel tanks with approximately 21,000 gallons capacity) stored in the employee parking lot and the storm-drain system, including sample locations. Figure 4 shows an isometric view of the prefabricated steel slip lines and a typical on-site catch basin.

Tables 1 through 5 summarize analytical laboratory results of arsenic analyses for samples collected during the reporting period. Samples were analyzed for arsenic using U.S. Environmental Protection Agency (EPA) Methods 206.2 or 7060. The common reporting limit for these arsenic analyses is 0.002 milligrams per liter (mg/l). Analytical

laboratory reports and chain-of-custody forms for these and additional samples are presented in Appendix A.

Because of the often unpredictable nature of this project as a result of weather and the rapid pace that conditions changed, plans were modified and set-up time was extremely limited. Attempts were made to establish standard naming conventions for samples; however, due to the rapidly changing nature of these activities, conventions were not immediately available to field staff who were collecting samples or responding to the latest developments. In addition, developments would often occur so rapidly that the latest project-specific conventions were effectively made obsolete. A summary of relevant naming conventions is presented in each table.

At the same time the emergency actions were implemented, alternative long-term solutions were evaluated. The groundwater infiltration to the storm drain appears to be a recent phenomenon and historic samples obtained for the storm-water National Pollutant Discharge Elimination System (NPDES) permit for the Site have not indicated a problem. The optimum solution is to expand the groundwater extraction and treatment system (GWETS) to permanently lower water levels within the slurry wall to below the storm-drain pipe. This will be accomplished by increasing the number of extraction wells from three to ten and designing and installing a new treatment system with a capacity of 30 gallons per minute. In order to achieve this goal sooner, Sherwin-Williams submitted an application in 1997 to the East Bay Municipal Utility District (EBMUD) to allow for discharge of treated groundwater to the sanitary sewer at a higher arsenic concentration. This has not been accomplished as the City of Emeryville has not issued an encroachment permit to allow the service connection. The long-term solutions to address the storm-drain issues are discussed in more detail in the May 20, 1998 Evaluation of Interim Remedial Measures (EIRM) Report (LFR 1998), which includes an evaluation of existing IRMs as well as a work plan for future IRMs.

The RFR tanks, sample locations, and sample identifications were noted and established in various ways throughout the course of the project. For tracking purposes, each RFR tank was assigned a letter in alphabetical order according to its arrival on the Site. For the purposes of this report, the RFR tanks are referred to as RFR-A, RFR-B, and so on, with RFR-A being the first tank to arrive at the Site. Additionally, sample locations are standardized in this report and presented in the tables along with sample identifications as established in the field.

Times are expressed in military time and included where relevant in the text. Weather conditions are also noted where relevant. Attempts were made to approximate volumes of water discharged to Temescal Creek or the RFR tanks in the employee parking lot from the storm-drain system and multipoint storm-water collection system ("multipoint system"). The multipoint system is designed to collect rain water from 11 individual isolated catch basins at the Site and discharge it to Temescal Creek where possible.

2.0 SUMMARY OF MONTHLY ACTIVITIES

The objective of the emergency response activities and temporary corrective actions was to promptly abate the drainage of arsenic-affected water into Temescal Creek from the leaking storm-drain system at the Site while more permanent options could be evaluated. The following is a summary of significant developments and actions that took place from October 1, 1997 through June 14, 1998.

OCTOBER 1997

- As part of the human-made conduit evaluation pursuant to the June 2, 1997 work plan, a video survey of the on-site and near-site storm-drain system was scheduled to assess the presence of unknown or abandoned lateral storm-drain lines. In preparation for the survey, the lines were hydroflushed. Samples of sediment and water were collected to profile generated waste for later disposal. The laboratory results were received at the same time the scheduled hydroflush and video survey of the storm-drain system were beginning. As part of the hydroflushing, the gate valve of the on-site storm-drain system was closed to prevent water from discharging directly to Temescal Creek. The lab results were reviewed and arsenic was detected in the water sample collected in Catch Basin 1 (CB-1), which is the last access to the storm-drain system on the Site prior to drainage to Temescal Creek. The RWQCB was immediately notified after arsenic was discovered in the storm drain. Response actions were discussed with the RWQCB then and throughout the course of the project.
- The detection of arsenic was unexpected because arsenic was not detected above the 0.1 milligrams per liter (mg/l; equivalent to parts per million [ppm]) reporting limit in a water sample collected from CB-7 in June 1997. The June 1997 sample was collected as part of the annual reporting for the NPDES storm-water discharge permit.
- The on-site storm-drain catch basins were further sampled in an attempt to identify the point at which arsenic was entering the storm-drain system and the GWTS was taken off-line, since the gate valve to the creek was closed.
- A large diesel pump was placed at CB-1 to periodically pump groundwater to the RFR tanks that had been set up in the employee parking lot. An inflatable plug was placed in the storm-drain line, downstream of the gate valve, to ensure the storm drains were isolated from Temescal Creek.
- A video survey of the storm-drain system was undertaken in conjunction with the hydroflush to determine the source of groundwater infiltration into the storm-drain system. Although several small leaks at pipe joints in the storm-drain lines were identified during the video survey, it was not clear how significant these leaks were in contributing to groundwater infiltration. LFR immediately began to evaluate permanent corrective actions including a preliminary evaluation of lining the storm-drain piping.

- A contingency plan for handling accumulated rainwater on site was developed in anticipation of the start of the rainy season and before the corrective actions were implemented. The plan involved pumping the first 20,000 gallons of the storm water and groundwater mixture from the storm-drain lines into RFR tanks during a rain event to flush the lines. After the lines were flushed, the plug would be deflated and pulled from manhole (MH)-CK and the gate valve opened. This "first flush" concept was to remove and collect the affected storm water and groundwater mixture from the lines with the first flush of rain water prior to discharge to the creek. At this point, it was anticipated that the final discharge would primarily consist of run-off and thus would contain low concentrations of arsenic.

NOVEMBER 1997

- The GWTS was brought back on-line in early November. The extraction wells remained off-line. The GWTS was used to treat the storm water and groundwater mixture in the RFR tanks. Discharge of treated water from the GWTS was rerouted from the storm-drain system to temporary aboveground hoses discharging directly to Temescal Creek.
- LFR assessed the feasibility of lining the pipes of the storm-drain system. Several options were reviewed and bids were solicited for two options: 1) slip-lining the drains with a smaller diameter pipe; and 2) applying a resin coating to the pipes to seal any leaks, in situ. An engineering estimate was also prepared for installing a near-surface trench-drain system. These methods were rejected because contractors could not guarantee that the actions would be implemented within the necessary time frame and these alternatives do not address long-term site remediation objectives. The contractors also could not guarantee that these methods would remain effective after a period of 12 months. In addition, expansion of the extraction and treatment system and discharge to the sanitary sewer was evaluated, and this alternative was ultimately selected.
- Anticipated rain events began in November. The capture of the first flush of the storm-drain system in the RFR tanks significantly reduced the amount of arsenic-contaminated water that could have entered Temescal Creek. However, the arsenic concentration in the storm water and groundwater mixture in the storm-drain system was above 0.025 mg/l (the GWTS discharge limit).
- The "first flush" concept was modified in an effort to eliminate or further reduce arsenic concentrations in the storm water discharges. The revised plan was to install two electrical pumps in CB-1, each operating on its own level controls. One pump would continuously pump groundwater that infiltrated into the storm-drain system to the GWTS for treatment. This would keep the storm-drain system dewatered between rainfall events. During small rain events, the first pump would continue to pump a storm water and groundwater mixture into the storage tanks. If water levels increased to near the top of CB-1, the second pump would begin discharge directly to Temescal Creek. At this point, it was anticipated that the arsenic-affected groundwater would have been "flushed" from the line into the RFR tanks so that

the discharging storm water would contain low concentrations of arsenic. As the rain event would taper off, the larger pump would automatically shut down so that infiltrating groundwater would again be pumped into the storage tanks for treatment by the GWTS. In addition, because the "dual pump system" was automated, it was expected to increase efficiency, and response to rain events would be immediate, both minimizing the amount of groundwater that would be discharged to Temescal Creek and eliminating human error. This system would also eliminate the need to remove the plug at MH-CK during heavy rainfall events. After the dual pump system was installed, the diesel pump remained on site for occasional uses, such as transferring water among the RFR tanks or from the RFR tanks to the GWTS, and to serve as a backup pump in case of a power outage.

- The revised system required the installation of 460-volt (V), 3-phase electrical service out to CB-1. In the interim period, before the required 460V service could be installed, LFR continued to use the diesel pump during rain events in conjunction with a 60-gallons per minute (gpm) 110V electrical sump pump already installed in CB-1.
- Rain continued throughout the month of November. Several RFR tanks were delivered to the Site to increase storage capacity. Stored water was continually transferred between tanks and to the GWTS to maximize available storage for future rain events. The GWTS continued to treat water from the RFR tanks.
- Based on the data generated during the discharges to date from the storm-drain system to Temescal Creek, Sherwin-Williams and LFR abandoned the "first flush" concept because elevated concentrations of arsenic-affected storm water occurred on certain occasions. Pending development of a system to lower the groundwater table below the level of the storm-drain system, LFR and Sherwin-Williams began preparations to design and install the temporary multipoint system. The plan was to completely segregate storm water from groundwater. Each catch basin was designed to be isolated with plugs placed in the inlet and outlet pipes of each catch basin, preventing groundwater that infiltrates into the storm-drain system from mixing with water from rain events. Pumps with automatic controls were designed to be installed in each catch basin. The discharge hoses from each pump were manifolded together for discharge to Temescal Creek. During the interim time that the multipoint system was being designed and constructed, the automated dual-pump system was installed and operated.

DECEMBER 1997

- Laboratory results were received via facsimile for the multipoint system discharges to Temescal Creek. While the concentration of arsenic was elevated in the discharge to the creek, the results indicated an improvement in the effectiveness of the system. During a discharge from the storm-drain system to Temescal Creek, the concentration of arsenic in Temescal Creek was not elevated above the San Francisco Bay Basin (Region 2) Water Quality Control Plan four-day average limit.

The four-day average limit is 0.0360 mg/l for arsenic in surface waters with salinity greater than 5 parts per trillion (ppt).

- The multipoint system was installed, and the first 40,000 gallons of storm water were collected through the system into RFR tanks. After the initial flushing of the system, discharge of the multipoint system was transferred to Temescal Creek and samples were collected. The results indicated that the multipoint system was effective in reducing the concentrations of arsenic in storm water discharged to Temescal Creek during rain events, but was not consistently effective at reducing the concentration of arsenic to below 0.025 mg/l (the GWTS discharge limit).
- LFR observed the condition of plugs in the catch basins and checked for obvious leaks. Infiltration past plugs and from other indefinite pathways was observed in some catch basins. The eastern and western discharge hoses, from the multipoint system, which were set up to discharge directly to Temescal Creek, were rerouted to CB-1. CB-1 was set up to pump storm water from the eastern and western discharge hoses to the manifolded RFR tanks in the employee parking lot. Because the catch basins themselves appeared to be leaking, LFR began the design and procurement of prefabricated steel slip liners to be installed in each catch basin (Figure 4). The purpose of the steel slip liners was to form a solid barrier between water entering the catch basin via surface runoff and water entering the catch basin past plugs or from other indefinite pathways.
- Slip liners were installed in the east line (CB-6, CB-10, and CB-11), and the first purge of storm water in the hose with the slip liners in place was captured in the RFR tanks during the next rain event. The western discharge hose remained directed to CB-1 and the RFR tanks. After work was completed for installing the slip liners in the remaining catch basins, storm water collected in the western discharge hose was purged during the next rain event and discharge was rerouted to Temescal Creek.

JANUARY 1998

- In early January 1998, LFR collected several samples during rain events from the multipoint discharge hoses and from within Temescal Creek. Analysis of the multipoint system discharge samples (collected at PD-MP-E, PD-MP-W, PD-CB-9, and CB-9) reported arsenic concentrations were below 0.025 mg/l (the discharge limit for the GWTS). Arsenic was detected in the upstream Temescal Creek (CK) sample CK-U at 0.004 mg/l and not detected above the 0.002 mg/l reporting limit in the downstream Temescal Creek sample CK-DD. These results indicated that the multipoint system with slip liners installed was successfully preventing the discharge of affected groundwater and was only discharging surface water.

FEBRUARY 1998

- The multipoint system continued to operate successfully during storm events and periodic maintenance was performed on the system.

- The GWTS continued treating water from RFR tanks until the groundwater extraction system (GWES) was brought back on line around mid-February. Several nonhazardous tanks of water were disposed of off site and the tanks were cleaned and removed.

MARCH 1998

- The multipoint system continued to operate successfully during storm events and periodic maintenance was performed on the system.
- Disposal options for the 16 remaining RFR tanks (approximately 300,000 gallons) at the Site were evaluated.
- The Department of Toxic Substances Control (DTSC) performed water sampling in the second week of March 1998 of GWTS effluent and standing water in slip liners in CB-1, CB-7, CB-9, and CB-11. LFR collected split samples of the DTSC samples. Analysis of the LFR split samples reported arsenic concentrations of 0.013 mg/l in CB-1, 0.20 mg/l in CB-7, 0.053 mg/l in CB-9, and 0.011 mg/l in CB-11. The samples were collected during a non-rain event; therefore, storm water was not being discharged to Temescal Creek. The water samples collected represented stagnant water in the slip liners.
- LFR extracted the standing water and sediment in the ten catch-basin slip liners. Water in slip liners was pumped to the GWTS for treatment and the sediment stored in a 55-gallon drum. LFR performed visual inspection of the slip liners to verify that groundwater was not infiltrating into the bottom or sides of the slip liners.
- LFR collected a total of 20 water samples from the western, eastern, and roof-drain discharges during numerous rain events in March 1998. Arsenic concentrations ranged from less than the detection limit of 0.005 mg/l to 0.220 mg/l. Arsenic concentrations in 4 of the 20 samples were above 0.025 mg/l (the discharge limit for the GWTS). One set of unfiltered/filtered/duplicate water samples was collected from the western, eastern, and roof discharge lines during a rain event to evaluate whether sediment in the slip liners was a potential source of the elevated arsenic concentrations in the six samples. Arsenic concentrations in the filtered and unfiltered water samples were comparable.
- Based on the elevated arsenic concentration of 0.220 mg/l in the water sample collected after the March 13, 1998 rain event, LFR used 5,000 gallons of clean water to perform a hydroflush of the western discharge line. The clean water was discharged directly to each of the catch basin slip liners along one segment of the western discharge line (CB-1, CB-3, CB-5, CB-7, and CB-8). Approximately 1,500 gallons of clean water were used to hydroflush the second segment of the western discharge line from CB-4 and 500 gallons of water were also used to hydroflush the discharge line from CB-9 to the roof drain on Building 35. Arsenic concentrations were below 0.025 mg/l (the discharge limit for the GWTS) in the water samples collected from the hydroflushed discharge lines. All clean water used to hydroflush

the two segments of the western discharge line and the discharge from CB-9 and roof drains was collected in RFR-Q.

APRIL 1998

- LFR continued to collect water samples of the discharges from the western, eastern, and roof discharge lines during rain events. A total of six water samples was collected during April 1998. Arsenic concentrations in the six samples were below 0.025 mg/l (discharge limit for the GWTS).

MAY 1998

- In the second week of May 1998, the DTSC sampled water stored in the RFR tanks. RFR-R was still located on site; however, it remained empty after water in the tank was transported to the Seaport Facility in February 1998. All of the remaining sixteen 21,000-gallon tanks that contained water were sampled. LFR collected split samples of the DTSC samples. DTSC samples and LFR split samples were analyzed for the California Code of Regulations (CCR) 17 metals; laboratory analytical results are presented in Table 2. Analytical results indicate that all samples contained arsenic concentrations less than hazardous levels. Laboratory results for metals other than arsenic were either below or slightly above detection limits.
- Permission to dispose of the water held in the 16 RFR tanks to an approved off-site treatment facility was given by the DTSC in a letter from Charlene Williams dated May 29, 1998.

JUNE 1998

- The water stored in the RFR tanks was transported off site for treatment and disposal. Under the supervision of LFR, various trucking companies transported a total of 306,317 gallons of nonhazardous water to the Seaport Environmental treatment facility in Redwood City, California.
- Under the supervision of LFR, Clearwater Environmental Management Inc., steam-cleaned the interior and exterior of the RFR tanks and the parking lot surface. These cleaning activities generated approximately 7,500 gallons of rinse water. Rinse water was transported to Seaport Environmental for treatment and disposal. Sediments (grit from the tank bottom) were collected in three 55-gallon drums. Following acceptance of the waste profile, the three drums will be disposed of off site at an appropriate disposal facility in July 1998.
- All RFR tanks located in the parking lot were removed.

3.0 CHRONOLOGY

W 1 Oct 97 On Wednesday, October 1, 1997, LFR collected water and sediment

through
Su 12 Oct 97

samples out of CB-1 for preliminary characterization of waste to be generated during the upcoming hydroflush and video survey of the storm-drain system. Samples were submitted for various analyses, including CCR 17 metals. Due to problems with the Andco system (i.e., a system for treating arsenic in groundwater), no water had been discharged to the storm-drain system from the GWTS since September 19, 1997.

M 13 Oct 97
through
Su 19 Oct 97

A subcontractor performed a hydroflush and video survey of on-site storm drains. Waste consisting of water and fine-grained sediment generated during on-site hydroflush activities was taken off site for disposal. During the hydroflush, the gate valve was closed to the creek to prevent discharge from the activities.

As part of the annual reporting requirements under the NPDES storm-water discharge permit, a water sample was previously collected in June 1997 from the storm-drain system. Arsenic was not detected in the sample at concentrations above the reporting limit of 0.1 mg/l. Results of laboratory analyses performed on samples collected on October 1, 1997 (with standard two-week laboratory turnaround time) were received by LFR via facsimile on Friday, October 17, 1997. See Table 1 for a summary of these results. Arsenic was detected at 41 mg/l in the water sample. Other metals detected in the water sample were present at low concentrations. The elevated concentrations of arsenic in the water sample collected in CB-1 were unexpected and the RWQCB was immediately notified of the results. Arsenic was detected at a concentration of 13 milligrams per kilogram (mg/kg) in the sediment sample collected from CB-1, which is near the Site background concentration of 13 mg/kg for arsenic established under the Horton Street soil excavation project.

In response to receipt of this unanticipated data, LFR collected water and sediment samples from several on-site and off-site catch basins and manholes. A final effluent sample was also collected from the GWTS at W-E1. Water samples were analyzed for total (unfiltered) and filtered arsenic to investigate the source of arsenic in the water. At this point, it was unknown whether the arsenic was from sediment that has built up in the storm-drain system, from groundwater infiltrating storm-drain pipe and/or catch basins, or the GWTS discharge. Samples were submitted to the lab for rush analyses. Discharge from the GWTS to the storm drain was halted. The GWETS was taken off line. The gate valve to Temescal Creek was closed.

M 20 Oct 97
through
Su 26 Oct 97

A subcontractor performed a hydroflush and partial video survey of on-site storm drains. Waste generated during on-site hydroflush activities was stored on site in a Baker Tank. The water in this tank was later treated in the GWTS and the sediment removed and disposed off site (see week of

December 1, 1997).

On Tuesday, October 21, 1997, the Sherwin-Williams gate valve remained closed (the Sherwin-Williams gate valve is located between CB-1 and MH-CK). On Wednesday, October 22, 1997, an inflatable plug was installed in MH-CK to prevent water, observed to be leaking through the gate valve, from entering Temescal Creek.

On Thursday, October 23, 1997, final results of laboratory analyses performed on samples collected on October 17, 1997 were received by LFR via facsimile (see Table 1 for a summary of these results.) Analyses performed on unfiltered and filtered samples showed elevated arsenic results, indicating that the source of arsenic was not sediment in the storm drain, but rather dissolved arsenic from another source. Arsenic was detected in unfiltered samples at concentrations ranging from 0.020 mg/l in MH-1A located near the south-central portion of the Site to 19 mg/l in CB-5. Arsenic was detected in the unfiltered W-E1 sample at 0.030 mg/l (less than 0.010 mg/l in the filtered W-E1 sample), verifying that the GWTS effluent discharge was not the source of the arsenic concentrations detected in storm-drain samples. The results of these analyses were discussed with the RWQCB and the RWQCB was updated on what further actions were anticipated.

At this point, it was suspected that the source of arsenic in the water was from infiltration. LFR and Sherwin-Williams discussed possible corrective actions including meeting contractors at the Site to evaluate pipe lining systems.

On Friday, October 24, 1997, a 21,000-gallon-capacity portable steel tank (RFR-A) was delivered to the Site and placed in the employee parking lot. An RFR diesel pump set was also delivered to the Site in anticipation of the start of the rainy season and in order to collect groundwater that would potentially infiltrate the storm-drain line. The diesel pump was placed adjacent to CB-1. Hoses were arranged to pump water out of CB-1 into RFR-A. Although the diesel pump was capable of a flow rate of approximately 800 gpm at full throttle, LFR generally operated the pump at approximately 400 gpm.

**M 27 Oct 97
through
Su 2 Nov 97**

LFR pumped groundwater from CB-1 to RFR-A to prepare for the video survey to evaluate the integrity of the storm-drain line. A subcontractor completed the video survey of the on-site storm drains. Although several leaks at pipe joints in the storm-drain lines were identified during the video survey, it was not clear how significant these leaks were in contributing to groundwater infiltration. The site conditions and weather continued to be dry, sunny, clear, and warm.

A contingency plan was developed (and discussed with the RWQCB) in anticipation of rain before any corrective actions could be implemented. The plan involved pumping the first 20,000 gallons of groundwater from the storm-drain lines into RFR tanks during a rain event to flush the lines. According to the plan, after the lines were flushed, the plug would be deflated and pulled from manhole MH-CK and the gate valve opened. This "first flush" concept was expected to remove the affected groundwater from the lines with the first flush of rain water. Discharge to the creek thereafter was anticipated to be primarily unaffected storm water with little or no contaminants present. With the plug inserted and inflated at MH-CK, the on-site portion of the storm-drain line was capable of holding approximately 40,000 gallons of storm-water runoff before ponded water around CB-1 would flow off site and into Temescal Creek. It was calculated that a 1-inch per hour storm would generate 150,000 gallons.

In anticipation of possible corrective actions, specifications and a drawing were submitted to three contractors requesting bids for lining the storm-drain system.

**M 3 Nov 97
through
Su 9 Nov 97**

On Tuesday, November 4, 1997, the GWTS was brought back on-line. The extraction wells remained off line. Water remaining in available tanks at the GWTS (the Tri-Bio system) was treated to increase possible storage capacity. A temporary "GWTS effluent hose system" was installed so that discharge of treated effluent went directly from the effluent pumping tank at the GWTS to Temescal Creek, thus bypassing the storm drain. The RWQCB was notified that the GWTS had resumed discharging treated water to Temescal Creek under the NPDES permit.

LFR continued with evaluation of the feasibility of lining the pipes of the storm-drain system. Several options were reviewed and bids were received for two options: 1) slip-lining the drains with a smaller diameter pipe; and 2) applying a resin coating to the pipes to seal any leaks, in place.

The GWTS was off line between September 19, 1996 and November 4, 1998 to resolve problems associated with the Andco system performance. On Thursday, November 6, 1997, LFR collected samples from RFR-A. The samples were collected to provide data on the arsenic concentration in RFR-A to optimize operational parameters at the GWTS. Samples were typically collected from the RFR tanks by dropping a disposable bailer into the tank through a hatch at the top of the tank and allowing it to sink to the bottom before pulling it out of the tank. Samples were collected in a plastic bottle and preserved with nitric acid. All samples collected from the RFR tanks were collected in this manner. To confirm the GWTS was treating water to meet the NPDES limit of 0.025 mg/l, a sample of the

Andco System effluent (after electrochemical co-precipitation treatment, prior to carbon treatment) was also collected at the GWTS from sample point W-ANDEFF. The laboratory detected arsenic at 59 mg/l in RFR-A. The W-ANDEFF sample results (0.014 mg/l) were below NPDES discharge limits.

Arsenic data for samples collected in the RFR tanks are summarized in Table 2.

RFR-B was delivered to the Site and placed next to RFR-A in the employee parking lot. RFR-C was delivered to the Site and placed adjacent to (east of) the GWTS. Water from hydroflush activities was pumped from the Baker Tank to the GWTS for treatment.

Transfer of water from the RFR tanks in the employee parking lot to RFR-C (next to GWTS) began on Saturday, November 8, 1997. A 110V sump pump with built-in level controls was used as the transfer pump.

RFR-C was used as the source of influent water for the GWTS beginning on Sunday, November 9, 1997. The extraction wells remained off-line.

Equipment was acquired and stored at the GWTS to shorten response times during future rain events.

**M 10 Nov 97
through
Su 16 Nov 97**

On Monday morning, November 10, 1997, LFR responded to the first significant rain event of the wet season. The diesel pump was used to pump the storm water and groundwater mixture from CB-1 into the storage tanks until RFR-A and RFR-B were both full. The first purge volume was estimated to be approximately 30,000 gallons. After the first purge of the storm-drain line was captured in the RFR tanks, the Sherwin-Williams gate valve was opened, the plug in MH-CK was deflated and removed, and water from the storm-drain system was allowed to discharge directly to Temescal Creek. This was the first discharge to the creek since the plug was installed in MH-CK on October 22, 1997, and it was anticipated that the concentrations of arsenic would be low in the remaining storm water discharged to the creek. The RWQCB was notified of the discharge following the "first flush" to confirm that Sherwin-Williams was implementing the contingency plan previously discussed.

On Monday, November 10, 1997, LFR collected three samples from CB-1. These samples were submitted to the laboratory for volatile organic compounds (VOCs) by EPA Method 8240, semivolatile organic compounds (SVOCs) by EPA Method 8270, and CCR 17 metals analyses. LFR also collected one sample from RFR-B for arsenic analysis. At the time these samples were collected from CB-1, it was raining and water from the storm-drain system was discharging directly to Temescal Creek.

A W-ANDEFF sample was also collected on this day to monitor the effectiveness of the GWTS also discharging directly to Temescal Creek via the temporary aboveground GWTS discharge system.

Rain showers continued throughout Tuesday, November 11, 1997, so the plug was not yet reinserted in the final downstream manhole (MH-CK). By Wednesday, November 12, 1997, the weather forecast predicted no rain in the immediate future, so LFR inserted and inflated the plug in MH-CK.

On Wednesday, November 12, 1997, the analytical results were received from the laboratory via facsimile for samples collected on November 10, 1997. Arsenic was detected in CB-1 at 10 mg/l. RFR-B contained 20 mg/l of arsenic. Since RFR-B contained twice as much arsenic per volume as the storm-drain sample collected from CB-1, the capture of the first purge of the storm-drain system significantly reduced the amount of arsenic that could have entered Temescal Creek. Nevertheless, the storm water and groundwater mixture in the storm-drain system was above the NPDES discharge limit (for the GWTS) and further corrective actions were required.

Table 3 presents a summary of arsenic data, representing samples collected from the storm-drain system and discharges from the storm-drain system to Temescal Creek before December 7, 1997.

Other metals detected in CB-1 samples collected on November 10, 1997, were barium (0.09 mg/l), copper (0.02 mg/l), vanadium (0.006 mg/l), and zinc (0.31 mg/l). VOCs detected in CB-1 were ethylbenzene (0.21 mg/l), toluene (0.46 mg/l), and total xylenes (0.69 mg/l). The only SVOC detected in CB-1 was naphthalene (0.011 mg/l). The W-ANDEFF sample resulted in 0.014 mg/l of arsenic, again indicating that the GWTS continued to meet NPDES discharge standards.

Sherwin-Williams and LFR continued to communicate with the RWQCB about sampling data, project status, and proposed actions. RWQCB staff visited the Site on November 12, 1997 to inspect the corrective actions being taken.

The "first flush" concept was modified in a further effort to eliminate arsenic discharges. LFR installed two electrical pumps in CB-1, each operating on its own level controls. One pump continuously pumped groundwater that infiltrated into the storm-drain system, estimated qualitatively to be approximately 3,000 gallons per day (gpd), to the GWTS for treatment. During rain events, the first pump continued to pump a mixture of storm water and groundwater into the storage tanks. If water levels increased to near the top of CB-1, the second pump began to

discharge directly to Temescal Creek. This was necessary to avoid overcharging the storm drain and inundating roadways, active railroad lines, and other areas where the water would pose a physical hazard to workers and facility operations.

As the rain event tapered off, the larger pump automatically shut down so that infiltrating groundwater would again be pumped into the storage tanks for treatment by the GWTS. In addition, because the "dual pump system" would be automated, it was expected to increase efficiency, and response to rain events would be immediate. It was anticipated that discharge to Temescal Creek would have low levels of arsenic because only discharges of primarily storm water would occur. This system would eliminate the need to remove the plug at MH-CK. Also, the electrical pumps would replace the diesel pump, which potentially could produce excessive noise that might have affected residents in the neighborhood. After the dual pump system was installed, the diesel pump remained on site for occasional uses, such as transferring water among the RFR tanks or from the RFR tanks to the GWTS, and served as a backup pump in case of a power outage.

The revised system required the installation of a 460V, 3-phase electrical service out to CB-1. In the interim period, before the required 460V service could be installed, LFR continued to use the diesel pump (intended for manual operation when flow exceeded the smaller pump capacity) during rain events in conjunction with a 60-gpm 110V electrical sump pump already installed in CB-1.

On Thursday morning, November 13, 1997, a rain event took place. LFR pumped water out of CB-1 to Temescal Creek using the diesel pump. Samples were collected from CB-1 for arsenic analysis. The discharge to the creek occurred after clean surface storm water had entered the line and exceeded the smaller pump capacity. Results were received the following day. Arsenic was detected in CB-1 at 14 mg/l and this data was discussed with the RWQCB.

At this point, three 60-gpm 110V pumps were in use in the northern area of the Site (in CB-1 pumping the storm water and groundwater mixture to RFR-A, in RFR-A transferring water to RFR-B, and in RFR-B transferring water to RFR-C located near the GWTS). Low-voltage supply problems at the temporary 110V outlet at CB-1 were causing thermal overload shutdowns of the 60-gpm 110V pumps. To overcome this problem, only one 60-gpm 110V pump was operated at any given time. LFR transferred water from RFR-A to RFR-B and from RFR-B to RFR-C during the day, and pumped infiltrating groundwater from CB-1 to the RFR-A overnight in preparation for rain events.

A rain event took place on Friday morning, November 14, 1997. The 60-gpm 110V pump was pumping infiltrating groundwater from CB-1 to RFR-A overnight. LFR used the diesel pump to pump storm water out of CB-1 to Temescal Creek. LFR collected a sample at PD-CB-1 and submitted it to the laboratory for arsenic analysis (see Table 3 for results later received).

LFR staff were on call 24 hours per day to respond to rain events from Friday night, November 14, 1997, to Monday afternoon, November 17, 1997, if necessary, to pump water from the storm-drain system to Temescal Creek and to sample CB-1. LFR prepared procedures for the pumping and sampling of storm water.

Saturday morning, November 15, 1997, LFR used the diesel pump to pump water from CB-1 to Temescal Creek during a rain event. The 60-gpm 110V pump was pumping infiltrating groundwater from CB-1 to RFR-A overnight. LFR collected a water sample from CB-1 for arsenic analysis (see Table 3 for results later received). The rain stopped and the weather turned sunny at approximately noon, so the diesel pump was no longer used to pump water from CB-1 to Temescal Creek. The 60-gpm 110V pump was left on to pump groundwater infiltrating into the storm-drain system from CB-1 to RFR-A.

A rain event took place on Sunday morning, November 16, 1997. Rain had subsided slightly before the arrival of LFR staff, and the 60-gpm 110V pump was pumping a mixture of storm water and groundwater from CB-1 to RFR-A overnight. LFR pumped the accumulated water in CB-1 to Temescal Creek with the diesel pump before more groundwater was allowed to infiltrate into the storm-drain system following the rain event that had just occurred. LFR collected a sample from CB-1 for arsenic analysis (see Table 3 for results later received). Approximately 16,000 gallons of water were pumped from CB-1 to Temescal Creek. LFR also collected samples from RFR-A and RFR-C to optimize operational parameters at the GWTS. No rain was forecasted for the immediate future. The 60-gpm 110V pump was left on to pump groundwater infiltrating into the storm-drain system from CB-1 to RFR-A.

At this point, it became apparent that it would not be feasible to quickly implement the slip lining of the storm-drain lines. The contractors submitting bids could not guarantee that slip-lining the drains with a smaller diameter pipe or applying an in-situ resin coating to the pipes would still be effective after a 12-month time period. Therefore, LFR began to evaluate two other alternatives. One alternative was to install surface trench drains at the Site to replace the storm-water system. The second alternative was to evaluate temporarily plugging off the catch

basins and pumping storm water in aboveground hose. This second alternative also involved a longer-term solution of expanding the GWETS to lower groundwater levels. LFR also met with EBMUD to explore the possibility of discharging treated groundwater to the sanitary sewer system at a higher arsenic concentration discharge limit than was allowed under the general NPDES limits established for direct discharge to Temescal Creek. Discharge to the sanitary sewer would allow for operating the GWTS at a higher flow rate.

M 17 Nov 97
through
Su 23 Nov 97

LFR obtained an electrical contractor to install 460V service to the area in the vicinity of CB-1 and install equipment for the dual pump system. The electrical pumps, controls, and level floats were delivered to the Site on Thursday, November 20, 1997. The larger of the two pumps was capable of 1,000 gpm. The smaller of the two pumps was capable of 40 gpm.

RFR-D and RFR-E were delivered to the site on Tuesday, November 18, 1997. LFR redirected the diesel pump discharge hose from direct discharge to Temescal Creek to the RFR tanks in the employee parking lot because 42,000 gallons of new capacity were available and a storm was forecast that evening.

LFR responded to the rain event the evening of Tuesday, November 18, 1997. RFR-D and RFR-E were full prior to the end of the rain event from the collection of the storm water and groundwater mixture at rates of up to 40 gpm. Discharge to the creek was determined to be a viable alternative because the line had received a major "flush" and LFR and Sherwin-Williams expected that arsenic concentrations would be low in the discharge. LFR redirected the diesel pump discharge hose to discharge directly from CB-1 to Temescal Creek and collected a sample from the storm drain (see Table 3 for results later received).

Laboratory results were received for samples collected by LFR during the recent rain events where discharge to the creek was the only option. Arsenic was detected in the sample collected from PD-CB-1 on November 14, 1997, at 0.81 mg/l. Arsenic was detected in the CB-1 samples collected on November 15, November 16, and November 18, 1997, at concentrations of 0.99 mg/l, 12 mg/l, and 6.1 mg/l, respectively.

RFR-F was delivered to the Site on Thursday, November 20, 1997. Four RFR tanks in the employee parking lot were manifolded together. LFR used the diesel pump to pump groundwater from CB-1 to the RFR tanks.

On Friday morning, November 21, 1997, approximately 6,000 gallons of capacity remained in RFR-C and about 24,000 gallons of capacity remained in the four tanks manifolded together in the employee parking lot. LFR used the diesel pump to transfer approximately 11,500 gallons

from CB-1 to the RFR tanks. Light showers arrived in the afternoon; however, no discharge to the creek occurred since the RFR tanks had adequate capacity.

At this point, in time the GWTS continued operating to treat water that was collected in the RFR tanks. The extraction wells remained off since the GWTS capacity was maximized from the mixture of storm water and groundwater being pumped from the storm-drain line.

The diesel pump was overheating, so RFR replaced it on Friday, November 21, 1997, with a new diesel pump. The discharge line from the new diesel pump was still directed to the RFR tanks in the employee parking lot. The 60-gpm 110V pump was left on to pump groundwater infiltrating into the storm-drain system from CB-1 to the RFR tanks.

LFR staff were on call and were prepared to respond to rain events from Friday night, November 21, 1997, to Wednesday, November 26, 1997, 24 hours per day, and, if necessary, to pump water from the storm-drain system to Temescal Creek and to collect samples. LFR revised procedures for the pumping and sampling of storm water.

Due to head losses in the transfer hose, the 60-gpm 110V pump transferring water from the RFR tanks in the employee parking lot to RFR-C (next to the GWTS) was unable to transfer enough water to keep up with the GWTS flow rate, estimated at 5 gpm. On Sunday, November 23, 1997, LFR began transferring water from the RFR tanks in the employee parking lot to RFR-C using an air-operated double diaphragm pump. LFR only operated the double diaphragm pump during the day to prevent RFR-C from overfilling.

On Sunday, November 23, 1997, the capacity remaining in the five tanks in the employee parking lot was approximately 25,000 gallons. The capacity in RFR-C was approximately 15,000 gallons. Approximately 7,500 gallons of groundwater, which had infiltrated into the storm-drain system, were pumped from CB-1 to the RFR tanks in the employee parking lot with the diesel pump.

**M 24 Nov 97
through
Su 30 Nov 97**

Sherwin-Williams and LFR abandoned the "first flush" concept in handling storm water at the Site based on the data generated during the recent discharges (see Table 3) from the storm-drain system to Temescal Creek. In addition, after evaluating all of the short- and long-term options, it was concluded that the long-term solution to the storm-drain problems would be to proceed with expanding the GWETS and to lower groundwater levels. LFR began to evaluate options to expand the treatment system on an accelerated schedule. As a short-term solution, LFR and Sherwin-Williams prepared a design and installed the temporary

was manifolded to RFR-L and RFR-M.

Just after midnight on Sunday, November 30, 1997, LFR responded to a rain event. The dual pump system was operational, and the water level in CB-1 was approximately one foot below ground surface. No discharge to the creek occurred and the storm water and groundwater mixture was pumped to RFR tanks.

By Sunday morning, November 30, 1997, the sky was overcast, but there was no precipitation. The weather forecast predicted clear skies with no rain for the next few days. The subcontractor installing the multipoint system shut the large electrical pump off because RFR-E, RFR-L, and RFR-M were full. The hose was removed from RFR-M at 08:00 and connected to RFR-G, which was filled within half an hour. The hoses were then rearranged to provide capacity to collect water for the next rain event. LFR manifolded together RFR-E, RFR-N, RFR-P, and RFR-S. LFR continued to inspect tanks, hoses, and valves of the RFR tanks in the employee parking lot for leaks.

In the afternoon of Sunday, November 30, 1997, LFR added additional hoses to manifold RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S together. RFR-G, RFR-I, RFR-J, RFR-K, RFR-L, RFR-M, and RFR-O were full. RFR-G and RFR-O were being used as transfer tanks. Approximately 36,000 gallons of capacity were left in the six manifolded tanks. RFR-A had about 2,000 gallons of capacity. RFR-H had about 4,000 gallons of capacity. At the end of the day, LFR left the dual pump system operational with the discharge hoses from both of the pumps in CB-1 directed to RFR-E.

**M 1 Dec 97
through
Su 7 Dec 97**

Laboratory results were received via facsimile for the Temescal Creek and pump discharge samples collected on Wednesday, November 26, 1997. Results could not be obtained earlier due to the Thanksgiving holiday weekend. Temescal Creek and pump discharge samples collected at approximately 01:10 resulted in arsenic concentrations of 0.012 mg/l and 0.17 mg/l, respectively. Temescal Creek and pump discharge samples collected at 08:00 resulted in arsenic concentrations of 0.013 mg/l and 0.17 mg/l, respectively. These results were discussed with the RWQCB. These results indicated an improvement in the effectiveness of the system. These results also indicated that, after the initial flush of the storm-drain system was captured in the RFR tanks, the pump discharge concentration of arsenic remained fairly constant throughout the seven-hour duration of the rain event represented in these two sampling events. During this seven-hour period of direct discharge from the storm-drain system to Temescal Creek, the concentration of arsenic detected in Temescal Creek approximately 20 feet downstream from the storm-drain outfall was not elevated above the San Francisco Bay Basin (Region 2) Water Quality

Control Plan four-day average limit of 0.0360 mg/l for arsenic in surface waters with salinity greater than 5 ppt.

Laboratory results were also received for samples collected from the RFR tanks on November 26, 1997. These data are summarized in Table 2. By regulatory definition, RFR-B (11 mg/l), RFR-C (9.5 mg/l), RFR-G (8.1 mg/l), and RFR-I (6.9 mg/l) contained hazardous waste (greater than 5 mg/l arsenic concentration in water), although these tanks were not yet full. Water in these tanks was later transferred to RFR-C and treated using the GWTS. It is important to note that all of the tanks in the employee parking lot (hazardous or otherwise) were within a secondary containment area since the employee parking lot slopes to a central catch basin, which was plugged off to prevent discharge to storm-drain piping and the creek.

EBMUD issued an approval (dated December 1, 1997) to discharge treated groundwater to the sanitary sewer; however, subsequent discussions and meetings with the City of Emeryville indicated the City would not grant the encroachment permit to connect to the sanitary sewer manhole on Sherwin Avenue.

Subcontractors continued the installation of the multipoint system throughout the week. Water in the tanks continued to be pumped to the GWTS for treatment while the multipoint system was being installed. LFR and the subcontractors were on site throughout the week checking for leaks, installing plugs in the storm-drain pipes entering and leaving the catch basins, performing electrical work, testing pumps and other equipment, and carrying out other miscellaneous tasks.

On Monday, December 1, 1997, there was visible infiltration of groundwater into CB-7. LFR collected one sample from this catch basin for laboratory analysis. At the time this sample was collected, no plugs had been installed in the catch basin. Results received the following day indicated an arsenic concentration in CB-7 of 60 mg/l. A subcontractor was procured to pressure-grout the concrete catch basins in an attempt to stop the leaks.

On Wednesday morning, December 3, 1997, LFR used the larger pump in CB-1 to pump as much groundwater as possible from the storm-drain system (approximately 45,000 gallons) to the RFR tanks in order to enable catch basin inspection, pressure grouting, and installation of sewer plugs in all the pipes leading to or from the catch basins. On Thursday morning, December 4, 1997, LFR pumped approximately 20,000 gallons from CB-1 to RFR-E. A steady leak was discovered at CB-2, so CB-2 was isolated from the multipoint system. A smaller leak was also detected in CB-5. Pressure-grouting was performed on Wednesday and Thursday,

December 3 and 4, 1997. Water generated during pressure grouting activities was pumped to the GWTS for treatment. LFR steam-cleaned some of the catch basins where leaks were repaired on Thursday, December 4, 1997.

Sherwin-Williams and LFR continued to communicate data results and project status and discuss proposed actions with the RWQCB. RWQCB staff visited the Site on December 4, 1997 to inspect the corrective actions being conducted at the Site.

RFR-T and RFR-U were delivered to the site on Wednesday, December 3, 1997, and manifolded in with RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S for a total additional storage capacity of approximately 80,000 gallons out of a total on-site capacity of 85,000 gallons.

Light rain began on the afternoon of Wednesday, December 3, 1997. Approximately 3/8-inch fell by the next morning. Showers continued until Friday morning, December 5, 1997. At the end of each day, LFR left the dual pump system operational with the discharge hoses from both of the pumps in CB-1 directed to RFR-E.

LFR used two sump pumps to transfer water from the eight manifolded RFR tanks and fill the remaining capacity in RFR-A, RFR-B, and RFR-F on Wednesday and Thursday, December 3 and 4, 1997. RFR-G, the transfer tank, was temporarily manifolded together with RFR-E to supply it with water to be transferred to the GWTS on Thursday, December 4, 1997.

RFR-V was delivered to the Site on Friday, December 5, 1997, and manifolded together with RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, RFR-S, RFR-T, and RFR-U for a total available storage capacity of approximately 87,000 gallons.

A subcontractor removed liquid and sediment generated during hydroflush activities from the Baker Tank (generated in October 1997) on Thursday, December 4, 1997.

LFR prepared a Water Storage Tank/Hose/Pump Visual Inspection Log to formalize the ongoing inspection process. Wednesday, December 3, 1997 was the first day that a formal log was used during a visual inspection; however, the visual inspections were occurring previously and were recorded in LFR staff notes. The formal logs were to be filled out every time a visual inspection was conducted on the RFR tanks, hoses, valves, fittings, and pumps located in the employee parking lot. The inspections also included the areas around RFR-C and the transfer hose between the RFR tanks in the employee parking lot and RFR-C. Visual inspections

would be completed at least once per business day as long as RFR tanks containing hazardous waste levels for arsenic remained on site..

LFR also prepared a Plug Inflation Inspection Log to be filled out every time the air pressure in the plugs in each catch basin was checked and corrected. Plugs would be checked and filled with air as necessary at least once per week as long as the multipoint system was operational.

The multipoint system was operational by Sunday, December 7, 1997 (Figure 3). The eastern discharge hose (from CB-6, CB-10, and CB-11) and the western discharge hose (from CB-3, CB-4, CB-5, CB-7, and CB-8) were both temporarily directed into CB-1. The discharge hose from CB-1 was temporarily directed into RFR-E to capture the first purge of the multipoint system during the next rain event. The discharge hose from CB-9 was directed up the northern side of Sherwin-Williams Building 35 where it discharged into a roof drain catchment.

Rain fell on Sunday, December 7, 1997. LFR collected samples during the rain event from PD-MP-E and PD-MP-W. LFR collected the samples in the morning and again in the afternoon. At this time, no water was being discharged from the multipoint system to Temescal Creek because approximately 40,000 gallons of capacity remained in the nine manifolded tanks that morning. Heavy rain occurred off and on that day and by early evening, the nine manifolded RFR tanks in the employee parking lot were full. The weather forecast predicted more rain, so LFR changed the routing of the eastern and western discharge hoses to discharge directly to Temescal Creek in anticipation of a rain event overnight.

**M 8 Dec 97
through
Su 14 Dec 97**

On the morning of Monday, December 8, 1997, LFR collected samples during a rain event from PD-MP-E and PD-MP-W. At the time these samples were collected, both hoses were set up to discharge rain water from the multipoint system to Temescal Creek. There were no significant rain events for the remainder of the week.

Laboratory results were received for samples collected by LFR on Sunday and Monday, December 7 and 8, 1997 (see Table 4 which presents a summary of arsenic data, representing samples collected on or after December 7, 1997 for the multipoint system). Arsenic was detected in the east discharge line (PD-MP-E) samples, in chronological order, at 0.014 mg/l, 0.012 mg/l, and 0.13 mg/l. Arsenic was detected in the west discharge line (PD-MP-W) samples, in chronological order, at 0.020 mg/l, 0.11 mg/l, and 1.0 mg/l. These results indicated that the multipoint system was effective in reducing the concentration of arsenic discharged to Temescal Creek during rain events, but was not consistently effective at reducing the concentration of arsenic to below the NPDES discharge limit

of 0.025 mg/l (for the GWTS effluent).

On Tuesday, December 9, 1997, LFR observed the condition of plugs in the catch basins and checked for obvious leaks. To identify the sources of infiltration into some of the catch basins, water was pumped out of CB-6, CB-7, CB-8, and CB-9 into a trailer-mounted tank, which was transferred to RFR-C at the end of the day. Infiltration around the plugs and from other indefinite pathways was observed in some catch basins. The eastern and western discharge hoses, from the multipoint system, which were set up to discharge directly to Temescal Creek, were rerouted to CB-1. CB-1 was set up to pump to the manifolded RFR tanks in the employee parking lot.

Despite the presence of plugs in all the pipes around the catch basins, it was apparent the catch basins themselves were also leaking in some locations that were not always obvious based on visual inspection. LFR began the design and procurement of prefabricated steel slip liners to be installed in each catch basin to form a solid barrier between water entering the catch basin via surface runoff and water entering the catch basin past plugs or from other indefinite pathways (Figure 4).

LFR collected samples from water in CB-8 and CB-9. At the time these samples were collected, water was leaking into CB-8 through the electrical conduit and into CB-9 past the downstream plug. Arsenic was detected in standing water in CB-8 at 0.014 mg/l and in standing water in CB-9 at 1.3 mg/l.

A leak was detected in the transfer hose between the RFR tanks in the employee parking lot and RFR-C in an inaccessible place where the hose crosses under the tracks through two plugs from CB-6 to CB-7. The transfer hose was temporarily set up across the on-site railroad spur with a quick disconnect. The transfer hose was disconnected each day at approximately 15:00 hours.

LFR transferred water among the various tanks in the employee parking lot from manifolded tanks to non-manifolded tanks to top them off and maximize the available capacity. By Friday afternoon, December 12, 1997, most of the RFR tanks in the employee parking lot, RFR-A, RFR-B, RFR-D, RFR-F, RFR-G, RFR-H, RFR-I, RFR-J, RFR-K, RFR-L, RFR-M, RFR-T, RFR-U, and RFR-V, were completely full. Tanks RFR-T, RFR-U, and RFR-V were isolated from the other manifolded tanks because RFR-T was shorter than the others were. RFR-T was completely full. RFR-V had a leak in the tank wall approximately 2 feet from the top of the tank, so it was filled only to this level. RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S still remained manifolded together, allowing for a remaining capacity of 85,000 gallons. The contractor began the

installation of slip liners in the catch basins on Friday, December 12, 1997. It rained slightly over the weekend; however, no water was discharged to Temescal Creek.

**M 15 Dec 97
through
Su 21 Dec 97**

There were no significant rain events this week.

The contractor continued the installation of the slip liners in the catch basins. Slip liners were installed in all of the catch basins by Thursday, December 18, 1997.

On Monday, December 15, 1997, the eastern discharge hose was rerouted to discharge directly from the multipoint system to Temescal Creek. Slip liners had been installed in CB-6, CB-10, and CB-11, and the first purge of the hose with the slip liners in place was captured during the rain event over the weekend in order to flush the line of any residual contamination. The western discharge hose remained directed to CB-1, which was being pumped to RFR-E. By Tuesday, December 16, 1997, approximately 43,000 gallons of capacity were available in manifolded tanks RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S for the next rain event.

A fact sheet, dated December 18, 1997, describing the storm-water emergency response actions, was distributed to all interested regulatory agencies, the City, local residents and local businesses. The fact sheet is enclosed in Appendix C.

A sample was collected from RFR-C (tank located next to GWTS) on Thursday, December 18, 1997 to assist LFR technicians in setting the GWTS operating parameters. Arsenic was detected at a concentration of 0.81 mg/l.

**M 22 Dec 97
through
Su 28 Dec 97**

There were no significant rain events this week.

On Tuesday, December 23, 1997, LFR reconnected the double diaphragm pump being used to transfer water from the RFR tanks in the employee parking lot to RFR-C to instead transfer water via the conveyance hose going from extraction well EX-2 directly to the influent equalization tank at the GWTS. The air supply line to EX-2 was now used as the source of air for the double diaphragm pump. Valves in this air supply line were opened and closed automatically according to the water level in the influent equalization tank. RFR-O was used as the transfer tank.

**M 29 Dec 97
through
Su 4 Jan 98**

On Friday, January 2, 1998, LFR collected samples (see Table 4 for results later received) during a rain event from PD-MP-E (discharging to Temescal Creek), and from PD-CB-9 (discharging to roof drain catchment). At the time, the water from the west line was being collected in tanks. The rain subsided by mid-afternoon. LFR also collected a split

sample from PD-MP-E to satisfy Sherwin-Williams' general NPDES storm-water discharge permit requirements. This composite sample, analyzed by a subcontracting laboratory for Sherwin-Williams, resulted in a non-detectable arsenic concentration (<0.01 mg/l).

It was necessary to purge the western multipoint system line of contaminants prior to directing the hose to Temescal Creek. As a conservative estimate, LFR proposed to run 30,000 gallons of storm water through the western multipoint system to achieve the desired cleaning of the line. In preparation for the 30,000-gallon first purge of the western multipoint system discharge hose with the steel slip liners in place, 8,000 gallons of water were pumped from manifolded tanks RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S into RFR-O by late afternoon on Friday, January 2, 1998. The western discharge hose from the multipoint system remained set up to discharge to CB-1 and was not discharging to the creek. The pump discharge from CB-1 was directed into RFR-E.

During a rain event, approximately 15,000 gallons of the 30,000-gallon first purge of the western multipoint system discharge hose was pumped into manifolded tanks RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S by early afternoon on Saturday, January 3, 1998. Late Saturday night, January 3, 1998, a rain event was taking place and an additional 15,000 gallons (30,000 gallons total since January 3, 1998) had been pumped from the western multipoint system discharge hose to the manifolded RFR tanks in the employee parking lot. The western discharge hose was then rerouted and reconnected with the discharge hose from CB-1 to discharge directly from the multipoint system to Temescal Creek.

On Sunday, January 4, 1998, shortly after midnight, LFR collected samples (see Table 4 for results later received) during the rain event from CB-9, PD-MP-E, PD-MP-W, CB-SP (the catch basin located outside the north property boundary and adjacent to the Southern Pacific railroad tracks), CK-U (on the surface of Temescal Creek approximately 20 feet upstream from the eastern multipoint system discharge point), and CK-DD (on the surface of Temescal Creek approximately 150 feet downstream from the western multipoint system discharge point). Temescal Creek samples were collected midway between the walls of the channel. LFR also collected a composite sample from PD-MP-E and PD-MP-W to satisfy Sherwin-Williams' general NPDES storm-water discharge permit requirements. This composite sample, analyzed by a subcontracting laboratory for Sherwin-Williams, resulted in a non-detectable arsenic concentration (<0.01 mg/l).

At this point, LFR was continuing with evaluation of expansion of the existing GWETS as well as meeting with vendors to review alternative

treatment system technologies. LFR also met with City of Emeryville staff to follow up on previous phone conversations regarding Sherwin-Williams' request to connect to the sanitary sewer on Sherwin Avenue.

**M 5 Jan 98
through
Su 11 Jan 98**

Laboratory results were received for the samples collected on January 2 and 4, 1998. Analysis of multipoint system discharge samples (collected at PD-MP-E, PD-MP-W, PD-CB-9, and CB-9) reported arsenic concentrations ranging from below the detection limit of 0.002 mg/l to 0.008 mg/l. Arsenic was detected in CB-SP at 0.018 mg/l, in the upstream Temescal Creek sample (CK-U) at 0.004 mg/l and not detected above the 0.002 mg/l detection limit in the downstream Temescal Creek sample (CK-DD). These results indicated that the multipoint system with slip liners installed was successfully isolating the multipoint storm-water discharge system from the underlying groundwater and only discharging surface storm water. The data also indicated that the previous flush of the multipoint system hoses had purged residual contaminants from the lines.

Rain continued on Friday afternoon, January 9, 1998. The multipoint system was now fully operational with slip liners installed. LFR and subcontractors continued to perform periodic maintenance on mechanical and electrical components of the multipoint system as necessary for the remainder of the rainy season while the multipoint system remained operational.

A consultative workgroup meeting was held at the RWQCB offices on January 8, 1998. A variety of issues was discussed at this meeting including an update on the status of the emergency storm-water correction actions.

**M 12 Jan 98
through
Su 18 Jan 98**

A rain event took place overnight on Monday, January 12, 1998.

On Wednesday, January 14, 1998, the contractor that installed the multipoint system responded immediately to perform repairs on an overhead power line that supplied power to three-quarters of the multipoint system. A passing truck had knocked down the line. A rain event was taking place. The power was restored to the multipoint system in the afternoon. No water was discharged to the creek during the system power outage.

On Wednesday, January 14, 1998, approximately 25,000 gallons of storage capacity remained in six manifolded RFR tanks in the employee parking lot (RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S). In order to assume secondary containment and to keep the isolated area from overflowing, the discharge hose from CB-4 was routed to discharge to the manifolded RFR tanks via RFR-S.

On Wednesday, January 14, 1998, RFR-C, the transfer tank adjacent to the GWTS was emptied. The water was pumped to the GWTS with a sump pump.

**M 19 Jan 98
through
Su 25 Jan 98**

A rain event took place overnight on Monday, January 19, 1998.

On Wednesday, January 21, 1998, approximately 48,000 gallons of storage capacity remained in six manifolded RFR tanks in the employee parking lot (RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S). Surface runoff from the employee parking lot was still being captured at CB-4 and pumped to RFR tanks. LFR collected an RFR-Q sample in order to determine the concentration of arsenic being pumped to the GWTS.

On Friday, January 23, 1998, LFR modified the frequency of inspections. The condition of the plugs around manhole MH-CK was now checked three times per week (Monday, Wednesday, and Friday). The air pressure in all of the plugs was now checked once per week (Friday), and the daily tank area inspections would continue to be performed daily as long as the multipoint system was operational and RFR tanks remained in the employee parking lot.

**M 26 Jan 98
through
Su 1 Feb 98**

A rain event took place on Monday, January 26, 1998.

LFR collected water samples for disposal profiling from all of the RFR tanks in the employee parking lot that had been filled completely. No samples were collected from RFR-O because the water in this tank was being transferred to the GWTS for treatment. Also, no samples were collected from RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S because they were manifolded together with RFR-E (first transfer tank after CB-1). RFR-E was sampled because it was the first of the six manifolded tanks to receive water from the multipoint system; therefore, it was assumed that this tank would have the highest arsenic concentrations of the six manifolded RFR tanks. RFR-C was not sampled because it was empty. Laboratory results for the samples collected from the RFR tanks are presented in Table 2. Arsenic was detected in RFR-D at 7.8 mg/l and RFR-F at 8.0 mg/l. All of the other RFR tanks contained water with arsenic below the hazardous waste level of 5 mg/l. LFR evaluated the feasibility of off-site disposal of water from the RFR tanks in the employee parking lot.

On Wednesday, January 28, 1998, manifolded tanks RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S contained a total of 90,000 gallons of nonhazardous water.

A rain event took place overnight on Friday, January 30, 1998.

In preparation for the next rain event, water in RFR-K was pumped to RFR-O, the transfer tank. On Friday, January 30, 1998, the discharge hose from the pump in CB-4 was rerouted (from RFR-S) to discharge to RFR-K.

**M 2 Feb 98
through
Su 8 Feb 98**

Rain events occurred every day this week.

On Monday, February 2, 1998, LFR collected a sample from RFR-K after it was filled with storm water from CB-4. As discussed above, CB-4 is the catch basin located in the employee parking lot that serves as secondary containment for the temporary RFR tank storage area. At this point, CB-4 continued to discharge to one of the RFR tanks during storm events. The discharge hose from the pump in CB-4 was redirected to RFR-O. Arsenic was detected in RFR-K at 0.040 mg/l. It was assumed that the concentration in RFR-K was close to the January 26, 1998, RFR-K concentration of 0.042 mg/l because of residual arsenic on the interior tank surfaces.

On Monday, February 2, 1998, approximately 30,000 gallons of storage capacity remained in the six manifolded tanks (RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S). Transfer tank RFR-O had approximately 5,000 gallons of storage capacity remaining.

LFR closed all valves at the six manifolded tanks in the employee parking lot (RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S) on Tuesday, February 3, 1998, to isolate each tank. LFR collected water samples from the six tanks. Laboratory results for the samples collected from the RFR tanks are presented in Table 2. None of the six RFR tanks contained water above hazardous waste concentrations. Only RFR-Q contained water that was below the NPDES discharge limit (for the GWTS) for arsenic at 0.018 mg/l.

On Wednesday, February 4, 1998, LFR prepared a memorandum outlining procedures and actions to take during inspections of the RFR tanks, hoses, tank valves, hose connections, and pumps in the employee parking lot. LFR temporarily implemented overnight hourly inspections during rain events to be performed as long as RFR tanks containing hazardous waste (see Table 2) remained in the employee parking lot. LFR then reconnected the discharge hose from CB-4 with the western discharge hose from the multipoint system to discharge water directly to Temescal Creek. The CB-4 discharge was rerouted because the employee parking lot (secondary containment area for the RFR tanks) would be inspected frequently overnight during rain events.

periodic maintenance of the pumps and electrical junction boxes.

**M 18 May 98
through
Su 24 May 98**

Only storm drain and tank routine inspection activities occurred this week. No samples were collected during this week.

**M 25 May 98
through
Su 31 May 98**

LFR received a letter from the DTSC with a copy of the analytical data from the samples of water collected from the 16 RFR tanks. The samples contained metals at concentrations less than hazardous levels (see Table 2 for analytical results). Permission to dispose of the water to the permitted Seaport Environmental Treatment Facility in Redwood City, California was granted by the DTSC in a letter from Charlene Williams dated May 29, 1998.

**M 1 June 98
through
Su 7 June 98**

On Tuesday, June 2, 1998, the transport of water stored in RFR tanks commenced. Under the supervision of an LFR representative, water was transported to the Seaport Environmental Treatment Facility. Water was pumped into 6,300-gallon-capacity tanker trucks. A dry brake valve was used to ensure no water spillage. Approximately nine loads of water were transported to Seaport each day. Water transport was completed on Tuesday, June 9, 1998. A total of 306,317 gallons were transported to the Seaport facility.

Under the supervision of LFR, Clearwater Environmental Management Inc., steam-cleaned the interior and exterior of the 17 remaining RFR tanks and the employee parking lot surface. Cleaning activities began on June 3, 1998 and were completed on June 12, 1998. Approximately 7,500 gallons of rinse water were generated by the cleaning activities. Rinse water was transported to Seaport Environmental for treatment and disposal. Sediments (grit from the tank bottom) were collected in 55-gallon drums. A total of three drums with sediment sludge were produced from the cleaning activities. As a precautionary measure, the three drums were labeled as hazardous waste and stored in the secondary containment area of the treatment system. In conjunction with the scheduled transport of nonhazardous drums containing sludge generated from the GWTS filter press, the three drums will be transported and disposed of at US Ecology in Beatty, Nevada in July 1998.

**M 8 June 98
through
Su 14 June 98**

Water transportation and tank-cleaning activities were completed during the week of June 8 under the supervision of an LFR representative. All RFR tanks in the Sherwin-Williams employee parking lot were removed.

4.0 REFERENCES

Levine·Fricke·Recon Inc. (LFR). 1997. Work Plan for Site Investigation. The Sherwin-Williams Facility, 1450 Sherwin Avenue, Emeryville, California. June 2.

_____. 1998. Evaluation of Interim Remedial Measures (EIRM) and Work Plan for Implementation of Future Interim Remedial Measures (Draft Final). The Sherwin-Williams Facility, 1450 Sherwin Avenue, Emeryville, California. May 20.

Table 1
Summary of Arsenic Data
Original Samples
Sherwin-Williams Storm Drain Emergency Response
Concentrations in milligrams per liter (mg/L)

Date Collected	Sample Location	Sample ID	Total Arsenic	Filtered Arsenic
1-Oct-97	CB-1	6215-CB06-LM	41	not analyzed
17-Oct-97	MH-1A	MH1A-1017-LM	0.02	0.02
17-Oct-97	CB-6	NB4-1017-LM	1.1	1.2
17-Oct-97	CB-7	NB5-1017-LM	0.99	0.73
17-Oct-97	CB-2	NB1-1017-LM	9.2	7.2
17-Oct-97	CB-3	NB2-1017-LM	8.5	8.8
17-Oct-97	NM-6	NM6-1017-LM	1.1	0.93
17-Oct-97	CB-5	NB03-1017-LM	19	17
17-Oct-97	MH-2A	MH2A-1017-LM	0.51	0.49
17-Oct-97	CB-1	CB06-1017-LM	14	6.0
17-Oct-97	W-E1	SYS-1017-LM	0.03	<0.01
17-Oct-97	MH-CK	MHCK-1017-LM	7.7	6.3

Data entered by KLF, Proofed by GAB.

Notes:

CB = catch basin

MH = manhole

NM = manhole on newer portion of the storm drain system

MH-CK = final manhole before discharge to Temescal Creek located downstream from the Sherwin-Williams gate valve

W-E1 = groundwater treatment system final effluent

Table 2
Summary of Arsenic Data
Rain-for-Rent Tanks
Sherwin-Williams Storm Drain Emergency Response
Concentrations in milligrams per liter (mg/L)

Tank	Date	Sample ID	Arsenic	Notes
RFR-A	24-Oct-97	--	--	Tank delivered to Site
	6-Nov-97	R4RTANK	59.0	Water transferred to GWTS
	16-Nov-97	R4R-A	8.6	--
	26-Jan-98	WS-TNK-A-1	1.6	--
	12-May-98	WS-TNK-A-0512	0.059	LFR split sample
	12-May-98	SW51298A	0.070	DTSC sample
	9-Jun-98	--	-	Water transported offsite to Seaport
	11-Jun-98	--	-	Tank cleaned and removed from Site
RFR-B	6-Nov-97	--	-	Tank delivered to Site
	10-Nov-97	R4R-B	20.0	Water transferred to GWTS
	26-Nov-97	R4R-B	11.0	Water transferred to GWTS
	26-Jan-98	WS-TNK-B-1	0.670	--
	12-May-98	WS-TNK-B-0512	0.110	LFR split sample
	12-May-98	SW51298B	0.090	DTSC sample
	9-Jun-98	--	-	Water transported offsite to Seaport
	12-Jun-98	--	-	Tank cleaned and removed from Site
RFR-C	7-Nov-97	--	-	Tank delivered to Site: transfer tank to GWTS
	16-Nov-97	R4R-C	25.0	Water transferred to GWTS
	26-Nov-97	R4R-C	9.5	Water transferred to GWTS
	18-Dec-97	R4R-C	0.810	Water transferred to GWTS
	12-May-98	--	-	Tank empty (used during treatability studies)
RFR-D	17-Nov-97	--	-	Tank delivered to Site
	26-Jan-98	WS-TNK-D-1	7.8	Water transferred to GWTS
	24-Feb-98	--	-	Refilled with water from RFR-S (0.089 ppm)
	12-May-98	WS-TNK-D-0512	0.025	LFR split sample
	12-May-98	SW51298D	0.030	DTSC sample
	9-Jun-98	--	-	Water transported offsite to Seaport
	12-Jun-98	--	-	Tank cleaned and removed from Site
RFR-E	18-Nov-97	--	-	Tank delivered to Site. First manifolded tank after CB-1
	26-Nov-97	R4R-E	0.960	--
	26-Jan-98	WS-TNK-E-1	0.140	--
	3-Feb-98	WS-TNK-E-2	0.490	--
	12-May-98	WS-TNK-E-0512	0.110	LFR split sample
	12-May-98	SW51298E	0.110	DTSC sample
	9-Jun-98	--	-	Water transported offsite to Seaport
	12-Jun-98	--	-	Tank cleaned and removed from Site

A rain event took place overnight on Friday, January 30, 1998.

In preparation for the next rain event, water in RFR-K was pumped to RFR-O, the transfer tank. On Friday, January 30, 1998, the discharge hose from the pump in CB-4 was rerouted (from RFR-S) to discharge to RFR-K.

**M 2 Feb 98
through
Su 8 Feb 98**

Rain events occurred every day this week.

On Monday, February 2, 1998, LFR collected a sample from RFR-K after it was filled with storm water from CB-4. As discussed above, CB-4 is the catch basin located in the employee parking lot that serves as secondary containment for the temporary RFR tank storage area. At this point, CB-4 continued to discharge to one of the RFR tanks during storm events. The discharge hose from the pump in CB-4 was redirected to RFR-O. Arsenic was detected in RFR-K at 0.040 mg/l. It was assumed that the concentration in RFR-K was close to the January 26, 1998, RFR-K concentration of 0.042 mg/l because of residual arsenic on the interior tank surfaces.

On Monday, February 2, 1998, approximately 30,000 gallons of storage capacity remained in the six manifolded tanks (RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S). Transfer tank RFR-O had approximately 5,000 gallons of storage capacity remaining.

LFR closed all valves at the six manifolded tanks in the employee parking lot (RFR-E, RFR-N, RFR-P, RFR-Q, RFR-R, and RFR-S) on Tuesday, February 3, 1998, to isolate each tank. LFR collected water samples from the six tanks. Laboratory results for the samples collected from the RFR tanks are presented in Table 2. None of the six RFR tanks contained water above hazardous waste concentrations. Only RFR-Q contained water that was below the NPDES discharge limit (for the GWTS) for arsenic at 0.018 mg/l.

On Wednesday, February 4, 1998, LFR prepared a memorandum outlining procedures and actions to take during inspections of the RFR tanks, hoses, tank valves, hose connections, and pumps in the employee parking lot. LFR temporarily implemented overnight hourly inspections during rain events to be performed as long as RFR tanks containing hazardous waste (see Table 2) remained in the employee parking lot. LFR then reconnected the discharge hose from CB-4 with the western discharge hose from the multipoint system to discharge water directly to Temescal Creek. The CB-4 discharge was rerouted because the employee parking lot (secondary containment area for the RFR tanks) would be inspected frequently overnight during rain events.

LFR pumped water from RFR-F to the GWTS for treatment via the double diaphragm pump.

On Sunday, February 8, 1998, in order to allow room for emergency storage of water, a subcontractor removed approximately 60,000 gallons of nonhazardous water from RFR-R, RFR-T, and RFR-U with a vacuum truck and transported it off site for disposal. The water was disposed at the Seaport Environmental facility in Redwood City, California.

A Consultative Workgroup meeting was held on February 4, 1998 and the status of the storm-water corrective actions were discussed. In addition, Sherwin-Williams, LFR, the RWQCB, and the City met to further discuss Sherwin-Williams' request to discharge to the sanitary sewer.

LFR began to evaluate alternatives for disposal of the nonhazardous water in the RFR tanks because the treatment system was needed in the near future to begin treating groundwater from the on-site extraction wells. Up to this point, the extraction wells were still off line and the treatment system was treating storm water and groundwater mixture from the remaining tanks (Tanks D and F) with hazardous levels of arsenic.

**M 9 Feb 98
through
Su 15 Feb 98**

There were no significant rain events this week.

LFR pumped water from RFR-F to the GWTS for treatment via the double diaphragm pump.

A subcontractor cleaned RFR-R, RFR-T, and RFR-U. Approximately 700 gallons of rinsate water generated during the tank cleaning was pumped into RFR-C to be treated at a later date at the GWTS. Sediments (grit from the tank bottoms) generated during the tank cleaning were stored in a drum inside the secondary containment area in the treatment system and labeled as nonhazardous waste.

**M 16 Feb 98
through
Su 22 Feb 98**

A rain event took place on Thursday, February 19, 1998.

A subcontractor cleaned RFR-D and RFR-F. Approximately 800 gallons of filtered rinsate water generated during the tank cleaning were pumped to the GWTS for treatment. All waste soil generated during the tank cleaning was placed in a drum labeled as hazardous waste and stored inside the secondary containment area in the treatment system.

LFR brought extraction wells EX-1 and EX-2 back on line on Friday, February 20, 1998. Water from the RFR tanks in the employee parking lot was no longer used as the source for the GWTS because at this point in time all the storm water and groundwater mixture in the RFR tanks above

hazardous levels had been treated in the GWTS.

**M 23 Feb 98
through
Su 1 Mar 98**

A rain event took place on Monday, February 23, 1998.

On Monday, February 23, 1998, at the concurrence of the RWQCB, water was discharged from RFR-Q (arsenic concentration of 0.018 mg/l) to Temescal Creek. This discharge began on Friday, February 20, 1998. RFR-Q was allowed to drain by gravity into CB-4, then pumped automatically to Temescal Creek.

A rain event took place on Wednesday, February 25, 1998.

On Wednesday, February 25, 1998, the transfer of water from RFR-S to RFR-D and from RFR-V to RFR-F was completed. This transfer of water began on February 20, 1998.

A subcontractor cleaned RFR-C, RFR-S, and RFR-V. Approximately 1,625 gallons of nonhazardous rinsate water generated during the tank cleaning was transported off site for disposal. To be conservative, all waste soil generated during the tank cleaning was placed in a drum labeled as hazardous waste and stored in the secondary containment area in the treatment system.

**M 2 Mar 98
through
Su 8 Mar 98**

On Monday, March 2, 1998, LFR manifolded RFR-Q and RFR-R together. No other tanks were manifolded together. RFR-S, RFR-T, RFR-U, and RFR-V were removed from the site because these tanks were empty and had been cleaned.

A rain event took place on Thursday, March 5, 1998.

**M 9 Mar 98
through
Su 15 Mar 98**

On Thursday, March 12, 1998, LFR collected a sample from RFR-O. RFR-O was not previously sampled because it was used as a transfer tank to the GWTS. Later that afternoon, a rain event took place.

On March 11, 1998, DTSC performed an inspection of the aboveground storm-water collection system at the Site. DTSC collected water samples from extraction wells EX-1 and EX-2, and from the GWTS effluent at the post-carbon sample port and the treatment system discharge hose at Temescal Creek. LFR collected split-samples of all DTSC samples. The arsenic concentrations from EX-1 and EX-2 were 22.0 and 0.32 mg/l, respectively, in the LFR split samples. Arsenic was not detected in the GWTS effluent water samples (LFR results) collected at the post-carbon sample port or at the discharge hose at Temescal Creek.

DTSC and LFR personnel performed a visual inspection of the aboveground storm-water collection system and the employee parking lot

area where the RFR tanks were located. During the visual inspection, LFR personnel discussed historical information about the corrective actions performed at the Site and answered DTSC questions on the operation of the aboveground storm-water system. Following the visual inspection, DTSC personnel requested that samples be collected from the standing water in CB-1, CB-7, CB-9, and CB-11. LFR collected split samples of all DTSC samples. No rain events occurred between March 8 and March 12, 1998, and no water was discharged to Temescal Creek between this time period. The results of the split samples received on March 12, 1998 reported arsenic concentrations of 0.013 mg/l in CB-1, 0.20 mg/l in CB-7, 0.053 mg/l in CB-9, and 0.011 mg/l in CB-11 in the split samples collected by LFR (see Table 5). The water samples collected from CB-7 and CB-9 had high turbidity from sand and sediment transported in surface runoff. These results were discussed with the RWQCB. In a May 14, 1998 report, DTSC reported no violation was observed for surpassing Title 22 hazardous waste levels for heavy metals.

LFR received analytical results for the waste soil (grit from the tank bottoms) collected during the previous cleaning of the RFR tanks. The total arsenic concentration in the waste soil was 3,600 mg/kg; therefore, exceeding the total threshold limit concentration (TTLIC) limit of 500 mg/kg. The remaining metal concentrations were less than their respective TTLIC limits. Based on the total arsenic concentrations, a toxicity characteristic leaching procedure (TCLP) analysis was requested for the waste soil sample (see further discussions for weeks ending April 12, May 10, and May 15, 1998).

A brief rain event took place on the early morning of Friday, March 13, 1998. LFR collected water samples from the west (MP-PD-W) and east (MP-PD-E) discharge lines. The water samples were collected approximately one hour after the end of the rain event and discharge from the east and west discharge lines to the creek had ceased. The water samples were collected by lifting the discharge lines and collecting water remaining in the west and east discharge lines following the short-duration rain event.

Following the morning rain event on March 13, 1998, LFR collected grab water samples from all ten catch basin slip liners in order to verify the March 11, 1998 arsenic results and evaluate whether arsenic was present in the remaining slip liners not sampled by DTSC on March 11, 1998. After the water samples were collected, the standing water in each of the catch-basin slip liners was extracted using a centrifugal pump. A total of 250 gallons of water were extracted from the catch basins and pumped to the GWTS for treatment. A considerable amount of sediment and debris was observed in the catch basins, typical of catch basins present in street

or parking lot areas.

**M 16 Mar 98
through Su 22
Mar 98**

On March 16 1998, LFR removed all the sediment and debris in the catch basins using a wet/dry vacuum. The depth of sediment accumulated in the catch-basin slip liners from surface runoff ranged from 0.5 inches to 3 inches. The sediment on the ground surface surrounding the slip liners was also removed. Approximately 20 gallons of sediment and debris were removed from the slip liners and the ground surface. All catch basins were left clean and dry.

On March 16, 1998 LFR received analytical results of the water samples collected from the west and east discharge lines following the March 13, 1998, rain event (see Table 5). Arsenic was detected at a concentration of 0.22 mg/l in the sample collected from the west discharge line (MP-PD-W). Arsenic was not detected in the sample collected from the east discharge line (MP-PD-E).

On March 17, 1998, LFR visually inspected the catch basin slip liners. The slip liners contained no water or sediment, indicating that groundwater was not infiltrating into the bottom or sides of the slip liners.

On March 19, 1998, LFR used approximately 5,000 gallons (three line volumes) of clean water to flush the West discharge line (PD-MP-W). The clean water was discharged directly into the catch basin slip liners and then pumped through the West discharge line and then directly into RFR-Q. No water used during the line flush was allowed to be discharged to Temescal Creek. The water used for the hydroflushing was obtained from a fire hydrant outside the Sherwin-Williams facility and transported to each catch basin in a 500-gallon-capacity "bubble" trailer. To ensure a complete flushing, the West discharge line was broken into two segments: line A and line B. For the flushing of line A, approximately 2,500 gallons of clean water were discharged from the "bubble" directly into the catch basins along the line (CB-1, CB-3, CB-5, CB-7, and CB-8). The remaining 2,500 gallons of clean water were then discharged directly into CB-7 and CB-8, which were located at the beginning of the line. A water sample was collected from line as it discharged to RFR-Q after most of the 2,500 gallons of water were pumped through the entire length of the line A segment. For the flushing of the line B segment, approximately 1,500 gallons of clean water were discharged into CB-4 and all water collected in RFR-Q. A water sample was collected from the line B segment as it discharged to RFR-Q.

On March 20, 1998, LFR flushed the discharge line leading from CB-9 to the Building 35 roof drain using 500 gallons of clean water (approximately three line volumes). The 500 gallons of clean water were discharged into the catch basin, pumped through the line, stored in the

“bubble,” and then transferred to RFR-Q. A water sample was collected at the end of discharge line prior to storing the water in the “bubble.”

LFR received analytical results for the samples collected from the March 19 and 20 hydroflush samples (see Table 5). Arsenic was detected at a concentration of 0.018 mg/l in the sample collected from line A (western segment of the MP-PD-W discharge line containing CB-1, CB-3, CB-5, CB-7, and CB-8). Arsenic was not detected above the 0.005 mg/l detection limit in samples collected from line B (eastern segment of the MP-PD-W discharge line containing catch basin 4) and the CB-9 discharge line (MP-CB-9). The results indicated that residual arsenic remaining on the inside walls of the flexible discharge lines was not likely the source of the arsenic detected in several catch basin and discharge samples. These results were discussed with the RWQCB.

A rain event took place on March 21, 1998. In order to monitor storm-water discharges, LFR collected water samples during the rain event from the west, east, and roof discharge lines (PD-MP-W, PD-MP-E, PD-RD). Since the east, west, and roof discharge lines were purged with clean water on March 20, LFR anticipated the arsenic concentrations in the discharge would be less than the NPDES discharge limit (for the GWTS) of 0.025 mg/l. Therefore, storm water from the west and east discharge lines was discharged to Temescal Creek and storm water from CB-9 was discharged to the roof drains on Building 35.

LFR received analytical results from the water samples collected from the catch basins on March 13, 1998 (see Table 5). Arsenic concentrations in the March 13 samples ranged from non detect (<0.005 mg/l) in CB-6 to 0.053 mg/l in CB-8.

**M 23 Mar 98
through Su 29
Mar 98**

LFR received analytical results for the samples collected from the discharge lines during the March 21, 1998, rain event (see Table 5). Arsenic was detected at concentrations less than the NPDES discharge limit (for the GWTS) of 0.025 mg/l in the samples collected from the West and roof discharge lines. Arsenic was detected at a concentration of 0.034 mg/l in the water collected from the east discharge line. LFR did not anticipate the detection of arsenic at a concentration of 0.034 mg/l; therefore, LFR decided that a water sample would be collected from each storm-water discharge line during rain events.

A rain event took place on March 23, 1998. During the rain event, LFR collected water samples from the west, east, and roof discharge lines (PD-MP-W, PD-MP-E, PD-RD). Storm water from the west and east discharge lines was discharged to Temescal Creek and storm water from CB-9 was discharged to the roof drains on Building 35.

LFR received analytical results for the samples collected from the discharge lines during the March 23, 1998, rain event (see Table 5). Arsenic was detected at concentrations below the NPDES discharge limit (for the GWTS) of 0.025 mg/l in the samples collected from the east and roof lines (PD-MP-E and PD-RD). Arsenic was detected at a concentration of 0.028 mg/l in the sample from the west line (PD-MP-W).

A rain event took place on March 27, 1998. During the rain event, LFR collected water samples from the west, east, and roof discharge lines (PD-MP-W, PD-MP-E, PD-RD). Filtered, unfiltered, and duplicate samples were collected during this sampling event. The duplicate samples were submitted to a separate laboratory from the filtered and unfiltered samples. Storm water from the west and east discharge lines was discharged to Temescal Creek and storm water from CB-9 was discharged to the roof drains on Building 35.

**M 30 Mar 98
through Su 5
Apr 98**

LFR collected a soil sample for waste profiling from the 55-gallon drum containing the sediment and debris that was vacuumed out the catch basin slip liners on March 16, 1998.

LFR received analytical results for the water samples collected from the discharge lines during the March 27, 1998, rain event (see Table 5). Arsenic was detected in the unfiltered, filtered, and duplicate samples from the west discharge line at concentrations of 0.020 mg/l, 0.017 mg/l, and 0.020 mg/l, respectively. Arsenic was not detected in the filtered and unfiltered samples collected from the east and roof discharge lines. Arsenic was detected at a concentration of 0.006 mg/l in the duplicate sample collected from the roof discharge line and was not detected in the duplicate sample collected from the east discharge line. All arsenic concentrations were below the NPDES discharge limit (for the GWTS) of 0.025 mg/l.

A rain event took place on March 31, 1998. During the rain event, LFR collected a water sample from the west, east, and roof discharge lines (PD-MP-W, PD-MP-E, PD-RD). Storm water from the west and east discharge lines was discharged to Temescal Creek and storm water from CB-9 was discharged to the roof drains on Building 35.

LFR received analytical results for the samples collected from the discharge lines during the March 31, 1998, rain event (see Table 5). Samples collected from the east and roof lines contained arsenic in concentrations below the NPDES discharge limit (for the GWTS) of 0.025 mg/l. The sample collected from the west line contained arsenic at a concentration of 0.039 mg/l.

A rain event took place on April 2, 1998. During the rain event, LFR collected a water sample from the west, east, and roof discharge lines (PD-MP-W, PD-MP-E, PD-RD). Storm water from the west and east discharge lines was discharged to Temescal Creek and storm water from CB-9 was discharged to the roof drains on Building 35.

LFR received analytical results for the samples collected from the discharge lines during the April 2, 1998, rain event (see Table 5). All three samples collected from the discharge contained arsenic at concentrations below the NPDES discharge limit (for the GWTS) of 0.025 mg/l.

**M 6 Apr 98
through Su 12
Apr 98**

LFR received analytical results for the TCLP sample from the waste soil (grit from the tank bottoms) generated from the cleaning of the RFR tanks. The arsenic concentration in the TCLP sample was 5.9 mg/l; therefore, exceeding the TCLP limit of 5 mg/l (see further discussions for weeks ending May 10 and May 15, 1998).

LFR collected a sample of the geotextile filter fabric used to filter the waste soil from the rinsate generated during the cleaning of the RFR tanks.

A rain event took place on April 9, 1998. During the rain event, LFR collected a water sample from the west, east, and roof discharge lines (PD-MP-W, PD-MP-E, PD-RD). Storm water from the west and east discharge lines was discharged to Temescal Creek and storm water from CB-9 was discharged to the roof drains on Building 35.

LFR received analytical results for the samples collected from the discharge lines during the April 9, 1998, rain event (see Table 5). All three samples collected contained arsenic at concentrations below the NPDES discharge limit (for the GWTS) of 0.025 mg/l.

**M 13 Apr 98
through Su 19
Apr 98**

LFR received analytical results for the sample collected from the geotextile filter fabric. Arsenic was detected at a concentration of 6,700 mg/kg, therefore, a TCLP analysis was requested.

LFR received analytical results for the TCLP extraction of the geotextile filter fabric sample. The arsenic concentration in the TCLP sample was 7.6 mg/l; therefore, the geotextile filter fabric was handled as a hazardous waste.

**M 27 Apr 98
through Su 3
May 98**

On April 28, 1998, LFR completed the necessary forms for waste stream approval of the arsenic-affected rinsate and arsenic-affected debris generated during the cleaning of the RFR tanks. LFR sent a representative sample of the arsenic-affected rinsate along with the necessary forms

signed by a Sherwin-Williams representative to US Ecology (a Class 1 hazardous waste facility in Beatty, Nevada).

**M 4 May 98
through Su 10
May 98**

A rain event took place on May 5, 1998. During the rain event, LFR collected water samples from the west, east, and roof discharge lines (PD-MP-W, PD-MP-E, PD-RD). Storm water from the west and east discharge lines was discharged to Temescal Creek and storm water from CB-9 was discharged to the roof drains on Building 35.

LFR received analytical results for the water samples collected from the discharge lines during the May 5, 1998, rain event (see Table 5). The arsenic concentrations in all three samples were below the NPDES discharge limit (for the GWTS) of 0.025 mg/l.

On May 8, 1998, US Ecology approved the hazardous waste profile for the disposal of the hazardous rinsate and sediment collected during the cleaning of the RFR tanks.

**M 11 May 98
through Su 15
May 98**

On May 12, 1998, the two drums containing sediment characterized as hazardous waste collected during the cleaning of the RFR tanks were transported to US Ecology in Beatty, Nevada.

**M 11 May 98
through
Su 17 May 98**

On May 12, 1998, DTSC performed an inspection of the RFR tanks used to collect water for the storm-drain emergency response and corrective actions. DTSC collected samples from all 16 remaining tanks that contained water. LFR collected split samples of all DTSC samples. Arsenic concentrations in the LFR split samples ranged from below the 0.005 mg/l detection limit to 1.0 mg/l (see Table 2). For all metals other than arsenic, the concentrations in the LFR split samples were below the detection limit or slightly above the detection limit.

A rain event took place on May 12, 1998. During the rain event, LFR collected a water sample from the west and east multipoint system discharge lines (PD-MP-W and PD-MP-E). The roof discharge line was not operational due to a tear in the flexible hose near the catch basin. Storm water from CB-9 was discharged to CB-7 (west discharge line) with a sump pump. Storm water from the west and east discharge lines was discharged off-site during the rain event.

LFR received analytical results for the samples collected from the discharge lines during the May 12, 1998 rain event (see Table 5). The two samples collected contained arsenic in concentrations below the NPDES discharge limit (for the GWTS) of 0.025 mg/l.

LFR mobilized the contractor that installed the multipoint system to replace the damaged segment of flexible hose near CB-9 and perform

periodic maintenance of the pumps and electrical junction boxes.

M 18 May 98 through Su 24 May 98 Only storm drain and tank routine inspection activities occurred this week. No samples were collected during this week.

M 25 May 98 through Su 31 May 98 LFR received a letter from the DTSC with a copy of the analytical data from the samples of water collected from the 16 RFR tanks. The samples contained metals at concentrations less than hazardous levels (see Table 2 for analytical results). Permission to dispose of the water to the permitted Seaport Environmental Treatment Facility in Redwood City, California was granted by the DTSC in a letter from Charlene Williams dated May 29, 1998.

M 1 June 98 through Su 7 June 98 On Tuesday, June 2, 1998, the transport of water stored in RFR tanks commenced. Under the supervision of an LFR representative, water was transported to the Seaport Environmental Treatment Facility. Water was pumped into 6,300-gallon-capacity tanker trucks. A dry brake valve was used to ensure no water spillage. Approximately nine loads of water were transported to Seaport each day. Water transport was completed on Tuesday, June 9, 1998. A total of 306,317 gallons were transported to the Seaport facility.

Under the supervision of LFR, Clearwater Environmental Management Inc., steam-cleaned the interior and exterior of the 17 remaining RFR tanks and the employee parking lot surface. Cleaning activities began on June 3, 1998 and were completed on June 12, 1998. Approximately 7,500 gallons of rinse water were generated by the cleaning activities. Rinse water was transported to Seaport Environmental for treatment and disposal. Sediments (grit from the tank bottom) were collected in 55-gallon drums. A total of three drums with sediment sludge were produced from the cleaning activities. As a precautionary measure, the three drums were labeled as hazardous waste and stored in the secondary containment area of the treatment system. In conjunction with the scheduled transport of nonhazardous drums containing sludge generated from the GWTS filter press, the three drums will be transported and disposed of at US Ecology in Beatty, Nevada in July 1998.

M 8 June 98 through Su 14 June 98 Water transportation and tank-cleaning activities were completed during the week of June 8 under the supervision of an LFR representative. All RFR tanks in the Sherwin-Williams employee parking lot were removed.

4.0 REFERENCES

Levine-Fricke-Recon Inc. (LFR). 1997. Work Plan for Site Investigation. The Sherwin-Williams Facility, 1450 Sherwin Avenue, Emeryville, California. June 2.

_____. 1998. Evaluation of Interim Remedial Measures (EIRM) and Work Plan for Implementation of Future Interim Remedial Measures (Draft Final). The Sherwin-Williams Facility, 1450 Sherwin Avenue, Emeryville, California. May 20.

Table 1
Summary of Arsenic Data
Original Samples
Sherwin-Williams Storm Drain Emergency Response
Concentrations in milligrams per liter (mg/L)

Date Collected	Sample Location	Sample ID	Total Arsenic	Filtered Arsenic
1-Oct-97	CB-1	6215-CB06-LM	41	not analyzed
17-Oct-97	MH-1A	MH1A-1017-LM	0.02	0.02
17-Oct-97	CB-6	NB4-1017-LM	1.1	1.2
17-Oct-97	CB-7	NB5-1017-LM	0.99	0.73
17-Oct-97	CB-2	NB1-1017-LM	9.2	7.2
17-Oct-97	CB-3	NB2-1017-LM	8.5	8.8
17-Oct-97	NM-6	NM6-1017-LM	1.1	0.93
17-Oct-97	CB-5	NB03-1017-LM	19	17
17-Oct-97	MH-2A	MH2A-1017-LM	0.51	0.49
17-Oct-97	CB-1	CB06-1017-LM	14	6.0
17-Oct-97	W-E1	SYS-1017-LM	0.03	<0.01
17-Oct-97	MH-CK	MHCK-1017-LM	7.7	6.3

Data entered by KLF. Proofed by GAB.

Notes:

CB = catch basin

MH = manhole

NM = manhole on newer portion of the storm drain system

MH-CK = final manhole before discharge to Temescal Creek located downstream from the Sherwin-Williams gate valve

W-E1 = groundwater treatment system final effluent

Table 2
Summary of Arsenic Data
Rain-for-Rent Tanks
Sherwin-Williams Storm Drain Emergency Response
Concentrations in milligrams per liter (mg/L)

Tank	Date	Sample ID	Arsenic	Notes
RFR-A	24-Oct-97	--	--	Tank delivered to Site
	6-Nov-97	R4RTANK	59.0	Water transferred to GWTS
	16-Nov-97	R4R-A	8.6	--
	26-Jan-98	WS-TNK-A-1	1.6	--
	12-May-98	WS-TNK-A-0512	0.059	LFR split sample
	12-May-98	SW51298A	0.070	DTSC sample
	9-Jun-98	--	-	Water transported offsite to Seaport
	11-Jun-98	--	-	Tank cleaned and removed from Site
RFR-B	6-Nov-97	--	-	Tank delivered to Site
	10-Nov-97	R4R-B	20.0	Water transferred to GWTS
	26-Nov-97	R4R-B	11.0	Water transferred to GWTS
	26-Jan-98	WS-TNK-B-1	0.670	--
	12-May-98	WS-TNK-B-0512	0.110	LFR split sample
	12-May-98	SW51298B	0.090	DTSC sample
	9-Jun-98	--	-	Water transported offsite to Seaport
	12-Jun-98	--	-	Tank cleaned and removed from Site
RFR-C	7-Nov-97	--	-	Tank delivered to Site: transfer tank to GWTS
	16-Nov-97	R4R-C	25.0	Water transferred to GWTS
	26-Nov-97	R4R-C	9.5	Water transferred to GWTS
	18-Dec-97	R4R-C	0.810	Water transferred to GWTS
	12-May-98	--	-	Tank empty (used during treatability studies)
RFR-D	17-Nov-97	--	-	Tank delivered to Site
	26-Jan-98	WS-TNK-D-1	7.8	Water transferred to GWTS
	24-Feb-98	--	-	Refilled with water from RFR-S (0.089 ppm)
	12-May-98	WS-TNK-D-0512	0.025	LFR split sample
	12-May-98	SW51298D	0.030	DTSC sample
	9-Jun-98	--	-	Water transported offsite to Seaport
	12-Jun-98	--	-	Tank cleaned and removed from Site
RFR-E	18-Nov-97	--	-	Tank delivered to Site. First manifolded tank after CB-1
	26-Nov-97	R4R-E	0.960	--
	26-Jan-98	WS-TNK-E-1	0.140	--
	3-Feb-98	WS-TNK-E-2	0.490	--
	12-May-98	WS-TNK-E-0512	0.110	LFR split sample
	12-May-98	SW51298E	0.110	DTSC sample
	9-Jun-98	--	-	Water transported offsite to Seaport
	12-Jun-98	--	-	Tank cleaned and removed from Site

Table 2
Summary of Arsenic Data
Rain-for-Rent Tanks
Sherwin-Williams Storm Drain Emergency Response
Concentrations in milligrams per liter (mg/L)

Tank	Date	Sample ID	Arsenic	Notes
RFR-F	18-Nov-97	--	-	Tank delivered to Site
	26-Jan-98	WS-TNK-F-1	8.0	Water transferred to GWTS
	24-Feb-98	--	-	Refilled with water from RFR-V (0.170 ppm)
	12-May-98	WS-TNK-F-0512	0.051	LFR split sample
	12-May-98	SW51298F	0.050	DTSC sample
	9-Jun-98	--	-	Water transported offsite to Seaport
	12-Jun-98	--	-	Tank cleaned and removed from Site
RFR-G	24-Nov-97	--	-	Tank delivered to Site
	26-Nov-97	R4R-G	8.1	Portion of water in tank transferred to GWTS
	26-Jan-98	WS-TNK-G-1	1.1	--
	12-May-98	WS-TNK-G-0512	0.820	LFR split sample
	12-May-98	SW51298G	0.830	DTSC sample
	7-Jun-98	--	-	Water transported offsite to Seaport
	11-Jun-98	--	-	Tank cleaned and removed from Site
RFR-H	25-Nov-98	--	-	Tank delivered to Site
	26-Jan-98	WS-TNK-H-1	0.23	--
	12-May-98	WS-TNK-H-0512	0.420	LFR split sample
	12-May-98	SW51298H	0.460	DTSC sample
	7-Jun-98	--	-	Water transported offsite to Seaport
	11-Jun-98	--	-	Tank cleaned and removed from Site
RFR-I	25-Nov-98	--	-	Tank delivered to Site
	26-Nov-97	R4R-I	6.9	Portion of water in tank transferred to GWTS
	26-Jan-98	WS-TNK-I-1	1.1	--
	12-May-98	WS-TNK-I-0512	<0.005	LFR split sample
	12-May-98	SW51298I	<0.020	DTSC sample
	9-Jun-98	--	-	Water transported offsite to Seaport
	11-Jun-98	--	-	Tank cleaned and removed from Site
RFR-J	25-Nov-97	--	-	Tank delivered to Site
	26-Nov-97	R4R-J	4.6	Portion of water in tank transferred to GWTS
	26-Jan-98	WS-TNK-J-1	1.5	--
	12-May-98	WS-TNK-J-0512	0.007	LFR split sample
	12-May-98	SW51298J	<0.020	DTSC sample
	5-Jun-98	--	-	Water transported offsite to Seaport
	10-Jun-98	--	-	Tank cleaned and removed from Site
RFR-K	25-Nov-97	--	-	Tank delivered to Site
	26-Nov-97	R4R-K	1.1	Portion of water in tank transferred to GWTS
	26-Jan-98	WS-TNK-K-1	0.042	--
	2-Feb-98	WS-TNK-K-2	0.040	--
	12-May-98	WS-TNK-K-0512	<0.005	LFR split sample
	12-May-98	SW51298K	<0.020	DTSC sample
	5-Jun-98	--	-	Water transported offsite to Seaport
	9-Jun-98	--	-	Tank cleaned and removed from Site

Table 2
Summary of Arsenic Data
Rain-for-Rent Tanks
Sherwin-Williams Storm Drain Emergency Response
Concentrations in milligrams per liter (mg/L)

Tank	Date	Sample ID	Arsenic	Notes
RFR-L	26-Nov-97	--	-	Tank delivered to Site
	26-Jan-98	WS-TNK-L-1	1.1	--
	12-May-98	WS-TNK-L-0512	0.180	LFR split sample
	12-May-98	SW51298L	0.320	DTSC sample
	3-Jun-98	--	-	Water transported offsite to Seaport
	9-Jun-98	--	-	Tank cleaned and removed from Site
RFR-M	26-Nov-97	--	-	Tank delivered to Site
	26-Jan-98	WS-TNK-M-1	0.87	--
	12-May-98	WS-TNK-M-0512	0.068	LFR split sample
	12-May-98	SW51298M	0.060	DTSC sample
	3-Jun-98	--	-	Water transported offsite to Seaport
	8-Jun-98	--	-	Tank cleaned and removed from Site
RFR-N	26-Nov-97	--	-	Tank delivered to Site
	3-Feb-98	WS-TNK-N-1	0.041	--
	12-May-98	WS-TNK-N-0512	0.018	LFR split sample
	12-May-98	SW51298N	<0.020	DTSC sample
	4-Jun-98	--	-	Water transported offsite to Seaport
	10-Jun-98	--	-	Tank cleaned and removed from Site
RFR-O	26-Nov-97	--	-	Tank delivered to Site. Transfer tank to GWTS
	12-Mar-98	WS-TNK-O-1	0.065	--
	12-May-98	WS-TNK-O-0512	1.0	LFR split sample
	12-May-98	SW51298O	0.930	DTSC sample
	4-Jun-98	--	-	Water transported offsite to Seaport
	10-Jun-98	--	-	Tank cleaned and removed from Site
RFR-P	26-Nov-97	--	-	Tank delivered to Site.
	3-Feb-98	WS-TNK-P-1	0.060	--
	12-May-98	WS-TNK-P-0512	0.067	LFR split sample
	12-May-98	SW51298P	0.070	DTSC sample
	4-Jun-98	--	-	Water transported offsite to Seaport
	10-Jun-98	--	-	Tank cleaned and removed from Site
RFR-Q	26-Nov-97	--	-	Tank delivered to Site.
	21-Jan-98	WS-TNK-Q-1	0.098	--
	3-Feb-98	WS-TNK-Q-2	0.018	--
				Under approval from RWQCB, water discharged
	20-Feb-98	--	-	to Temescal Creek
	19-Mar-98	--	-	Water from hydroflushing of discharge lines
	12-May-98	WS-TNK-Q-0512	0.220	LFR split sample
	12-May-98	SW51298Q	0.270	DTSC sample
	2-Jun-98	--	-	Water transported offsite to Seaport
	8-Jun-98	--	-	Tank cleaned and removed from Site

Table 2
Summary of Arsenic Data
Rain-for-Rent Tanks
Sherwin-Williams Storm Drain Emergency Response
Concentrations in milligrams per liter (mg/L)

Tank	Date	Sample ID	Arsenic	Notes
RFR-R	26-Nov-97	--	-	Tank delivered to Site.
	3-Feb-98	WS-TNK-R-1	0.48	--
	6-Feb-98	--	-	Water transported offsite to Seaport
	8-Jun-98	--	-	Tank cleaned and removed from Site
RFR-S	26-Nov-97	--	-	Tank delivered to Site.
	3-Feb-98	WS-TNK-S-1	0.089	--
	24-Feb-98	--	-	Water transferred to RFR-D
	2-Mar-98	--	-	Tank cleaned and removed from Site
RFR-T	3-Dec-97	--	-	Tank delivered to Site.
	26-Jan-98	WS-TNK-T-1	0.27	--
	7-Feb-98	--	-	Water transported offsite to Seaport
	2-Mar-98	--	-	Tank cleaned and removed from Site
RFR-U	3-Dec-97	--	-	Tank delivered to Site.
	26-Jan-98	WS-TNK-U-1	0.50	--
	6-Feb-98	--	-	Water transported offsite to Seaport
	2-Mar-98	--	-	Tank cleaned and removed from Site
RFR-V	5-Dec-98	--	-	Tank delivered to Site.
	26-Jan-98	WS-TNK-V-1	0.17	--
	24-Feb-98	--	-	Water transferred to RFR-F
	2-Mar-98	--	-	Tank cleaned and removed from Site

Data entered by ARJ . Proofed by GAB .

Notes:

RFR = Rain-for-Rent tank

GWTS = Groundwater Treatment System

LFR = Levine Fricke Recon

DTSC = Department of Toxic Substances Control

CB = Catch Basin

Water transported to Seaport Environmental Treatment Facility in Redwood City, California.

Table 3
Summary of Arsenic Data
Discharges to Temescal Creek from Storm Drain System
Sherwin-Williams Storm Drain Emergency Response
Concentrations in milligrams per liter (mg/L)

Date Collected	Time Collected	Sample Location	Sample ID	Arsenic
10-Nov-97	10:15	CB-1	STORM DRAIN	10
13-Nov-97	10:00	CB-1	STORM DRAIN	14
14-Nov-97	6:35	PD-CB-1	STORMWATER DISCH	0.81
15-Nov-97	9:00	CB-1	STORM DRAIN H2O	0.99
16-Nov-97	9:30	CB-1	STORM DRAIN RAIN	12
18-Nov-97	21:14	CB-1	STORM DRAIN RAIN	6.1
26-Nov-97	1:05	CK-D	3435-CK-001	0.012
26-Nov-97	1:10	PD-CB-1	3435-PD-002	0.17
26-Nov-97	8:00	CK-D	3435-CK-003	0.013
26-Nov-97	8:00	PD-CB-1	3435-PD-004	0.17

Data entered by KLF, Proofed by ARJ.

Notes:

CB = catch basin

PD = pump discharge from ...

CK = Temescal Creek collected ...

D = approximately 20 feet downstream of the discharge point

Table 4
Summary of Arsenic Data
Discharges to Temescal Creek from Multipoint System With Corresponding Creek Samples
Sherwin-Williams Storm Drain Emergency Response
Concentrations in milligrams per liter (mg/L)

Date Collected	Time Collected	Sample Location	Sample ID	Arsenic
7-Dec-97	8:25	PD-MP-E	EAST 1	0.014
7-Dec-97	8:30	PD-MP-W	WEST 1	0.020
7-Dec-97	14:00	PD-MP-E	EAST 2	0.012
7-Dec-97	14:05	PD-MP-W	WEST 2	0.11
8-Dec-97	8:15	PD-MP-E	EAST 3	0.13
8-Dec-97	8:15	PD-MP-W	WEST 3	1.0
2-Jan-98	11:15	PD-MP-E	PD-E-0102	0.008
2-Jan-98	15:20	PD-CB-9	PD-CB9-0102	0.007
4-Jan-98	0:15	CB-9	CB9-0104	<0.002
4-Jan-98	0:30	PD-MP-W	PD-W-0104	0.008
4-Jan-98	0:40	PD-MP-E	PD-E-0104	<0.002
4-Jan-98	1:00	CK-U	TC-U-0104	0.004
4-Jan-98	1:30	CK-DD	TC-D-0104	<0.002
4-Jan-98	1:45	CB-SP	CB-SP-0104	0.018

Data entered by KLF, Proofed by ARJ.

Notes:

CB = catch basin

PD = pump discharge from ...

MP = the multipoint system at the ...

E = eastern discharge hose

W = western discharge hose

CK = Temescal Creek sample collected ...

U = approximately 20 feet upstream of the eastern discharge point

DD = approximately 150 feet downstream of the western discharge point

SP = adjacent to Southern Pacific Railroad tracks

Table 5
Catch Basin and Multi-Point Pump Discharge Analytical Results Since March 11, 1998
Arsenic Concentration
The Sherwin-Williams Company
Emeryville, California
All measurements in parts per billion [ppb]

Catch Basin Number	3/11/98 ¹ Sampling Event	3/13/98 ² Sampling Event	Approximate Depth of Sediment Accumulated in CB ³ (Inches)
--------------------	-------------------------------------	-------------------------------------	---

Summary of Catch Basin (CB) Analytical Results

1	13	5.1	Less than 0.5 (est.)
2	NA	NA	NA
3	NS	31	2 (est.)
4	NS	35	2 (est.)
5	NS	10	3 (est.)
6	NS	<5	1
7	200	15	3
8	NS	53	2
9	53	15	1
10	NS	11	1 (est.)
11	11	14	1 (est.)

Sampling Event	Western Discharge	Eastern Discharge	Roof Discharge
----------------	-------------------	-------------------	----------------

Summary of Discharge Line and Line Flushing Analytical Results ⁴

3/13/98	220	<5	NA
3/19/98	18/<5 ⁵	Not Flushed	<5

Sampling Event	Western Discharge	Eastern Discharge	Roof Discharge
----------------	-------------------	-------------------	----------------

Summary of Multi-Point Pump Discharge Analytical Results

3/21/98	19	34	16
3/23/98	28	<5	5.3
3/27/98	20/17/20 ⁶	<5/<5/<5 ⁶	<5/<5/6 ⁶
3/31/98	39	<5	<5
4/2/98	23	6.9	5.5
4/9/98	20	<5	5.7
5/5/98	7.1	<5	<5
5/12/98	8.5	<5	NS

Data entered by LXG . Proofed by GAB .

Notes:

Western Discharge: pumps in CB-1, -3, -4, -5, -7 and -8

Eastern Discharge: pumps in CB-6, -10 and -11.

Roof Discharge: pump in CB-9 and runoff from Building 35

¹ Sampling conducted as part of DTSC inspection.

² Catch basin sampling conducted approximately 2 hours after 3/13/98 rain event.

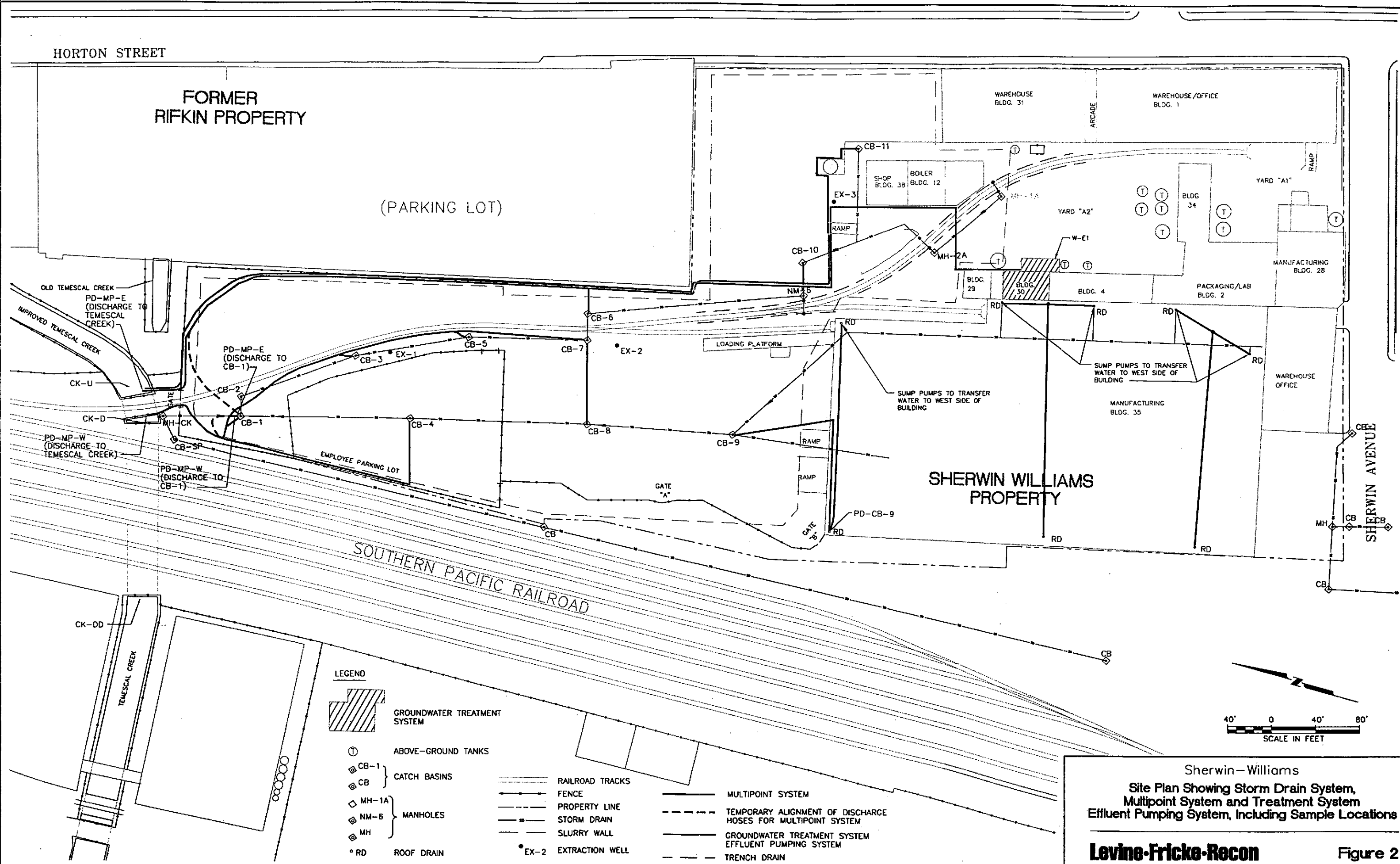
³ Sediment vacuumed out of all catch basin slip liners and stored on-site in a 55 gal drum.
Drum contents sampled on 3/30/98, total Arsenic in sediment: 95 mg/Kg (95,000 ppb).

⁴ Western discharge was divided into Line A and Line B for flushing purposes.

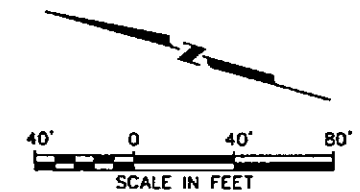
⁵ Line A: CB-1, -3, -5, -7, and -8 / Line B: CB-4

⁶ Unfiltered/Filtered/Duplicate

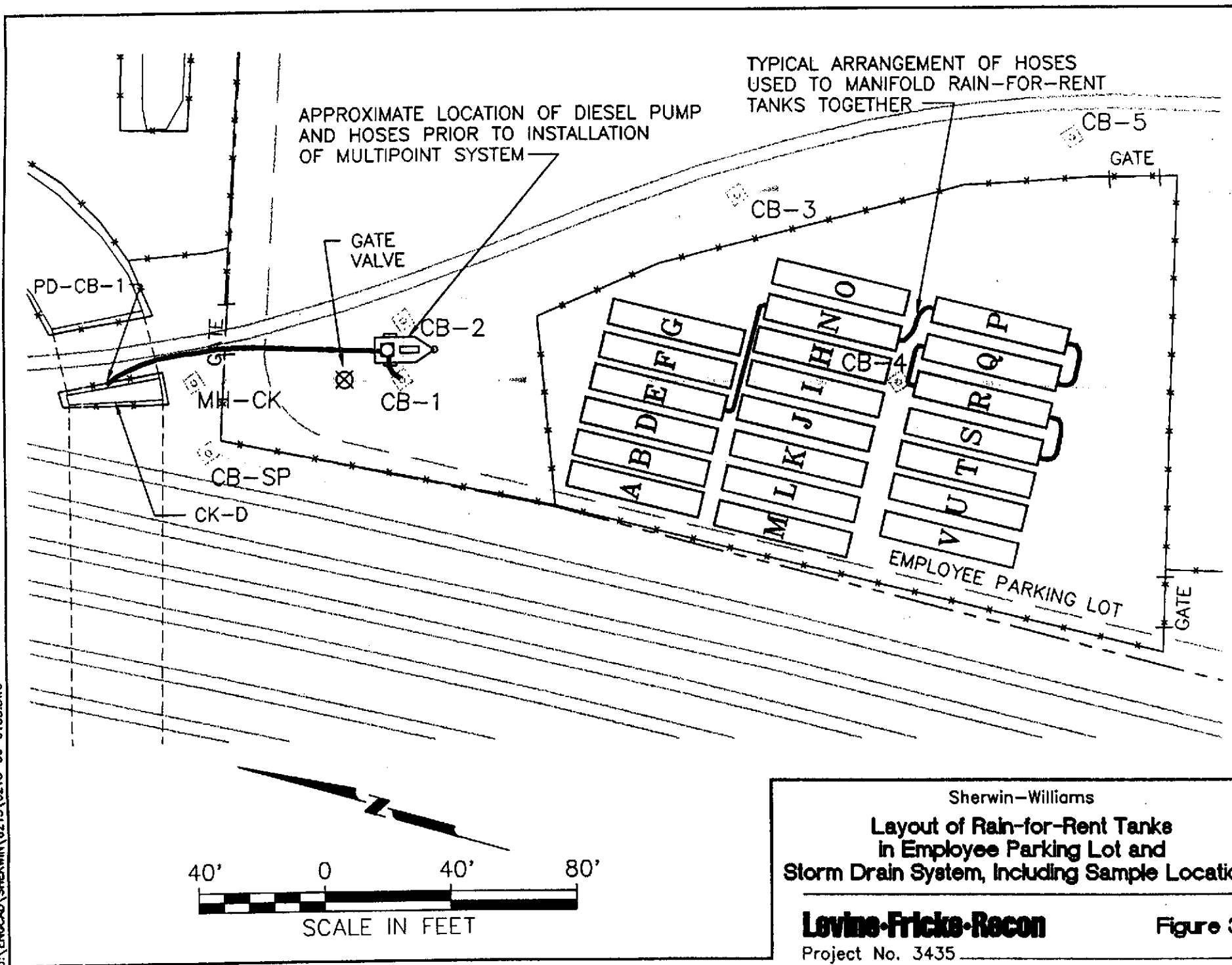
⁷ Catch basin #9 pump not operational; water pumped to catch basin #7



- LEGEND**
- GROUNDWATER TREATMENT SYSTEM
 - ABOVE-GROUND TANKS
 - CB-1 } CATCH BASINS
 - CB }
 - MH-1A } MANHOLES
 - NM-6 }
 - MH }
 - RD ROOF DRAIN
 - EX-2 EXTRACTION WELL
 - RAILROAD TRACKS
 - FENCE
 - PROPERTY LINE
 - STORM DRAIN
 - SLURRY WALL
 - TRENCH DRAIN
 - MULTIPPOINT SYSTEM
 - TEMPORARY ALIGNMENT OF DISCHARGE HOSES FOR MULTIPPOINT SYSTEM
 - GROUNDWATER TREATMENT SYSTEM EFFLUENT PUMPING SYSTEM



Sherwin-Williams
 Site Plan Showing Storm Drain System,
 Multipoint System and Treatment System
 Effluent Pumping System, Including Sample Locations



Appendix A

Laboratory Reports and Chain-of-Custody Forms

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 10/24/97

DATE(S) SAMPLED: 10/01/97

DATE RECEIVED: 10/01/97

AEN WORK ORDER: 9710007

ATTN: [REDACTED]
CLIENT PROJ. ID: 6215.00.089
CLIENT PROJ. NAME: SHERWIN-WILLMS
C.O.C. NUMBER: 1388


PROJECT SUMMARY:

On October 1, 1997, this laboratory received 5 (4 water and 1 soil) sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: 6215-CB06-LM
 AEN LAB NO: 9710007-01
 AEN WORK ORDER: 9710007
 CLIENT PROJ. ID: 6215.00.089

DATE SAMPLED: 10/01/97
 DATE RECEIVED: 10/01/97
 REPORT DATE: 10/24/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	10/06/97
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	10/06/97
CCR 17 Metals					
Silver	EPA 6010	ND	0.005	mg/L	10/09/97
✓ Arsenic	EPA 7060	41 *	0.002	mg/L	10/08/97
Barium	EPA 6010	0.22 *	0.01	mg/L	10/09/97
Beryllium	EPA 6010	ND	0.002	mg/L	10/09/97
Cadmium	EPA 6010	ND	0.005	mg/L	10/09/97
Cobalt	EPA 6010	ND	0.005	mg/L	10/09/97
Chromium	EPA 6010	ND	0.01	mg/L	10/09/97
Copper	EPA 6010	ND	0.01	mg/L	10/09/97
Mercury	EPA 7470	ND	0.0002	mg/L	10/09/97
Molybdenum	EPA 6010	0.02 *	0.01	mg/L	10/09/97
Nickel	EPA 6010	ND	0.01	mg/L	10/09/97
Lead	EPA 6010	ND	0.04	mg/L	10/09/97
Antimony	EPA 6010	ND	0.02	mg/L	10/09/97
Selenium	EPA 7740	ND	0.004	mg/L	10/08/97
Thallium	EPA 6010	ND	0.05	mg/L	10/09/97
Vanadium	EPA 6010	ND	0.005	mg/L	10/09/97
Zinc	EPA 6010	0.05 *	0.01	mg/L	10/09/97

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: 6215-CB06-LBX
AEN LAB NO: 9710007-02
AEN WORK ORDER: 9710007
CLIENT PROJ. ID: 6215.00.089

DATE SAMPLED: 10/01/97
DATE RECEIVED: 10/01/97
REPORT DATE: 10/24/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8020 for BTEX	EPA 8020				
Benzene	71-43-2	16 *	10 ug/L		10/14/97
Toluene	108-88-3	320 *	10 ug/L		10/14/97
Ethylbenzene	100-41-4	340 *	10 ug/L	-	10/14/97
Xylenes, Total	1330-20-7	1.100 *	40 ug/L		10/14/97

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: 6215-CB06-LDM
AEN LAB NO: 9710007-03
AEN WORK ORDER: 9710007
CLIENT PROJ. ID: 6215.00.089

DATE SAMPLED: 10/01/97
DATE RECEIVED: 10/01/97
REPORT DATE: 10/24/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	10/02/97
TPH as Diesel	GC-FID	0.87 *	0.05 mg/L		10/04/97
TPH as Oil	GC-FID	ND	0.2 mg/L		10/04/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: 6215-CB06-LTH
AEN LAB NO: 9710007-04
AEN WORK ORDER: 9710007
CLIENT PROJ. ID: 6215.00.089

DATE SAMPLED: 10/01/97
DATE RECEIVED: 10/01/97
REPORT DATE: 10/24/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Water Extrn for HCs		-		Extrn Date	10/03/97
Hydrocarbons (IR)	EPA 418.1	3.6 *	0.5 mg/L		10/05/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE - FRICKE - RECON

SAMPLE ID: 6215-CB06-S0
 AEN LAB NO: 9710007-05
 AEN WORK ORDER: 9710007
 CLIENT PROJ. ID: 6215.00.089

DATE SAMPLED: 10/01/97
 DATE RECEIVED: 10/01/97
 REPORT DATE: 10/24/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8020 for BTEX	EPA 8020				
Benzene	71-43-2	ND	5 ug/kg		10/12/97
Toluene	108-88-3	ND	5 ug/kg		10/12/97
Ethylbenzene	100-41-4	ND	5 ug/kg -		10/12/97
Xylenes, Total	1330-20-7	ND	5 ug/kg		10/12/97
#Extraction for TPH	EPA 3550	-	Extrn Date		10/03/97
TPH as Diesel	GC-FID	ND	50 mg/kg		10/06/97
TPH as Oil	GC-FID	1.800 *	200 mg/kg		10/06/97
#Digestion, Metals by GFAA	EPA 3050	-	Prep Date		10/06/97
#Digestion for ICP/AA	EPA 3050	-	Prep Date		10/06/97
#Soil Extrn for HCs	IR	-	Extrn Date		10/07/97
Hydrocarbons (IR)	SM 5520F	2.600 *	10 mg/kg		10/10/97
CCR 17 Metals					
Silver	EPA 6010	1.2 *	0.1 mg/kg		10/09/97
Arsenic	EPA 7060	13 *	0.5 mg/kg		10/08/97
Barium	EPA 6010	210 *	1 mg/kg		10/09/97
Beryllium	EPA 6010	0.3 *	0.1 mg/kg		10/09/97
Cadmium	EPA 6010	3.4 *	0.2 mg/kg		10/09/97
Cobalt	EPA 6010	7.5 *	0.2 mg/kg		10/09/97
Chromium	EPA 6010	34 *	0.5 mg/kg		10/09/97
Copper	EPA 6010	83 *	0.5 mg/kg		10/09/97
Mercury	EPA 7471	0.21 *	0.06 mg/kg		10/09/97
Molybdenum	EPA 6010	1.8 *	0.2 mg/kg		10/09/97
Nickel	EPA 6010	36 *	1 mg/kg		10/09/97
Lead	EPA 6010	220 *	1 mg/kg		10/09/97
Antimony	EPA 6010	ND	1 mg/kg		10/09/97
Selenium	EPA 7740	ND	1 mg/kg		10/08/97
Thallium	EPA 7841	ND	1 mg/kg		10/09/97
Vanadium	EPA 6010	32 *	0.5 mg/kg		10/09/97
Zinc	EPA 6010	560 *	1 mg/kg		10/09/97

LEVINE-FRICKE-RECON

SAMPLE ID: 6215-CB06-S0
AEN LAB NO: 9710007-05
AEN WORK ORDER: 9710007
CLIENT PROJ. ID: 6215.00.089

DATE SAMPLED: 10/01/97
DATE RECEIVED: 10/01/97
REPORT DATE: 10/24/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
---------	-----------------	--------	--------------------	-------	------------------

Reporting limits for diesel/oil elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

WORK ORDER: 9710007

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Arsenic

MATRIX: Soil/Bulk

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/kg
 METHOD:

LAB ID: GFS_LCD_Q
 PREPARED:
 ANALYZED: 10/08/97

INSTR RUN: 4000\971008110600/3/1
 BATCH ID: GFS100697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
Arsenic in soil EPA 7060	8.47	ND	0.5	10.0	84.7	LOW 77 HIGH 141	RPD (%)

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/kg
 METHOD:

LAB ID: GFS_LCS_Q
 PREPARED:
 ANALYZED: 10/08/97

INSTR RUN: 4000\971008110600/2/1
 BATCH ID: GFS100697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
Arsenic in soil EPA 7060	7.87	ND	0.5	10.0	78.7	LOW 77 HIGH 141	RPD (%)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/kg
 METHOD:

LAB ID: GFS_LCR_Q
 PREPARED:
 ANALYZED: 10/08/97

INSTR RUN: 4000\971008110600/4/2
 BATCH ID: GFS100697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
Arsenic in soil EPA 7060	8.47	7.87	0.5			LOW 77 HIGH 141	RPD (%)

WORK ORDER: 9710007

QUALITY CONTROL REPORT

PAGE QR-4

ANALYSIS: Mercury

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: ug/L
 METHOD:

LAB ID: HGW_PBS
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009180000/1/
 BATCH ID: HGW100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury	ND		0.2						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: ug/L
 METHOD:

LAB ID: HGW_LCD
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009180000/3/1
 BATCH ID: HGW100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury	2.00	ND	0.2	2.00	100	89	121		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: ug/L
 METHOD:

LAB ID: HGW_LCS
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009180000/2/1
 BATCH ID: HGW100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury	1.97	ND	0.2	2.00	98.5	89	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: ug/L
 METHOD:

LAB ID: HGW_LCR
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009180000/4/2
 BATCH ID: HGW100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury	2.00	1.97	0.2					1.51	10

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/kg
 METHOD:

LAB ID: HGS_BLNK
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009200000/1/
 BATCH ID: HGS100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in soil EPA 7471	ND		0.06						

WORK ORDER: 9710007

QUALITY CONTROL REPORT

PAGE QR-5

ANALYSIS: Mercury

MATRIX: Soil/Bulk

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/kg
 METHOD:

LAB ID: HGS_LCD
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009200000/3/1
 BATCH ID: HGS100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD (%)	RPD LIMIT (%)
						LOW HIGH		
Mercury in soil EPA 7471	0.362	ND	0.06	0.400	90.5	79 118		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/kg
 METHOD:

LAB ID: HGS_LCS
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009200000/2/1
 BATCH ID: HGS100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD (%)	RPD LIMIT (%)
						LOW HIGH		
Mercury in soil EPA 7471	0.373	ND	0.06	0.400	93.3	79 118		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/kg
 METHOD:

LAB ID: HGS_LCR
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009200000/4/2
 BATCH ID: HGS100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD (%)	RPD LIMIT (%)
						LOW HIGH		
Mercury in soil EPA 7471	0.362	0.373	0.06				2.99	15

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/kg
 METHOD:

LAB ID: MD10007-05A
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009200000/7/5
 BATCH ID: HGS100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD (%)	RPD LIMIT (%)
						LOW HIGH		
Mercury in soil EPA 7471	0.528	0.210	0.06	0.400	79.5	44 153		

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/kg
 METHOD:

LAB ID: MS10007-05A
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009200000/6/5
 BATCH ID: HGS100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD (%)	RPD LIMIT (%)
						LOW HIGH		
Mercury in soil EPA 7471	0.529	0.210	0.06	0.400	79.8	44 153		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/kg
 METHOD:

LAB ID: MR10007-05A
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: HG\971009200000/8/6
 BATCH ID: HGS100997
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD (%)	RPD LIMIT (%)
						LOW HIGH		
Mercury in soil EPA 7471	0.528	0.529	0.06				0.189	15

WORK ORDER: 9710007

QUALITY CONTROL REPORT

PAGE QR-6

ANALYSIS: Metals Scan by ICP

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_BLNK_R
 PREPARED:
 ANALYZED: 10/07/97

INSTR RUN: ICP\971007122400/1/
 BATCH ID: IFW100697-R
 DILUTION:

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	ND		0.005						
Al	ND		0.05						
As	ND		0.04						
Ba	ND		0.01						
Be	ND		0.002						
Ca	ND		0.05						
Cd	ND		0.005						
Co	ND		0.005						
Cr	ND		0.01						
Cu	ND		0.01						
Fe	ND		0.05						
K	ND		0.1						
Mg	ND		0.04						
Mn	ND		0.005						
Mo	ND		0.01						
Na	ND		0.1						
Ni	ND		0.01						
Pb	ND		0.04						
Sb	ND		0.02						
Se	ND		0.07						
Tl	ND		0.05						
V	ND		0.005						
Zn	ND		0.01						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCD_R
 PREPARED:
 ANALYZED: 10/07/97

INSTR RUN: ICP\971007122400/3/1
 BATCH ID: IFW100697-R
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	0.0293	ND	0.005	0.0250	117	72	127		
Al	1.03	ND	0.1	1.00	103	89	116		
As	0.427	ND	0.04	0.400	107	75	125		
Ba	1.10	ND	0.01	1.00	110	91	120		
Be	0.0271	ND	0.002	0.0250	108	82	119		
Ca	11.1	ND	0.2	10.0	111	80	120		
Cd	0.0524	ND	0.005	0.0500	105	84	120		
Co	0.287	ND	0.005	0.250	115	96	120		
Cr	0.104	ND	0.01	0.100	104	85	128		
Cu	0.121	ND	0.01	0.125	96.8	86	123		
Fe	0.501	ND	0.1	0.500	100	84	133		
K	10.6	ND	0.1	10.0	106	86	112		
Mg	10.5	ND	0.04	10.0	105	90	112		
Mn	0.293	ND	0.005	0.250	117	93	122		
Mo	0.230	ND	0.01	0.200	115	89	117		
Na	10.3	ND	0.5	10.0	103	86	112		
Ni	0.271	ND	0.01	0.250	108	92	121		
Pb	0.575	ND	0.04	0.500	115	90	122		
Sb	0.552	ND	0.02	0.500	110	82	113		
Se	0.559	ND	0.07	0.500	112	75	125		
Tl	0.517	ND	0.05	0.500	103	85	115		
V	0.285	ND	0.005	0.250	114	91	118		
Zn	0.264	ND	0.01	0.250	106	90	121		

WORK ORDER: 9710007

QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCS_R
 PREPARED:
 ANALYZED: 10/07/97

INSTR RUN: ICP\971007122400/2/1
 BATCH ID: IFW100697-R
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	Silver	0.0287	ND	0.005	0.0250	115	72	127	
Al	Aluminum	0.996	ND	0.1	1.00	99.6	89	116	
As	Arsenic	0.430	ND	0.04	0.400	108	75	125	
Ba	Barium	1.09	ND	0.01	1.00	109	91	120	
Be	Beryllium	0.0261	ND	0.002	0.0250	104	82	119	
Ca	Calcium	10.8	ND	0.2	10.0	108	80	120	
Cd	Cadmium	0.0486	ND	0.005	0.0500	97.2	84	120	
Co	Cobalt	0.278	ND	0.005	0.250	111	96	120	
Cr	Chromium	0.102	ND	0.01	0.100	102	85	128	
Cu	Copper	0.119	ND	0.01	0.125	95.2	86	123	
Fe	Iron	0.506	ND	0.1	0.500	101	84	133	
K	Potassium	10.4	ND	0.1	10.0	104	86	112	
Mg	Magnesium	10.3	ND	0.04	10.0	103	90	112	
Mn	Manganese	0.287	ND	0.005	0.250	115	93	122	
Mo	Molybdenum	0.222	ND	0.01	0.200	111	89	117	
Na	Sodium	10.2	ND	0.5	10.0	102	86	112	
Ni	Nickel	0.259	ND	0.01	0.250	104	92	121	
Pb	Lead	0.560	ND	0.04	0.500	112	90	122	
Sb	Antimony	0.544	ND	0.02	0.500	109	82	113	
Se	Selenium	0.539	ND	0.07	0.500	108	75	125	
Tl	Thallium	0.524	ND	0.05	0.500	105	85	115	
V	Vanadium	0.279	ND	0.005	0.250	112	91	118	
Zn	Zinc	0.256	ND	0.01	0.250	102	90	121	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCR_R
 PREPARED:
 ANALYZED: 10/07/97

INSTR RUN: ICP\971007122400/4/2
 BATCH ID: IFW100697-R
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	Silver	0.0293	0.0287	0.005				2.07	10
Al	Aluminum	1.03	0.996	0.1				3.36	10
As	Arsenic	0.427	0.430	0.04				0.700	15
Ba	Barium	1.10	1.09	0.01				0.913	10
Be	Beryllium	0.0271	0.0261	0.002				3.76	10
Ca	Calcium	11.1	10.8	0.2				2.74	15
Cd	Cadmium	0.0524	0.0486	0.005				7.52	10
Co	Cobalt	0.287	0.278	0.005				3.19	10
Cr	Chromium	0.104	0.102	0.01				1.94	10
Cu	Copper	0.121	0.119	0.01				1.67	10
Fe	Iron	0.501	0.506	0.1				0.993	10
K	Potassium	10.6	10.4	0.1				1.90	10
Mg	Magnesium	10.5	10.3	0.04				1.92	10
Mn	Manganese	0.293	0.287	0.005				2.07	10
Mo	Molybdenum	0.230	0.222	0.01				3.54	10
Na	Sodium	10.3	10.2	0.5				0.976	10
Ni	Nickel	0.271	0.259	0.01				4.53	10
Pb	Lead	0.575	0.560	0.04				2.64	10
Sb	Antimony	0.552	0.544	0.02				1.46	10
Se	Selenium	0.559	0.539	0.07				3.64	15
Tl	Thallium	0.517	0.524	0.05				1.34	10
V	Vanadium	0.285	0.279	0.005				2.13	10
Zn	Zinc	0.264	0.256	0.01				3.08	10

WORK ORDER: 9710007

QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/kg
 METHOD:

LAB ID: IFS PBS B
 PREPARED: 10/09/97
 ANALYZED: 10/10/97

INSTR RUN: ICP\971009115500/15/
 BATCH ID: IFS100697-P
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cr Chromium	ND		0.5						
Pb Lead	ND		1						

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/kg
 METHOD:

LAB ID: IFS_PBS_P
 PREPARED: 10/09/97
 ANALYZED: 10/09/97

INSTR RUN: ICP\971009115500/1/
 BATCH ID: IFS100697-P
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag Silver	ND		0.1						
Ba Barium	ND		1						
Be Beryllium	ND		0.1						
Cd Cadmium	ND		0.2						
Co Cobalt	ND		0.2						
Cr Chromium	ND		0.5						
Cu Copper	ND		0.5						
Mo Molybdenum	ND		0.2						
Ni Nickel	ND		1						
Pb Lead	ND		1						
Sb Antimony	ND		1						
V Vanadium	ND		0.5						
Zn Zinc	ND		1						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/kg
 METHOD:

LAB ID: IFS LCD B
 PREPARED: 10/09/97
 ANALYZED: 10/10/97

INSTR RUN: ICP\971009115500/18/16
 BATCH ID: IFS100697-P
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cr Chromium	50.8	0.524	0.5	50.0	101	85	110		
Pb Lead	49.6	ND	1	50.0	99.2	90	120		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/kg
 METHOD:

LAB ID: IFS_LCD_P
 PREPARED: 10/09/97
 ANALYZED: 10/09/97

INSTR RUN: ICP\971009115500/4/2
 BATCH ID: IFS100697-P
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag Silver	4.78	ND	0.1	5.00	95.6	60	120		
Ba Barium	103	1.04	1	100	102	80	115		
Be Beryllium	5.01	ND	0.1	5.00	100	80	110		
Cd Cadmium	4.88	ND	0.2	5.00	97.6	87	110		
Co Cobalt	51.4	ND	0.2	50.0	103	88	116		
Cr Chromium	48.4	ND	0.5	50.0	96.8	85	110		
Cu Copper	49.0	ND	0.5	50.0	98.0	87	113		
Mo Molybdenum	46.1	ND	0.2	50.0	92.2	85	110		
Ni Nickel	48.9	ND	1	50.0	97.8	90	120		
Pb Lead	50.0	1.01	1	50.0	98.0	90	120		
Sb Antimony	42.2	ND	1	50.0	84.4	66	114		
V Vanadium	50.8	ND	0.5	50.0	102	90	120		
Zn Zinc	45.7	ND	1	50.0	91.4	83	111		

WORK ORDER: 9710007

American Environmental Network

QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Soil/Bulk

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA Enviro 36
UNITS: mg/kg
METHOD:

LAB ID: IFS LCS B
PREPARED: 10/09/97
ANALYZED: 10/10/97

INSTR RUN: ICP\971009115500/17/16
BATCH ID: IFS100697-P
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cr Chromium	52.1	0.524	0.5	50.0	103	85	110		
Pb Lead	50.9	ND	1	50.0	102	90	120		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA Enviro 36
UNITS: mg/kg
METHOD:

LAB ID: IFS LCS_P
PREPARED: 10/09/97
ANALYZED: 10/09/97

INSTR RUN: ICP\971009115500/3/2
BATCH ID: IFS100697-P
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag Silver	4.82	ND	0.1	5.00	96.4	60	120		
Ba Barium	105	1.04	1	100	104	80	115		
Be Beryllium	5.12	ND	0.1	5.00	102	80	110		
Cd Cadmium	4.80	ND	0.2	5.00	96.0	87	110		
Co Cobalt	52.2	ND	0.2	50.0	104	88	116		
Cr Chromium	49.1	ND	0.5	50.0	98.2	85	110		
Cu Copper	50.1	ND	0.5	50.0	100	87	113		
Mo Molybdenum	47.2	ND	0.2	50.0	94.4	85	110		
Ni Nickel	49.8	ND	1	50.0	99.6	90	120		
Pb Lead	50.2	1.01	1	50.0	98.4	90	120		
Sb Antimony	43.7	ND	1	50.0	87.4	66	114		
V Vanadium	51.8	ND	0.5	50.0	104	90	120		
Zn Zinc	45.6	ND	1	50.0	91.2	83	111		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: TJA Enviro 36
UNITS: mg/kg
METHOD:

LAB ID: IFS LCR B
PREPARED: 10/09/97
ANALYZED: 10/10/97

INSTR RUN: ICP\971009115500/19/17
BATCH ID: IFS100697-P
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cr Chromium	50.8	52.1	0.5					2.53	10
Pb Lead	49.6	50.9	1					2.59	10

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: TJA Enviro 36
UNITS: mg/kg
METHOD:

LAB ID: IFS LCR_P
PREPARED: 10/09/97
ANALYZED: 10/09/97

INSTR RUN: ICP\971009115500/5/3
BATCH ID: IFS100697-P
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag Silver	4.78	4.82	0.1					0.833	10
Ba Barium	103	105	1					1.92	10
Be Beryllium	5.01	5.12	0.1					2.17	10
Cd Cadmium	4.88	4.80	0.2					1.65	10
Co Cobalt	51.4	52.2	0.2					1.54	10
Cr Chromium	48.4	49.1	0.5					1.44	10
Cu Copper	49.0	50.1	0.5					2.22	10
Mo Molybdenum	46.1	47.2	0.2					2.36	10
Ni Nickel	48.9	49.8	1					1.82	10
Pb Lead	50.0	50.2	1					0.399	10
Sb Antimony	42.2	43.7	1					3.49	10
V Vanadium	50.8	51.8	0.5					1.95	10
Zn Zinc	45.7	45.6	1					0.219	10

WORK ORDER: 9710007

QUALITY CONTROL REPORT

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ANALYSIS: Oil & Grease (IR)

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: IR Spectrophotometer
 UNITS: mg/L
 METHOD:

LAB ID: BLNK-1003-1
 PREPARED: 10/03/97
 ANALYZED: 10/05/97

INSTR RUN: IR\971003000000/1/
 BATCH ID: IRW100397-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Motor Oil	ND		0.5					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: IR Spectrophotometer
 UNITS: mg/L
 METHOD:

LAB ID: LCSD-1003-1
 PREPARED: 10/03/97
 ANALYZED: 10/05/97

INSTR RUN: IR\971003000000/3/1
 BATCH ID: IRW100397-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Motor Oil	9.53	ND	0.5	9.53	100	73	112	

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: IR Spectrophotometer
 UNITS: mg/L
 METHOD:

LAB ID: LCSW-1003-1
 PREPARED: 10/03/97
 ANALYZED: 10/05/97

INSTR RUN: IR\971003000000/2/1
 BATCH ID: IRW100397-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Motor Oil	9.73	ND	0.5	9.53	102	73	112	

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT:
 UNITS: mg/kg
 METHOD:

LAB ID: BLNK-1007-1
 PREPARED: 10/07/97
 ANALYZED: 10/07/97

INSTR RUN: IRS\971007000000/1/
 BATCH ID: IRS100797-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Motor Oil	ND		10.0					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT:
 UNITS: mg/kg
 METHOD:

LAB ID: LCSS-1007-1
 PREPARED: 10/07/97
 ANALYZED: 10/07/97

INSTR RUN: IRS\971007000000/2/1
 BATCH ID: IRS100797-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Motor Oil	318	ND	10.0	318	100	74	115	

WORK ORDER: 9710007

American Environmental Network
QUALITY CONTROL REPORT

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ANALYSIS: Selenium

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:LAB ID: GFW_PBW_S
PREPARED:
ANALYZED: 10/08/97INSTR RUN: 4000\971008161500/1/
BATCH ID: GFW100697-S
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Selenium in water by GFAA	ND		0.004				

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:LAB ID: GFW_LCD_S
PREPARED:
ANALYZED: 10/08/97INSTR RUN: 4000\971008161500/3/1
BATCH ID: GFW100697-S
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Selenium in water by GFAA	0.0717	ND	0.004	0.0800	89.6	79 115	

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:LAB ID: GFW_LCS_S
PREPARED:
ANALYZED: 10/08/97INSTR RUN: 4000\971008161500/2/1
BATCH ID: GFW100697-S
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Selenium in water by GFAA	0.0776	ND	0.004	0.0800	97.0	79 115	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:LAB ID: GFW_LCR_S
PREPARED:
ANALYZED: 10/08/97INSTR RUN: 4000\971008161500/4/2
BATCH ID: GFW100697-S
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Selenium in water by GFAA	0.0717	0.0776	0.004				

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/kg
METHOD:LAB ID: GFS_PBS_Q
PREPARED:
ANALYZED: 10/08/97INSTR RUN: 4000\971008110700/1/
BATCH ID: GFS100697-Q
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Selenium in soil EPA 7740	ND		1				

WORK ORDER: 9710007

QUALITY CONTROL REPORT

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ANALYSIS: Selenium

MATRIX: Soil/Bulk

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/kg
METHOD:

LAB ID: GFS_LCD_Q
PREPARED:
ANALYZED: 10/08/97

INSTR RUN: 4000\971008110700/3/1
BATCH ID: GFS100697-Q
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Selenium in soil EPA 7740	15.5	ND	1	20.0	77.5	70	127	

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/kg
METHOD:

LAB ID: GFS_LCS_Q
PREPARED:
ANALYZED: 10/08/97

INSTR RUN: 4000\971008110700/2/1
BATCH ID: GFS100697-Q
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Selenium in soil EPA 7740	15.5	ND	1	20.0	77.5	70	127	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: TJA 4000
UNITS: mg/kg
METHOD:

LAB ID: GFS_LCR_Q
PREPARED:
ANALYZED: 10/08/97

INSTR RUN: 4000\971008110700/4/2
BATCH ID: GFS100697-Q
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Selenium in soil EPA 7740	15.5	15.5	1					0

WORK ORDER: 9710007

QUALITY CONTROL REPORT

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ANALYSIS: Thallium

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/kg
 METHOD:

LAB ID: GFS_PBS_Q
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: 4000\971009171500/1/
 BATCH ID: GFS100697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Thallium by GFAA	ND		1					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/kg
 METHOD:

LAB ID: GFS_LCD_Q
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: 4000\971009171500/3/1
 BATCH ID: GFS100697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Thallium by GFAA	9.93	ND	1	10.0	99.3	75	125	

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/kg
 METHOD:

LAB ID: GFS_LCS_Q
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: 4000\971009171500/2/1
 BATCH ID: GFS100697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Thallium by GFAA	10.0	ND	1	10.0	100	75	125	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/kg
 METHOD:

LAB ID: GFS_LCR_Q
 PREPARED:
 ANALYZED: 10/09/97

INSTR RUN: 4000\971009171500/4/2
 BATCH ID: GFS100697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Thallium by GFAA	9.93	10.0	1					

WORK ORDER: 9710007

QUALITY CONTROL REPORT

PAGE QR-14

ANALYSIS: TPH as Diesel

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP 5890
 UNITS: mg/L
 METHOD: GC-FID

LAB ID: BLNK-1002-1
 PREPARED: 10/02/97
 ANALYZED: 10/03/97

INSTR RUN: GC C\971002000000/1/
 BATCH ID: DSEW100297-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	ND		0.05						
Motor Oil	ND		0.2						
n-Pentacosane (surr)	92.0			100	92.0	65	125		

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP 5890
 UNITS: mg/L
 METHOD: GC-FID

LAB ID: LCDW-1002-1
 PREPARED: 10/02/97
 ANALYZED: 10/03/97

INSTR RUN: GC C\971002000000/3/1
 BATCH ID: DSEW100297-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	1.86	ND	0.05	2.00	93.0	60	110		
n-Pentacosane (surr)	91.9	92.0		100	91.9	65	125		

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP 5890
 UNITS: mg/L
 METHOD: GC-FID

LAB ID: LCSW-1002-1
 PREPARED: 10/02/97
 ANALYZED: 10/03/97

INSTR RUN: GC C\971002000000/2/1
 BATCH ID: DSEW100297-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	1.80	ND	0.05	2.00	90.0	60	110		
n-Pentacosane (surr)	90.4	92.0		100	90.4	65	125		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Control Sample Duplicate
 INSTRUMENT: HP 5890
 UNITS: mg/L
 METHOD: GC-FID

LAB ID: LCRW-1002-1
 PREPARED: 10/02/97
 ANALYZED: 10/03/97

INSTR RUN: GC C\971002000000/4/2
 BATCH ID: DSEW100297-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	1.86	1.80	0.05	2030					
Motor Oil	ND	ND	0.2	200				3.28	15
n-Pentacosane (surr)	91.9	90.4			1.65	65	125	0	

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
 INSTRUMENT: HP 5890
 UNITS: mg/L
 METHOD: GC-FID

LAB ID: 9710007-03A
 PREPARED: 10/02/97
 ANALYZED: 10/04/97

INSTR RUN: GC C\971002000000/15/
 BATCH ID: DSEW100297-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
n-Pentacosane (surr)	103			100	103	65	125		

WORK ORDER: 9710007

QUALITY CONTROL REPORT

PAGE QR-15

ANALYSIS: TPH as Diesel

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP 5890
 UNITS: mg/kg
 METHOD: GC-FID

LAB ID: BLNK-1003-1
 PREPARED: 10/03/97
 ANALYZED: 10/05/97

INSTR RUN: GC CS\971003000000/1/
 BATCH ID: DSES100397-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	ND		1						
Motor Oil	ND		5						
n-Pentacosane (surr)	79.9			100		55	115		

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP 5890
 UNITS: mg/kg
 METHOD: GC-FID

LAB ID: LCSS-1003-1
 PREPARED: 10/03/97
 ANALYZED: 10/05/97

INSTR RUN: GC CS\971003000000/2/1
 BATCH ID: DSES100397-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	31.5	ND	1	40.0	78.8	55	110		
n-Pentacosane (surr)	80.3	79.9		100	80.3	55	115		

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
 INSTRUMENT: HP 5890
 UNITS: mg/kg
 METHOD: GC-FID

LAB ID: 9710007-05A
 PREPARED: 10/03/97
 ANALYZED: 10/05/97

INSTR RUN: GC CS\971003000000/15/
 BATCH ID: DSES100397-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
n-Pentacosane (surr)	D			100	0 !	55	115		

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9710007
AEN LAB NO: F101405
DATE ANALYZED: 10/14/97
INSTRUMENT: F
MATRIX: WATER

Method Blank

Analyte	CAS #	Result (ug/L)	Reporting Limit (ug/L)
Benzene	71-43-2	ND	0.5
Toluene	108-88-3	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Total Xylenes	1330-20-7	ND	2

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9710007
AEN LAB NO: H101104
DATE ANALYZED: 10/11/97
INSTRUMENT: H
MATRIX: SOIL

Method Blank

Analyte	CAS #	Result (ug/kg)	Reporting Limit (ug/kg)
Benzene	71-43-2	ND	5
Toluene	108-88-3	ND	5
Ethylbenzene	100-41-4	ND	5
Total Xylenes	1330-20-7	ND	5

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9710007

INSTRUMENT: F

MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
10/14/97	6215-CB06-LBX	02	84
QC Limits:			70-130

DATE ANALYZED: 10/14/97

SAMPLE SPIKED: LCS

INSTRUMENT: F

Laboratory Control Sample Recovery

Analyte	Spike Added (ug/L)	Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Benzene	100	84	8	70-130	20
Toluene	100	88	9	70-130	20
Ethylbenzene	100	89	9	70-130	20
Total Xylenes	300	82	10	70-130	20

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9710007
INSTRUMENT: H
MATRIX: SOIL

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
10/12/97	6215-CB06-S0	05	107
QC Limits:			70-130

DATE ANALYZED: 10/11/97
SAMPLE SPIKED: LCS
INSTRUMENT: H

Laboratory Control Sample Recovery

Analyte	Spike Added (ug/kg)	Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Benzene	100	108	2	70-130	20
Toluene	100	110	2	70-130	20
Ethylbenzene	100	114	3	70-130	20
Total Xylenes	300	119	5	70-130	20

*** END OF REPORT ***

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

R-15-ACM170 R-7,5-M R-3

9710007

Project No.: 6215.00.089	Project Location: Emeryville, CA	Date: 10/01/97	Serial No.: N ^o 1388
Project Name: Sherwin-Williams	Field Logbook No.: NA		
Sampler (Signature): Gene A. Barry			

SAMPLES						ANALYSES						Samplers:	REMARKS
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	CAM 17 Metals	BTEX	TPH-Diesel / motor oil	TPPH	BTEX, TPH-Diesel, TPH, CAM 17 Metals	HOLD	RUSH	
6215-CB06-LM	10/1/97	1205	01A	1	Liquid	X							
6215-CB06-LRX	10/1/97	1155	02ABC	3	Liquid		X						
6215-CB06-LDM	10/1/97	1200	03A	1	Liquid			X					
6215-CB06-LTH	10/1/97	1150	04A	1	Liquid				X				
6215-CB01-SO	10/1/97	1225	05A	1	Soil					X			

RELINQUISHED BY: (Signature) Gene A. Barry	DATE 10/1/97	TIME 1310	RECEIVED BY: (Signature) Rick Gilmore	DATE 10-1-97	TIME 15:40
RELINQUISHED BY: (Signature) Rick Gilmore	DATE 10-1-97	TIME 16:30	RECEIVED BY: (Signature) Feet Carter	DATE 10/1/97	TIME 16:30
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS:		

Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500	Analytical Laboratory: AEN 3440 Vincent Road Pleasant Hill, CA 94523
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Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: MIKE MARSDEN
CLIENT PROJ. ID: 3042.95.004
CLIENT PROJ. NAME: SHERWIN-WILLMS
C.O.C. NUMBER: 1414

REPORT DATE: 10/28/97

DATE(S) SAMPLED: 10/17/97

DATE RECEIVED: 10/17/97

AEN WORK ORDER: 9710233


PROJECT SUMMARY:

On October 17, 1997, this laboratory received 12 (11 water and 1 sediment) sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

Rec
LFR
11/5/97

LEVINE-FRICKE-RECON

SAMPLE ID: MH1A-1017-LM
AEN LAB NO: 9710233-01
AEN WORK ORDER: 9710233
CLIENT PROJ. ID: 3042.95.004

DATE SAMPLED: 10/17/97
DATE RECEIVED: 10/17/97
REPORT DATE: 10/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	10/17/97
Arsenic	EPA 7060	0.02 *	0.01 mg/L		10/20/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: NB4-1017-LM
AEN LAB NO: 9710233-02
AEN WORK ORDER: 9710233
CLIENT PROJ. ID: 3042.95.004

DATE SAMPLED: 10/17/97
DATE RECEIVED: 10/17/97
REPORT DATE: 10/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	10/17/97
Arsenic	EPA 7060	1.2 *	0.01 mg/L		10/20/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: NB5-1017-LM
AEN LAB NO: 9710233-03
AEN WORK ORDER: 9710233
CLIENT PROJ. ID: 3042.95.004

DATE SAMPLED: 10/17/97
DATE RECEIVED: 10/17/97
REPORT DATE: 10/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	10/17/97
Arsenic	EPA 7060	0.73 *	0.01 mg/L		10/20/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: NB1-1017-LM
AEN LAB NO: 9710233-04
AEN WORK ORDER: 9710233
CLIENT PROJ. ID: 3042.95.004

DATE SAMPLED: 10/17/97
DATE RECEIVED: 10/17/97
REPORT DATE: 10/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	10/17/97
Arsenic	EPA 7060	7.2 *	0.01 mg/L		10/20/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: NB2-1017-LM
AEN LAB NO: 9710233-05
AEN WORK ORDER: 9710233
CLIENT PROJ. ID: 3042.95.004

DATE SAMPLED: 10/17/97
DATE RECEIVED: 10/17/97
REPORT DATE: 10/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	10/17/97
Arsenic	EPA 7060	8.8 *	0.01 mg/L		10/20/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: NM6-1017-LM
AEN LAB NO: 9710233-06
AEN WORK ORDER: 9710233
CLIENT PROJ. ID: 3042.95.004

DATE SAMPLED: 10/17/97
DATE RECEIVED: 10/17/97
REPORT DATE: 10/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	10/17/97
Arsenic	EPA 7060	0.93 *	0.01 mg/L		10/20/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE - FRICKE - RECON

SAMPLE ID: NB03-1017-LM
AEN LAB NO: 9710233-07
AEN WORK ORDER: 9710233
CLIENT PROJ. ID: 3042.95.004

DATE SAMPLED: 10/17/97
DATE RECEIVED: 10/17/97
REPORT DATE: 10/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	10/17/97
Arsenic	EPA 7060	17 *	0.01 mg/L		10/20/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9710233
CLIENT PROJECT ID: 3042.95.004

Quality Control and Project Summary

Sample (CB06-1017-S0):

Due to matrix interference, cadmium was analyzed by EPA 7130. Reporting limits elevated for gas/BTEX due to high levels of non-target compounds. Reporting limits for diesel elevated due to high levels of target compounds. Samples run at dilution.

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

WORK ORDER: 9710233

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_BLNK_V1
 PREPARED:
 ANALYZED: 10/20/97

INSTR RUN: 4000\971020120900/1/
 BATCH ID: GFW101797-V1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Arsenic in water by GFAA	ND		0.002					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_V1
 PREPARED:
 ANALYZED: 10/20/97

INSTR RUN: 4000\971020120900/3/1
 BATCH ID: GFW101797-V1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Arsenic in water by GFAA	0.0379	ND	0.002	0.0400	94.8	82 140		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_V1
 PREPARED:
 ANALYZED: 10/20/97

INSTR RUN: 4000\971020120900/2/1
 BATCH ID: GFW101797-V1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Arsenic in water by GFAA	0.0389	ND	0.002	0.0400	97.3	82 140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_V1
 PREPARED:
 ANALYZED: 10/20/97

INSTR RUN: 4000\971020120900/4/2
 BATCH ID: GFW101797-V1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Arsenic in water by GFAA	0.0379	0.0389	0.002				2.60	13

WORK ORDER: 9710233

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Cadmium

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: Video 12 aa spectrometer
 UNITS: mg/kg
 METHOD: EPA 7130

LAB ID: IFS_PBS_W
 PREPARED:
 ANALYZED: 10/21/97

INSTR RUN: AA V12\971021141500/1/
 BATCH ID: IFS102097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cadmium in soil by Flame	ND		1						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Video 12 aa spectrometer
 UNITS: mg/kg
 METHOD: EPA 7130

LAB ID: IFS_LCD_W
 PREPARED:
 ANALYZED: 10/21/97

INSTR RUN: AA V12\971021141500/4/2
 BATCH ID: IFS102097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cadmium in soil by Flame	4.78	ND	1	5.00	95.6	75	125		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Video 12 aa spectrometer
 UNITS: mg/kg
 METHOD: EPA 7130

LAB ID: IFS_LCS_W
 PREPARED:
 ANALYZED: 10/21/97

INSTR RUN: AA V12\971021141500/3/2
 BATCH ID: IFS102097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cadmium in soil by Flame	4.93	ND	1	5.00	98.6	75	125		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: Video 12 aa spectrometer
 UNITS: mg/kg
 METHOD: EPA 7130

LAB ID: IFS_LCR_W
 PREPARED:
 ANALYZED: 10/21/97

INSTR RUN: AA V12\971021141500/5/3
 BATCH ID: IFS102097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cadmium in soil by Flame	4.78	4.93	1					3.09	20

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: Video 12 aa spectrometer
 UNITS: mg/kg
 METHOD: EPA 7130

LAB ID: MD10233-11A
 PREPARED:
 ANALYZED: 10/21/97

INSTR RUN: AA V12\971021141500/8/6
 BATCH ID: IFS102097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cadmium in soil by Flame	6.19	1.49	1	5.00	94.0	60	140		

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: Video 12 aa spectrometer
 UNITS: mg/kg
 METHOD: EPA 7130

LAB ID: MS10233-11A
 PREPARED:
 ANALYZED: 10/21/97

INSTR RUN: AA V12\971021141500/7/6
 BATCH ID: IFS102097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cadmium in soil by Flame	7.56	1.49	1	5.00	121	60	140		

WORK ORDER: 9710233

QUALITY CONTROL REPORT

PAGE QR-4

ANALYSIS: Cadmium

MATRIX: Soil/Bulk

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate
INSTRUMENT: Video 12 aa spectrometer
UNITS: mg/kg
METHOD: EPA 7130

LAB ID: MR10233-11A
PREPARED:
ANALYZED: 10/21/97

INSTR RUN: AA V12\971021141500/9/7
BATCH ID: IFS102097-W
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Cadmium in soil by Flame	6.19	7.56	1					19.9	35

WORK ORDER: 9710233

QUALITY CONTROL REPORT

PAGE QR-5

ANALYSIS: Mercury

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 50D
 UNITS: mg/kg
 METHOD:

LAB ID: HGS_BLNK
 PREPARED:
 ANALYZED: 10/20/97

INSTR RUN: HG\971020143000/1/
 BATCH ID: HGS102097
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in soil EPA 7471	ND		0.06						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 50D
 UNITS: mg/kg
 METHOD:

LAB ID: HGS_LCD
 PREPARED:
 ANALYZED: 10/20/97

INSTR RUN: HG\971020143000/3/1
 BATCH ID: HGS102097
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in soil EPA 7471	0.378	ND	0.06	0.400	94.5	79	118		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 50D
 UNITS: mg/kg
 METHOD:

LAB ID: HGS_LCS
 PREPARED:
 ANALYZED: 10/20/97

INSTR RUN: HG\971020143000/2/1
 BATCH ID: HGS102097
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in soil EPA 7471	0.395	ND	0.06	0.400	98.8	79	118		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: Coleman Hg Analyzer 50D
 UNITS: mg/kg
 METHOD:

LAB ID: HGS_LCR
 PREPARED:
 ANALYZED: 10/20/97

INSTR RUN: HG\971020143000/4/2
 BATCH ID: HGS102097
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in soil EPA 7471	0.378	0.395	0.06					4.40	15

WORK ORDER: 9710233

QUALITY CONTROL REPORT

PAGE QR-6

ANALYSIS: Metals Scan by ICP

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/kg
 METHOD:

LAB ID: IFS_PBS_W
 PREPARED:
 ANALYZED: 10/21/97

INSTR RUN: ICP\971021122900/1/
 BATCH ID: IFS102097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Ag	Silver	ND	0.1					
Ba	Barium	ND	1					
Be	Beryllium	ND	0.1					
Cd	Cadmium	ND	0.2					
Co	Cobalt	ND	0.2					
Cr	Chromium	ND	0.5					
Cu	Copper	ND	0.5					
Mo	Molybdenum	ND	0.2					
Ni	Nickel	ND	1					
Pb	Lead	ND	1					
Sb	Antimony	ND	1					
V	Vanadium	ND	0.5					
Zn	Zinc	ND	1					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/kg
 METHOD:

LAB ID: IFS_LCD_W
 PREPARED:
 ANALYZED: 10/21/97

INSTR RUN: ICP\971021122900/4/2
 BATCH ID: IFS102097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Ag	Silver	4.92	ND	0.1	5.00	98.4	60	120
Ba	Barium	99.3	1.29	1	100	98.0	80	115
Be	Beryllium	5.00	ND	0.1	5.00	100	80	110
Cd	Cadmium	4.95	ND	0.2	5.00	99.0	87	110
Co	Cobalt	52.1	ND	0.2	50.0	104	88	116
Cr	Chromium	48.9	0.902	0.5	50.0	96.0	85	110
Cu	Copper	46.6	ND	0.5	50.0	93.2	87	113
Mo	Molybdenum	48.8	ND	0.2	50.0	97.6	85	110
Ni	Nickel	49.5	ND	1	50.0	99.0	90	120
Pb	Lead	51.5	1.41	1	50.0	100	90	120
Sb	Antimony	42.1	ND	1	50.0	84.2	66	114
V	Vanadium	51.7	ND	0.5	50.0	103	90	120
Zn	Zinc	46.5	ND	1	50.0	93.0	83	111

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/kg
 METHOD:

LAB ID: IFS_LCS_W
 PREPARED:
 ANALYZED: 10/21/97

INSTR RUN: ICP\971021122900/3/2
 BATCH ID: IFS102097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Ag	Silver	4.95	ND	0.1	5.00	99.0	60	120
Ba	Barium	100	1.29	1	100	98.7	80	115
Be	Beryllium	5.04	ND	0.1	5.00	101	80	110
Cd	Cadmium	4.96	ND	0.2	5.00	99.2	87	110
Co	Cobalt	52.6	ND	0.2	50.0	105	88	116
Cr	Chromium	49.6	0.902	0.5	50.0	97.4	85	110
Cu	Copper	47.0	ND	0.5	50.0	94.0	87	113
Mo	Molybdenum	48.7	ND	0.2	50.0	97.4	85	110
Ni	Nickel	49.9	ND	1	50.0	99.8	90	120
Pb	Lead	52.1	1.41	1	50.0	101	90	120
Sb	Antimony	42.1	ND	1	50.0	84.2	66	114
V	Vanadium	52.2	ND	0.5	50.0	104	90	120
Zn	Zinc	47.1	ND	1	50.0	94.2	83	111

WORK ORDER: 9710233

QUALITY CONTROL REPORT

PAGE QR-7

ANALYSIS: Metals Scan by ICP

MATRIX: Soil/Bulk

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/kg
 METHOD:

LAB ID: IFS_LCR_W
 PREPARED:
 ANALYZED: 10/21/97

INSTR RUN: ICP\971021122900/5/3
 BATCH ID: IFS102097-W
 DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
Ag	Silver	4.92	4.95	0.1					0.608	10
Ba	Barium	99.3	100	1					0.702	10
Be	Beryllium	5.00	5.04	0.1					0.797	10
Cd	Cadmium	4.95	4.96	0.2					0.202	10
Co	Cobalt	52.1	52.6	0.2					0.955	10
Cr	Chromium	48.9	49.6	0.5					1.42	10
Cu	Copper	46.6	47.0	0.5					0.855	10
Mo	Molybdenum	48.8	48.7	0.2					0.205	10
Ni	Nickel	49.5	49.9	1					0.805	10
Pb	Lead	51.5	52.1	1					1.16	10
Sb	Antimony	42.1	42.1	1					0	10
V	Vanadium	51.7	52.2	0.5					0.962	10
Zn	Zinc	46.5	47.1	1					1.28	10

WORK ORDER: 9710233

QUALITY CONTROL REPORT

PAGE QR-8

ANALYSIS: Oil & Grease (IR)

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT:
 UNITS: mg/kg
 METHOD:

LAB ID: BLNK-1020-1
 PREPARED: 10/20/97
 ANALYZED: 10/21/97

INSTR RUN: IRS\971020000000/1/
 BATCH ID: IRS102097-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Motor Oil	ND		10.0						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT:
 UNITS: mg/kg
 METHOD:

LAB ID: LCSS-1020-1
 PREPARED: 10/20/97
 ANALYZED: 10/21/97

INSTR RUN: IRS\971020000000/2/1
 BATCH ID: IRS102097-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Motor Oil	324	ND	10.0	318	102	74	115		

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT:
 UNITS: mg/kg
 METHOD:

LAB ID: MD10233-11A
 PREPARED: 10/20/97
 ANALYZED: 10/21/97

INSTR RUN: IRS\971020000000/5/3
 BATCH ID: IRS102097-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Motor Oil	2440	2440	10.0	318	0 !	61	127		

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT:
 UNITS: mg/kg
 METHOD:

LAB ID: MS10233-11A
 PREPARED: 10/20/97
 ANALYZED: 10/21/97

INSTR RUN: IRS\971020000000/4/3
 BATCH ID: IRS102097-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Motor Oil	2100	2440	10.0	318	-107 !	61	127		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate
 INSTRUMENT:
 UNITS: mg/kg
 METHOD:

LAB ID: MR10233-11A
 PREPARED: 10/20/97
 ANALYZED: 10/21/97

INSTR RUN: IRS\971020000000/6/4
 BATCH ID: IRS102097-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Motor Oil	2440	2100	10.0	318				14.98	14

WORK ORDER: 9710233

QUALITY CONTROL REPORT

PAGE QR-9

ANALYSIS: TPH as Diesel

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP 5890
 UNITS: mg/kg
 METHOD: GC-FID

LAB ID: BLNK-1020-1
 PREPARED: 10/20/97
 ANALYZED: 10/21/97

INSTR RUN: GC CS\971020000000/1/
 BATCH ID: DSLS102097-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	ND		1						
Motor Oil	ND		5						
n-Pentacosane (surr)	85.7			100	85.7	55	115		

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP 5890
 UNITS: mg/kg
 METHOD: GC-FID

LAB ID: LCSS-1020-1
 PREPARED: 10/20/97
 ANALYZED: 10/21/97

INSTR RUN: GC CS\971020000000/2/1
 BATCH ID: DSLS102097-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	33.9	ND	1	40.0	84.8	55	110		
n-Pentacosane (surr)	87.2	85.7		100	87.2	55	115		

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: HP 5890
 UNITS: mg/kg
 METHOD: GC-FID

LAB ID: MD10233-11A
 PREPARED: 10/20/97
 ANALYZED: 10/20/97

INSTR RUN: GC CS\971020000000/5/3
 BATCH ID: DSLS102097-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	237	139	1	40.0	245 !	50	115		
n-Pentacosane (surr)	D	D		100	0 !	55	115		

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: HP 5890
 UNITS: mg/kg
 METHOD: GC-FID

LAB ID: MS10233-11A
 PREPARED: 10/20/97
 ANALYZED: 10/20/97

INSTR RUN: GC CS\971020000000/4/3
 BATCH ID: DSLS102097-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	311	139	1	40.0	430 !	50	115		
n-Pentacosane (surr)	D	D		100	0 !	55	115		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate
 INSTRUMENT: HP 5890
 UNITS: mg/kg
 METHOD: GC-FID

LAB ID: MR10233-11A
 PREPARED: 10/20/97
 ANALYZED: 10/20/97

INSTR RUN: GC CS\971020000000/6/4
 BATCH ID: DSLS102097-1
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Diesel	245	311	1	40.0					
Motor Oil	ND	ND	5					23.7 !	20
n-Pentacosane (surr)	D	D		100	0 !	55	115	0	

WORK ORDER: 9710233

QUALITY CONTROL REPORT

PAGE QR-10

ANALYSIS: TPH as Diesel

MATRIX: Soil/Bulk

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
INSTRUMENT: HP 5890
UNITS: mg/kg
METHOD: GC-FID

LAB ID: 9710233-11A
PREPARED: 10/20/97
ANALYZED: 10/20/97

INSTR RUN: GC CS\971020000000/7/
BATCH ID: DSES102097-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
		D			100	0 !	LOW HIGH		
n-Pentacosane	(surr)						55 115		

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9710233
AEN LAB NO: H102103
DATE ANALYZED: 10/21/97
INSTRUMENT: H
MATRIX: SOIL

Method Blank

Analyte	CAS #	Result (ug/kg)	Reporting Limit (ug/kg)
Benzene	71-43-2	ND	5
Toluene	108-88-3	ND	5
Ethylbenzene	100-41-4	ND	5
Total Xylenes	1330-20-7	ND	5

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9710233
INSTRUMENT: H
MATRIX: SOIL

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery
			Fluorobenzene
10/21/97	CB-06-1017-SO	11	89
QC Limits:			70-130

DATE ANALYZED: 10/21/97
SAMPLE SPIKED: LCS
INSTRUMENT: H

Laboratory Control Sample Recovery

Analyte	Spike Added (ug/kg)	Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Benzene	100	93	20	70-130	20
Toluene	100	98	11	70-130	20
Ethylbenzene	100	101	18	70-130	20
Total Xylenes	300	103	20	70-130	20

*** END OF REPORT ***

9710233

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3042.95.004		Project Location: Emeryville		Date: 10/17/97		Serial No.: Nº 1414					
Project Name: Sherwin-Williams		Field Logbook No.: NA									
Sampler (Signature): Gene A. Barry				ANALYSES		Samplers: GAB JCK					
SAMPLES											
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	ARSENIC	DISSOLVED ARSENIC	OTHER METALS	HOLD	RUSH	REMARKS
MH1A-1017-LM	10/17/97	1500	01AB	1	H ₂ O	X	X			X	1 DAY TAT for Liquid
NB4-1017-LM		1525	02AB			X	X				2 DAY TAT for Sediment
NB5-1017-LM		1530	03AB			X	X				
NB1-1017-LM		1545	04AB			X	X				FILTER + PRESERVE FOR DISSOLVED ARSENIC
NB2-1017-LM		1540	05AB			X	X				
NM6-1017-LM		1345	06AB			X	X				PRESERVE FOR TOTAL ARSENIC
NB03-1017-LM		1325	07AB			X	X				
MH2A-1017-LM		1515	08AB			X	X				RESULTS TO M. K. E. MARSHEN
CB06-1017-LM		1550	09AB			X	X				
SYS-1017-LM		1440	10AB			X	X				
CB06-1017-SO		1310	11A		SEDIMENT			X			PRIVILEGED + CONFIDENTIAL AT REQUEST OF ATTORNEYS
MHCK-1017-LM		1610	12AB			X	X				
RELINQUISHED BY: (Signature) Gene A. Barry				DATE 10/17/97	TIME 1630	RECEIVED BY: (Signature) Rick Guilmore				DATE 10-17-97	TIME 16:30
RELINQUISHED BY: (Signature) Rick Guilmore				DATE 10-17-97	TIME 17:15	RECEIVED BY: (Signature) Amanda C. Jensen				DATE 10/17/97	TIME 17:15
RELINQUISHED BY: (Signature)				DATE	TIME	RECEIVED BY: (Signature)				DATE	TIME
METHOD OF SHIPMENT:				DATE	TIME	LAB COMMENTS:					
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500						Analytical Laboratory: AEN PLEASANT HILL, CA					

Shipping Co. (White)

Lab Copy (Yellow)

File Copy (Pink)

Field Copy (Goldenrod)

COC CDR 101596RVL

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: A.JENKINS/ S. SHIU
CLIENT PROJ. ID: 2616.97-01
CLIENT PROJ. NAME: SHERWIN-WILAMS
C.O.C. NUMBER: 14481

REPORT DATE: 11/07/97

DATE(S) SAMPLED: 11/06/97

DATE RECEIVED: 11/06/97

AEN WORK ORDER: 9711055

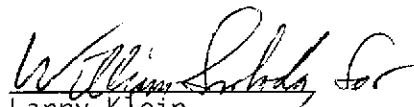
PROJECT SUMMARY:

On November 6, 1997, this laboratory received 2 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: R4RTANK
AEN LAB NO: 9711055-01
AEN WORK ORDER: 9711055
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/06/97
DATE RECEIVED: 11/06/97
REPORT DATE: 11/07/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/06/97
Arsenic	EPA 206.2	59 *		2 mg/L	11/06/97

Reporting limit elevated due to high level of target compound.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: W.ANDEFF
AEN LAB NO: 9711055-02
AEN WORK ORDER: 9711055
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/06/97
DATE RECEIVED: 11/06/97
REPORT DATE: 11/07/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/06/97
Arsenic	EPA 206.2	0.014 *	0.005 mg/L		11/06/97

Reporting limit elevated due to matrix interference.

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9711055
CLIENT PROJECT ID: 2616.97-01

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9711055

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_Q
 PREPARED:
 ANALYZED: 11/06/97

INSTR RUN: 4000\971106163600/1/
 BATCH ID: GFW110697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	ND		0.002						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_Q
 PREPARED:
 ANALYZED: 11/06/97

INSTR RUN: 4000\971106163600/3/1
 BATCH ID: GFW110697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0457	ND	0.002	0.0400	114	82	140		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_Q
 PREPARED:
 ANALYZED: 11/06/97

INSTR RUN: 4000\971106163600/2/1
 BATCH ID: GFW110697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0452	ND	0.002	0.0400	113	82	140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_Q
 PREPARED:
 ANALYZED: 11/06/97

INSTR RUN: 4000\971106163600/4/2
 BATCH ID: GFW110697-Q
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0457	0.0452	0.002					1.10	13

----- End of Quality Control Report -----

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9711055

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American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

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LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: ALEX JENKINS/ SUSAN SHIU
CLIENT PROJ. ID: ~~2616-97-01~~
3435.00.006
C.O.C. NUMBER: 14484

REPORT DATE: 11/21/97

DATE(S) SAMPLED: 11/15/97-11/16/97

DATE RECEIVED: 11/18/97

AEN WORK ORDER: 9711218

PROJECT SUMMARY:

On November 18, 1997, this laboratory received 4 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: Storm Dran H20
AEN LAB NO: 9711218-01
AEN WORK ORDER: 9711218
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/15/97
DATE RECEIVED: 11/18/97
REPORT DATE: 11/21/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/17/97
Arsenic	EPA 206.2	0.99 *	0.002	mg/L	11/18/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: Storm Drain Rain
AEN LAB NO: 9711218-02
AEN WORK ORDER: 9711218
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/16/97
DATE RECEIVED: 11/18/97
REPORT DATE: 11/21/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/17/97
Arsenic	EPA 206.2	12 *	0.002 mg/L		11/18/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-A
AEN LAB NO: 9711218-03
AEN WORK ORDER: 9711218
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/16/97
DATE RECEIVED: 11/18/97
REPORT DATE: 11/21/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/17/97
Arsenic	EPA 206.2	8.6 *	0.002	mg/L	11/18/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-C
AEN LAB NO: 9711218-04
AEN WORK ORDER: 9711218
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/16/97
DATE RECEIVED: 11/18/97
REPORT DATE: 11/21/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/17/97
Arsenic	EPA 206.2	25 *	0.002 mg/L		11/18/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9711218
CLIENT PROJECT ID: 2616.97-01

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9711218

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_H
 PREPARED:
 ANALYZED: 11/18/97

INSTR RUN: 4000\971118114200/1/
 BATCH ID: GFW111797-H
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	ND		0.002						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_H
 PREPARED:
 ANALYZED: 11/18/97

INSTR RUN: 4000\971118114200/3/1
 BATCH ID: GFW111797-H
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0404	ND	0.002	0.0400	101	82	140		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_H
 PREPARED:
 ANALYZED: 11/18/97

INSTR RUN: 4000\971118114200/2/1
 BATCH ID: GFW111797-H
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0385	ND	0.002	0.0400	96.3	82	140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_H
 PREPARED:
 ANALYZED: 11/18/97

INSTR RUN: 4000\971118114200/4/2
 BATCH ID: GFW111797-H
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0404	0.0385	0.002					4.82	13

----- End of Quality Control Report -----

9711218

more.

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American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: ALEX JENKINS
CLIENT PROJ. ID: 2616.97.01
CLIENT PROJ. NAME: SHERWIN-WILLMS
C.O.C. NUMBER: 14482

REPORT DATE: 11/14/97

DATE(S) SAMPLED: 11/10/97

DATE RECEIVED: 11/10/97

AEN WORK ORDER: 9711109


PROJECT SUMMARY:

On November 10, 1997, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: STORM DRAIN
 AEN LAB NO: 9711109-01
 AEN WORK ORDER: 9711109
 CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
 DATE RECEIVED: 11/10/97
 REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/10/97
#Digestion/ICP	EPA 200.0	-		Prep Date	11/10/97
EPA 8240B - Water Matrix	EPA 8240B				
Acetone	67-64-1	ND	1000	ug/L	11/11/97
Benzene	71-43-2	ND	50	ug/L	11/11/97
Bromodichloromethane	75-27-4	ND	50	ug/L	11/11/97
Bromoform	75-25-2	ND	50	ug/L	11/11/97
Bromomethane	74-83-9	ND	100	ug/L	11/11/97
2-Butanone	78-93-3	ND	1000	ug/L	11/11/97
Carbon Disulfide	75-15-0	ND	100	ug/L	11/11/97
Carbon Tetrachloride	56-23-5	ND	50	ug/L	11/11/97
Chlorobenzene	108-90-7	ND	50	ug/L	11/11/97
Chloroethane	75-00-3	ND	100	ug/L	11/11/97
2-Chloroethyl Vinyl Ether	110-75-8	ND	100	ug/L	11/11/97
Chloroform	67-66-3	ND	50	ug/L	11/11/97
Chloromethane	74-87-3	ND	100	ug/L	11/11/97
Dibromochloromethane	124-48-1	ND	50	ug/L	11/11/97
1,1-Dichloroethane	75-34-3	ND	50	ug/L	11/11/97
1,2-Dichloroethane	107-06-2	ND	50	ug/L	11/11/97
1,1-Dichloroethene	75-35-4	ND	50	ug/L	11/11/97
cis-1,2-Dichloroethene	156-59-2	ND	50	ug/L	11/11/97
trans-1,2-Dichloroethene	156-60-5	ND	50	ug/L	11/11/97
1,2-Dichloropropane	78-87-5	ND	50	ug/L	11/11/97
cis-1,3-Dichloropropene	10061-01-5	ND	50	ug/L	11/11/97
trans-1,3-Dichloropropene	10061-02-6	ND	50	ug/L	11/11/97
Ethylbenzene	100-41-4	210 *	50	ug/L	11/11/97
2-Hexanone	591-78-6	ND	500	ug/L	11/11/97
Methylene Chloride	75-09-2	ND	100	ug/L	11/11/97
4-Methyl-2-pentanone	108-10-1	ND	500	ug/L	11/11/97
Styrene	100-42-5	ND	50	ug/L	11/11/97
1,1,2,2-Tetrachloroethane	79-34-5	ND	50	ug/L	11/11/97
Tetrachloroethene	127-18-4	ND	50	ug/L	11/11/97
Toluene	108-88-3	460 *	50	ug/L	11/11/97
1,1,1-Trichloroethane	71-55-6	ND	50	ug/L	11/11/97
1,1,2-Trichloroethane	79-00-5	ND	50	ug/L	11/11/97
Trichloroethene	79-01-6	ND	50	ug/L	11/11/97
Vinyl Acetate	108-05-4	ND	500	ug/L	11/11/97
Vinyl Chloride	75-01-4	ND	100	ug/L	11/11/97
Xylenes, Total	1330-20-7	690 *	100	ug/L	11/11/97

LEVINE - FRICKE - RECON

SAMPLE ID: STORM DRAIN
 AEN LAB NO: 9711109-01
 AEN WORK ORDER: 9711109
 CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
 DATE RECEIVED: 11/10/97
 REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
CCR 17 Metals					
Ag Silver	EPA 200.7	ND	0.005	mg/L	11/11/97
As Arsenic	EPA 206.2	10 *	0.5	mg/L	11/11/97
Ba Barium	EPA 200.7	0.09 *	0.01	mg/L	11/11/97
Be Beryllium	EPA 200.7	ND	0.002	mg/L	11/11/97
Cd Cadmium	EPA 200.7	ND	0.1	mg/L	11/11/97
Co Cobalt	EPA 200.7	ND	0.005	mg/L	11/11/97
Cr Chromium	EPA 200.7	ND	0.01	mg/L	11/11/97
Cu Copper	EPA 200.7	0.02 *	0.01	mg/L	11/11/97
Hg Mercury	EPA 245.1	ND	0.0002	mg/L	11/11/97
Mo Molybdenum	EPA 200.7	ND	0.01	mg/L	11/11/97
Ni Nickel	EPA 200.7	ND	0.01	mg/L	11/11/97
Pb Lead	EPA 200.7	ND	0.04	mg/L	11/11/97
Sb Antimony	EPA 200.7	ND	0.02	mg/L	11/11/97
Se Selenium	EPA 270.2	ND	1	mg/L	11/11/97
Tl Thallium	EPA 200.7	ND	0.05	mg/L	11/11/97
V Vanadium	EPA 200.7	0.006 *	0.005	mg/L	11/11/97
Zn Zinc	EPA 200.7	0.31 *	0.01	mg/L	11/11/97
#Extraction for BNAs	EPA 3520	-		Extrn Date	11/10/97
EPA 8270B - Water Matrix					
Acenaphthene	83-32-9	ND	10	ug/L	11/12/97
Acenaphthylene	208-96-8	ND	10	ug/L	11/12/97
Anthracene	120-12-7	ND	10	ug/L	11/12/97
Benzidine	92-87-5	ND	50	ug/L	11/12/97
Benzoic Acid	65-85-0	ND	50	ug/L	11/12/97
Benzo(a)anthracene	56-55-3	ND	10	ug/L	11/12/97
Benzo(b)fluoranthene	205-99-2	ND	10	ug/L	11/12/97
Benzo(k)fluoranthene	207-08-9	ND	10	ug/L	11/12/97
Benzo(g,h,i)perylene	191-24-2	ND	10	ug/L	11/12/97
Benzo(a)pyrene	50-32-8	ND	10	ug/L	11/12/97
Benzyl Alcohol	100-51-6	ND	20	ug/L	11/12/97
Bis(2-chloroethoxy)methane	111-91-1	ND	10	ug/L	11/12/97
Bis(2-chloroethyl) Ether	111-44-4	ND	10	ug/L	11/12/97
Bis(2-chloroisopropyl) Ether	108-60-1	ND	10	ug/L	11/12/97
Bis(2-ethylhexyl) Phthalate	117-81-7	ND	10	ug/L	11/12/97
4-Bromophenyl Phenyl Ether	101-55-3	ND	10	ug/L	11/12/97
Butylbenzyl Phthalate	85-68-7	ND	10	ug/L	11/12/97
4-Chloroaniline	106-47-8	ND	20	ug/L	11/12/97
2-Chloronaphthalene	91-58-7	ND	10	ug/L	11/12/97
4-Chlorophenyl Phenyl Ether	7005-72-3	ND	10	ug/L	11/12/97

LEVINE - FRICKE - RECON

SAMPLE ID: STORM DRAIN
 AEN LAB NO: 9711109-01
 AEN WORK ORDER: 9711109
 CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
 DATE RECEIVED: 11/10/97
 REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Chrysene	218-01-9	ND	10	ug/L	11/12/97
Dibenzo(a,h)anthracene	53-70-3	ND	10	ug/L	11/12/97
Dibenzofuran	132-64-9	ND	10	ug/L	11/12/97
Di-n-butyl Phthalate	84-74-2	ND	10	ug/L	11/12/97
1,2-Dichlorobenzene	95-50-1	ND	10	ug/L	11/12/97
1,3-Dichlorobenzene	541-73-1	ND	10	ug/L	11/12/97
1,4-Dichlorobenzene	106-46-7	ND	10	ug/L	11/12/97
3,3'-Dichlorobenzidine	91-94-1	ND	20	ug/L	11/12/97
Diethyl Phthalate	84-66-2	ND	10	ug/L	11/12/97
Dimethyl Phthalate	131-11-3	ND	10	ug/L	11/12/97
2,4-Dinitrotoluene	121-14-2	ND	10	ug/L	11/12/97
2,6-Dinitrotoluene	606-20-2	ND	10	ug/L	11/12/97
Di-n-octyl Phthalate	117-84-0	ND	10	ug/L	11/12/97
Fluoranthene	206-44-0	ND	10	ug/L	11/12/97
Fluorene	86-73-7	ND	10	ug/L	11/12/97
Hexachlorobenzene	118-74-1	ND	10	ug/L	11/12/97
Hexachlorobutadiene	87-68-3	ND	10	ug/L	11/12/97
Hexachlorocyclopentadiene	77-47-4	ND	10	ug/L	11/12/97
Hexachloroethane	67-72-1	ND	10	ug/L	11/12/97
Indeno(1,2,3-cd)pyrene	193-39-5	ND	10	ug/L	11/12/97
Isophorone	78-59-1	ND	10	ug/L	11/12/97
2-Methylnaphthalene	91-57-6	ND	10	ug/L	11/12/97
Naphthalene	91-20-3	11 *	10	ug/L	11/12/97
2-Nitroaniline	88-74-4	ND	50	ug/L	11/12/97
3-Nitroaniline	99-09-2	ND	50	ug/L	11/12/97
4-Nitroaniline	100-01-6	ND	50	ug/L	11/12/97
Nitrobenzene	98-95-3	ND	10	ug/L	11/12/97
N-Nitrosodiphenylamine	86-30-6	ND	10	ug/L	11/12/97
N-Nitrosodi-n-propylamine	621-64-7	ND	10	ug/L	11/12/97
Phenanthrene	85-01-8	ND	10	ug/L	11/12/97
Pyrene	129-00-0	ND	10	ug/L	11/12/97
1,2,4-Trichlorobenzene	120-82-1	ND	10	ug/L	11/12/97
4-Chloro-3-methylphenol	59-50-7	ND	10	ug/L	11/12/97
2-Chlorophenol	95-57-8	ND	10	ug/L	11/12/97
2,4-Dichlorophenol	120-83-2	ND	10	ug/L	11/12/97
2,4-Dimethylphenol	105-67-9	ND	10	ug/L	11/12/97
4,6-Dinitro-2-methylphenol	534-52-1	ND	50	ug/L	11/12/97
2,4-Dinitrophenol	51-28-5	ND	50	ug/L	11/12/97
2-Methylphenol	95-48-7	ND	10	ug/L	11/12/97
4-Methylphenol	106-44-5	ND	10	ug/L	11/12/97
2-Nitrophenol	88-75-5	ND	10	ug/L	11/12/97
4-Nitrophenol	100-02-7	ND	50	ug/L	11/12/97
Pentachlorophenol	87-86-5	ND	50	ug/L	11/12/97

LEVINE-FRICKE-RECON

SAMPLE ID: STORM DRAIN
AEN LAB NO: 9711109.01
AEN WORK ORDER: 9711109
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
DATE RECEIVED: 11/10/97
REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Phenol	108-95-2	ND	10 ug/L		11/12/97
2,4,5-Trichlorophenol	95-95-4	ND	10 ug/L		11/12/97
2,4,6-Trichlorophenol	88-06-2	ND	10 ug/L		11/12/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-B
AEN LAB NO: 9711109.02
AEN WORK ORDER: 9711109
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
DATE RECEIVED: 11/10/97
REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/10/97
Arsenic	EPA 206.2	20 *	0.002	mg/L	11/11/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: W-ANDEFF
AEN LAB NO: 9711109-03
AEN WORK ORDER: 9711109
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
DATE RECEIVED: 11/10/97
REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/10/97
Arsenic	EPA 206.2	0.014 *	0.005 mg/L		11/11/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-9

ANALYSIS: Semi-Volatile Organics

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCS 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/3/2
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Pyrene	116	ND	10	100	116	32	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Control Sample Duplicate
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCR 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/5/3
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	92.3	99.8		100	92.3	42	110		
Phenol-d5 (surr)	91.6	97.0		100	91.6	40	122		
Nitrobenzene-d5 (surr)	90.3	96.4		100	90.3	46	109		
2-Fluorobiphenyl (surr)	99.1	103		100	99.1	41	140		
2,4,6-Tribromophenol (surr)	105	110		100	105	46	116		
Terphenyl-d14 (surr)	124	128		100	124	35	165		
Phenol	74.5	75.0	10	100				0.669	40
2-Chlorophenol	83.0	84.2	10	100				1.44	40
1,4-Dichlorobenzene	91.2	91.6	10	100				0.438	30
N-Nitrosodi-n-propylamine	67.6	64.9	10	100				4.08	30
1,2,4-Trichlorobenzene	96.8	99.6	10	100				2.85	30
4-Chloro-3-methylphenol	81.0	80.8	10	100				0.247	30
Acenaphthene	96.1	95.5	10	100				0.626	30
4-Nitrophenol	54.1	59.6	50	100				9.67	40
2,4-Dinitrotoluene	90.5	95.2	10	100				5.06	40
Pentachlorophenol	56.4	62.9	50	100				10.9	30
Pyrene	121	116	10	100				4.22	30

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: 9711109-01C
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/1/
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	89.7			100	89.7	42	110		
Phenol-d5 (surr)	94.1			100	94.1	40	122		
Nitrobenzene-d5 (surr)	88.8			100	88.8	46	109		
2-Fluorobiphenyl (surr)	96.1			100	96.1	41	140		
2,4,6-Tribromophenol (surr)	115			100	115	46	116		
Terphenyl-d14 (surr)	111			100	111	35	165		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-10

ANALYSIS: Volatile GC/MS

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: BLNK_1110
 PREPARED:
 ANALYZED: 11/10/97

INSTR RUN: GCMS13\971110210000/1/
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	96.7			100	96.7	75	129		
Toluene-d8 (surr)	98.1			100	98.1	81	111		
p-BFB (surr)	99.3			100	99.3	78	131		
1,1-Dichloroethene	ND		5						
Benzene	ND		5						
Trichloroethene	ND		5						
Toluene	ND		5						
Chlorobenzene	ND		5						
Acetone	ND		100						
Bromodichloromethane	ND		5						
Bromoform	ND		5						
Bromomethane	ND		10						
2-Butanone	ND		100						
Carbon Disulfide	ND		10						
Carbon Tetrachloride	ND		5						
Chloroethane	ND		10						
2-Chloroethyl Vinyl Ether	ND		10						
Chloroform	ND		5						
Chloromethane	ND		10						
Dibromochloromethane	ND		5						
1,1-Dichloroethane	ND		5						
1,2-Dichloroethane	ND		5						
cis-1,2-Dichloroethene	ND		5						
trans-1,2-Dichloroethene	ND		5						
1,2-Dichloropropane	ND		5						
cis-1,3-Dichloropropene	ND		5						
trans-1,3-Dichloropropene	ND		5						
Ethylbenzene	ND		5						
2-Hexanone	ND		50						
Methylene Chloride	ND		10						
4-Methyl-2-pentanone	ND		50						
Styrene	ND		5						
1,1,2,2-Tetrachloroethane	ND		5						
Tetrachloroethene	ND		5						
1,1,1-Trichloroethane	ND		5						
1,1,2-Trichloroethane	ND		5						
Vinyl Acetate	ND		50						
Vinyl Chloride	ND		10						
Xylenes, Total	ND		10						
1,2-Dibromoethane	ND		5						
1,2-Dichlorobenzene	ND		5						
1,3-Dichlorobenzene	ND		5						
1,4-Dichlorobenzene	ND		5						
Dichlorodifluoromethane	ND		10						
Trichlorofluoromethane	ND		5						
Trichlorotrifluoroethane	ND		5						
Tetrahydrofuran	ND		50						
Ethanol	ND		100						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: LCS_1111
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/6/1
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	122	96.7		100	122	75	129		
Toluene-d8 (surr)	104	98.1		100	104	81	111		
p-BFB (surr)	105	99.3		100	105	78	131		
1,1-Dichloroethene	64.0	ND	5	50.0	128	77	137		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-11

ANALYSIS: Volatile GC/MS

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: LCS_1111
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/6/1
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	LOW	HIGH	RPD (%)	RPD LIMIT (%)
Benzene	54.1	ND	5	50.0	108	89	142			
Trichloroethene	45.9	ND	5	50.0	91.8	83	121			
Toluene	51.8	ND	5	50.0	104	81	121			
Chlorobenzene	53.2	ND	5	50.0	106	88	124			

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: MD11109-01A
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/4/2
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	LOW	HIGH	RPD (%)	RPD LIMIT (%)
1,2-DCA-d4 (surr)	106	113		100	106	75	129			
Toluene-d8 (surr)	96.3	97.6		100	96.3	81	111			
p-BFB (surr)	108	108		100	108	78	131			
1,1-Dichloroethene	58.2	ND	5	50.0	116	77	137			
Benzene	62.5	8.59	5	50.0	108	89	142			
Trichloroethene	46.9	ND	5	50.0	93.8	83	121			
Toluene	345	324	5	50.0	42.0 !	81	121			
Chlorobenzene	53.8	ND	5	50.0	108	88	124			

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: MS11109-01A
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/3/2
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	LOW	HIGH	RPD (%)	RPD LIMIT (%)
1,2-DCA-d4 (surr)	105	113		100	105	75	129			
Toluene-d8 (surr)	99.2	97.6		100	99.2	81	111			
p-BFB (surr)	108	108		100	108	78	131			
1,1-Dichloroethene	58.8	ND	5	50.0	118	77	137			
Benzene	61.9	8.59	5	50.0	107	89	142			
Trichloroethene	46.4	ND	5	50.0	92.8	83	121			
Toluene	348	324	5	50.0	48.0 !	81	121			
Chlorobenzene	54.0	ND	5	50.0	108	88	124			

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: MR11109-01A
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/5/3
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	LOW	HIGH	RPD (%)	RPD LIMIT (%)
1,2-DCA-d4 (surr)	106	105		100	106	75	129			
Toluene-d8 (surr)	96.3	99.2		100	96.3	81	111			
p-BFB (surr)	108	108		100	108	78	131			
1,1-Dichloroethene	58.2	58.8	5	50.0					1.03	25
Benzene	62.5	61.9	5	50.0					0.965	25
Trichloroethene	46.9	46.4	5	50.0					1.07	25
Toluene	345	348	5	50.0					0.866	25
Chlorobenzene	53.8	54.0	5	50.0					0.371	25

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-12

ANALYSIS: Volatile GC/MS

MATRIX: Water

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
INSTRUMENT: HP mass spec for Volatiles
UNITS: ug/L
METHOD: EPA 8240B

LAB ID: 9711109-01A
PREPARED:
ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/7/
BATCH ID: MS13W111197-2
DILUTION: 10.0

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
1,2-DCA-d4	(surr)	90.8			100	90.8	75	129		
Toluene-d8	(surr)	105			100	105	81	111		
p-BFB	(surr)	93.9			100	93.9	78	131		

----- End of Quality Control Report -----

9711109

Shipping	(White)	Lab Copy (Green)	File Copy (Yellow)	'd Copy (Pink)	FORM NO	86/COC/ARE
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American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 12/02/97

DATE(S) SAMPLED: 11/26/97

DATE RECEIVED: 11/26/97

AEN WORK ORDER: 9711400

ATTN: A. JENKINS/ S. SHIU/ M. KNOX
CLIENT PROJ. ID: 3435-00-006
CLIENT PROJ. NAME: SHERWIN WILIMS
C.O.C. NUMBER: 1392

PROJECT SUMMARY:

On November 26, 1997, this laboratory received 11 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: 3435-CK-001
AEN LAB NO: 9711400-01
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.012 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

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1900 POWELL ST. 12TH FL.
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Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: 3435-CK-001
AEN LAB NO: 9711400-01
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.012 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE - FRICKE - RECON

SAMPLE ID: W-ANDEFF
AEN LAB NO: 9711109-03
AEN WORK ORDER: 9711109
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
DATE RECEIVED: 11/10/97
REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/10/97
Arsenic	EPA 206.2	0.014 *	0.005	mg/L	11/11/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9711109
CLIENT PROJECT ID: 2616.97.01

Quality Control and Project Summary

Sample (STORM DRAIN):

The recovery of toluene in the MS/MSD is below QC limits due to high toluene in the sample. The RPD's and LCS are in control. The QC batch is valid per SOP # AEN-QA03.

Reporting limits elevated for cadmium and selenium due to matrix interference.

Reporting limits elevated for EPA 8240 due to high levels of target compounds. Sample run at dilution.

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/1/
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	ND		0.002						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/3/1
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0403	ND	0.002	0.0400	101	82	140		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/2/1
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0356	ND	0.002	0.0400	89.0	82	140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/4/2
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0403	0.0356	0.002					12.4	13

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-7

ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: BLNK 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/2/
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	95.4			100	95.4	42	110		
Phenol-d5 (surr)	89.9			100	89.9	40	122		
Nitrobenzene-d5 (surr)	91.1			100	91.1	46	109		
2-Fluorobiphenyl (surr)	95.6			100	95.6	41	140		
2,4,6-Tribromophenol (surr)	93.5			100	93.5	46	116		
Terphenyl-d14 (surr)	118			100	118	35	165		
Phenol	ND		10						
2-Chlorophenol	ND		10						
1,4-Dichlorobenzene	ND		10						
N-Nitrosodi-n-propylamine	ND		10						
1,2,4-Trichlorobenzene	ND		10						
4-Chloro-3-methylphenol	ND		10						
Acenaphthene	ND		10						
4-Nitrophenol	ND		50						
2,4-Dinitrotoluene	ND		10						
Pentachlorophenol	ND		50						
Pyrene	ND		10						
Acenaphthylene	ND		10						
Anthracene	ND		10						
Benzidine	ND		50						
Benzoic Acid	ND		50						
Benzo(a)anthracene	ND		10						
Benzo(b)fluoranthene	ND		10						
Benzo(k)fluoranthene	ND		10						
Benzo(g,h,i)perylene	ND		10						
Benzo(a)pyrene	ND		10						
Benzyl Alcohol	ND		20						
Bis(2-chloroethoxy)methane	ND		10						
Bis(2-chloroethyl) Ether	ND		10						
Bis(2-chloroisopropyl) Eth	ND		10						
Bis(2-ethylhexyl) Phthalat	ND		10						
4-Bromophenyl Phenyl Ether	ND		10						
Butylbenzyl Phthalate	ND		10						
4-Chloroaniline	ND		20						
2-Chloronaphthalene	ND		10						
4-Chlorophenyl Phenyl Ethe	ND		10						
Chrysene	ND		10						
Dibenzo(a,h)anthracene	ND		10						
Dibenzofuran	ND		10						
Di-n-butyl Phthalate	ND		10						
1,2-Dichlorobenzene	ND		10						
1,3-Dichlorobenzene	ND		10						
3,3'-Dichlorobenzidine	ND		20						
Diethyl Phthalate	ND		10						
Dimethyl Phthalate	ND		10						
2,6-Dinitrotoluene	ND		10						
Di-n-octyl Phthalate	ND		10						
1,2-Diphenylhydrazine	ND		10						
Fluoranthene	ND		10						
Fluorene	ND		10						
Hexachlorobenzene	ND		10						
Hexachlorobutadiene	ND		10						
Hexachlorocyclopentadiene	ND		10						
Hexachloroethane	ND		10						
Indeno(1,2,3-cd)pyrene	ND		10						
Isophorone	ND		10						
2-Methylnaphthalene	ND		10						
Naphthalene	ND		10						
2-Nitroaniline	ND		50						
3-Nitroaniline	ND		50						
4-Nitroaniline	ND		50						
Nitrobenzene	ND		10						
N-Nitrosodimethylamine	ND		10						
N-Nitrosodiphenylamine	ND		10						

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-8

ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: BLNK 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/2/
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Phenanthrene	ND		10						
2,4-Dichlorophenol	ND		10						
2,4-Dimethylphenol	ND		10						
4,6-Dinitro-2-methylphenol	ND		50						
2,4-Dinitrophenol	ND		50						
2-Methylphenol	ND		10						
4-Methylphenol	ND		10						
2-Nitrophenol	ND		10						
2,4,5-Trichlorophenol	ND		10						
2,4,6-Trichlorophenol	ND		10						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCD 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/4/2
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	92.3	95.4		100	92.3	42	110		
Phenol-d5 (surr)	91.6	89.9		100	91.6	40	122		
Nitrobenzene-d5 (surr)	90.3	91.1		100	90.3	46	109		
2-Fluorobiphenyl (surr)	99.1	95.6		100	99.1	41	140		
2,4,6-Tribromophenol (surr)	105	93.5		100	105	46	116		
Terphenyl-d14 (surr)	124	118		100	124	35	165		
Phenol	74.5	ND	10	100	74.5	44	94		
2-Chlorophenol	83.0	ND	10	100	83.0	52	111		
1,4-Dichlorobenzene	91.2	ND	10	100	91.2	54	116		
N-Nitrosodi-n-propylamine	67.6	ND	10	100	67.6	48	141		
1,2,4-Trichlorobenzene	96.8	ND	10	100	96.8	57	107		
4-Chloro-3-methylphenol	81.0	ND	10	100	81.0	54	113		
Acenaphthene	96.1	ND	10	100	96.1	60	114		
4-Nitrophenol	54.1	ND	50	100	54.1	22	119		
2,4-Dinitrotoluene	90.5	ND	10	100	90.5	43	130		
Pentachlorophenol	56.4	ND	50	100	56.4	38	110		
Pyrene	121	ND	10	100	121	32	121		

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCS 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/3/2
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	99.8	95.4		100	99.8	42	110		
Phenol-d5 (surr)	97.0	89.9		100	97.0	40	122		
Nitrobenzene-d5 (surr)	96.4	91.1		100	96.4	46	109		
2-Fluorobiphenyl (surr)	103	95.6		100	103	41	140		
2,4,6-Tribromophenol (surr)	110	93.5		100	110	46	116		
Terphenyl-d14 (surr)	128	118		100	128	35	165		
Phenol	75.0	ND	10	100	75.0	44	94		
2-Chlorophenol	84.2	ND	10	100	84.2	52	111		
1,4-Dichlorobenzene	91.6	ND	10	100	91.6	54	116		
N-Nitrosodi-n-propylamine	64.9	ND	10	100	64.9	48	141		
1,2,4-Trichlorobenzene	99.6	ND	10	100	99.6	57	107		
4-Chloro-3-methylphenol	80.8	ND	10	100	80.8	54	113		
Acenaphthene	95.5	ND	10	100	95.5	60	114		
4-Nitrophenol	59.6	ND	50	100	59.6	22	119		
2,4-Dinitrotoluene	95.2	ND	10	100	95.2	43	130		
Pentachlorophenol	62.9	ND	50	100	62.9	38	110		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCS 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/3/2
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Pyrene	116	ND	10	100	116	32	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Control Sample Duplicate
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCR 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/5/3
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	92.3	99.8		100	92.3	42	110		
Phenol-d5 (surr)	91.6	97.0		100	91.6	40	122		
Nitrobenzene-d5 (surr)	90.3	96.4		100	90.3	46	109		
2-Fluorobiphenyl (surr)	99.1	103		100	99.1	41	140		
2,4,6-Tribromophenol (surr)	105	110		100	105	46	116		
Terphenyl-d14 (surr)	124	128		100	124	35	165		
Phenol	74.5	75.0	10	100				0.669	40
2-Chlorophenol	83.0	84.2	10	100				1.44	40
1,4-Dichlorobenzene	91.2	91.6	10	100				0.438	30
N-Nitrosodi-n-propylamine	67.6	64.9	10	100				4.08	30
1,2,4-Trichlorobenzene	96.8	99.6	10	100				2.85	30
4-Chloro-3-methylphenol	81.0	80.8	10	100				0.247	30
Acenaphthene	96.1	95.5	10	100				0.626	30
4-Nitrophenol	54.1	59.6	50	100				9.67	40
2,4-Dinitrotoluene	90.5	95.2	10	100				5.06	40
Pentachlorophenol	56.4	62.9	50	100				10.9	30
Pyrene	121	116	10	100				4.22	30

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: 9711109-01C
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/1/
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	89.7			100	89.7	42	110		
Phenol-d5 (surr)	94.1			100	94.1	40	122		
Nitrobenzene-d5 (surr)	88.8			100	88.8	46	109		
2-Fluorobiphenyl (surr)	96.1			100	96.1	41	140		
2,4,6-Tribromophenol (surr)	115			100	115	46	116		
Terphenyl-d14 (surr)	111			100	111	35	165		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-10

ANALYSIS: Volatile GC/MS

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: BLNK_1110
 PREPARED:
 ANALYZED: 11/10/97

INSTR RUN: GCMS13\971110210000/1/
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	96.7			100	96.7	75	129		
Toluene-d8 (surr)	98.1			100	98.1	81	111		
p-BFB (surr)	99.3			100	99.3	78	131		
1,1-Dichloroethene	ND		5						
Benzene	ND		5						
Trichloroethene	ND		5						
Toluene	ND		5						
Chlorobenzene	ND		5						
Acetone	ND	100							
Bromodichloromethane	ND		5						
Bromoform	ND		5						
Bromomethane	ND		10						
2-Butanone	ND		100						
Carbon Disulfide	ND		10						
Carbon Tetrachloride	ND		5						
Chloroethane	ND		10						
2-Chloroethyl Vinyl Ether	ND		10						
Chloroform	ND		5						
Chloromethane	ND		10						
Dibromochloromethane	ND		5						
1,1-Dichloroethane	ND		5						
1,2-Dichloroethane	ND		5						
cis-1,2-Dichloroethene	ND		5						
trans-1,2-Dichloroethene	ND		5						
1,2-Dichloropropane	ND		5						
cis-1,3-Dichloropropene	ND		5						
trans-1,3-Dichloropropene	ND		5						
Ethylbenzene	ND		5						
2-Hexanone	ND		50						
Methylene Chloride	ND		10						
4-Methyl-2-pentanone	ND		50						
Styrene	ND		5						
1,1,2,2-Tetrachloroethane	ND		5						
Tetrachloroethene	ND		5						
1,1,1-Trichloroethane	ND		5						
1,1,2-Trichloroethane	ND		5						
Vinyl Acetate	ND		50						
Vinyl Chloride	ND		10						
Xylenes, Total	ND		10						
1,2-Dibromoethane	ND		5						
1,2-Dichlorobenzene	ND		5						
1,3-Dichlorobenzene	ND		5						
1,4-Dichlorobenzene	ND		5						
Dichlorodifluoromethane	ND		10						
Trichlorofluoromethane	ND		5						
Trichlorotrifluoroethane	ND		5						
Tetrahydrofuran	ND		50						
Ethanol	ND		100						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: LCS_1111
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/6/1
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	122	96.7		100	122	75	129		
Toluene-d8 (surr)	104	98.1		100	104	81	111		
p-BFB (surr)	105	99.3		100	105	78	131		
1,1-Dichloroethene	64.0	ND	5	50.0	128	77	137		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike			LAB ID: LCS_1111			INSTR RUN: GCMS13\971110210000/6/1			
INSTRUMENT: HP mass spec for Volatiles			PREPARED:			BATCH ID: MS13W111197-2			
UNITS: ug/L			ANALYZED: 11/11/97			DILUTION: 1.00			
METHOD: EPA 8240B									
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Benzene	54.1	ND	5	50.0	108	89	142		
Trichloroethene	45.9	ND	5	50.0	91.8	83	121		
Toluene	51.8	ND	5	50.0	104	81	121		
Chlorobenzene	53.2	ND	5	50.0	106	88	124		

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix			LAB ID: MD11109-01A			INSTR RUN: GCMS13\971110210000/4/2				
INSTRUMENT: HP mass spec for Volatiles			PREPARED:			BATCH ID: MS13W111197-2				
UNITS: ug/L			ANALYZED: 11/11/97			DILUTION: 1.00				
METHOD: EPA 8240B										
ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
1,2-DCA-d4	(surr)	106	113		100	106	75	129		
Toluene-d8	(surr)	96.3	97.6		100	96.3	81	111		
p-BFB	(surr)	108	108		100	108	78	131		
1,1-Dichloroethene		58.2	ND	5	50.0	116	77	137		
Benzene		62.5	8.59	5	50.0	108	89	142		
Trichloroethene		46.9	ND	5	50.0	93.8	83	121		
Toluene		345	324	5	50.0	42.0 !	81	121		
Chlorobenzene		53.8	ND	5	50.0	108	88	124		

SAMPLE TYPE: Spike-Sample/Matrix			LAB ID: MS11109-01A			INSTR RUN: GCMS13\971110210000/3/2				
INSTRUMENT: HP mass spec for Volatiles			PREPARED:			BATCH ID: MS13W111197-2				
UNITS: ug/L			ANALYZED: 11/11/97			DILUTION: 1.00				
METHOD: EPA 8240B										
ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
1,2-DCA-d4	(surr)	105	113		100	105	75	129		
Toluene-d8	(surr)	99.2	97.6		100	99.2	81	111		
p-BFB	(surr)	108	108		100	108	78	131		
1,1-Dichloroethene		58.8	ND	5	50.0	118	77	137		
Benzene		61.9	8.59	5	50.0	107	89	142		
Trichloroethene		46.4	ND	5	50.0	92.8	83	121		
Toluene		348	324	5	50.0	48.0 !	81	121		
Chlorobenzene		54.0	ND	5	50.0	108	88	124		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate			LAB ID: MR11109-01A			INSTR RUN: GCMS13\971110210000/5/3				
INSTRUMENT: HP mass spec for Volatiles			PREPARED:			BATCH ID: MS13W111197-2				
UNITS: ug/L			ANALYZED: 11/11/97			DILUTION: 1.00				
METHOD: EPA 8240B										
ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
1,2-DCA-d4	(surr)	106	105		100	106	75	129		
Toluene-d8	(surr)	96.3	99.2		100	96.3	81	111		
p-BFB	(surr)	108	108		100	108	78	131		
1,1-Dichloroethene		58.2	58.8	5	50.0				1.03	25
Benzene		62.5	61.9	5	50.0				0.965	25
Trichloroethene		46.9	46.4	5	50.0				1.07	25
Toluene		345	348	5	50.0				0.866	25
Chlorobenzene		53.8	54.0	5	50.0				0.371	25

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client			LAB ID: 9711109-01A			INSTR RUN: GCMS13\971110210000\7\			
INSTRUMENT: HP mass spec for Volatiles			PREPARED:			BATCH ID: MS13W111197-2			
UNITS: ug/L			ANALYZED: 11/11/97			DILUTION: 10.0			
METHOD: EPA 8240B									
ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
							LOW	HIGH	
1,2-DCA-d4	(surr)	90.8			100	90.8	75	129	
Toluene-d8	(surr)	105			100	105	81	111	
p-8FB	(surr)	93.9			100	93.9	78	131	

----- End of Quality Control Report -----

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

R-3, S-3 ORG

INORG

9711109

Project No.: 2616.97-01	Field Logbook No.:	Date: 11/10/97	Serial No.: No 14482
Project Name: SHERWIN WILLIAMS		Project Location: EMERYVILLE CA	

Sampler (Signature): Steve Thornton						ANALYSES										Samplers: SAT	
SAMPLES																	
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 8240	EPA 8220	EPA 200.2	AS	CMH-17					HOLD	RUSH	REMARKS
Storm DRAIN	11/10	10:15	01AB	2		X									X		24 HOUR TURNAROUND
" "			01CD	2			X								X		
" "			01E	1				X	X						X		
R4R-B			02A	1				X							X		
W. ANDEFF			03A	1				X							X		
																	METALS SAMPLES SHALL BE ANALYZED FOR TOTAL UNFILTERED CONSTIT'S

RELINQUISHED BY: (Signature) Steve Thornton	DATE 11/10/97	TIME 1100	RECEIVED BY: (Signature) Michael E. Fricke	DATE 11/10/97	TIME 1515
RELINQUISHED BY: (Signature) Michael E. Fricke	DATE 11/10/97	TIME 1610	RECEIVED BY: (Signature) Steve Thornton	DATE 11/10/97	TIME 1610
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: AEN COURIER			LAB COMMENTS:		
Sample Collector: LEVINE-FRICKE 1900 Powell Street, 12th Floor Emeryville, California 94608 (510) 652-4500			Analytical Laboratory: AEN		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/1/
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	ND		0.002						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/3/1
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0403	ND	0.002	0.0400	101	82	140		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/2/1
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0356	ND	0.002	0.0400	89.0	82	140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/4/2
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0403	0.0356	0.002					12.4	13

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Mercury

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 50D
 UNITS: mg/L
 METHOD:

LAB ID: HGW_BLNK
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: HG\971111130000/1/
 BATCH ID: HGW111197
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in water	ND		0.0002						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 50D
 UNITS: mg/L
 METHOD:

LAB ID: HGW_LCD
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: HG\971111130000/3/1
 BATCH ID: HGW111197
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in water	0.00195	ND	0.0002	0.00200	97.5	89	121		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 50D
 UNITS: mg/L
 METHOD:

LAB ID: HGW_LCS
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: HG\971111130000/2/1
 BATCH ID: HGW111197
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in water	0.00195	ND	0.0002	0.00200	97.5	89	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: Coleman Hg Analyzer 50D
 UNITS: mg/L
 METHOD:

LAB ID: HGW_LCR
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: HG\971111130000/4/2
 BATCH ID: HGW111197
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in water	0.00195	0.00195	0.0002					0	10

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: Coleman Hg Analyzer 50D
 UNITS: mg/L
 METHOD:

LAB ID: MS11109-01E
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: HG\971111130000/6/5
 BATCH ID: HGW111197
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in water	0.00195	ND	0.0002	0.00200	97.5	69	128		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_BLNK_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/1/
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	Silver	ND	0.005						
Ba	Barium	ND	0.01						
Be	Beryllium	ND	0.002						
Cd	Cadmium	ND	0.005						
Co	Cobalt	ND	0.005						
Cr	Chromium	ND	0.01						
Cu	Copper	ND	0.01						
Mo	Molybdenum	ND	0.01						
Ni	Nickel	ND	0.01						
Pb	Lead	ND	0.04						
Sb	Antimony	ND	0.02						
Tl	Thallium	ND	0.05						
V	Vanadium	ND	0.005						
Zn	Zinc	ND	0.01						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCD_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/3/1
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	Silver	ND	0.005	0.0250	92.8	72	127		
Ba	Barium	ND	0.01	1.00	103	91	120		
Be	Beryllium	ND	0.002	0.0250	110	82	119		
Cd	Cadmium	ND	0.005	0.0500	100	84	120		
Co	Cobalt	ND	0.005	0.250	110	96	120		
Cr	Chromium	ND	0.01	0.100	109	85	128		
Cu	Copper	ND	0.01	0.125	99.2	86	123		
Mo	Molybdenum	ND	0.01	0.200	108	89	117		
Ni	Nickel	ND	0.01	0.250	112	92	121		
Pb	Lead	ND	0.04	0.500	109	90	122		
Sb	Antimony	ND	0.02	0.500	108	82	113		
Tl	Thallium	ND	0.05	0.500	105	85	115		
V	Vanadium	ND	0.005	0.250	108	91	118		
Zn	Zinc	ND	0.01	0.250	106	90	121		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCS_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/2/1
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	Silver	ND	0.005	0.0250	91.6	72	127		
Ba	Barium	ND	0.01	1.00	102	91	120		
Be	Beryllium	ND	0.002	0.0250	111	82	119		
Cd	Cadmium	ND	0.005	0.0500	98.2	84	120		
Co	Cobalt	ND	0.005	0.250	109	96	120		
Cr	Chromium	ND	0.01	0.100	105	85	128		
Cu	Copper	ND	0.01	0.125	98.4	86	123		
Mo	Molybdenum	ND	0.01	0.200	107	89	117		
Ni	Nickel	ND	0.01	0.250	111	92	121		
Pb	Lead	ND	0.04	0.500	109	90	122		
Sb	Antimony	ND	0.02	0.500	106	82	113		
Tl	Thallium	ND	0.05	0.500	103	85	115		
V	Vanadium	ND	0.005	0.250	106	91	118		
Zn	Zinc	ND	0.01	0.250	106	90	121		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: BLNK 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/2/
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	95.4			100	95.4	42	110		
Phenol-d5 (surr)	89.9			100	89.9	40	122		
Nitrobenzene-d5 (surr)	91.1			100	91.1	46	109		
2-Fluorobiphenyl (surr)	95.6			100	95.6	41	140		
2,4,6-Tribromophenol (surr)	93.5			100	93.5	46	116		
Terphenyl-d14 (surr)	118			100	118	35	165		
Phenol	ND		10						
2-Chlorophenol	ND		10						
1,4-Dichlorobenzene	ND		10						
N-Nitrosodi-n-propylamine	ND		10						
1,2,4-Trichlorobenzene	ND		10						
4-Chloro-3-methylphenol	ND		10						
Acenaphthene	ND		10						
4-Nitrophenol	ND		50						
2,4-Dinitrotoluene	ND		10						
Pentachlorophenol	ND		50						
Pyrene	ND		10						
Acenaphthylene	ND		10						
Anthracene	ND		10						
Benzidine	ND		50						
Benzoic Acid	ND		50						
Benzo(a)anthracene	ND		10						
Benzo(b)fluoranthene	ND		10						
Benzo(k)fluoranthene	ND		10						
Benzo(g,h,i)perylene	ND		10						
Benzo(a)pyrene	ND		10						
Benzyl Alcohol	ND		20						
Bis(2-chloroethoxy)methane	ND		10						
Bis(2-chloroethyl) Ether	ND		10						
Bis(2-chloroisopropyl) Eth	ND		10						
Bis(2-ethylhexyl) Phthalat	ND		10						
4-Bromophenyl Phenyl Ether	ND		10						
Butylbenzyl Phthalate	ND		10						
4-Chloroaniline	ND		20						
2-Chloronaphthalene	ND		10						
4-Chlorophenyl Phenyl Ethe	ND		10						
Chrysene	ND		10						
Dibenzo(a,h)anthracene	ND		10						
Dibenzofuran	ND		10						
Di-n-butyl Phthalate	ND		10						
1,2-Dichlorobenzene	ND		10						
1,3-Dichlorobenzene	ND		10						
3,3'-Dichlorobenzidine	ND		20						
Diethyl Phthalate	ND		10						
Dimethyl Phthalate	ND		10						
2,6-Dinitrotoluene	ND		10						
Di-n-octyl Phthalate	ND		10						
1,2-Diphenylhydrazine	ND		10						
Fluoranthene	ND		10						
Fluorene	ND		10						
Hexachlorobenzene	ND		10						
Hexachlorobutadiene	ND		10						
Hexachlorocyclopentadiene	ND		10						
Hexachloroethane	ND		10						
Indeno(1,2,3-cd)pyrene	ND		10						
Isophorone	ND		10						
2-Methylnaphthalene	ND		10						
Naphthalene	ND		10						
2-Nitroaniline	ND		50						
3-Nitroaniline	ND		50						
4-Nitroaniline	ND		50						
Nitrobenzene	ND		10						
N-Nitrosodimethylamine	ND		10						
N-Nitrosodiphenylamine	ND		10						

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_BLNK_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/1/
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag Silver	ND		0.005						
Ba Barium	ND		0.01						
Be Beryllium	ND		0.002						
Cd Cadmium	ND		0.005						
Co Cobalt	ND		0.005						
Cr Chromium	ND		0.01						
Cu Copper	ND		0.01						
Mo Molybdenum	ND		0.01						
Ni Nickel	ND		0.01						
Pb Lead	ND		0.04						
Sb Antimony	ND		0.02						
Tl Thallium	ND		0.05						
V Vanadium	ND		0.005						
Zn Zinc	ND		0.01						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCD_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/3/1
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag Silver	0.0232	ND	0.005	0.0250	92.8	72	127		
Ba Barium	1.03	ND	0.01	1.00	103	91	120		
Be Beryllium	0.0276	ND	0.002	0.0250	110	82	119		
Cd Cadmium	0.0500	ND	0.005	0.0500	100	84	120		
Co Cobalt	0.276	ND	0.005	0.250	110	96	120		
Cr Chromium	0.109	ND	0.01	0.100	109	85	128		
Cu Copper	0.124	ND	0.01	0.125	99.2	86	123		
Mo Molybdenum	0.216	ND	0.01	0.200	108	89	117		
Ni Nickel	0.280	ND	0.01	0.250	112	92	121		
Pb Lead	0.544	ND	0.04	0.500	109	90	122		
Sb Antimony	0.542	ND	0.02	0.500	108	82	113		
Tl Thallium	0.523	ND	0.05	0.500	105	85	115		
V Vanadium	0.270	ND	0.005	0.250	108	91	118		
Zn Zinc	0.265	ND	0.01	0.250	106	90	121		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCS_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/2/1
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag Silver	0.0229	ND	0.005	0.0250	91.6	72	127		
Ba Barium	1.02	ND	0.01	1.00	102	91	120		
Be Beryllium	0.0278	ND	0.002	0.0250	111	82	119		
Cd Cadmium	0.0491	ND	0.005	0.0500	98.2	84	120		
Co Cobalt	0.273	ND	0.005	0.250	109	96	120		
Cr Chromium	0.105	ND	0.01	0.100	105	85	128		
Cu Copper	0.123	ND	0.01	0.125	98.4	86	123		
Mo Molybdenum	0.213	ND	0.01	0.200	107	89	117		
Ni Nickel	0.278	ND	0.01	0.250	111	92	121		
Pb Lead	0.546	ND	0.04	0.500	109	90	122		
Sb Antimony	0.528	ND	0.02	0.500	106	82	113		
Tl Thallium	0.514	ND	0.05	0.500	103	85	115		
V Vanadium	0.265	ND	0.005	0.250	106	91	118		
Zn Zinc	0.265	ND	0.01	0.250	106	90	121		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Water

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCR_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/4/2
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
Ag	Silver	0.0232	0.0229	0.005					1.30	10
Ba	Barium	1.03	1.02	0.01					0.976	10
Be	Beryllium	0.0276	0.0278	0.002					0.722	10
Cd	Cadmium	0.0500	0.0491	0.005					1.82	10
Co	Cobalt	0.276	0.273	0.005					1.09	10
Cr	Chromium	0.109	0.105	0.01					3.74	10
Cu	Copper	0.124	0.123	0.01					0.810	10
Mo	Molybdenum	0.216	0.213	0.01					1.40	10
Ni	Nickel	0.280	0.278	0.01					0.717	10
Pb	Lead	0.544	0.546	0.04					0.367	10
Sb	Antimony	0.542	0.528	0.02					2.62	10
Tl	Thallium	0.523	0.514	0.05					1.74	10
V	Vanadium	0.270	0.265	0.005					1.87	10
Zn	Zinc	0.265	0.265	0.01					0	10

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Selenium

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_PBW_W
PREPARED:
ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/1/
BATCH ID: GFW111097-W
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	ND		0.004						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_LCD_W
PREPARED:
ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/3/1
BATCH ID: GFW111097-W
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	0.0775	ND	0.004	0.0800	96.9	79	115		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_LCS_W
PREPARED:
ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/2/1
BATCH ID: GFW111097-W
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	0.0767	ND	0.004	0.0800	95.9	79	115		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_LCR_W
PREPARED:
ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/4/2
BATCH ID: GFW111097-W
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	0.0775	0.0767	0.004					1.04	13

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QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: BLNK 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000\2/
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	95.4			100	95.4	42	110		
Phenol-d5 (surr)	89.9			100	89.9	40	122		
Nitrobenzene-d5 (surr)	91.1			100	91.1	46	109		
2-Fluorobiphenyl (surr)	95.6			100	95.6	41	140		
2,4,6-Tribromophenol (surr)	93.5			100	93.5	46	116		
Terphenyl-d14 (surr)	118			100	118	35	165		
Phenol	ND		10						
2-Chlorophenol	ND		10						
1,4-Dichlorobenzene	ND		10						
N-Nitrosodi-n-propylamine	ND		10						
1,2,4-Trichlorobenzene	ND		10						
4-Chloro-3-methylphenol	ND		10						
Acenaphthene	ND		10						
4-Nitrophenol	ND		50						
2,4-Dinitrotoluene	ND		10						
Pentachlorophenol	ND		50						
Pyrene	ND		10						
Acenaphthylene	ND		10						
Anthracene	ND		10						
Benzidine	ND		50						
Benzoic Acid	ND		50						
Benzo(a)anthracene	ND		10						
Benzo(b)fluoranthene	ND		10						
Benzo(k)fluoranthene	ND		10						
Benzo(g,h,i)perylene	ND		10						
Benzo(a)pyrene	ND		10						
Benzyl Alcohol	ND		20						
Bis(2-chloroethoxy)methane	ND		10						
Bis(2-chloroethyl) Ether	ND		10						
Bis(2-chloroisopropyl) Eth	ND		10						
Bis(2-ethylhexyl) Phthalat	ND		10						
4-Bromophenyl Phenyl Ether	ND		10						
Butylbenzyl Phthalate	ND		10						
4-Chloroaniline	ND		20						
2-Chloronaphthalene	ND		10						
4-Chlorophenyl Phenyl Ethe	ND		10						
Chrysene	ND		10						
Dibenzo(a,h)anthracene	ND		10						
Dibenzofuran	ND		10						
Di-n-butyl Phthalate	ND		10						
1,2-Dichlorobenzene	ND		10						
1,3-Dichlorobenzene	ND		10						
3,3'-Dichlorobenzidine	ND		20						
Diethyl Phthalate	ND		10						
Dimethyl Phthalate	ND		10						
2,6-Dinitrotoluene	ND		10						
Di-n-octyl Phthalate	ND		10						
1,2-Diphenylhydrazine	ND		10						
Fluoranthene	ND		10						
Fluorene	ND		10						
Hexachlorobenzene	ND		10						
Hexachlorobutadiene	ND		10						
Hexachlorocyclopentadiene	ND		10						
Hexachloroethane	ND		10						
Indeno(1,2,3-cd)pyrene	ND		10						
Isophorone	ND		10						
2-Methylnaphthalene	ND		10						
Naphthalene	ND		10						
2-Nitroaniline	ND		50						
3-Nitroaniline	ND		50						
4-Nitroaniline	ND		50						
Nitrobenzene	ND		10						
N-Nitrosodimethylamine	ND		10						
N-Nitrosodiphenylamine	ND		10						

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QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: BLNK 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/2/
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Phenanthrene	ND		10						
2,4-Dichlorophenol	ND		10						
2,4-Dimethylphenol	ND		10						
4,6-Dinitro-2-methylphenol	ND		50						
2,4-Dinitrophenol	ND		50						
2-Methylphenol	ND		10						
4-Methylphenol	ND		10						
2-Nitrophenol	ND		10						
2,4,5-Trichlorophenol	ND		10						
2,4,6-Trichlorophenol	ND		10						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCD 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/4/2
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	92.3	95.4		100	92.3	42	110		
Phenol-d5 (surr)	91.6	89.9		100	91.6	40	122		
Nitrobenzene-d5 (surr)	90.3	91.1		100	90.3	46	109		
2-Fluorobiphenyl (surr)	99.1	95.6		100	99.1	41	140		
2,4,6-Tribromophenol (surr)	105	93.5		100	105	46	116		
Terphenyl-d14 (surr)	124	118		100	124	35	165		
Phenol	74.5	ND	10	100	74.5	44	94		
2-Chlorophenol	83.0	ND	10	100	83.0	52	111		
1,4-Dichlorobenzene	91.2	ND	10	100	91.2	54	116		
N-Nitrosodi-n-propylamine	67.6	ND	10	100	67.6	48	141		
1,2,4-Trichlorobenzene	96.8	ND	10	100	96.8	57	107		
4-Chloro-3-methylphenol	81.0	ND	10	100	81.0	54	113		
Acenaphthene	96.1	ND	10	100	96.1	60	114		
4-Nitrophenol	54.1	ND	50	100	54.1	22	119		
2,4-Dinitrotoluene	90.5	ND	10	100	90.5	43	130		
Pentachlorophenol	56.4	ND	50	100	56.4	38	110		
Pyrene	121	ND	10	100	121	32	121		

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCS 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/3/2
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	99.8	95.4		100	99.8	42	110		
Phenol-d5 (surr)	97.0	89.9		100	97.0	40	122		
Nitrobenzene-d5 (surr)	96.4	91.1		100	96.4	46	109		
2-Fluorobiphenyl (surr)	103	95.6		100	103	41	140		
2,4,6-Tribromophenol (surr)	110	93.5		100	110	46	116		
Terphenyl-d14 (surr)	128	118		100	128	35	165		
Phenol	75.0	ND	10	100	75.0	44	94		
2-Chlorophenol	84.2	ND	10	100	84.2	52	111		
1,4-Dichlorobenzene	91.6	ND	10	100	91.6	54	116		
N-Nitrosodi-n-propylamine	64.9	ND	10	100	64.9	48	141		
1,2,4-Trichlorobenzene	99.6	ND	10	100	99.6	57	107		
4-Chloro-3-methylphenol	80.8	ND	10	100	80.8	54	113		
Acenaphthene	95.5	ND	10	100	95.5	60	114		
4-Nitrophenol	59.6	ND	50	100	59.6	22	119		
2,4-Dinitrotoluene	95.2	ND	10	100	95.2	43	130		
Pentachlorophenol	62.9	ND	50	100	62.9	38	110		

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QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCS 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/3/2
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Pyrene	116	ND	10	100	116	32	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Control Sample Duplicate
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCR 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/5/3
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	92.3	99.8		100	92.3	42	110		
Phenol-d5 (surr)	91.6	97.0		100	91.6	40	122		
Nitrobenzene-d5 (surr)	90.3	96.4		100	90.3	46	109		
2-Fluorobiphenyl (surr)	99.1	103		100	99.1	41	140		
2,4,6-Tribromophenol (surr)	105	110		100	105	46	116		
Terphenyl-d14 (surr)	124	128		100	124	35	165		
Phenol	74.5	75.0	10	100				0.669	40
2-Chlorophenol	83.0	84.2	10	100				1.44	40
1,4-Dichlorobenzene	91.2	91.6	10	100				0.438	30
N-Nitrosodi-n-propylamine	67.6	64.9	10	100				4.08	30
1,2,4-Trichlorobenzene	96.8	99.6	10	100				2.85	30
4-Chloro-3-methylphenol	81.0	80.8	10	100				0.247	30
Acenaphthene	96.1	95.5	10	100				0.626	30
4-Nitrophenol	54.1	59.6	50	100				9.67	40
2,4-Dinitrotoluene	90.5	95.2	10	100				5.06	40
Pentachlorophenol	56.4	62.9	50	100				10.9	30
Pyrene	121	116	10	100				4.22	30

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: 9711109-01C
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/1/
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	89.7			100	89.7	42	110		
Phenol-d5 (surr)	94.1			100	94.1	40	122		
Nitrobenzene-d5 (surr)	88.8			100	88.8	46	109		
2-Fluorobiphenyl (surr)	96.1			100	96.1	41	140		
2,4,6-Tribromophenol (surr)	115			100	115	46	116		
Terphenyl-d14 (surr)	111			100	111	35	165		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank			LAB ID: BLNK_1110		INSTR RUN: GCMS13\971110210000/1/				
INSTRUMENT: HP mass spec for Volatiles			PREPARED:		BATCH ID: MS13W111197-2				
UNITS: ug/L			ANALYZED: 11/10/97		DILUTION: 1.00				
METHOD: EPA 8240B									
			REF	REPORTING	SPIKE	RECOVERY	REC LIMITS (%)		RPD
ANALYTE			RESULT	LIMIT	VALUE	(%)	LOW	HIGH	LIMIT (%)
1,2-DCA-d4 (surr)			96.7		100	96.7	75	129	
Toluene-d8 (surr)			98.1		100	98.1	81	111	
p-BFB (surr)			99.3		100	99.3	78	131	
1,1-Dichloroethene			ND	5					
Benzene			ND	5					
Trichloroethene			ND	5					
Toluene			ND	5					
Chlorobenzene			ND	5					
Acetone			ND	100					
Bromodichloromethane			ND	5					
Bromoform			ND	5					
Bromomethane			ND	10					
2-Butanone			ND	100					
Carbon Disulfide			ND	10					
Carbon Tetrachloride			ND	5					
Chloroethane			ND	10					
2-Chloroethyl Vinyl Ether			ND	10					
Chloroform			ND	5					
Chloromethane			ND	10					
Dibromochloromethane			ND	5					
1,1-Dichloroethane			ND	5					
1,2-Dichloroethane			ND	5					
cis-1,2-Dichloroethene			ND	5					
trans-1,2-Dichloroethene			ND	5					
1,2-Dichloropropane			ND	5					
cis-1,3-Dichloropropene			ND	5					
trans-1,3-Dichloropropene			ND	5					
Ethylbenzene			ND	5					
2-Hexanone			ND	50					
Methylene Chloride			ND	10					
4-Methyl-2-pentanone			ND	50					
Styrene			ND	5					
1,1,2,2-Tetrachloroethane			ND	5					
Tetrachloroethene			ND	5					
1,1,1-Trichloroethane			ND	5					
1,1,2-Trichloroethane			ND	5					
Vinyl Acetate			ND	50					
Vinyl Chloride			ND	10					
Xylenes, Total			ND	10					
1,2-Dibromoethane			ND	5					
1,2-Dichlorobenzene			ND	5					
1,3-Dichlorobenzene			ND	5					
1,4-Dichlorobenzene			ND	5					
Dichlorodifluoromethane			ND	10					
Trichlorofluoromethane			ND	5					
Trichlorotrifluoroethane			ND	5					
Tetrahydrofuran			ND	50					
Ethanol			ND	100					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike			LAB ID: LCS_1111			INSTR RUN: GCMS13\971110210000/6/1			
INSTRUMENT: HP mass spec for Volatiles			PREPARED:			BATCH ID: MS13W111197-2			
UNITS: ug/L			ANALYZED: 11/11/97			DILUTION: 1.00			
METHOD: EPA 8240B									
			REF	REPORTING	SPIKE	RECOVERY	REC LIMITS (%)		RPD
ANALYTE		RESULT	RESULT	LIMIT	VALUE	(%)	LOW	HIGH	RPD (%)
1,2-DCA-d4	(surr)	122	96.7		100	122	75	129	
Toluene-d8	(surr)	104	98.1		100	104	81	111	
p-BFB	(surr)	105	99.3		100	105	78	131	
1,1-Dichloroethene		64.0	ND	5	50.0	128	77	137	

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike			LAB ID: LCS_1111		INSTR RUN: GCMS13\971110210000/6/1				
INSTRUMENT: HP mass spec for Volatiles			PREPARED:		BATCH ID: MS13W111197-2				
UNITS: ug/L			ANALYZED: 11/11/97		DILUTION: 1.00				
METHOD: EPA 8240B									
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Benzene	54.1	ND	5	50.0	108	89	142		
Trichloroethene	45.9	ND	5	50.0	91.8	83	121		
Toluene	51.8	ND	5	50.0	104	81	121		
Chlorobenzene	53.2	ND	5	50.0	106	88	124		

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix			LAB ID: MD11109-01A			INSTR RUN: GCMS13\971110210000/4/2				
INSTRUMENT: HP mass spec for Volatiles			PREPARED:			BATCH ID: MS13W111197-2				
UNITS: ug/L			ANALYZED: 11/11/97			DILUTION: 1.00				
METHOD: EPA 8240B										
ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
1,2-DCA-d4	(surr)	106	113		100	106	75	129		
Toluene-d8	(surr)	96.3	97.6		100	96.3	81	111		
p-BFB	(surr)	108	108		100	108	78	131		
1,1-Dichloroethene		58.2	ND	5	50.0	116	77	137		
Benzene		62.5	8.59	5	50.0	108	89	142		
Trichloroethene		46.9	ND	5	50.0	93.8	83	121		
Toluene		345	324	5	50.0	42.0 !	81	121		
Chlorobenzene		53.8	ND	5	50.0	108	88	124		

SAMPLE TYPE: Spike-Sample/Matrix			LAB ID: MS11109-01A		INSTR RUN: GCMS13\971110210000/3/2					
INSTRUMENT: HP mass spec for Volatiles			PREPARED:		BATCH ID: MS13W111197-2					
UNITS: ug/L			ANALYZED: 11/11/97		DILUTION: 1.00					
METHOD: EPA 8240B										
ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
1,2-DCA-d4	(surr)	105	113		100	105	75	129		
Toluene-d8	(surr)	99.2	97.6		100	99.2	81	111		
p-BFB	(surr)	108	108		100	108	78	131		
1,1-Dichloroethene		58.8	ND	5	50.0	118	77	137		
Benzene		61.9	8.59	5	50.0	107	89	142		
Trichloroethene		46.4	ND	5	50.0	92.8	83	121		
Toluene		348	324	5	50.0	48.0 !	81	121		
Chlorobenzene		54.0	ND	5	50.0	108	88	124		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate			LAB ID: MR11109-01A			INSTR RUN: GCMS13\971110210000/5/3				
INSTRUMENT: HP mass spec for Volatiles			PREPARED:			BATCH ID: MS13W111197-2				
UNITS: ug/L			ANALYZED: 11/11/97			DILUTION: 1.00				
METHOD: EPA 8240B										
ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
1,2-DCA-d4	(surr)	106	105		100	106	75	129		
Toluene-d8	(surr)	96.3	99.2		100	96.3	81	111		
p-BFB	(surr)	108	108		100	108	78	131		
1,1-Dichloroethene		58.2	58.8	5	50.0				1.03	25
Benzene		62.5	61.9	5	50.0				0.965	25
Trichloroethene		46.9	46.4	5	50.0				1.07	25
Toluene		345	348	5	50.0				0.866	25
Chlorobenzene		53.8	54.0	5	50.0				0.371	25

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
INSTRUMENT: HP mass spec for Volatiles
UNITS: ug/L
METHOD: EPA 8240B

LAB ID: 9711109-01A
PREPARED:
ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/7/
BATCH ID: MS13W111197-2
DILUTION: 10.0

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
1,2-DCA-d4	(surr)	90.8			100	90.8	75	129		
Toluene-d8	(surr)	105			100	105	81	111		
p-BFB	(surr)	93.9			100	93.9	78	131		

----- End of Quality Control Report -----

9711109

Shipping	(White)	Lab Copy (Green)	File Copy (Yellow)	1'd Copy (Pink)	FORM NO	86/COC/ARE
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LEVINE - FRICKE - RECON

SAMPLE ID: 3435-PD-002
AEN LAB NO: 9711400-02
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.17 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: 3425-CK-003
AEN LAB NO: 9711400-03
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.013 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: 3435-PD-004
AEN LAB NO: 9711400-04
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.17 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-B
AEN LAB NO: 9711400-05
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	11 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-E
AEN LAB NO: 9711400-06
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.96 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-G
AEN LAB NO: 9711400-07
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	8.1 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-I
AEN LAB NO: 9711400-08
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	6.9 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-K
AEN LAB NO: 9711400-09
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	1.1 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-C
AEN LAB NO: 9711400-10
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	9.5 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-J
AEN LAB NO: 9711400-11
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	4.6 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9711400
CLIENT PROJECT ID: 3435-00-006

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank		LAB ID: GFW_PBW_B		INSTR RUN: 4000\971201110400/1/			
INSTRUMENT: TJA 4000		PREPARED:		BATCH ID: GFW112697-B			
UNITS: mg/L		ANALYZED: 12/01/97		DILUTION: 1.000000			
METHOD:							
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD
Arsenic in water by GFAA	ND		0.002			LOW HIGH RPD (%)	LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank		LAB ID: GFW_LCD_B		INSTR RUN: 4000\971201110400/3/1			
INSTRUMENT: TJA 4000		PREPARED:		BATCH ID: GFW112697-B			
UNITS: mg/L		ANALYZED: 12/01/97		DILUTION: 1.000000			
METHOD:							
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD
Arsenic in water by GFAA	0.0402	ND	0.002	0.0400	101	LOW HIGH RPD (%)	LIMIT (%)

SAMPLE TYPE: Spike-Method/Media blank		LAB ID: GFW_LCS_B		INSTR RUN: 4000\971201110400/2/1			
INSTRUMENT: TJA 4000		PREPARED:		BATCH ID: GFW112697-B			
UNITS: mg/L		ANALYZED: 12/01/97		DILUTION: 1.000000			
METHOD:							
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD
Arsenic in water by GFAA	0.0407	ND	0.002	0.0400	102	LOW HIGH RPD (%)	LIMIT (%)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate		LAB ID: GFW_LCR_B		INSTR RUN: 4000\971201110400/4/2			
INSTRUMENT: TJA 4000		PREPARED:		BATCH ID: GFW112697-B			
UNITS: mg/L		ANALYZED: 12/01/97		DILUTION: 1.000000			
METHOD:							
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD
Arsenic in water by GFAA	0.0402	0.0407	0.002			LOW HIGH RPD (%)	LIMIT (%)

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix		LAB ID: MS11400-06A		INSTR RUN: 4000\971201110400/11/10			
INSTRUMENT: TJA 4000		PREPARED:		BATCH ID: GFW112697-B			
UNITS: mg/L		ANALYZED: 12/01/97		DILUTION: 1.000000			
METHOD:							
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD
Arsenic in water by GFAA	0.986	0.963	0.002	0.0400	57.5	LOW HIGH RPD (%)	LIMIT (%)

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate		LAB ID: MR11400-06A		INSTR RUN: 4000\971201110400/13/11			
INSTRUMENT: TJA 4000		PREPARED:		BATCH ID: GFW112697-B			
UNITS: mg/L		ANALYZED: 12/01/97		DILUTION: 1.000000			
METHOD:							
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD
Arsenic in water by GFAA	0.954	0.986	0.002			LOW HIGH RPD (%)	LIMIT (%)

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9711400

Project No.: 3435-00-006				Project Location: Emeryville				Date: 11/26/97				Serial No.: N ^o 1392							
Project Name: Sherwin Williams				Field Logbook No.: NA															
Sampler (Signature): <i>Oletha R. J...</i>								ANALYSES								Samplers: ARJ			
SAMPLES																			
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	Total Arsenic							HOLD	RUSH	REMARKS				
3435-CK-001	11/26	01:05	01A	1-500ml	Lig	X							1 day TAT		preserved HNO ₃				
3435-PD-002	11/26	01:10	02A	1-500ml	Lig	X													
3435-CK-003	11/26	08:00	03A	1	H ₂ O	X							X		24 hour turnaround				
3435-PD-004	11/26	08:00	04A	1	H ₂ O	X							X						
R4R-B	11/26	0930	05A	1		X							X						
R4R-E			06A	1		X							X		RESULTS TO: A. JENKINS				
R4R-G			07A	1		X							X		S. SHIL				
R4R-I			08A	1		X							X		M. KNOX				
R4R-K			09A	1		X							X						
R4R-C	11/26	0900	10A	1	H ₂ O	X							X		METALS SAMPLES SHALL BE FOR				
R4R-J	11/26	0930	11A	1		X									TOTAL UNFILTERED CONSTITUENTS				
RELINQUISHED BY: (Signature) <i>Steve Thornton</i>				DATE	TIME	RECEIVED BY: (Signature) <i>Rich Gilmore</i>				DATE	TIME								
				11/26/97	10:40					11-26-97	12:10								
RELINQUISHED BY: (Signature) <i>Rich Gilmore</i>				DATE	TIME	RECEIVED BY: (Signature) <i>Gina Gillespie</i>				DATE	TIME								
				11-26-97	14:05					11-26-97	1405								
RELINQUISHED BY: (Signature)				DATE	TIME	RECEIVED BY: (Signature)				DATE	TIME								
METHOD OF SHIPMENT:				DATE	TIME	LAB COMMENTS:													
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500				Analytical Laboratory: AEN P/cason+Hill, CA															

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Field Copy (Goldenrod)

COC.CDR 101596RYL

FILE

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 12/27/97

DATE(S) SAMPLED: 12/18/97

DATE RECEIVED: 12/18/97

ATTN: A.JENKINS/ S.SHIU/ S.THORNTON
CLIENT PROJ. ID: 2616.97.01
CLIENT PROJ. NAME: SHERWIN WMS
C.O.C. NUMBER: 14490

AEN WORK ORDER: 9712309

PROJECT SUMMARY:

On December 18, 1997, this laboratory received 5 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: W-I1
AEN LAB NO: 9712309-01
AEN WORK ORDER: 9712309
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 12/18/97
DATE RECEIVED: 12/18/97
REPORT DATE: 12/27/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	12/18/97
Arsenic	EPA 206.2	2.2 *	0.002 mg/L		12/22/97
#Digestion/ICP	EPA 200.0	-		Prep Date	12/18/97
Iron	EPA 200.7	130 *	0.1 mg/L		12/19/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: W-ANDEFF
AEN LAB NO: 9712309-02
AEN WORK ORDER: 9712309
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 12/18/97
DATE RECEIVED: 12/18/97
REPORT DATE: 12/27/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	12/18/97
Arsenic	EPA 206.2	0.004 *	0.002 mg/L		12/22/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: W-ECELLEFF
AEN LAB NO: 9712309-03
AEN WORK ORDER: 9712309
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 12/18/97
DATE RECEIVED: 12/18/97
REPORT DATE: 12/27/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/ICP	EPA 200.0	-		Prep Date	12/18/97
Iron	EPA 200.7	150 *	0.1 mg/L		12/19/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: W-E1
AEN LAB NO: 9712309-04
AEN WORK ORDER: 9712309
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 12/18/97
DATE RECEIVED: 12/18/97
REPORT DATE: 12/27/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	12/18/97
Arsenic	EPA 206.2	0.005 *	0.002 mg/L		12/22/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-C
AEN LAB NO: 9712309.05
AEN WORK ORDER: 9712309
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 12/18/97
DATE RECEIVED: 12/18/97
REPORT DATE: 12/27/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	12/18/97
Arsenic	EPA 206.2	0.81 *	0.002 mg/L		12/22/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9712309
CLIENT PROJECT ID: 2616.97.01

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9712309

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_A
 PREPARED:
 ANALYZED: 12/22/97

INSTR RUN: 4000\971222160200/1/
 BATCH ID: GFW121897-A
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Arsenic in water by GFAA	ND		0.002				

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_A
 PREPARED:
 ANALYZED: 12/22/97

INSTR RUN: 4000\971222160200/3/1
 BATCH ID: GFW121897-A
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Arsenic in water by GFAA	0.0428	ND	0.002	0.0400	107	82 140	

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_A
 PREPARED:
 ANALYZED: 12/22/97

INSTR RUN: 4000\971222160200/2/1
 BATCH ID: GFW121897-A
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Arsenic in water by GFAA	0.0402	ND	0.002	0.0400	101	82 140	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_A
 PREPARED:
 ANALYZED: 12/22/97

INSTR RUN: 4000\971222160200/4/2
 BATCH ID: GFW121897-A
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Arsenic in water by GFAA	0.0428	0.0402	0.002				6.27 13

WORK ORDER: 9712309

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Metals Scan by ICP

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_PBW_Z
 PREPARED:
 ANALYZED: 12/19/97

INSTR RUN: ICP\971219125200/1/
 BATCH ID: IFW121897-Z
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	ND		0.005						
As	ND		0.04						
Ba	ND		0.01						
Be	ND		0.002						
Cd	ND		0.005						
Co	ND		0.005						
Cr	ND		0.01						
Cu	ND		0.01						
Fe	ND		0.1						
Mo	ND		0.01						
Ni	ND		0.01						
Pb	ND		0.04						
Sb	ND		0.02						
Se	ND		0.07						
Tl	ND		0.05						
V	ND		0.005						
Zn	ND		0.01						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCD_Z
 PREPARED:
 ANALYZED: 12/19/97

INSTR RUN: ICP\971219125200/3/1
 BATCH ID: IFW121897-Z
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	0.0257	ND	0.005	0.0250	103	72	127		
As	0.447	ND	0.04	0.400	112	75	125		
Ba	1.07	ND	0.01	1.00	107	91	120		
Be	0.0284	ND	0.002	0.0250	114	82	119		
Cd	0.0520	ND	0.005	0.0500	104	84	120		
Co	0.284	ND	0.005	0.250	114	96	120		
Cr	0.104	ND	0.01	0.100	104	85	128		
Cu	0.130	ND	0.01	0.125	104	86	123		
Fe	0.516	ND	0.1	0.500	103	84	133		
Mo	0.212	ND	0.01	0.200	106	89	117		
Ni	0.270	ND	0.01	0.250	108	92	121		
Pb	0.556	ND	0.04	0.500	111	90	122		
Sb	0.549	ND	0.02	0.500	110	82	113		
Se	0.524	ND	0.07	0.500	105	75	125		
Tl	0.542	ND	0.05	0.500	108	85	115		
V	0.278	ND	0.005	0.250	111	91	118		
Zn	0.287	ND	0.01	0.250	115	90	121		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCS_Z
 PREPARED:
 ANALYZED: 12/19/97

INSTR RUN: ICP\971219125200/2/1
 BATCH ID: IFW121897-Z
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	0.0249	ND	0.005	0.0250	99.6	72	127		
As	0.432	ND	0.04	0.400	108	75	125		
Ba	1.03	ND	0.01	1.00	103	91	120		
Be	0.0275	ND	0.002	0.0250	110	82	119		
Cd	0.0511	ND	0.005	0.0500	102	84	120		
Co	0.270	ND	0.005	0.250	108	96	120		
Cr	0.101	ND	0.01	0.100	101	85	128		
Cu	0.125	ND	0.01	0.125	100	86	123		
Fe	0.499	ND	0.1	0.500	99.8	84	133		
Mo	0.202	ND	0.01	0.200	101	89	117		

WORK ORDER: 9712309

QUALITY CONTROL REPORT

PAGE QR-4

ANALYSIS: Metals Scan by ICP

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA Enviro 36
UNITS: mg/L
METHOD:

LAB ID: IFW_LCS_Z
PREPARED:
ANALYZED: 12/19/97

INSTR RUN: ICP\971219125200/2/1
BATCH ID: IFW121897-Z
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
Ni	Nickel	0.253	ND	0.01	0.250	101	92	121		
Pb	Lead	0.531	ND	0.04	0.500	106	90	122		
Sb	Antimony	0.523	ND	0.02	0.500	105	82	113		
Se	Selenium	0.537	ND	0.07	0.500	107	75	125		
Tl	Thallium	0.515	ND	0.05	0.500	103	85	115		
V	Vanadium	0.266	ND	0.005	0.250	106	91	118		
Zn	Zinc	0.272	ND	0.01	0.250	109	90	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: TJA Enviro 36
UNITS: mg/L
METHOD:

LAB ID: IFW_LCR_Z
PREPARED:
ANALYZED: 12/19/97

INSTR RUN: ICP\971219125200/4/2
BATCH ID: IFW121897-Z
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
Ag	Silver	0.0257	0.0249	0.005					3.16	10
As	Arsenic	0.447	0.432	0.04					3.41	15
Ba	Barium	1.07	1.03	0.01					3.81	10
Be	Beryllium	0.0284	0.0275	0.002					3.22	10
Cd	Cadmium	0.0520	0.0511	0.005					1.75	10
Co	Cobalt	0.284	0.270	0.005					5.05	10
Cr	Chromium	0.104	0.101	0.01					2.93	10
Cu	Copper	0.130	0.125	0.01					3.92	10
Fe	Iron	0.516	0.499	0.1					3.35	10
Mo	Molybdenum	0.212	0.202	0.01					4.83	10
Ni	Nickel	0.270	0.253	0.01					6.50	10
Pb	Lead	0.556	0.531	0.04					4.60	10
Sb	Antimony	0.549	0.523	0.02					4.85	10
Se	Selenium	0.524	0.537	0.07					2.45	15
Tl	Thallium	0.542	0.515	0.05					5.11	10
V	Vanadium	0.278	0.266	0.005					4.41	10
Zn	Zinc	0.287	0.272	0.01					5.37	10

----- End of Quality Control Report -----

INORG 11/2307

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American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: MICHAEL STOLL/KERSTIN FRAZIER
CLIENT PROJ. ID: 3435.00.006
CLIENT PROJ. NAME: SHERWIN WMS
C.O.C. NUMBER: 2221

REPORT DATE: 01/22/98

DATE(S) SAMPLED: 01/21/98

DATE RECEIVED: 01/21/98

AEN WORK ORDER: 9801188

PROJECT SUMMARY:

On January 21, 1998, this laboratory received 1 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

Rec.
1/29/98

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNKQ-1
AEN LAB NO: 9801188-01
AEN WORK ORDER: 9801188
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/21/98
DATE RECEIVED: 01/21/98
REPORT DATE: 01/22/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/21/98
Arsenic	EPA 7060	0.098 *	0.005	mg/L	01/22/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9801188
CLIENT PROJECT ID: 3435.00.006

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9801188

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_J
 PREPARED:
 ANALYZED: 01/22/98

INSTR RUN: 4000\980122112700/1/
 BATCH ID: GFW012198-J
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	ND		0.005					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_J
 PREPARED:
 ANALYZED: 01/22/98

INSTR RUN: 4000\980122112700/3/1
 BATCH ID: GFW012198-J
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0490	ND	0.005	0.0400	123	82	140	

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_J
 PREPARED:
 ANALYZED: 01/22/98

INSTR RUN: 4000\980122112700/2/1
 BATCH ID: GFW012198-J
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0466	ND	0.005	0.0400	117	82	140	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_J
 PREPARED:
 ANALYZED: 01/22/98

INSTR RUN: 4000\980122112700/4/2
 BATCH ID: GFW012198-J
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0490	0.0466	0.005					
							5.02	13

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: MD01188-01A
 PREPARED:
 ANALYZED: 01/22/98

INSTR RUN: 4000\980122112700/7/5
 BATCH ID: GFW012198-J
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.144	0.0977	0.005	0.0400	116	41	167	

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: MS01188-01A
 PREPARED:
 ANALYZED: 01/22/98

INSTR RUN: 4000\980122112700/6/5
 BATCH ID: GFW012198-J
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.136	0.0977	0.005	0.0400	95.8	41	167	

WORK ORDER: 9801188

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Arsenic

MATRIX: Water

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: MR01188-01A
PREPARED:
ANALYZED: 01/22/98

INSTR RUN: 4000\980122112700/8/6
BATCH ID: GFW012198-J
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Arsenic in water by GFAA	0.144	0.136	0.005				5.71	13

----- End of Quality Control Report -----

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9801188

[illegible]

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Field Copy (Goldenrod)

COC.CDR 101596RYL

file

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 01/29/98

DATE(S) SAMPLED: 01/26/98

DATE RECEIVED: 01/26/98

AEN WORK ORDER: 9801240

ATTN: K. FRAZIER/ S. SHIU
CLIENT PROJ. ID: 3435.00.006
CLIENT PROJ. NAME: SHERWIN WMS
C.O.C. NUMBER: 2279

PROJECT SUMMARY:

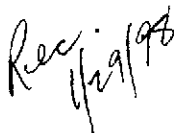
On January 26, 1998, this laboratory received 15 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director



LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-A-1
AEN LAB NO: 9801240-01
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	1.6 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-B-1
AEN LAB NO: 9801240-02
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	0.67 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-D-1
AEN LAB NO: 9801240-03
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	7.8 *	0.005 mg/L		01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-E-1
AEN LAB NO: 9801240-04
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	0.14 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-F-1
AEN LAB NO: 9801240-05
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	8.0 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-G-1
AEN LAB NO: 9801240-06
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	1.1 *	0.005 mg/L		01/27/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-M-1
AEN LAB NO: 9801240-07
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	0.87 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-L-1
AEN LAB NO: 9801240-08
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	1.1 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-I-1
AEN LAB NO: 9801240-09
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	1.1 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-H-1
AEN LAB NO: 9801240-10
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	0.23 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-V-1
AEN LAB NO: 9801240-11
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	0.17 *	0.005 mg/L		01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-U-1
AEN LAB NO: 9801240-12
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	0.50 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-T-1
AEN LAB NO: 9801240-13
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	0.27 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-J-1
AEN LAB NO: 9801240-14
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	1.5 *	0.005	mg/L	01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-K-1
AEN LAB NO: 9801240-15
AEN WORK ORDER: 9801240
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/26/98
DATE RECEIVED: 01/26/98
REPORT DATE: 01/29/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/26/98
Arsenic	EPA 7060	0.042 *	0.005 mg/L		01/27/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9801240
CLIENT PROJECT ID: 3435.00.006

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9801240

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_0
 PREPARED:
 ANALYZED: 01/27/98

INSTR RUN: 4000\980127120800/1/
 BATCH ID: GFW012698-0
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	ND		0.005						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_0
 PREPARED:
 ANALYZED: 01/27/98

INSTR RUN: 4000\980127120800/3/1
 BATCH ID: GFW012698-0
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0430	ND	0.005	0.0400	108	82	140		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_0
 PREPARED:
 ANALYZED: 01/27/98

INSTR RUN: 4000\980127120800/2/1
 BATCH ID: GFW012698-0
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0421	ND	0.005	0.0400	105	82	140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_0
 PREPARED:
 ANALYZED: 01/27/98

INSTR RUN: 4000\980127120800/4/2
 BATCH ID: GFW012698-0
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0430	0.0421	0.005					2.12	13

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: MD01240-10A
 PREPARED:
 ANALYZED: 01/27/98

INSTR RUN: 4000\980127120800/7/5
 BATCH ID: GFW012698-0
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.282	0.232	0.005	0.0400	125	41	167		

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: MS01240-10A
 PREPARED:
 ANALYZED: 01/27/98

INSTR RUN: 4000\980127120800/6/5
 BATCH ID: GFW012698-0
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.271	0.232	0.005	0.0400	97.5	41	167		

WORK ORDER: 9801240

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Arsenic

MATRIX: Water

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: MR01240-10A
PREPARED:
ANALYZED: 01/27/98

INSTR RUN: 4000\980127120800/8/6
BATCH ID: GFW012698-0
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.282	0.271	0.005					3.98	13

----- End of Quality Control Report -----

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

INORG

9801246

Project No.: 3435.00.006			Project Location: Emeryville, CA			Date: 1-26-98			Serial No.: N ^o 2279					
Project Name: Shewin - Williams			Field Logbook No.:											
Sampler (Signature): <i>[Signature]</i>						ANALYSES						Samplers: ARJ/LC		
SAMPLES														
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	Arsonic						HOLD	RUSH	REMARKS
WS-TNK-A-1	1-26-98	1425	1A	1	Water	X						X		24-HOUR TAT
WS-TNK-B-1		1433	2A	1		X						X		
WS-TNK-D-1		1436	3A	1		X						X		
WS-TNK-E-1		1442	4A	1		X						X		ANALYZE FOR TOTAL (UNFILTERED) ARSENIC
WS-TNK-F-1		1443	5A	1		X						X		
WS-TNK-G-1		1456	6A	1		X						X		
WS-TNK-M-1		1348	7A	1		X						X		
WS-TNK-L-1		1350	8A	1		X						X		RESULTS TO K. FRAZIER / S. SHU
WS-TNK-J-1		1407	9A	1		X						X		
WS-TNK-H-1		1409	10A	1		X						X		
WS-TNK-V-1		1320	11A	1		X						X		
WS-TNK-U-1		1325	12A	1		X						X		
WS-TNK-T-1	↓	1345	13A	1	↓	X						X		
WS-TNK-J-1	↓	1404	14A	1	↓	X						X		
WS-TNK-K-1	↓	1859	15A	1	↓	X						X		
RELINQUISHED BY: <i>[Signature]</i>			DATE: 1-26-98		TIME: 16:40		RECEIVED BY: <i>Rich Gilmore</i>			DATE: 1-26-98		TIME: 16:40		
RELINQUISHED BY: <i>Rich Gilmore</i>			DATE: 1-26-98		TIME: 17:45		RECEIVED BY: <i>Paula C. [Signature]</i>			DATE: 1/26/98		TIME: 1745		
RELINQUISHED BY: (Signature)			DATE		TIME		RECEIVED BY: (Signature)			DATE		TIME		
METHOD OF SHIPMENT:			DATE		TIME		LAB COMMENTS:							
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500						Analytical Laboratory: <i>AEN, Pleasant Hill, CA</i>								

Shipping Copy (White)

Lab Copy (Yellow)

File Copy (Pink)

Field Copy (Goldenrod)

COC.CDR 101596RYL

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 02/05/98

DATE(S) SAMPLED: 02/02/98

DATE RECEIVED: 02/02/98

AEN WORK ORDER: 9802010

ATTN: KERSTIN FRAZIER
CLIENT PROJ. ID: 3435.00.006
CLIENT PROJ. NAME: SHERWIN WMS
C.O.C. NUMBER: 1499


PROJECT SUMMARY:

On February 2, 1998, this laboratory received 1 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-K-2
AEN LAB NO: 9802010-01
AEN WORK ORDER: 9802010
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 02/02/98
DATE RECEIVED: 02/02/98
REPORT DATE: 02/05/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	02/03/98
Arsenic	EPA 7060	0.040 *	0.005	mg/L	02/03/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9802010
CLIENT PROJECT ID: 3435.00.006

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9802010

American Environmental Network
QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:LAB ID: GFW_PBW_Y
PREPARED:
ANALYZED: 02/03/98INSTR RUN: 4000\980203181400/1/
BATCH ID: GFW020398-Y
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Arsenic in water by GFAA	ND		0.005					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:LAB ID: GFW_LCD_Y
PREPARED:
ANALYZED: 02/03/98INSTR RUN: 4000\980203181400/3/1
BATCH ID: GFW020398-Y
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Arsenic in water by GFAA	0.0377	ND	0.005	0.0400	94.3	82 140		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:LAB ID: GFW_LCS_Y
PREPARED:
ANALYZED: 02/03/98INSTR RUN: 4000\980203181400/2/1
BATCH ID: GFW020398-Y
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Arsenic in water by GFAA	0.0350	ND	0.005	0.0400	87.5	82 140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:LAB ID: GFW_LCR_Y
PREPARED:
ANALYZED: 02/03/98INSTR RUN: 4000\980203181400/4/2
BATCH ID: GFW020398-Y
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Arsenic in water by GFAA	0.0377	0.0350	0.005				7.43	13

----- End of Quality Control Report -----

C-1,5-4

9802010

[illegible]

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 02/05/98

DATE(S) SAMPLED: 02/03/98

DATE RECEIVED: 02/03/98

AEN WORK ORDER: 9802023

ATTN: KERSTIN FRAZIER/ SUSAN SHIU
CLIENT PROJ. ID: 3435.00.006
CLIENT PROJ. NAME: SHERWIN WMS
C.O.C. NUMBER: 2227

PROJECT SUMMARY:

On February 3, 1998, this laboratory received 6 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNKE-2
AEN LAB NO: 9802023-01
AEN WORK ORDER: 9802023
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 02/03/98
DATE RECEIVED: 02/03/98
REPORT DATE: 02/05/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	02/04/98
Arsenic	EPA 7060	0.49 *	0.005	mg/L	02/05/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNKN-1
AEN LAB NO: 9802023-02
AEN WORK ORDER: 9802023
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 02/03/98
DATE RECEIVED: 02/03/98
REPORT DATE: 02/05/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	02/04/98
Arsenic	EPA 7060	0.041 *	0.005	mg/L	02/05/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNKP-1
AEN LAB NO: 9802023-03
AEN WORK ORDER: 9802023
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 02/03/98
DATE RECEIVED: 02/03/98
REPORT DATE: 02/05/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	02/04/98
Arsenic	EPA 7060	0.060 *	0.005 mg/L		02/05/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNKQ-2
AEN LAB NO: 9802023-04
AEN WORK ORDER: 9802023
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 02/03/98
DATE RECEIVED: 02/03/98
REPORT DATE: 02/05/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	02/04/98
Arsenic	EPA 7060	0.018 *	0.005 mg/L		02/05/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNKR-1
AEN LAB NO: 9802023-05
AEN WORK ORDER: 9802023
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 02/03/98
DATE RECEIVED: 02/03/98
REPORT DATE: 02/05/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	02/04/98
Arsenic	EPA 7060	0.48 *	0.005 mg/L		02/05/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNKS-1
AEN LAB NO: 9802023-06
AEN WORK ORDER: 9802023
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 02/03/98
DATE RECEIVED: 02/03/98
REPORT DATE: 02/05/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	02/04/98
Arsenic	EPA 7060	0.089 *	0.005	mg/L	02/05/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9802023
CLIENT PROJECT ID: 3435.00.006

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9802023

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_B
 PREPARED:
 ANALYZED: 02/05/98

INSTR RUN: 4000\980205114200/1/
 BATCH ID: GFW020498-B
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	ND		0.005						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_B
 PREPARED:
 ANALYZED: 02/05/98

INSTR RUN: 4000\980205114200/3/1
 BATCH ID: GFW020498-B
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0394	ND	0.005	0.0400	98.5	82	140		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_B
 PREPARED:
 ANALYZED: 02/05/98

INSTR RUN: 4000\980205114200/2/1
 BATCH ID: GFW020498-B
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0364	ND	0.005	0.0400	91.0	82	140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_B
 PREPARED:
 ANALYZED: 02/05/98

INSTR RUN: 4000\980205114200/4/2
 BATCH ID: GFW020498-B
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0394	0.0364	0.005					7.92	13

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: MD02023-02A
 PREPARED:
 ANALYZED: 02/05/98

INSTR RUN: 4000\980205114200/7/5
 BATCH ID: GFW020498-B
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0718	0.0410	0.005	0.0400	77.0	41	167		

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: MS02023-02A
 PREPARED:
 ANALYZED: 02/05/98

INSTR RUN: 4000\980205114200/6/5
 BATCH ID: GFW020498-B
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0731	0.0410	0.005	0.0400	80.3	41	167		

WORK ORDER: 9802023

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Arsenic

MATRIX: Water

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate		LAB ID: MR02023-02A		INSTR RUN: 4000\980205114200/8/6				
INSTRUMENT: TJA 4000		PREPARED:		BATCH ID: GFW020498-B				
UNITS: mg/L		ANALYZED: 02/05/98		DILUTION: 1.000000				
METHOD:								
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Arsenic in water by GFAA	0.0718	0.0731	0.005				1.79	13

----- End of Quality Control Report -----

9802023

Project No.: 3435.00.006		Project Location: Sherwin Emeryville CA		Date: 2/3/98		Serial No.: N ^o 2227					
Project Name: Sherwin-Williams		Field Logbook No.: NA									
Sampler (Signature): Gene Barry				ANALYSES		Samplers: LAB, ART, MTY					
SAMPLES											
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	Arse	HOLD	RUSH	REMARKS		
WS-TNKE-2	2/3/98	12:25	1A	1	Ltg Wtk	X		X	24 hr TAT		
WS-TNKN-1	2/3/98	12:30	2A	1	Ltg Wtk	X		X			
WS-TNKP-1	2/3/98	12:25	3A	1	Ltg Wtk	X		X			
WS-TNKR-1	2/3/98	12:15	4A	1	Ltg	X		X			
WS-TNKS-1	2/3/98	12:05	5A	1	Ltg	X		X			
			6A	1	Ltg	X		X			
									Results to:		
									Kerstin Frazier		
									Susan Shiu		
RELINQUISHED BY: (Signature) [Signature]		DATE 2-3-98		TIME 17:00		RECEIVED BY: (Signature) [Signature]		DATE 2-3-98		TIME 17:00	
RELINQUISHED BY: (Signature) [Signature]		DATE 2-3-98		TIME 17:30		RECEIVED BY: (Signature) [Signature]		DATE 2/3/98		TIME 1730	
RELINQUISHED BY: (Signature)		DATE		TIME		RECEIVED BY: (Signature)		DATE		TIME	
METHOD OF SHIPMENT: Courier		DATE		TIME		LAB COMMENTS:					
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500				Analytical Laboratory: AEN Pleasant Hill, CA FAX Results to: Kerstin Frazier Susan Shiu							

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 11/14/97

DATE(S) SAMPLED: 11/10/97

DATE RECEIVED: 11/10/97

ATTN: ALEX JENKINS
CLIENT PROJ. ID: 2616.97.01
CLIENT PROJ. NAME: SHERWIN-WILLMS
C.O.C. NUMBER: 14482

AEN WORK ORDER: 9711109

PROJECT SUMMARY:

On November 10, 1997, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE - FRICKE - RECON

SAMPLE ID: STORM DRAIN
 AEN LAB NO: 9711109-01
 AEN WORK ORDER: 9711109
 CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
 DATE RECEIVED: 11/10/97
 REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/10/97
#Digestion/ICP	EPA 200.0	-		Prep Date	11/10/97
EPA 8240B - Water Matrix	EPA 8240B				
Acetone	67-64-1	ND	1000	ug/L	11/11/97
Benzene	71-43-2	ND	50	ug/L	11/11/97
Bromodichloromethane	75-27-4	ND	50	ug/L	11/11/97
Bromoform	75-25-2	ND	50	ug/L	11/11/97
Bromomethane	74-83-9	ND	100	ug/L	11/11/97
2-Butanone	78-93-3	ND	1000	ug/L	11/11/97
Carbon Disulfide	75-15-0	ND	100	ug/L	11/11/97
Carbon Tetrachloride	56-23-5	ND	50	ug/L	11/11/97
Chlorobenzene	108-90-7	ND	50	ug/L	11/11/97
Chloroethane	75-00-3	ND	100	ug/L	11/11/97
2-Chloroethyl Vinyl Ether	110-75-8	ND	100	ug/L	11/11/97
Chloroform	67-66-3	ND	50	ug/L	11/11/97
Chloromethane	74-87-3	ND	100	ug/L	11/11/97
Dibromochloromethane	124-48-1	ND	50	ug/L	11/11/97
1,1-Dichloroethane	75-34-3	ND	50	ug/L	11/11/97
1,2-Dichloroethane	107-06-2	ND	50	ug/L	11/11/97
1,1-Dichloroethene	75-35-4	ND	50	ug/L	11/11/97
cis-1,2-Dichloroethene	156-59-2	ND	50	ug/L	11/11/97
trans-1,2-Dichloroethene	156-60-5	ND	50	ug/L	11/11/97
1,2-Dichloropropane	78-87-5	ND	50	ug/L	11/11/97
cis-1,3-Dichloropropene	10061-01-5	ND	50	ug/L	11/11/97
trans-1,3-Dichloropropene	10061-02-6	ND	50	ug/L	11/11/97
Ethylbenzene	100-41-4	210 *	50	ug/L	11/11/97
2-Hexanone	591-78-6	ND	500	ug/L	11/11/97
Methylene Chloride	75-09-2	ND	100	ug/L	11/11/97
4-Methyl-2-pentanone	108-10-1	ND	500	ug/L	11/11/97
Styrene	100-42-5	ND	50	ug/L	11/11/97
1,1,2,2-Tetrachloroethane	79-34-5	ND	50	ug/L	11/11/97
Tetrachloroethene	127-18-4	ND	50	ug/L	11/11/97
Toluene	108-88-3	460 *	50	ug/L	11/11/97
1,1,1-Trichloroethane	71-55-6	ND	50	ug/L	11/11/97
1,1,2-Trichloroethane	79-00-5	ND	50	ug/L	11/11/97
Trichloroethene	79-01-6	ND	50	ug/L	11/11/97
Vinyl Acetate	108-05-4	ND	500	ug/L	11/11/97
Vinyl Chloride	75-01-4	ND	100	ug/L	11/11/97
Xylenes, Total	1330-20-7	690 *	100	ug/L	11/11/97

LEVINE-FRICKE-RECON

SAMPLE ID: STORM DRAIN
 AEN LAB NO: 9711109-01
 AEN WORK ORDER: 9711109
 CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
 DATE RECEIVED: 11/10/97
 REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
CCR 17 Metals					
Ag Silver	EPA 200.7	ND	0.005 mg/L		11/11/97
As Arsenic	EPA 206.2	10 *	0.5 mg/L		11/11/97
Ba Barium	EPA 200.7	0.09 *	0.01 mg/L		11/11/97
Be Beryllium	EPA 200.7	ND	0.002 mg/L		11/11/97
Cd Cadmium	EPA 200.7	ND	0.1 mg/L		11/11/97
Co Cobalt	EPA 200.7	ND	0.005 mg/L		11/11/97
Cr Chromium	EPA 200.7	ND	0.01 mg/L		11/11/97
Cu Copper	EPA 200.7	0.02 *	0.01 mg/L		11/11/97
Hg Mercury	EPA 245.1	ND	0.0002 mg/L		11/11/97
Mo Molybdenum	EPA 200.7	ND	0.01 mg/L		11/11/97
Ni Nickel	EPA 200.7	ND	0.01 mg/L		11/11/97
Pb Lead	EPA 200.7	ND	0.04 mg/L		11/11/97
Sb Antimony	EPA 200.7	ND	0.02 mg/L		11/11/97
Se Selenium	EPA 270.2	ND	1 mg/L		11/11/97
Tl Thallium	EPA 200.7	ND	0.05 mg/L		11/11/97
V Vanadium	EPA 200.7	0.006 *	0.005 mg/L		11/11/97
Zn Zinc	EPA 200.7	0.31 *	0.01 mg/L		11/11/97
#Extraction for BNAs	EPA 3520	-	Extrn Date		11/10/97
EPA 8270B - Water Matrix					
Acenaphthene	83-32-9	ND	10 ug/L		11/12/97
Acenaphthylene	208-96-8	ND	10 ug/L		11/12/97
Anthracene	120-12-7	ND	10 ug/L		11/12/97
Benzidine	92-87-5	ND	50 ug/L		11/12/97
Benzoic Acid	65-85-0	ND	50 ug/L		11/12/97
Benzo(a)anthracene	56-55-3	ND	10 ug/L		11/12/97
Benzo(b)fluoranthene	205-99-2	ND	10 ug/L		11/12/97
Benzo(k)fluoranthene	207-08-9	ND	10 ug/L		11/12/97
Benzo(g,h,i)perylene	191-24-2	ND	10 ug/L		11/12/97
Benzo(a)pyrene	50-32-8	ND	10 ug/L		11/12/97
Benzyl Alcohol	100-51-6	ND	20 ug/L		11/12/97
Bis(2-chloroethoxy)methane	111-91-1	ND	10 ug/L		11/12/97
Bis(2-chloroethyl) Ether	111-44-4	ND	10 ug/L		11/12/97
Bis(2-chloroisopropyl) Ether	108-60-1	ND	10 ug/L		11/12/97
Bis(2-ethylhexyl) Phthalate	117-81-7	ND	10 ug/L		11/12/97
4-Bromophenyl Phenyl Ether	101-55-3	ND	10 ug/L		11/12/97
Butylbenzyl Phthalate	85-68-7	ND	10 ug/L		11/12/97
4-Chloroaniline	106-47-8	ND	20 ug/L		11/12/97
2-Chloronaphthalene	91-58-7	ND	10 ug/L		11/12/97
4-Chlorophenyl Phenyl Ether	7005-72-3	ND	10 ug/L		11/12/97

LEVINE-FRICKE-RECON

SAMPLE ID: STORM DRAIN
 AEN LAB NO: 9711109-01
 AEN WORK ORDER: 9711109
 CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
 DATE RECEIVED: 11/10/97
 REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Chrysene	218-01-9	ND	10	ug/L	11/12/97
Dibenzo(a,h)anthracene	53-70-3	ND	10	ug/L	11/12/97
Dibenzofuran	132-64-9	ND	10	ug/L	11/12/97
Di-n-butyl Phthalate	84-74-2	ND	10	ug/L	11/12/97
1,2-Dichlorobenzene	95-50-1	ND	10	ug/L	11/12/97
1,3-Dichlorobenzene	541-73-1	ND	10	ug/L	11/12/97
1,4-Dichlorobenzene	106-46-7	ND	10	ug/L	11/12/97
3,3'-Dichlorobenzidine	91-94-1	ND	20	ug/L	11/12/97
Diethyl Phthalate	84-66-2	ND	10	ug/L	11/12/97
Dimethyl Phthalate	131-11-3	ND	10	ug/L	11/12/97
2,4-Dinitrotoluene	121-14-2	ND	10	ug/L	11/12/97
2,6-Dinitrotoluene	606-20-2	ND	10	ug/L	11/12/97
Di-n-octyl Phthalate	117-84-0	ND	10	ug/L	11/12/97
Fluoranthene	206-44-0	ND	10	ug/L	11/12/97
Fluorene	86-73-7	ND	10	ug/L	11/12/97
Hexachlorobenzene	118-74-1	ND	10	ug/L	11/12/97
Hexachlorobutadiene	87-68-3	ND	10	ug/L	11/12/97
Hexachlorocyclopentadiene	77-47-4	ND	10	ug/L	11/12/97
Hexachloroethane	67-72-1	ND	10	ug/L	11/12/97
Indeno(1,2,3-cd)pyrene	193-39-5	ND	10	ug/L	11/12/97
Isophorone	78-59-1	ND	10	ug/L	11/12/97
2-Methylnaphthalene	91-57-6	ND	10	ug/L	11/12/97
Naphthalene	91-20-3	11 *	10	ug/L	11/12/97
2-Nitroaniline	88-74-4	ND	50	ug/L	11/12/97
3-Nitroaniline	99-09-2	ND	50	ug/L	11/12/97
4-Nitroaniline	100-01-6	ND	50	ug/L	11/12/97
Nitrobenzene	98-95-3	ND	10	ug/L	11/12/97
N-Nitrosodiphenylamine	86-30-6	ND	10	ug/L	11/12/97
N-Nitrosodi-n-propylamine	621-64-7	ND	10	ug/L	11/12/97
Phenanthrene	85-01-8	ND	10	ug/L	11/12/97
Pyrene	129-00-0	ND	10	ug/L	11/12/97
1,2,4-Trichlorobenzene	120-82-1	ND	10	ug/L	11/12/97
4-Chloro-3-methylphenol	59-50-7	ND	10	ug/L	11/12/97
2-Chlorophenol	95-57-8	ND	10	ug/L	11/12/97
2,4-Dichlorophenol	120-83-2	ND	10	ug/L	11/12/97
2,4-Dimethylphenol	105-67-9	ND	10	ug/L	11/12/97
4,6-Dinitro-2-methylphenol	534-52-1	ND	50	ug/L	11/12/97
2,4-Dinitrophenol	51-28-5	ND	50	ug/L	11/12/97
2-Methylphenol	95-48-7	ND	10	ug/L	11/12/97
4-Methylphenol	106-44-5	ND	10	ug/L	11/12/97
2-Nitrophenol	88-75-5	ND	10	ug/L	11/12/97
4-Nitrophenol	100-02-7	ND	50	ug/L	11/12/97
Pentachlorophenol	87-86-5	ND	50	ug/L	11/12/97

LEVINE-FRICKE-RECON

SAMPLE ID: STORM DRAIN
AEN LAB NO: 9711109-01
AEN WORK ORDER: 9711109
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
DATE RECEIVED: 11/10/97
REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Phenol	108-95-2	ND	10 ug/L		11/12/97
2,4,5-Trichlorophenol	95-95-4	ND	10 ug/L		11/12/97
2,4,6-Trichlorophenol	88-06-2	ND	10 ug/L		11/12/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-B
AEN LAB NO: 9711109-02
AEN WORK ORDER: 9711109
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
DATE RECEIVED: 11/10/97
REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/10/97
Arsenic	EPA 206.2	20 *	0.002	mg/L	11/11/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: W-ANDEFF
AEN LAB NO: 9711109-03
AEN WORK ORDER: 9711109
CLIENT PROJ. ID: 2616.97.01

DATE SAMPLED: 11/10/97
DATE RECEIVED: 11/10/97
REPORT DATE: 11/14/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/10/97
Arsenic	EPA 206.2	0.014 *	0.005	mg/L	11/11/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9711109
CLIENT PROJECT ID: 2616.97.01

Quality Control and Project Summary

Sample (STORM DRAIN):

The recovery of toluene in the MS/MSD is below QC limits due to high toluene in the sample. The RPD's and LCS are in control. The QC batch is valid per SOP # AEN-QA03.

Reporting limits elevated for cadmium and selenium due to matrix interference.

Reporting limits elevated for EPA 8240 due to high levels of target compounds. Sample run at dilution.

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/1/
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	ND		0.002						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/3/1
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0403	ND	0.002	0.0400	101	82	140		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/2/1
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0356	ND	0.002	0.0400	89.0	82	140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122100/4/2
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0403	0.0356	0.002					12.4	13

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QUALITY CONTROL REPORT

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ANALYSIS: Mercury

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/L
 METHOD:

LAB ID: HGW_BLNK
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: HGW971111130000/1/
 BATCH ID: HGW111197
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in water	ND		0.0002						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/L
 METHOD:

LAB ID: HGW_LCD
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: HGW971111130000/3/1
 BATCH ID: HGW111197
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in water	0.00195	ND	0.0002	0.00200	97.5	89	121		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/L
 METHOD:

LAB ID: HGW_LCS
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: HGW971111130000/2/1
 BATCH ID: HGW111197
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in water	0.00195	ND	0.0002	0.00200	97.5	89	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/L
 METHOD:

LAB ID: HGW_LCR
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: HGW971111130000/4/2
 BATCH ID: HGW111197
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in water	0.00195	0.00195	0.0002					0	10

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: Coleman Hg Analyzer 500
 UNITS: mg/L
 METHOD:

LAB ID: MS11109-01E
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: HGW971111130000/6/5
 BATCH ID: HGW111197
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Mercury in water	0.00195	ND	0.0002	0.00200	97.5	69	128		

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QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_BLNK_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/1/
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
Ag	Silver	ND		0.005						
Ba	Barium	ND		0.01						
Be	Beryllium	ND		0.002						
Cd	Cadmium	ND		0.005						
Co	Cobalt	ND		0.005						
Cr	Chromium	ND		0.01						
Cu	Copper	ND		0.01						
Mo	Molybdenum	ND		0.01						
Ni	Nickel	ND		0.01						
Pb	Lead	ND		0.04						
Sb	Antimony	ND		0.02						
Tl	Thallium	ND		0.05						
V	Vanadium	ND		0.005						
Zn	Zinc	ND		0.01						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCD_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/3/1
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
Ag	Silver	0.0232	ND	0.005	0.0250	92.8	72	127		
Ba	Barium	1.03	ND	0.01	1.00	103	91	120		
Be	Beryllium	0.0276	ND	0.002	0.0250	110	82	119		
Cd	Cadmium	0.0500	ND	0.005	0.0500	100	84	120		
Co	Cobalt	0.276	ND	0.005	0.250	110	96	120		
Cr	Chromium	0.109	ND	0.01	0.100	109	85	128		
Cu	Copper	0.124	ND	0.01	0.125	99.2	86	123		
Mo	Molybdenum	0.216	ND	0.01	0.200	108	89	117		
Ni	Nickel	0.280	ND	0.01	0.250	112	92	121		
Pb	Lead	0.544	ND	0.04	0.500	109	90	122		
Sb	Antimony	0.542	ND	0.02	0.500	108	82	113		
Tl	Thallium	0.523	ND	0.05	0.500	105	85	115		
V	Vanadium	0.270	ND	0.005	0.250	108	91	118		
Zn	Zinc	0.265	ND	0.01	0.250	106	90	121		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCS_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/2/1
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
Ag	Silver	0.0229	ND	0.005	0.0250	91.6	72	127		
Ba	Barium	1.02	ND	0.01	1.00	102	91	120		
Be	Beryllium	0.0278	ND	0.002	0.0250	111	82	119		
Cd	Cadmium	0.0491	ND	0.005	0.0500	98.2	84	120		
Co	Cobalt	0.273	ND	0.005	0.250	109	96	120		
Cr	Chromium	0.105	ND	0.01	0.100	105	85	128		
Cu	Copper	0.123	ND	0.01	0.125	98.4	86	123		
Mo	Molybdenum	0.213	ND	0.01	0.200	107	89	117		
Ni	Nickel	0.278	ND	0.01	0.250	111	92	121		
Pb	Lead	0.546	ND	0.04	0.500	109	90	122		
Sb	Antimony	0.528	ND	0.02	0.500	106	82	113		
Tl	Thallium	0.514	ND	0.05	0.500	103	85	115		
V	Vanadium	0.265	ND	0.005	0.250	106	91	118		
Zn	Zinc	0.265	ND	0.01	0.250	106	90	121		

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QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Water

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCR_V
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: ICP\971111145700/4/2
 BATCH ID: IFW111097-V
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD	
						LOW	HIGH	RPD (%)	LIMIT (%)
Ag Silver	0.0232	0.0229	0.005					1.30	10
Ba Barium	1.03	1.02	0.01					0.976	10
Be Beryllium	0.0276	0.0278	0.002					0.722	10
Cd Cadmium	0.0500	0.0491	0.005					1.82	10
Co Cobalt	0.276	0.273	0.005					1.09	10
Cr Chromium	0.109	0.105	0.01					3.74	10
Cu Copper	0.124	0.123	0.01					0.810	10
Mo Molybdenum	0.216	0.213	0.01					1.40	10
Ni Nickel	0.280	0.278	0.01					0.717	10
Pb Lead	0.544	0.546	0.04					0.367	10
Sb Antimony	0.542	0.528	0.02					2.62	10
Tl Thallium	0.523	0.514	0.05					1.74	10
V Vanadium	0.270	0.265	0.005					1.87	10
Zn Zinc	0.265	0.265	0.01					0	10

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Selenium

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_PBW_W
PREPARED:
ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/1/
BATCH ID: GFW111097-W
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	ND		0.004						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_LCD_W
PREPARED:
ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/3/1
BATCH ID: GFW111097-W
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	0.0775	ND	0.004	0.0800	96.9	79	115		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_LCS_W
PREPARED:
ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/2/1
BATCH ID: GFW111097-W
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	0.0767	ND	0.004	0.0800	95.9	79	115		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_LCR_W
PREPARED:
ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/4/2
BATCH ID: GFW111097-W
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	0.0775	0.0767	0.004					1.04	13

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QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike			LAB ID: LCS 1110		INSTR RUN: GCMS10\971110080000/3/2				
INSTRUMENT: HP-5890 for Semi-volatiles			PREPARED: 11/10/97		BATCH ID: BNAW111097				
UNITS: ug/L			ANALYZED: 11/12/97		DILUTION: 1.00				
METHOD: EPA 8270B									
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
Pyrene	116	ND	10	100	116	32	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Control Sample Duplicate			LAB ID: LCR 1110		INSTR RUN: GCMS10\971110080000/5/3				
INSTRUMENT: HP-5890 for Semi-volatiles			PREPARED: 11/10/97		BATCH ID: BNAW111097				
UNITS: ug/L			ANALYZED: 11/12/97		DILUTION: 1.00				
METHOD: EPA 8270B									
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	92.3	99.8		100	92.3	42	110		
Phenol-d5 (surr)	91.6	97.0		100	91.6	40	122		
Nitrobenzene-d5 (surr)	90.3	96.4		100	90.3	46	109		
2-Fluorobiphenyl (surr)	99.1	103		100	99.1	41	140		
2,4,6-Tribromophenol (surr)	105	110		100	105	46	116		
Terphenyl-d14 (surr)	124	128		100	124	35	165		
Phenol	74.5	75.0	10	100				0.669	40
2-Chlorophenol	83.0	84.2	10	100				1.44	40
1,4-Dichlorobenzene	91.2	91.6	10	100				0.438	30
N-Nitrosodi-n-propylamine	67.6	64.9	10	100				4.08	30
1,2,4-Trichlorobenzene	96.8	99.6	10	100				2.85	30
4-Chloro-3-methylphenol	81.0	80.8	10	100				0.247	30
Acenaphthene	96.1	95.5	10	100				0.626	30
4-Nitrophenol	54.1	59.6	50	100				9.67	40
2,4-Dinitrotoluene	90.5	95.2	10	100				5.06	40
Pentachlorophenol	56.4	62.9	50	100				10.9	30
Pyrene	121	116	10	100				4.22	30

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client			LAB ID: 9711109-01C			INSTR RUN: GCMS10\971110080000/1/				
INSTRUMENT: HP-5890 for Semi-volatiles			PREPARED: 11/10/97			BATCH ID: BNAW111097				
UNITS: ug/L			ANALYZED: 11/12/97			DILUTION: 1.00				
METHOD: EPA 8270B										
ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
							LOW	HIGH		
2-Fluorophenol (surr)		89.7			100	89.7	42	110		
Phenol-d5 (surr)		94.1			100	94.1	40	122		
Nitrobenzene-d5 (surr)		88.8			100	88.8	46	109		
2-Fluorobiphenyl (surr)		96.1			100	96.1	41	140		
2,4,6-Tribromophenol (surr)		115			100	115	46	116		
Terphenyl-d14 (surr)		111			100	111	35	165		

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QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: BLNK_1110
 PREPARED:
 ANALYZED: 11/10/97

INSTR RUN: GCMS13\971110210000/1/
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	96.7			100	96.7	75	129		
Toluene-d8 (surr)	98.1			100	98.1	81	111		
p-BFB (surr)	99.3			100	99.3	78	131		
1,1-Dichloroethene	ND		5						
Benzene	ND		5						
Trichloroethene	ND		5						
Toluene	ND		5						
Chlorobenzene	ND		5						
Acetone	ND		100						
Bromodichloromethane	ND		5						
Bromoform	ND		5						
Bromomethane	ND		10						
2-Butanone	ND		100						
Carbon Disulfide	ND		10						
Carbon Tetrachloride	ND		5						
Chloroethane	ND		10						
2-Chloroethyl Vinyl Ether	ND		10						
Chloroform	ND		5						
Chloromethane	ND		10						
Dibromochloromethane	ND		5						
1,1-Dichloroethane	ND		5						
1,2-Dichloroethane	ND		5						
cis-1,2-Dichloroethene	ND		5						
trans-1,2-Dichloroethene	ND		5						
1,2-Dichloropropane	ND		5						
cis-1,3-Dichloropropene	ND		5						
trans-1,3-Dichloropropene	ND		5						
Ethylbenzene	ND		5						
2-Hexanone	ND		50						
Methylene Chloride	ND		10						
4-Methyl-2-pentanone	ND		50						
Styrene	ND		5						
1,1,2,2-Tetrachloroethane	ND		5						
Tetrachloroethene	ND		5						
1,1,1-Trichloroethane	ND		5						
1,1,2-Trichloroethane	ND		5						
Vinyl Acetate	ND		50						
Vinyl Chloride	ND		10						
Xylenes, Total	ND		10						
1,2-Dibromoethane	ND		5						
1,2-Dichlorobenzene	ND		5						
1,3-Dichlorobenzene	ND		5						
1,4-Dichlorobenzene	ND		5						
Dichlorodifluoromethane	ND		10						
Trichlorofluoromethane	ND		5						
Trichlorotrifluoroethane	ND		5						
Tetrahydrofuran	ND		50						
Ethanol	ND		100						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: LCS_1111
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/6/1
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	122	96.7		100	122	75	129		
Toluene-d8 (surr)	104	98.1		100	104	81	111		
p-BFB (surr)	105	99.3		100	105	78	131		
1,1-Dichloroethene	64.0	ND	5	50.0	128	77	137		

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QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: LCS_1111
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/6/1
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Benzene	54.1	ND	5	50.0	108	89	142		
Trichloroethene	45.9	ND	5	50.0	91.8	83	121		
Toluene	51.8	ND	5	50.0	104	81	121		
Chlorobenzene	53.2	ND	5	50.0	106	88	124		

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: MD11109-01A
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/4/2
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	106	113		100	106	75	129		
Toluene-d8 (surr)	96.3	97.6		100	96.3	81	111		
p-BFB (surr)	108	108		100	108	78	131		
1,1-Dichloroethene	58.2	ND	5	50.0	116	77	137		
Benzene	62.5	8.59	5	50.0	108	89	142		
Trichloroethene	46.9	ND	5	50.0	93.8	83	121		
Toluene	345	324	5	50.0	42.0 !	81	121		
Chlorobenzene	53.8	ND	5	50.0	108	88	124		

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: MS11109-01A
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/3/2
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	105	113		100	105	75	129		
Toluene-d8 (surr)	99.2	97.6		100	99.2	81	111		
p-BFB (surr)	108	108		100	108	78	131		
1,1-Dichloroethene	58.8	ND	5	50.0	118	77	137		
Benzene	61.9	8.59	5	50.0	107	89	142		
Trichloroethene	46.4	ND	5	50.0	92.8	83	121		
Toluene	348	324	5	50.0	48.0 !	81	121		
Chlorobenzene	54.0	ND	5	50.0	108	88	124		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: MR11109-01A
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/5/3
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	106	105		100	106	75	129		
Toluene-d8 (surr)	96.3	99.2		100	96.3	81	111		
p-BFB (surr)	108	108		100	108	78	131		
1,1-Dichloroethene	58.2	58.8	5	50.0				1.03	25
Benzene	62.5	61.9	5	50.0				0.965	25
Trichloroethene	46.9	46.4	5	50.0				1.07	25
Toluene	345	348	5	50.0				0.866	25
Chlorobenzene	53.8	54.0	5	50.0				0.371	25

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Selenium

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/1/
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	ND		0.004						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/3/1
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	0.0775	ND	0.004	0.0800	96.9	79	115		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/2/1
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	0.0767	ND	0.004	0.0800	95.9	79	115		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_W
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: 4000\971111122200/4/2
 BATCH ID: GFW111097-W
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Selenium in water by GFAA	0.0775	0.0767	0.004					1.04	13

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: BLNK 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/2/
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	95.4			100	95.4	42	110		
Phenol-d5 (surr)	89.9			100	89.9	40	122		
Nitrobenzene-d5 (surr)	91.1			100	91.1	46	109		
2-Fluorobiphenyl (surr)	95.6			100	95.6	41	140		
2,4,6-Tribromophenol (surr)	93.5			100	93.5	46	116		
Terphenyl-d14 (surr)	118			100	118	35	165		
Phenol	ND		10						
2-Chlorophenol	ND		10						
1,4-Dichlorobenzene	ND		10						
N-Nitrosodi-n-propylamine	ND		10						
1,2,4-Trichlorobenzene	ND		10						
4-Chloro-3-methylphenol	ND		10						
Acenaphthene	ND		10						
4-Nitrophenol	ND		50						
2,4-Dinitrotoluene	ND		10						
Pentachlorophenol	ND		50						
Pyrene	ND		10						
Acenaphthylene	ND		10						
Anthracene	ND		10						
Benzidine	ND		50						
Benzoic Acid	ND		50						
Benzo(a)anthracene	ND		10						
Benzo(b)fluoranthene	ND		10						
Benzo(k)fluoranthene	ND		10						
Benzo(g,h,i)perylene	ND		10						
Benzo(a)pyrene	ND		10						
Benzyl Alcohol	ND		20						
Bis(2-chloroethoxy)methane	ND		10						
Bis(2-chloroethyl) Ether	ND		10						
Bis(2-chloroisopropyl) Eth	ND		10						
Bis(2-ethylhexyl) Phthalat	ND		10						
4-Bromophenyl Phenyl Ether	ND		10						
Butylbenzyl Phthalate	ND		10						
4-Chloroaniline	ND		20						
2-Chloronaphthalene	ND		10						
4-Chlorophenyl Phenyl Ethe	ND		10						
Chrysene	ND		10						
Dibenzo(a,h)anthracene	ND		10						
Dibenzofuran	ND		10						
Di-n-butyl Phthalate	ND		10						
1,2-Dichlorobenzene	ND		10						
1,3-Dichlorobenzene	ND		10						
3,3'-Dichlorobenzidine	ND		20						
Diethyl Phthalate	ND		10						
Dimethyl Phthalate	ND		10						
2,6-Dinitrotoluene	ND		10						
Di-n-octyl Phthalate	ND		10						
1,2-Diphenylhydrazine	ND		10						
Fluoranthene	ND		10						
Fluorene	ND		10						
Hexachlorobenzene	ND		10						
Hexachlorobutadiene	ND		10						
Hexachlorocyclopentadiene	ND		10						
Hexachloroethane	ND		10						
Indeno(1,2,3-cd)pyrene	ND		10						
Isophorone	ND		10						
2-Methylnaphthalene	ND		10						
Naphthalene	ND		10						
2-Nitroaniline	ND		50						
3-Nitroaniline	ND		50						
4-Nitroaniline	ND		50						
Nitrobenzene	ND		10						
N-Nitrosodimethylamine	ND		10						
N-Nitrosodiphenylamine	ND		10						

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: BLNK 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/2/
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Phenanthrene	ND		10						
2,4-Dichlorophenol	ND		10						
2,4-Dimethylphenol	ND		10						
4,6-Dinitro-2-methylphenol	ND		50						
2,4-Dinitrophenol	ND		50						
2-Methylphenol	ND		10						
4-Methylphenol	ND		10						
2-Nitrophenol	ND		10						
2,4,5-Trichlorophenol	ND		10						
2,4,6-Trichlorophenol	ND		10						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCD 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/4/2
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	92.3	95.4		100	92.3	42	110		
Phenol-d5 (surr)	91.6	89.9		100	91.6	40	122		
Nitrobenzene-d5 (surr)	90.3	91.1		100	90.3	46	109		
2-Fluorobiphenyl (surr)	99.1	95.6		100	99.1	41	140		
2,4,6-Tribromophenol (surr)	105	93.5		100	105	46	116		
Terphenyl-d14 (surr)	124	118		100	124	35	165		
Phenol	74.5	ND	10	100	74.5	44	94		
2-Chlorophenol	83.0	ND	10	100	83.0	52	111		
1,4-Dichlorobenzene	91.2	ND	10	100	91.2	54	116		
N-Nitrosodi-n-propylamine	67.6	ND	10	100	67.6	48	141		
1,2,4-Trichlorobenzene	96.8	ND	10	100	96.8	57	107		
4-Chloro-3-methylphenol	81.0	ND	10	100	81.0	54	113		
Acenaphthene	96.1	ND	10	100	96.1	60	114		
4-Nitrophenol	54.1	ND	50	100	54.1	22	119		
2,4-Dinitrotoluene	90.5	ND	10	100	90.5	43	130		
Pentachlorophenol	56.4	ND	50	100	56.4	38	110		
Pyrene	121	ND	10	100	121	32	121		

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP-5890 for Semi-volatiles
 UNITS: ug/L
 METHOD: EPA 8270B

LAB ID: LCS 1110
 PREPARED: 11/10/97
 ANALYZED: 11/12/97

INSTR RUN: GCMS10\971110080000/3/2
 BATCH ID: BNAW111097
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
2-Fluorophenol (surr)	99.8	95.4		100	99.8	42	110		
Phenol-d5 (surr)	97.0	89.9		100	97.0	40	122		
Nitrobenzene-d5 (surr)	96.4	91.1		100	96.4	46	109		
2-Fluorobiphenyl (surr)	103	95.6		100	103	41	140		
2,4,6-Tribromophenol (surr)	110	93.5		100	110	46	116		
Terphenyl-d14 (surr)	128	118		100	128	35	165		
Phenol	75.0	ND	10	100	75.0	44	94		
2-Chlorophenol	84.2	ND	10	100	84.2	52	111		
1,4-Dichlorobenzene	91.6	ND	10	100	91.6	54	116		
N-Nitrosodi-n-propylamine	64.9	ND	10	100	64.9	48	141		
1,2,4-Trichlorobenzene	99.6	ND	10	100	99.6	57	107		
4-Chloro-3-methylphenol	80.8	ND	10	100	80.8	54	113		
Acenaphthene	95.5	ND	10	100	95.5	60	114		
4-Nitrophenol	59.6	ND	50	100	59.6	22	119		
2,4-Dinitrotoluene	95.2	ND	10	100	95.2	43	130		
Pentachlorophenol	62.9	ND	50	100	62.9	38	110		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike		LAB ID: LCS 1110		INSTR RUN: GCMS10\971110080000/3/2	
INSTRUMENT: HP-5890 for Semi-volatiles		PREPARED: 11/10/97		BATCH ID: BNAW111097	
UNITS: ug/L		ANALYZED: 11/12/97		DILUTION: 1.00	
METHOD: EPA 8270B					

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
Pyrene	116	ND	10	100	116	32 121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Control Sample Duplicate		LAB ID: LCR 1110		INSTR RUN: GCMS10\971110080000/5/3	
INSTRUMENT: HP-5890 for Semi-volatiles		PREPARED: 11/10/97		BATCH ID: BNAW111097	
UNITS: ug/L		ANALYZED: 11/12/97		DILUTION: 1.00	
METHOD: EPA 8270B					

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
2-Fluorophenol (surr)	92.3	99.8		100	92.3	42 110		
Phenol-d5 (surr)	91.6	97.0		100	91.6	40 122		
Nitrobenzene-d5 (surr)	90.3	96.4		100	90.3	46 109		
2-Fluorobiphenyl (surr)	99.1	103		100	99.1	41 140		
2,4,6-Tribromophenol (surr)	105	110		100	105	46 116		
Terphenyl-d14 (surr)	124	128		100	124	35 165		
Phenol	74.5	75.0	10	100			0.669	40
2-Chlorophenol	83.0	84.2	10	100			1.44	40
1,4-Dichlorobenzene	91.2	91.6	10	100			0.438	30
N-Nitrosodi-n-propylamine	67.6	64.9	10	100			4.08	30
1,2,4-Trichlorobenzene	96.8	99.6	10	100			2.85	30
4-Chloro-3-methylphenol	81.0	80.8	10	100			0.247	30
Acenaphthene	96.1	95.5	10	100			0.626	30
4-Nitrophenol	54.1	59.6	50	100			9.67	40
2,4-Dinitrotoluene	90.5	95.2	10	100			5.06	40
Pentachlorophenol	56.4	62.9	50	100			10.9	30
Pyrene	121	116	10	100			4.22	30

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client		LAB ID: 9711109-01C		INSTR RUN: GCMS10\971110080000/1/	
INSTRUMENT: HP-5890 for Semi-volatiles		PREPARED: 11/10/97		BATCH ID: BNAW111097	
UNITS: ug/L		ANALYZED: 11/12/97		DILUTION: 1.00	
METHOD: EPA 8270B					

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (%)
2-Fluorophenol (surr)	89.7			100	89.7	42 110		
Phenol-d5 (surr)	94.1			100	94.1	40 122		
Nitrobenzene-d5 (surr)	88.8			100	88.8	46 109		
2-Fluorobiphenyl (surr)	96.1			100	96.1	41 140		
2,4,6-Tribromophenol (surr)	115			100	115	46 116		
Terphenyl-d14 (surr)	111			100	111	35 165		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: BLNK_1110
 PREPARED:
 ANALYZED: 11/10/97

INSTR RUN: GCMS13\971110210000/1/
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	96.7			100	96.7	75	129		
Toluene-d8 (surr)	98.1			100	98.1	81	111		
p-BFB (surr)	99.3			100	99.3	78	131		
1,1-Dichloroethene	ND		5						
Benzene	ND		5						
Trichloroethene	ND		5						
Toluene	ND		5						
Chlorobenzene	ND		5						
Acetone	ND		100						
Bromodichloromethane	ND		5						
Bromoform	ND		5						
Bromomethane	ND		10						
2-Butanone	ND		100						
Carbon Disulfide	ND		10						
Carbon Tetrachloride	ND		5						
Chloroethane	ND		10						
2-Chloroethyl Vinyl Ether	ND		10						
Chloroform	ND		5						
Chloromethane	ND		10						
Dibromochloromethane	ND		5						
1,1-Dichloroethane	ND		5						
1,2-Dichloroethane	ND		5						
cis-1,2-Dichloroethene	ND		5						
trans-1,2-Dichloroethene	ND		5						
1,2-Dichloropropane	ND		5						
cis-1,3-Dichloropropene	ND		5						
trans-1,3-Dichloropropene	ND		5						
Ethylbenzene	ND		5						
2-Hexanone	ND		50						
Methylene Chloride	ND		10						
4-Methyl-2-pentanone	ND		50						
Styrene	ND		5						
1,1,2,2-Tetrachloroethane	ND		5						
Tetrachloroethene	ND		5						
1,1,1-Trichloroethane	ND		5						
1,1,2-Trichloroethane	ND		5						
Vinyl Acetate	ND		50						
Vinyl Chloride	ND		10						
Xylenes, Total	ND		10						
1,2-Dibromoethane	ND		5						
1,2-Dichlorobenzene	ND		5						
1,3-Dichlorobenzene	ND		5						
1,4-Dichlorobenzene	ND		5						
Dichlorodifluoromethane	ND		10						
Trichlorofluoromethane	ND		5						
Trichlorotrifluoroethane	ND		5						
Tetrahydrofuran	ND		50						
Ethanol	ND		100						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: LCS_1111
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/6/1
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	122	96.7		100	122	75	129		
Toluene-d8 (surr)	104	98.1		100	104	81	111		
p-BFB (surr)	105	99.3		100	105	78	131		
1,1-Dichloroethene	64.0	ND	5	50.0	128	77	137		

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: LCS_1111
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/6/1
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Benzene	54.1	ND	5	50.0	108	89	142		
Trichloroethene	45.9	ND	5	50.0	91.8	83	121		
Toluene	51.8	ND	5	50.0	104	81	121		
Chlorobenzene	53.2	ND	5	50.0	106	88	124		

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: MD11109-01A
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/4/2
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	106	113		100	106	75	129		
Toluene-d8 (surr)	96.3	97.6		100	96.3	81	111		
p-BFB (surr)	108	108		100	108	78	131		
1,1-Dichloroethene	58.2	ND	5	50.0	116	77	137		
Benzene	62.5	8.59	5	50.0	108	89	142		
Trichloroethene	46.9	ND	5	50.0	93.8	83	121		
Toluene	345	324	5	50.0	42.0 !	81	121		
Chlorobenzene	53.8	ND	5	50.0	108	88	124		

SAMPLE TYPE: Spike-Sample/Matrix
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: MS11109-01A
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/3/2
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	105	113		100	105	75	129		
Toluene-d8 (surr)	99.2	97.6		100	99.2	81	111		
p-BFB (surr)	108	108		100	108	78	131		
1,1-Dichloroethene	58.8	ND	5	50.0	118	77	137		
Benzene	61.9	8.59	5	50.0	107	89	142		
Trichloroethene	46.4	ND	5	50.0	92.8	83	121		
Toluene	348	324	5	50.0	48.0 !	81	121		
Chlorobenzene	54.0	ND	5	50.0	108	88	124		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate
 INSTRUMENT: HP mass spec for Volatiles
 UNITS: ug/L
 METHOD: EPA 8240B

LAB ID: MR11109-01A
 PREPARED:
 ANALYZED: 11/11/97

INSTR RUN: GCMS13\971110210000/5/3
 BATCH ID: MS13W111197-2
 DILUTION: 1.00

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
1,2-DCA-d4 (surr)	106	105		100	106	75	129		
Toluene-d8 (surr)	96.3	99.2		100	96.3	81	111		
p-BFB (surr)	108	108		100	108	78	131		
1,1-Dichloroethene	58.2	58.8	5	50.0				1.03	25
Benzene	62.5	61.9	5	50.0				0.965	25
Trichloroethene	46.9	46.4	5	50.0				1.07	25
Toluene	345	348	5	50.0				0.866	25
Chlorobenzene	53.8	54.0	5	50.0				0.371	25

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-12

ANALYSIS: Volatile GC/MS

MATRIX: Water

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client		LAB ID: 9711109-01A		INSTR RUN: GCMS13\971110210000/7/							
INSTRUMENT: HP mass spec for Volatiles		PREPARED:		BATCH ID: MS13W111197-2							
UNITS: ug/L		ANALYZED: 11/11/97		DILUTION: 10.0							
METHOD: EPA 8240B											
ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	LOW	HIGH	RPD (%)	RPD LIMIT (%)
1,2-DCA-d4	(surr)	90.8			100	90.8		75	129		
Toluene-d8	(surr)	105			100	105		81	111		
p-BFB	(surr)	93.9			100	93.9		78	131		

----- End of Quality Control Report -----

9711109

FORM Nº 86/COC/ARF

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: ALEX JENKINS/ RICK MILELLI
CLIENT PROJ. ID: 2616.97-01
CLIENT PROJ. NAME: SHERWIN-WILLMS
C.O.C. NUMBER: 14483

REPORT DATE: 11/17/97

DATE(S) SAMPLED: 11/13/97

DATE RECEIVED: 11/13/97

AEN WORK ORDER: 9711173

PROJECT SUMMARY:

On November 13, 1997, this laboratory received 1 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: STORMDRAIN
AEN LAB NO: 9711173-01
AEN WORK ORDER: 9711173
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/13/97
DATE RECEIVED: 11/13/97
REPORT DATE: 11/17/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/13/97
Arsenic	EPA 206.2	14 *	0.002	mg/L	11/14/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9711173
CLIENT PROJECT ID: 2616.97-01

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9711173

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_B
 PREPARED:
 ANALYZED: 11/14/97

INSTR RUN: 4000\971114120900/1/
 BATCH ID: GFW111397-B
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Arsenic in water by GFAA	ND		0.002				

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_B
 PREPARED:
 ANALYZED: 11/14/97

INSTR RUN: 4000\971114120900/3/1
 BATCH ID: GFW111397-B
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Arsenic in water by GFAA	0.0414	ND	0.002	0.0400	104	82 140	

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_B
 PREPARED:
 ANALYZED: 11/14/97

INSTR RUN: 4000\971114120900/2/1
 BATCH ID: GFW111397-B
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Arsenic in water by GFAA	0.0397	ND	0.002	0.0400	99.3	82 140	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_B
 PREPARED:
 ANALYZED: 11/14/97

INSTR RUN: 4000\971114120900/4/2
 BATCH ID: GFW111397-B
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD LIMIT (%)
						LOW HIGH	RPD (%)
Arsenic in water by GFAA	0.0414	0.0397	0.002				4.19 13

----- End of Quality Control Report -----

9711173

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FORM NO. 86/COC/ARE

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 11/18/97

DATE(S) SAMPLED: 11/14/97

DATE RECEIVED: 11/14/97

AEN WORK ORDER: 9711200

ATTN: M. KNOX/A. JENKINS/S. SHIU
CLIENT PROJ. ID: 3435.00.006
CLIENT PROJ. NAME: SHERWIN WLLMS.
C.O.C. NUMBER: 1462

PROJECT SUMMARY:

On November 14, 1997, this laboratory received 1 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE - FRICKE - RECON

SAMPLE ID: STORMWATER DISCH
AEN LAB NO: 9711200-01
AEN WORK ORDER: 9711200
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 11/14/97
DATE RECEIVED: 11/14/97
REPORT DATE: 11/18/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Arsenic	EPA 206.2	0.81 *	0.002	mg/L	11/17/97
#Digestion/ICP	EPA 200.0	-		Prep Date	11/14/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9711200
CLIENT PROJECT ID: 3435.00.006

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9711200

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_F
 PREPARED:
 ANALYZED: 11/17/97

INSTR RUN: 4000\971117114300/1/
 BATCH ID: GFW111497-F
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	ND		0.002					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_F
 PREPARED:
 ANALYZED: 11/17/97

INSTR RUN: 4000\971117114300/3/1
 BATCH ID: GFW111497-F
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0485	ND	0.002	0.0400	121	82	140	

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_F
 PREPARED:
 ANALYZED: 11/17/97

INSTR RUN: 4000\971117114300/2/1
 BATCH ID: GFW111497-F
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0454	ND	0.002	0.0400	114	82	140	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_F
 PREPARED:
 ANALYZED: 11/17/97

INSTR RUN: 4000\971117114300/4/2
 BATCH ID: GFW111497-F
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0485	0.0454	0.002					

----- End of Quality Control Report -----

9711200

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American Environmental Network

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AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 11/21/97

DATE(S) SAMPLED: 11/15/97-11/16/97

ATTN: ALEX JENKINS/ SUSAN SHIU
CLIENT PROJ. ID: ~~2616-97-01~~
3435.00.006
C.O.C. NUMBER: 14484

DATE RECEIVED: 11/18/97

AEN WORK ORDER: 9711218

PROJECT SUMMARY:

On November 18, 1997, this laboratory received 4 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: Storm Dran H20
AEN LAB NO: 9711218-01
AEN WORK ORDER: 9711218
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/15/97
DATE RECEIVED: 11/18/97
REPORT DATE: 11/21/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/17/97
Arsenic	EPA 206.2	0.99 *	0.002	mg/L	11/18/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: Storm Drain Rain
AEN LAB NO: 9711218-02
AEN WORK ORDER: 9711218
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/16/97
DATE RECEIVED: 11/18/97
REPORT DATE: 11/21/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/17/97
Arsenic	EPA 206.2	12 *	0.002	mg/L	11/18/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-A
AEN LAB NO: 9711218-03
AEN WORK ORDER: 9711218
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/16/97
DATE RECEIVED: 11/18/97
REPORT DATE: 11/21/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/17/97
Arsenic	EPA 206.2	8.6 *	0.002 mg/L		11/18/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-C
AEN LAB NO: 9711218-04
AEN WORK ORDER: 9711218
CLIENT PROJ. ID: 2616.97-01

DATE SAMPLED: 11/16/97
DATE RECEIVED: 11/18/97
REPORT DATE: 11/21/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-		Prep Date	11/17/97
Arsenic	EPA 206.2	25 *	0.002	mg/L	11/18/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9711218
CLIENT PROJECT ID: 2616.97-01

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9711218

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_H
 PREPARED:
 ANALYZED: 11/18/97

INSTR RUN: 4000\971118114200/1/
 BATCH ID: GFW111797-H
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	ND		0.002					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_H
 PREPARED:
 ANALYZED: 11/18/97

INSTR RUN: 4000\971118114200/3/1
 BATCH ID: GFW111797-H
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0404	ND	0.002	0.0400	101	82	140	

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_H
 PREPARED:
 ANALYZED: 11/18/97

INSTR RUN: 4000\971118114200/2/1
 BATCH ID: GFW111797-H
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0385	ND	0.002	0.0400	96.3	82	140	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_H
 PREPARED:
 ANALYZED: 11/18/97

INSTR RUN: 4000\971118114200/4/2
 BATCH ID: GFW111797-H
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0404	0.0385	0.002					

----- End of Quality Control Report -----

9711218

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FORM NO. 86/COC/ARF

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

ATTN: A.JENKINS/ S. SHIU/ M. KNOX
CLIENT PROJ. ID: 3435-00-006
CLIENT PROJ. NAME: SHERWIN WILIMS
C.O.C. NUMBER: 1392

REPORT DATE: 12/02/97

DATE(S) SAMPLED: 11/26/97

DATE RECEIVED: 11/26/97

AEN WORK ORDER: 9711400

PROJECT SUMMARY:

On November 26, 1997, this laboratory received 11 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE - FRICKE - RECON

SAMPLE ID: 3435-CK-001 ✓
AEN LAB NO: 9711400-01
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.012 *	0.002 mg/L		12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: 3435-PD-002 ✓
AEN LAB NO: 9711400-02
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.17 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: 3425-CK-003 ✓
AEN LAB NO: 9711400-03
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.013 *	0.002 mg/L		12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: 3435-PD-004 ✓
AEN LAB NO: 9711400-04
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.17 *	0.002 mg/L		12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-B ✓
AEN LAB NO: 9711400-05
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	11 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-E ✓
AEN LAB NO: 9711400-06
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	0.96 *	0.002 mg/L		12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-G ✓
AEN LAB NO: 9711400-07
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	8.1 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-I ✓
AEN LAB NO: 9711400-08
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	6.9 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-K ✓
AEN LAB NO: 9711400-09
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	1.1 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-C ✓
AEN LAB NO: 9711400-10
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	9.5 *	0.002 mg/L		12/01/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-J ✓
AEN LAB NO: 9711400-11
AEN WORK ORDER: 9711400
CLIENT PROJ. ID: 3435-00-006

DATE SAMPLED: 11/26/97
DATE RECEIVED: 11/26/97
REPORT DATE: 12/02/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	11/26/97
Arsenic	EPA 7060	4.6 *	0.002	mg/L	12/01/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9711400
CLIENT PROJECT ID: 3435-00-006

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

! : Indicates result outside of established laboratory QC limits.

WORK ORDER: 9711400

QUALITY CONTROL REPORT *American Environmental Network* PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_PBW_B
PREPARED:
ANALYZED: 12/01/97

INSTR RUN: 4000\971201110400/1/
BATCH ID: GFW112697-B
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	ND		0.002						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_LCD_B
PREPARED:
ANALYZED: 12/01/97

INSTR RUN: 4000\971201110400/3/1
BATCH ID: GFW112697-B
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0402	ND	0.002	0.0400	101	82	140		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_LCS_B
PREPARED:
ANALYZED: 12/01/97

INSTR RUN: 4000\971201110400/2/1
BATCH ID: GFW112697-B
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0407	ND	0.002	0.0400	102	82	140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: GFW_LCR_B
PREPARED:
ANALYZED: 12/01/97

INSTR RUN: 4000\971201110400/4/2
BATCH ID: GFW112697-B
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0402	0.0407	0.002					1.24	13

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: MS11400-06A
PREPARED:
ANALYZED: 12/01/97

INSTR RUN: 4000\971201110400/11/10
BATCH ID: GFW112697-B
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.986	0.963	0.002	0.0400	57.5	41	167		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate
INSTRUMENT: TJA 4000
UNITS: mg/L
METHOD:

LAB ID: MR11400-06A
PREPARED:
ANALYZED: 12/01/97

INSTR RUN: 4000\971201110400/13/11
BATCH ID: GFW112697-B
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.954	0.986	0.002					3.30	13

----- End of Quality Control Report -----

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9711400

Project No.: 3435-00-006		Project Location: Emeryville		Date: 11/26/97		Serial No.: Nº 1392	
Project Name: Sherwin Williams		Field Logbook No.: NA					
Sampler (Signature): <i>Oliver R. J...</i>				ANALYSES			
SAMPLERS				SAMPLERS: ARJ			
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	Total Arsenic	REMARKS
3435-CK-001	11/26	01:05	01A	1-500 ml	Lig	X	1 Day TAT preserved HNO ₃
3435-PD-002	11/26	01:10	02A	1-500 ml	Lig	X	24 hour turnaround
3435-CK-003	11/26	08:00	03A	1	H ₂ O	X	
3435-PD-004	11/26	08:00	04A	1	H ₂ O	X	
R4R-B	11/26	0930	05A	1		X	
R4R-E			06A	1		X	RESULTS TO: A. JENKINS
R4R-G			07A	1		X	S. SHIU
R4R-I			08A	1		X	M. KNOX
R4R-L						X	
R4R-K			09A	1		X	
R4R-C	11/26	0900	10A	1	H ₂ O	X	METALS SAMPLES SHALL BE FOR
R4R-J	11/26	0930	11A	1		X	TOTAL UNFILTERED CONSTITUENTS
RELINQUISHED BY: (Signature) <i>Steve Thornton</i>		DATE 11/26/97	TIME 10:40	RECEIVED BY: (Signature) <i>Rich Gilmore</i>		DATE 11-26-97	TIME 12:10
RELINQUISHED BY: (Signature) <i>Rich Gilmore</i>		DATE 11-26-97	TIME 14:05	RECEIVED BY: (Signature) <i>Gina Gillespie</i>		DATE 11-26-97	TIME 1405
RELINQUISHED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME
METHOD OF SHIPMENT:		DATE	TIME	LAB COMMENTS:			
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500				Analytical Laboratory: AEN P/Carson Hill, CA			

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 12/09/97

DATE(S) SAMPLED: 12/07/97-12/08/97

DATE RECEIVED: 12/08/97

ATTN: M.KNOX/A.JENKINS/S.SHIU
CLIENT PROJ. ID: 3435.00.006
CLIENT PROJ. NAME: SHERWIN WILLMS
C.O.C. NUMBER: 1498

AEN WORK ORDER: 9712096


PROJECT SUMMARY:

On December 8, 1997, this laboratory received 6 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: WEST 1✓
AEN LAB NO: 9712096-01
AEN WORK ORDER: 9712096
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 12/07/97
DATE RECEIVED: 12/08/97
REPORT DATE: 12/09/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	12/08/97
Arsenic	EPA 7060	0.020 *	0.002	mg/L	12/08/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: EAST 1 ✓
AEN LAB NO: 9712096-02
AEN WORK ORDER: 9712096
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 12/07/97
DATE RECEIVED: 12/08/97
REPORT DATE: 12/09/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	12/08/97
Arsenic	EPA 7060	0.014 *	0.002	mg/L	12/08/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: EAST 2 ✓
AEN LAB NO: 9712096-03
AEN WORK ORDER: 9712096
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 12/07/97
DATE RECEIVED: 12/08/97
REPORT DATE: 12/09/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	12/08/97
Arsenic	EPA 7060	0.012 *	0.002	mg/L	12/08/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WEST 2 ✓
AEN LAB NO: 9712096-04
AEN WORK ORDER: 9712096
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 12/07/97
DATE RECEIVED: 12/08/97
REPORT DATE: 12/09/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	12/08/97
Arsenic	EPA 7060	0.11 *	0.002 mg/L		12/08/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: EAST 3✓
AEN LAB NO: 9712096-05
AEN WORK ORDER: 9712096
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 12/08/97
DATE RECEIVED: 12/08/97
REPORT DATE: 12/09/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	12/08/97
Arsenic	EPA 7060	0.13 *	0.002 mg/L		12/08/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: WEST 3 ✓
AEN LAB NO: 9712096-06
AEN WORK ORDER: 9712096
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 12/08/97
DATE RECEIVED: 12/08/97
REPORT DATE: 12/09/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	12/08/97
Arsenic	EPA 7060	1.0 *	0.002 mg/L		12/08/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9712096
CLIENT PROJECT ID: 3435.00.006

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9712096

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_X
 PREPARED:
 ANALYZED: 12/08/97

INSTR RUN: 4000\971208173400/1/
 BATCH ID: GFW120897-X
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	ND		0.002						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_X
 PREPARED:
 ANALYZED: 12/08/97

INSTR RUN: 4000\971208173400/3/1
 BATCH ID: GFW120897-X
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0441	ND	0.002	0.0400	110	82	140		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_X
 PREPARED:
 ANALYZED: 12/08/97

INSTR RUN: 4000\971208173400/2/1
 BATCH ID: GFW120897-X
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0435	ND	0.002	0.0400	109	82	140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_X
 PREPARED:
 ANALYZED: 12/08/97

INSTR RUN: 4000\971208173400/4/2
 BATCH ID: GFW120897-X
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0441	0.0435	0.002					1.37	13

----- End of Quality Control Report -----

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3435.00.006						Project Location: EMERYVILLE, CA						Date: 12/7/97		Serial No.: Nº 1498			
Project Name: SHERWIN-WILLIAMS						Field Logbook No.: —											
Sampler (Signature): <i>Ceph R. Jui</i>						ANALYSES										Samplers: ARJ/MDK	
SAMPLES																	
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	AENIC							HOLD	RUSH	REMARKS		
WEST 1	12/7/97	08:30	A.M. 01A	1	WATER	X							X		24-HOUR TAT!		
EAST 1	12/7/97	08:25	A.M. 02A	1	WATER	X							X				
															RESULTS TO M.KNOX / A.JENKINS / S.SHIU		
EAST 2	12/7/97	2:00	P.M. 03A	1	WATER	X							X		24 HR TAT		
WEST 2	12/7/97	2:05	P.M. 04A	1	WATER	X							X				
EAST 3	12/8/97	8:15	A.M. 05A	1	WATER	X							X		24 HR TAT		
WEST 3	12/8/97	8:15	A.M. 06A	1	WATER	X							X				
RELINQUISHED BY: (Signature) <i>Maur D. Knox</i>						DATE	12/8/97	TIME	10:20am	RECEIVED BY: (Signature) <i>Rick Gilmore</i>				DATE	12-8-97	TIME	10:20am
RELINQUISHED BY: (Signature) <i>Rick Gilmore</i>						DATE	12-8-97	TIME	12:05	RECEIVED BY: (Signature) <i>Ronald C. Jensen</i>				DATE	12/8/97	TIME	12:05
RELINQUISHED BY: (Signature)						DATE		TIME		RECEIVED BY: (Signature)				DATE		TIME	
METHOD OF SHIPMENT:						DATE		TIME		LAB COMMENTS:							
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500						Analytical Laboratory: AEN											

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

NIHA Accreditation: 11,34

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LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 01/08/98

DATE(S) SAMPLED: 01/02/98-01/04/98

DATE RECEIVED: 01/05/98

ATTN: M. MARSDEN/S. SHIU/M. KNOX
A. JENKINS/G. BARRY
CLIENT PROJ. ID: 3435.00.006
CLIENT PROJ. NAME: SHERWIN WMS
C.O.C. NUMBER: 2264

AEN WORK ORDER: 9801009

PROJECT SUMMARY:

On January 5, 1998, this laboratory received 8 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

LEVINE-FRICKE-RECON

SAMPLE ID: PD-E-0102✓
AEN LAB NO: 9801009-01
AEN WORK ORDER: 9801009
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/02/98
DATE RECEIVED: 01/05/98
REPORT DATE: 01/08/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/06/98
Arsenic	EPA 7060	0.008 *	0.002 mg/L		01/07/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: PD-CB9-0102 ✓
 AEN LAB NO: 9801009-02
 AEN WORK ORDER: 9801009
 CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/02/98
 DATE RECEIVED: 01/05/98
 REPORT DATE: 01/08/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/06/98
Arsenic	EPA 7060	0.007 *	0.002	mg/L	01/07/98

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: CB9-0104 ✓
 AEN LAB NO: 9801009-03
 AEN WORK ORDER: 9801009
 CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/04/98
 DATE RECEIVED: 01/05/98
 REPORT DATE: 01/08/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/06/98
Arsenic	EPA 7060	ND	0.002 mg/L		01/07/98

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: PD-W-0104 ✓
AEN LAB NO: 9801009-04
AEN WORK ORDER: 9801009
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/04/98
DATE RECEIVED: 01/05/98
REPORT DATE: 01/08/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/06/98
Arsenic	EPA 7060	0.008 *	0.002	mg/L	01/07/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: PD-E-0104 ✓
AEN LAB NO: 9801009-05
AEN WORK ORDER: 9801009
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/04/98
DATE RECEIVED: 01/05/98
REPORT DATE: 01/08/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/06/98
Arsenic	EPA 7060	ND	0.002	mg/L	01/07/98

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: TC-U-0104 ✓
 AEN LAB NO: 9801009-06
 AEN WORK ORDER: 9801009
 CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/04/98
 DATE RECEIVED: 01/05/98
 REPORT DATE: 01/08/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/06/98
Arsenic	EPA 7060	0.004 *	0.002	mg/L	01/07/98

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: TC-D-0104 ✓
 AEN LAB NO: 9801009-07
 AEN WORK ORDER: 9801009
 CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/04/98
 DATE RECEIVED: 01/05/98
 REPORT DATE: 01/08/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/06/98
Arsenic	EPA 7060	ND	0.002 mg/L		01/07/98

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: CB-SP-0104 ✓
AEN LAB NO: 9801009-08
AEN WORK ORDER: 9801009
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 01/04/98
DATE RECEIVED: 01/05/98
REPORT DATE: 01/08/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	01/06/98
Arsenic	EPA 7060	0.018 *	0.002	mg/L	01/07/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9801009
CLIENT PROJECT ID: 3435.00.006

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9801009

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank			LAB ID: GFW_PBW_F		INSTR RUN: 4000\980107123000/1/		
INSTRUMENT: TJA 4000			PREPARED:		BATCH ID: GFW010698-F		
UNITS: mg/L			ANALYZED: 01/07/98		DILUTION: 1.000000		
METHOD:							

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	ND		0.002					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank			LAB ID: GFW_LCD_F		INSTR RUN: 4000\980107123000/3/1		
INSTRUMENT: TJA 4000			PREPARED:		BATCH ID: GFW010698-F		
UNITS: mg/L			ANALYZED: 01/07/98		DILUTION: 1.000000		
METHOD:							

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0416	ND	0.002	0.0400	104	82	140	

SAMPLE TYPE: Spike-Method/Media blank			LAB ID: GFW_LCS_F		INSTR RUN: 4000\980107123000/2/1		
INSTRUMENT: TJA 4000			PREPARED:		BATCH ID: GFW010698-F		
UNITS: mg/L			ANALYZED: 01/07/98		DILUTION: 1.000000		
METHOD:							

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0385	ND	0.002	0.0400	96.3	82	140	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate			LAB ID: GFW_LCR_F		INSTR RUN: 4000\980107123000/4/2		
INSTRUMENT: TJA 4000			PREPARED:		BATCH ID: GFW010698-F		
UNITS: mg/L			ANALYZED: 01/07/98		DILUTION: 1.000000		
METHOD:							

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD LIMIT (%)
						LOW	HIGH	
Arsenic in water by GFAA	0.0416	0.0385	0.002					
						7.74		13

----- End of Quality Control Report -----

IVORG

9801009

Project No.: 304 3435.00.006		Project Location: EMERYVILLE, CA		Date: 1/5/98		Serial No.: Nº 2264			
Project Name: SHERWIN-WILLIAMS		Field Logbook No.:				Samplers: ARJ			
Sampler (Signature): <i>Alfred R. J...</i>		ANALYSES							
SAMPLES						REMARKS			
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	ARSENIC	HOLD	RUSH	REMARKS
PD-E-0102	1/2/98	11:15	1A	1	WATER	X			24-HOUR TAT
PD-CB9-0102	↓	15:20	2A	1	↓	X			
CB9-0104	1/4/98	00:15	3A	1		X			RESULTS TO
PD-W-0104	↓	00:30	4A	1		X			M. MARSDEN / M. KNOX /
PD-E-0104	↓	00:40	5A	1		X			G. BARRY / A. JENKINS /
TC-U-0104	↓	01:00	6A	1		X			S. SHIU
TC-D-0104	↓	01:30	7A	1		X			
CB-SP-0104	↓	01:45	8A	1	↓	X			ANALYZE FOR TOTAL
									(UNFILTERED)
									CONSTITUENTS
RELINQUISHED BY: <i>Alfred R. J...</i>		DATE: 1-5-98	TIME: 16:30	RECEIVED BY: <i>Rich Gilmore</i>		DATE: 1-5-98	TIME: 16:30		
RELINQUISHED BY: <i>Rich Gilmore</i>		DATE: 1-5-97	TIME: 17:30	RECEIVED BY: <i>Paul ...</i>		DATE: 1/5/98	TIME: 17:30		
RELINQUISHED BY:		DATE:	TIME:	RECEIVED BY:		DATE:	TIME:		
METHOD OF SHIPMENT:		DATE:	TIME:	LAB COMMENTS:					
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500				Analytical Laboratory: AEN					

Lab Copy (Yellow)

Field Copy (Goldenrod)

COC CDR 101596RYL



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

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

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

Prepared for:

Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 12-MAR-98
Lab Job Number: 132664
Project ID: 3435.00-006
Location: Sherwin Williams

Reviewed by:

Tracy Baker

Reviewed by:

[Signature]

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Laboratory Numbers: 132664
Client: Levine-Frickie-Recon
Project #: 3435.00-006
Location: Sherwin-Williams

Sampled Date: 03/11/98
Received Date: 03/12/98

CASE NARRATIVE

This hardcopy data package contains sample and QC results for eight water samples which were received from the site referenced above on March 12, 1998. The samples were received cold and intact.

Arsenic (EPA 6010A):

No analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00-006
LOCATION: Sherwin Williams
MATRIX: Water

DATE REPORTED: 03/12/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
CRK-0311	132664-001	03/11/98	03/12/98	ND	5.0	1	39545	EPA 6010A	03/12/98
CARB EFF-0311	132664-002	03/11/98	03/12/98	ND	5.0	1	39545	EPA 6010A	03/12/98
CB-1-0311	132664-003	03/11/98	03/12/98	13	5.0	1	39545	EPA 6010A	03/12/98
CB-7-0311	132664-004	03/11/98	03/12/98	200	5.0	1	39545	EPA 6010A	03/12/98
CB-9-0311	132664-005	03/11/98	03/12/98	53	5.0	1	39545	EPA 6010A	03/12/98
EX-2-0311	132664-006	03/11/98	03/12/98	22000	500	100	39545	EPA 6010A	03/12/98
EX-1-0311	132664-007	03/11/98	03/12/98	320	5.0	1	39545	EPA 6010A	03/12/98
CB-11-0311	132664-008	03/11/98	03/12/98	11	5.0	1	39545	EPA 6010A	03/12/98

ND = Not detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132664

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/12/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	39545	EPA 6010A	03/12/98

ND = Not Detected at or above reporting limit

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132664

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/12/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	1990	2080	ug/L	100	104	80-120	4	35	39545	EPA 6010A	03/12/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132664

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/12/98

BATCH QC REPORT
SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	132664-001	<5.000	<5.000	ug/L	NC	20	39545	EPA 6010A	03/12/98

NC = Not Calculable

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132664

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/12/98

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	2000	132664-001	<5.000	1990	ug/L	100	65-135	39545	EPA 6010A	03/12/98

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3435.00-006			Project Location: Shewin W - Emeryville			Date: 3-11-98			Serial No.: Nº 2299					
Project Name: Shewin Williams			Field Logbook No.: NA											
Sampler (Signature): Gene A. Barry						ANALYSES						Samplers: GAB		
SAMPLES														
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	AS						HOLD	RUSH	REMARKS
CRK-0311	3-11	1635		1	W	X								
CarbEFF-0311		1615		1		X								
CB-1-0311		1645		1		X								
CB-7-0311		1655		1		X								2 FRT TAT
CB-9-0311		1705		1		X								
EX-2-0311		1532		1		X								SAME DAY TAT
EX-1-0311		1530		1		X								
CB-11-0311		1720		1		X								
<div style="position: absolute; bottom: 10px; right: 10px; text-align: right;"> FAX Results to: Kerstin Frazier / Gene Barry </div>														
RELINQUISHED BY: (Signature) Gene A. Barry			DATE		TIME		RECEIVED BY: (Signature) [Signature]			DATE 3/12/98		TIME 9:25		
RELINQUISHED BY: (Signature)			DATE		TIME		RECEIVED BY: (Signature)			DATE		TIME		
RELINQUISHED BY: (Signature)			DATE		TIME		RECEIVED BY: (Signature)			DATE		TIME		
METHOD OF SHIPMENT:			DATE		TIME		LAB COMMENTS:							
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500						Analytical Laboratory: Curtis + Tompkins 2323 Fifth St. Berkeley, CA 94710								

Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

COC.CDR 101596RYL

Shawen Willen



Curtis & Tomokins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 132664 Date Received: 3/12 Number of Coolers: 1
Client: Levine - Frick R Project: 3435.00-006

A. Preliminary Examination Phase

Date Opened: 3/12 By (print): J. Willen (sign) Shawen

1. Did cooler come with a shipping slip (airbill, etc.)?..... YES ☒ NO

If YES, enter carrier name and airbill number: _____

2. Were custody seals on outside of cooler?..... YES ☒ NO

How many and where? _____ Seal date: _____ Seal name: _____

3. Were custody seals unbroken and intact at the date and time of arrival?..... YES NO N/A

4. Were custody papers dry and intact when received?..... ☒ YES NO

5. Were custody papers filled out properly (ink, signed, etc.)?..... ☒ YES NO

6. Did you sign the custody papers in the appropriate place?..... ☒ YES NO

7. Was project identifiable from custody papers?..... ☒ YES NO

If YES, enter project name at the top of this form.

8. If required, was sufficient ice used?..... YES NO N/A

Type of ice: N/A Temperature: 6.0°C

B. Login Phase

Date Logged In: 3/12 By (print): J. Willen (sign) Shawen

1. Describe type of packing in cooler: _____

2. Did all bottles arrive unbroken?..... ☒ YES NO

3. Were labels in good condition and complete (ID, date, time, signature, etc.)?..... ☒ YES NO

4. Did bottle labels agree with custody papers?..... ☒ YES NO

5. Were appropriate containers used for the tests indicated?..... ☒ YES NO

6. Were correct preservatives added to samples?..... ☒ YES NO

7. Was sufficient amount of sample sent for tests indicated?..... ☒ YES NO

8. Were bubbles absent in VOA samples? If NO, list sample IDs below..... YES NO N/A

9. Was the client contacted concerning this sample delivery?..... YES NO

If YES, give details below.

Who was called? _____ By whom? _____ Date: _____

Additional Comments:



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

Prepared for:

Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 16-MAR-98
Lab Job Number: 132685
Project ID: 3435.00-006
Location: Sherwin Williams

Reviewed by: 

Reviewed by: 

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Curtis & Tompkins, Ltd.

Laboratory Numbers: 132685
Client: Levine-Frickie-Recon
Project #: 345.00-006
Location: Sherwin-Williams

Sampled Date: 03/13/98
Received Date: 03/13/98

CASE NARRATIVE

This hardcopy data package contains sample and QC results for two water samples which were received from the site referenced above on March 13, 1998. The samples were received cold and intact.

Arsenic (EPA 6010A):

The arsenic recovery for the spike of sample CT# 132684-001 are not meaningful because the concentration for this element is four times the spiking level. No other analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00-006
LOCATION: Sherwin Williams
MATRIX: Water

DATE REPORTED: 03/13/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
CRK-W-0313	132685-001	03/13/98	03/13/98	220	5.0	1	39571	EPA 6010A	03/13/98
CRK-E-0313	132685-002	03/13/98	03/13/98	ND	5.0	1	39571	EPA 6010A	03/13/98

ND = Not detected at or above reporting limit

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132685

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/13/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	39571	EPA 6010A	03/13/98

ND = Not Detected at or above reporting limit

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132685

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/13/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	2090	2120	ug/L	105	106	80-120	1	35	39571	EPA 6010A	03/13/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132685

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/13/98

BATCH QC REPORT
SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	132684-001	41000	42800	ug/L	4	20	39571	EPA 6010A	03/13/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132685

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/13/98

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	2000	132684-001	41000	45600	ug/L	230* NM	65-135	39571	EPA 6010A	03/13/98

* - Out of Limits
NM - Not Meaningful

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

[illegible]

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Lab Copy (Yellow)

File Copy (Pink)

Field Copy (Goldenrod)

COC.CDR 101596RYL

Sharon - Williams
Treatability Study on



Curtis & Tomokins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 132605 Date Received: 3/13 Number of Coolers: 2
Client: LFR Project: 0427-00-001 3435-00-006

A. Preliminary Examination Phase

Date Opened: 3/13 By (print): J.W. Williams (sig.): [Signature]

1. Did cooler come with a shipping slip (airbill, etc.)?..... YES ☒ NO
- If YES, enter carrier name and airbill number: _____
2. Were custody seals on outside of cooler?..... YES ☒ NO
- How many and where? _____ Seal date: _____ Seal name: _____
3. Were custody seals unbroken and intact at the date and time of arrival?..... YES NO ☒ NA
4. Were custody papers dry and intact when received?..... YES NO ☒
5. Were custody papers filled out properly (ink, signed, etc.)?..... YES NO ☒
6. Did you sign the custody papers in the appropriate place?..... YES NO ☒
7. Was project identifiable from custody papers?..... YES NO ☒
- If YES, enter project name at the top of this form.
8. If required, was sufficient ice used?..... YES NO ☒
- Type of ice: blue Temperature: 6.0°C & 6.0°C

B. Login Phase

Date Logged In: 3/13 By (print): J.W. Williams (sign) [Signature]

1. Describe type of packing in cooler: _____
2. Did all bottles arrive unbroken?..... YES ☒ NO
3. Were labels in good condition and complete (ID, date, time, signature, etc.)?..... YES NO ☒
4. Did bottle labels agree with custody papers?..... YES NO ☒
5. Were appropriate containers used for the tests indicated?..... YES NO ☒
6. Were correct preservatives added to samples?..... YES NO ☒
7. Was sufficient amount of sample sent for tests indicated?..... YES NO ☒
8. Were bubbles absent in VOA samples? If NO, list sample IDs below..... YES NO ☒
9. Was the client contacted concerning this sample delivery?..... YES NO ☒
- If YES, give details below.
- Who was called? _____ By whom? _____ Date: _____

Additional Comments:



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

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

ANALYTICAL REPORT

Prepared for:

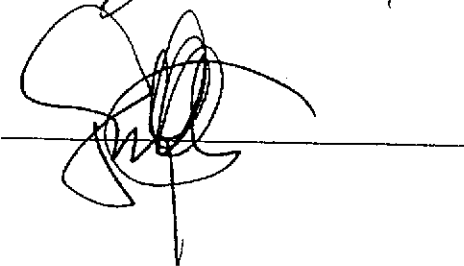
Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 16-MAR-98
Lab Job Number: 132694
Project ID: 3435.00.006
Location: Sherwin-Williams

Reviewed by:



Reviewed by:



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Laboratory Numbers: 132694
Client: Levine-Frickie-Recon
Project #: 3435.00.006
Location: Sherwin-Williams

Sampled Date: 03/13/98
Received Date: 03/13/98

CASE NARRATIVE

This hardcopy data package contains sample and QC results for eleven water samples which were received from the site referenced above on March 13 1998. The samples were received cold and intact.

Arsenic (EPA 6010A):
No analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00.006
LOCATION: Sherwin-Williams
MATRIX: Water

DATE REPORTED: 03/16/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
CB-1-0313	132694-001	03/13/98	03/13/98	5.1	5.0	1	39596	EPA 6010A	03/16/98
CB-3-0313	132694-003	03/13/98	03/13/98	31	5.0	1	39596	EPA 6010A	03/16/98
CB-4-0313	132694-004	03/13/98	03/13/98	35	5.0	1	39596	EPA 6010A	03/16/98
CB-5-0313	132694-005	03/13/98	03/13/98	10	5.0	1	39596	EPA 6010A	03/16/98
CB-6-0313	132694-006	03/13/98	03/13/98	ND	5.0	1	39596	EPA 6010A	03/16/98
CB-7-0313	132694-007	03/13/98	03/13/98	15	5.0	1	39596	EPA 6010A	03/16/98
CB-8-0313	132694-008	03/13/98	03/13/98	53	5.0	1	39596	EPA 6010A	03/16/98
CB-9-0313	132694-009	03/13/98	03/13/98	15	5.0	1	39596	EPA 6010A	03/16/98
CB-10-0313	132694-010	03/13/98	03/13/98	11	5.0	1	39596	EPA 6010A	03/16/98
CB-11-0313	132694-011	03/13/98	03/13/98	14	5.0	1	39596	EPA 6010A	03/16/98

ND = Not detected at or above reporting limit

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132694

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/16/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	39596	EPA 6010A	03/16/98

ND = Not Detected at or above reporting limit

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132694

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/16/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	1960	2110	ug/L	98	106	80-120	7	35	39596	EPA 6010A	03/16/98

dt Curtis & Tompkins, Ltd.
DATE REPORTED: 03/16/98

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	132699-001	<5.000	<5.000	ug/L	NC	20	39596	EPA 6010A	03/16/98
NC = Not Calculable									



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132694

DATE REPORTED: 03/16/98

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
benic	2000	132699-001	<5.000	2040	ug/L	102	65-135	39596	EPA 6010A	03/16/98



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

Laboratory Numbers: **132798**

Sample Date: **03/19,20/98**

Client: **Levine-Frickie-Recon**

Received Date: **03/20/98**

Project #: **3435.00.006**

Location: **Sherwin-Williams**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples which were received from the site referenced above on March 24, 1998. The samples were received cold and intact.

Metals (EPA 6010A):

No analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00.006
LOCATION: Sherwin-Williams
MATRIX: Water

DATE REPORTED: 03/23/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
FLUSH-A-0319	132798-001	03/19/98	03/20/98	18	5.0	1	39759	EPA 6010A	03/23/98
FLUSH-B-0319	132798-002	03/19/98	03/20/98	ND	5.0	1	39759	EPA 6010A	03/23/98
FLUSH-C-0320	132798-003	03/20/98	03/20/98	ND	5.0	1	39759	EPA 6010A	03/23/98

ND = Not detected at or above reporting limit

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132798

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/23/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	39759	EPA 6010A	03/23/98

ND = Not Detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132798

DATE REPORTED: 03/23/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD †	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	1960	1910	ug/L	98	96	80-120	3	35	39759	EPA 6010A	03/23/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132798



Curtis & Tompkins, Ltd.

DATE REPORTED: 03/23/98

BATCH QC REPORT
SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	132797-011	17.3	21	ug/L	19	20	39759	EPA 6010A	03/23/98



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132798

DATE REPORTED: 03/23/98

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	2000	132797-011	17.3	1980	ug/L	98	65-135	39759	EPA 6010A	03/23/98

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

132798

Project No.: 3435-00-006			Project Location: Emeryville CA			Date: 3/20/98			Serial No.: N ^o 2321		
Project Name: Shervin - Wilboms			Field Logbook No.:								
Sampler (Signature): <i>Lucas</i>			ANALYSES						Samplers: L&G/KFB		
SAMPLES											
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	Asenic					REMARKS
FLUSH-A-0319	03/19/98	4:30		1	Water	↓					24 Hr TAT
FLUSH-B-0319	03/19/98	6:00		1	↓						
FLUSH-C-0320	03/20/98	9:30		1							
Fax Results to:											
- Ferstin, Frazier											
Lucas Goldstein											
Michael Stoll											
RELINQUISHED BY: (Signature) <i>Karl Emich</i>			DATE 3/20/98		TIME 1:45		RECEIVED BY: (Signature) <i>Tracy B. B.</i>			DATE 3/20/98	
RELINQUISHED BY: (Signature)			DATE		TIME		RECEIVED BY: (Signature)			DATE	
RELINQUISHED BY: (Signature)			DATE		TIME		RECEIVED BY: (Signature)			DATE	
METHOD OF SHIPMENT:			DATE		TIME		LAB COMMENTS:				
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500						Analytical Laboratory: Chvatis + Thomas 2 pm pick-up Friday 3/20/98					

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Lab Copy (Yellow)

File Copy (Pink)

Field Copy (Goldenrod)

COC CDR 101596RYL



Curtis & Tompkins, Ltd

COOLER RECEIPT CHECKLIST

Login#: 132798 Date Received: 3/20 Number of Coolers: 1
 Client: LVER Project: Shawn Williams

A. Preliminary Examination Phase

Date Opened: 3/20 By (print): Tracy Behar (sign) Tracy Behar *MB*

1. Did cooler come with a shipping slip (airbill, etc.)? YES NO
- If YES, enter carrier name and airbill number: _____
2. Were custody seals on outside of cooler? YES NO
- How many and where? _____ Seal date: _____ Seal name: _____
3. Were custody seals unbroken and intact at the date and time of arrival? YES NO
4. Were custody papers dry and intact when received? YES NO
5. Were custody papers filled out properly (ink, signed, etc.)? YES NO
6. Did you sign the custody papers in the appropriate place? YES NO
7. Was project identifiable from custody papers? YES NO
- If YES, enter project name at the top of this form.
8. If required, was sufficient ice used? YES NO
- Type of ice: Blue Temperature: 5.0

B. Login Phase

Date Logged In: 3/20 By (print): Tracy Behar (sign) Tracy Behar

1. Describe type of packing in cooler: 6 blue ice
2. Did all bottles arrive unbroken? YES NO
3. Were labels in good condition and complete (ID, date, time, signature, etc.)? YES NO
4. Did bottle labels agree with custody papers? YES NO
5. Were appropriate containers used for the tests indicated? YES NO
6. Were correct preservatives added to samples? YES NO
7. Was sufficient amount of sample sent for tests indicated? YES NO
8. Were bubbles absent in VOA samples? If NO, list sample IDs below. YES NO
9. Was the client contacted concerning this sample delivery? YES NO *MB*
- If YES, give details below.
- Who was called? _____ By whom? _____ Date: _____

Additional Comments:

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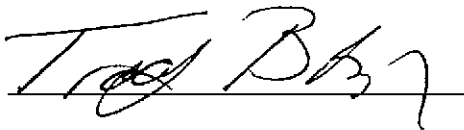
A N A L Y T I C A L R E P O R T

Prepared for:

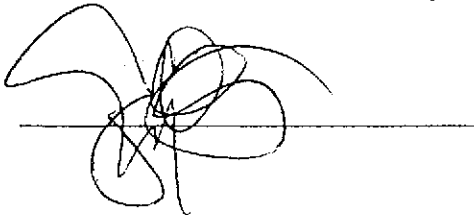
Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 24-MAR-98
Lab Job Number: 132809
Project ID: 3435.00.006
Location: Sherwin-Williams

Reviewed by:



Reviewed by:



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

Laboratory Numbers: **132809**

Client: **Levine-Frickie-Recon**

Project #: **3435.00.006**

Location: **Sherwin-Williams**

Sampled Date: **03/21/98**

Received Date: **03/24/98**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples which were received from the site referenced above on March 24, 1998. The samples were received cold and intact.

Metals (EPA 6010A):

An RPD recovery outside QC limits was observed for the duplicate of sample PD-MP-W-0321 (CT# 132809-001). This outlier should not affect the quality of the data as the RPD for the spike recoveries are within QC limits. No other analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00.006
LOCATION: Sherwin-Williams
MATRIX: Water

DATE REPORTED: 03/24/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
PD-MP-W-0321	132809-001	03/21/98	03/23/98	19	5.0	1	39778	EPA 6010A	03/23/98
PD-MP-E-0321	132809-002	03/21/98	03/23/98	34	5.0	1	39778	EPA 6010A	03/23/98
PD-RD-0321	132809-003	03/21/98	03/23/98	16	5.0	1	39778	EPA 6010A	03/23/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132809

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/24/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	39778	EPA 6010A	03/23/98

ND = Not Detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132809

DATE REPORTED: 03/24/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	2020	1940	ug/L	101	97	80-120	4	35	39778	EPA 6010A	03/23/98



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132809

DATE REPORTED: 03/24/98

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	2000	132809-001	19	1640	ug/L	81	65-135	39778	EPA 6010A	03/23/98



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132809

DATE REPORTED: 03/24/98

BATCH QC REPORT
SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	132809-001	19	15.2	ug/L	22*	20	39778	EPA 6010A	03/23/98

* = Out of Limits

132809

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COC.CDR 101596RY1



Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 132809 Date Received: 3/23 Number of Coolers: 1
Client: LVFR Project: Shawn - Williams - 34350006

A. Preliminary Examination Phase

Date Opered: 3/23 By (print): Tracy Behar (sign) Tracy Behar

1. Did cooler come with a shipping slip (airbill, etc.)?..... YES ☒ NO ☐
If YES, enter carrier name and airbill number: _____
2. Were custody seals on outside of cooler?..... YES ☐ NO ☒ N/A
How many and where? 1 Seal date: _____ Seal name: _____
3. Were custody seals unbroken and intact at the date and time of arrival?..... YES ☒ NO ☐
4. Were custody papers dry and intact when received?..... YES ☒ NO ☐
5. Were custody papers filled out properly (ink. signed, etc.)?..... YES ☒ NO ☐
6. Did you sign the custody papers in the appropriate place?..... YES ☒ NO ☐
7. Was project identifiable from custody papers?..... YES ☒ NO ☐
If YES, enter project name at the top of this form.
8. If required, was sufficient ice used?..... YES ☒ NO ☐
Type of ice: Blue Temperature: 5.0°C

B. Login Phase

Date Logged In: 3/23 By (print): Tracy Behar (sign) Tracy Behar

1. Describe type of packing in cooler: ice
2. Did all bottles arrive unbroken?..... YES ☒ NO ☐ 3/23/95
3. Were labels in good condition and complete (ID, date, time, signature, etc.)?..... YES ☒ NO ☐
4. Did bottle labels agree with custody papers?..... YES ☒ NO ☐
5. Were appropriate containers used for the tests indicated?..... YES ☒ NO ☐
6. Were correct preservatives added to samples?..... YES ☒ NO ☐
7. Was sufficient amount of sample sent for tests indicated?..... YES ☒ NO ☐
8. Were bubbles absent in VOA samples? If NO, list sample Ids below..... YES ☒ NO ☐
9. Was the client contacted concerning this sample delivery?..... YES ☒ NO ☐
If YES, give details below.
Who was called? _____ By whom? _____ Date: _____

Additional Comments:

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

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

Prepared for:

Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 24-MAR-98
Lab Job Number: 132817
Project ID: 3435.00.006
Location: Sherwin-Williams

Reviewed by: Troy B. L.

Reviewed by: [Signature]

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

Laboratory Numbers: **132817**

Client: **Levine-Frickie-Recon**

Project #: **3435.00.006**

Location: **Sherwin-Williams**

Sampled Date: **03/23/98**

Received Date: **03/23/98**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples which were received from the site referenced above on March 23, 1998. The samples were received cold and intact.

Metals (EPA 6010A):

No analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00.006
LOCATION: Sherwin-Williams
MATRIX: Water

DATE REPORTED: 03/24/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
PD-RD-0323	132817-001	03/23/98	03/23/98	5.3	5.0	1	39791	EPA 6010A	03/24/98
PD-MP-W-0323	132817-002	03/23/98	03/23/98	28	5.0	1	39791	EPA 6010A	03/24/98
PD-MP-E-0323	132817-003	03/23/98	03/23/98	ND	5.0	1	39791	EPA 6010A	03/24/98

ND = Not detected at or above reporting limit

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132817



Curtis & Tompkins, Ltd.

DATE REPORTED: 03/24/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	39791	EPA 6010A	03/24/98

ND = Not Detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132817

DATE REPORTED: 03/24/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	2040	1970	ug/L	102	99	80-120	4	35	39791	EPA 6010A	03/24/98



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132817

DATE REPORTED: 03/24/98

BATCH QC REPORT
SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	132817-001	5.25	<5.000	ug/L	NC	20	39791	EPA 6010A	03/24/98

NC = Not Calculable



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132817

DATE REPORTED: 03/24/98

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	2000	132817-001	5.25	2080	ug/L	104	65-135	39791	EPA 6010A	03/24/98

Project No.: 3435.00.006			Project Location: Emeryville, CA			Date: 3/23/98			Serial No.: Nº 1625				
Project Name: Sherwin Williams			Field Logbook No.:										
Sampler (Signature): Jeff M. Rodgers			ANALYSES						Samplers: JMR				
SAMPLES													
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	Asenic					HOLD	RUSH	REMARKS
PD-RD-0323	3/23/98	12:15		1	H ₂ O	X							1 Day TAT
PD-MD-W-0323	↓	12:20		1	↓	↓							Results to Susan Shiu and Kerstin Frazier
PD-MP-E-0323	↓	12:25		1	↓	↓							For results to 652-2246
													CT# 132817
RELINQUISHED BY: (Signature) Jeff M. Rodgers			DATE 3/23/98	TIME 13:10	RECEIVED BY: (Signature) [Signature]			DATE 3/23/98	TIME 2:00				
RELINQUISHED BY: (Signature)			DATE	TIME	RECEIVED BY: (Signature)			DATE	TIME				
RELINQUISHED BY: (Signature)			DATE	TIME	RECEIVED BY: (Signature)			DATE	TIME				
METHOD OF SHIPMENT:			DATE	TIME	LAB COMMENTS:								
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500					Analytical Laboratory: Curtis & Tompkins								

COC.CDR 101596RYL



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

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

Prepared for:

Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 31-MAR-98
Lab Job Number: 132913
Project ID: 3435.00.006
Location: Sherwin-Williams

Reviewed by:

Reviewed by:

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Laboratory Numbers: **132913**
Client: **Levine-Frickie-Recon**
Project #: **3435.00.006**
Location: **Sherwin-Williams**

Sampled Date: **03/27/98**
Received Date: **03/30/98**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for six water samples which were received from the site referenced above on March 30, 1998. The samples were received cold and intact.

Metals (EPA 6010/7470) : No analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00.006
LOCATION: Sherwin-Williams
MATRIX: Water

DATE REPORTED: 03/31/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
PD-MP-W-0327	132913-001	03/27/98	03/30/98	20	5.0	1	39919	EPA 6010A	03/30/98
PD-MP-W-0327-F	132913-002	03/27/98	03/30/98	17	5.0	1	39919	EPA 6010A	03/30/98
PD-MP-E-0327	132913-003	03/27/98	03/30/98	ND	5.0	1	39919	EPA 6010A	03/30/98
PD-MP-E-0327-F	132913-004	03/27/98	03/30/98	ND	5.0	1	39919	EPA 6010A	03/30/98
PD-MP-RD-0327	132913-005	03/27/98	03/30/98	ND	5.0	1	39919	EPA 6010A	03/30/98
PD-MP-RD-0327-F	132913-006	03/27/98	03/30/98	ND	5.0	1	39919	EPA 6010A	03/30/98

ND = Not detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132913

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/31/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	39919	EPA 6010A	03/31/98

ND = Not Detected at or above reporting limit

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132913

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/31/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	1810	1830	ug/L	91	92	80-120	1	35	39919	EPA 6010A	03/31/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132913

 Curtis & Tompkins, Ltd.
DATE REPORTED: 03/31/98

BATCH QC REPORT
SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	132882-001	16.4	20.1	ug/L	20	20	39919	EPA 6010A	03/31/98



Curtis & Tompkins, Ltd.

DATE REPORTED: 03/31/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132913

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	2000	132882-001	16.4	2080	ug/L	103	65-135	39919	EPA 6010A	03/31/98

1329/5

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File Copy (Pink)

Field Copy (Goldenrod)

COC.CDR 101596RYL



Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 13290 Date Received: 3/30/99 Number of Coolers: 1
 Client: LWP Project: 343S-00-006 - Sherwin Williams

A. Preliminary Examination Phase

Date Opened: 3/30/99 By (print): Tracy B. Bickel (sign) Tracy B. Bickel

1. Did cooler come with a shipping slip (airbill, etc.)?..... YES ☒ NO ☐
 If YES, enter carrier name and airbill number: _____
2. Were custody seals on outside of cooler?..... YES ☐ NO ☒ N/A
 How many and where? _____ Seal date: _____ Seal name: _____
3. Were custody seals unbroken and intact at the date and time of arrival?..... YES ☐ NO ☐
4. Were custody papers dry and intact when received?..... YES ☒ NO ☐
5. Were custody papers filled out properly (ink, signed, etc.)?..... YES ☒ NO ☐
6. Did you sign the custody papers in the appropriate place?..... YES ☒ NO ☐
7. Was project identifiable from custody papers?..... YES ☐ NO ☐
 If YES, enter project name at the top of this form.
8. If required, was sufficient ice used?..... YES ☐ NO ☐
 Type of ice: S.8 Temperature: wet

B. Login Phase

Date Logged In: 3/30/99 By (print): Tracy B. Bickel (sign) Tracy B. Bickel

1. Describe type of packing in cooler: _____
2. Did all bottles arrive unbroken?..... YES ☒ NO ☐
3. Were labels in good condition and complete (ID, date, time, signature, etc.)?..... YES ☒ NO ☐
4. Did bottle labels agree with custody papers?..... YES ☒ NO ☐
5. Were appropriate containers used for the tests indicated?..... YES ☒ NO ☐
6. Were correct preservatives added to samples?..... YES ☒ NO ☐
7. Was sufficient amount of sample sent for tests indicated?..... YES ☒ NO ☐
8. Were bubbles absent in VOA samples? If NO, list sample IDs below..... YES ☒ NO ☐
9. Was the client contacted concerning this sample delivery?..... YES ☒ NO ☐

If YES, give details below.

Who was called? _____ By whom? _____ Date: _____

Additional Comments:

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

LEVINE-FRICKE-RECON
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 04/10/98

DATE(S) SAMPLED: 03/27/98

DATE RECEIVED: 03/30/98

AEN WORK ORDER: 9803371

ATTN: KERSTIN FRAZIER
CLIENT PROJ. ID: 3435.00.006
CLIENT PROJ. NAME: SHERWIN-WMS
C.O.C. NUMBER: 1603

PROJECT SUMMARY:

On March 30, 1998, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Reviewed by:

William L. Laska

LEVINE-FRICKE-RECON

SAMPLE ID: PD-MP-W-0327-DUP
AEN LAB NO: 9803371-01
AEN WORK ORDER: 9803371
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 03/27/98
DATE RECEIVED: 03/30/98
REPORT DATE: 04/10/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	04/07/98
Arsenic	EPA 7060	0.020 *	0.005 mg/L		04/08/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: PD-MP-E-0327-DUP
AEN LAB NO: 9803371-02
AEN WORK ORDER: 9803371
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 03/27/98
DATE RECEIVED: 03/30/98
REPORT DATE: 04/10/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	04/07/98
Arsenic	EPA 7060	ND	0.005	mg/L	04/08/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

LEVINE-FRICKE-RECON

SAMPLE ID: PD-MP-RD-0327-DUP
AEN LAB NO: 9803371-03
AEN WORK ORDER: 9803371
CLIENT PROJ. ID: 3435.00.006

DATE SAMPLED: 03/27/98
DATE RECEIVED: 03/30/98
REPORT DATE: 04/10/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-		Prep Date	04/07/98
Arsenic	EPA 7060	0.006 *	0.005	mg/L	04/08/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9803371
CLIENT PROJECT ID: 3435.00.006

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9803371

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_PBW_E
 PREPARED:
 ANALYZED: 04/08/98

INSTR RUN: 4000\980408193200/1/
 BATCH ID: GFW040898-E
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	ND		0.005						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCD_E
 PREPARED:
 ANALYZED: 04/08/98

INSTR RUN: 4000\980408193200/3/1
 BATCH ID: GFW040898-E
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0385	ND	0.005	0.0400	96.3	82	140		

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCS_E
 PREPARED:
 ANALYZED: 04/08/98

INSTR RUN: 4000\980408193200/2/1
 BATCH ID: GFW040898-E
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0379	ND	0.005	0.0400	94.8	82	140		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA 4000
 UNITS: mg/L
 METHOD:

LAB ID: GFW_LCR_E
 PREPARED:
 ANALYZED: 04/08/98

INSTR RUN: 4000\980408193200/4/2
 BATCH ID: GFW040898-E
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Arsenic in water by GFAA	0.0385	0.0379	0.005					1.57	13

----- End of Quality Control Report -----

980337

Project No.: 3435.00.006		Project Location: Emeryville, CA		Date: 3/27/98		Serial No.: N ^o 1603	
Project Name: Shwinn - Williams		Field Logbook No.:					
Sampler (Signature): <i>[Signature]</i> Lucas Golden				ANALYSES			
SAMPLERS				SAMPLERS: 1X6			
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	ARSENIC	REMARKS
PD-MP-W-0327-IMP	3/27/98	7:20		1	Water	X	
PD-MP-E-0327-IMP		7:30		1		X	
PD-MP-RP-0327-IMP		7:40		1		X	
							7 day TAT
							Fax results to Kerstin Frazier
RELINQUISHED BY: <i>[Signature]</i>				DATE: 3/30/98	TIME: 1115	RECEIVED BY: <i>[Signature]</i>	
RELINQUISHED BY: <i>[Signature]</i>				DATE:	TIME:	RECEIVED BY: <i>[Signature]</i>	
RELINQUISHED BY: <i>[Signature]</i>				DATE: 3/30/98	TIME: 1220	RECEIVED BY: <i>[Signature]</i>	
METHOD OF SHIPMENT:				DATE:	TIME:	LAB COMMENTS:	
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500						Analytical Laboratory: AEN	



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

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

Prepared for:

Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 31-MAR-98
Lab Job Number: 132914
Project ID: 3435.00.006
Location: Sherwin-Williams

Reviewed by:

Tracy B. 7

Reviewed by:

[Signature]

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Curtis & Tompkins, Ltd.

Laboratory Numbers: **132914**
Client: **Levine-Frickie-Recon**
Project #: **3435.00.006**
Location: **Sherwin-Williams**

Sampled Date: **03/30/98**
Received Date: **03/30/98**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for one soil sample which were received from the site referenced above on March 30, 1998. The sample was received cold and intact.

Metals (EPA 6010/7470) : No analytical problems were encountered.



Curtis & Tompkins, Ltd.

SAMPLE ID: D-CBSED-0330

LAB ID: 132914-001

CLIENT: Levine-Fricke-Recon

PROJECT ID: 3435.00.006

LOCATION: Sherwin-Williams

MATRIX: Soil

DATE SAMPLED: 03/30/98

DATE RECEIVED: 03/30/98

DATE REPORTED: 03/31/98

California TITLE 26 Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	IDF	QC Batch	Method	Analysis Date
Antimony	ND	3.0	1	39921	EPA 6010A	03/31/98
Arsenic	95	0.25	1	39921	EPA 6010A	03/31/98
Barium	91	0.51	1	39921	EPA 6010A	03/31/98
Beryllium	0.19	0.10	1	39921	EPA 6010A	03/31/98
Cadmium	0.12	0.10	1	39921	EPA 6010A	03/31/98
Chromium (total)	29	0.51	1	39921	EPA 6010A	03/31/98
Cobalt	7.0	1.0	1	39921	EPA 6010A	03/31/98
Copper	36	0.51	1	39921	EPA 6010A	03/31/98
Lead	44	0.15	1	39921	EPA 6010A	03/31/98
Mercury	ND	0.080	1	39918	EPA 7471	03/30/98
Molybdenum	2.7	1.0	1	39921	EPA 6010A	03/31/98
Nickel	29	1.0	1	39921	EPA 6010A	03/31/98
Selenium	ND	0.25	1	39921	EPA 6010A	03/31/98
Silver	ND	0.51	1	39921	EPA 6010A	03/31/98
Thallium	3.4	0.25	1	39921	EPA 6010A	03/31/98
Vanadium	22	0.51	1	39921	EPA 6010A	03/31/98
Zinc	500	51	50	39921	EPA 6010A	03/31/98

ND = Not detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132914

DATE REPORTED: 03/31/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Antimony	ND	3	mg/Kg	1	39921	EPA 6010A	03/31/98
Arsenic	ND	0.25	mg/Kg	1	39921	EPA 6010A	03/31/98
Barium	ND	0.5	mg/Kg	1	39921	EPA 6010A	03/31/98
Beryllium	ND	0.1	mg/Kg	1	39921	EPA 6010A	03/31/98
Cadmium	ND	0.1	mg/Kg	1	39921	EPA 6010A	03/31/98
Chromium (total)	ND	0.5	mg/Kg	1	39921	EPA 6010A	03/31/98
Cobalt	ND	1	mg/Kg	1	39921	EPA 6010A	03/31/98
Copper	ND	0.5	mg/Kg	1	39921	EPA 6010A	03/31/98
Lead	ND	0.15	mg/Kg	1	39921	EPA 6010A	03/31/98
Mercury	ND	0.1	mg/Kg	1	39918	EPA 7471	03/30/98
Molybdenum	ND	1	mg/Kg	1	39921	EPA 6010A	03/31/98
Nickel	ND	1	mg/Kg	1	39921	EPA 6010A	03/31/98
Selenium	ND	0.25	mg/Kg	1	39921	EPA 6010A	03/31/98
Silver	ND	0.5	mg/Kg	1	39921	EPA 6010A	03/31/98
Thallium	ND	0.25	mg/Kg	1	39921	EPA 6010A	03/31/98
Vanadium	ND	0.5	mg/Kg	1	39921	EPA 6010A	03/31/98
Zinc	ND	1	mg/Kg	1	39921	EPA 6010A	03/31/98

ND = Not Detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132914

DATE REPORTED: 03/31/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Antimony	25	26.1	25.35	mg/Kg	104	101	80-120	3	35	39921	EPA 6010A	03/31/98
Arsenic	100	88	88	mg/Kg	88	88	80-120	0	35	39921	EPA 6010A	03/31/98
Barium	100	93	93	mg/Kg	93	93	80-120	0	35	39921	EPA 6010A	03/31/98
Beryllium	2.5	2.395	2.42	mg/Kg	96	97	80-120	1	35	39921	EPA 6010A	03/31/98
Cadmium	2.5	2.34	2.36	mg/Kg	94	94	80-120	1	35	39921	EPA 6010A	03/31/98
Chromium (total)	10	9.3	9.3	mg/Kg	93	93	80-120	0	35	39921	EPA 6010A	03/31/98
Cobalt	25	23.35	23.5	mg/Kg	93	94	80-120	1	35	39921	EPA 6010A	03/31/98
Copper	12.5	12.2	12.2	mg/Kg	98	98	80-120	0	35	39921	EPA 6010A	03/31/98
Lead	25	22.9	23.1	mg/Kg	92	92	80-120	1	35	39921	EPA 6010A	03/31/98
Mercury	2.500	2.588	2.622	mg/Kg	104	105	80-120	1	35	39918	EPA 7471	03/30/98
Molybdenum	20	18.3	18.4	mg/Kg	92	92	80-120	1	35	39921	EPA 6010A	03/31/98
Nickel	25	23	23.05	mg/Kg	92	92	80-120	0	35	39921	EPA 6010A	03/31/98
Selenium	100	86	87	mg/Kg	86	87	80-120	1	35	39921	EPA 6010A	03/31/98
Silver	5	4.585	4.58	mg/Kg	92	92	80-120	0	35	39921	EPA 6010A	03/31/98
Thallium	100	94.5	94	mg/Kg	95	94	80-120	1	35	39921	EPA 6010A	03/31/98
Vanadium	25	23.5	23.55	mg/Kg	94	94	80-120	0	35	39921	EPA 6010A	03/31/98
Zinc	25	23.1	23.2	mg/Kg	92	93	80-120	0	35	39921	EPA 6010A	03/31/98

2014

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COOLER RECEIPT CHECKLIST

Login#: 132911 Date Received: 3/30/98 Number of Coolers: 1
 Client: LVER Project: Sherwin Williams - 3435.c.c.c

A. Preliminary Examination Phase

Date Opened: 3/30 By (print): Tracy Bobb (sign) Tracy Bobb

1. Did cooler come with a shipping slip (airbill, etc.)? YES NO N/A
 If YES, enter carrier name and airbill number: _____

2. Were custody seals on outside of cooler? YES NO N/A

How many and where? _____ Seal date: _____ Seal name: _____

3. Were custody seals unbroken and intact at the date and time of arrival? YES NO

4. Were custody papers dry and intact when received? YES NO

5. Were custody papers filled out properly (ink, signed, etc.)? YES NO

6. Did you sign the custody papers in the appropriate place? YES NO

7. Was project identifiable from custody papers? YES NO

If YES, enter project name at the top of this form.

8. If required, was sufficient ice used? YES NO

Type of ice: Blue Temperature: 5.0°C

B. Login Phase

Date Logged In: 3/30 By (print): Tracy Bobb (sign) Tracy Bobb

1. Describe type of packing in cooler: _____

2. Did all bottles arrive unbroken? YES NO

3. Were labels in good condition and complete (ID, date, time, signature, etc.)? YES NO

4. Did bottle labels agree with custody papers? YES NO

5. Were appropriate containers used for the tests indicated? YES NO

6. Were correct preservatives added to samples? YES NO

7. Was sufficient amount of sample sent for tests indicated? YES NO

8. Were bubbles absent in VOA samples? If NO, list sample IDs below. YES NO

9. Was the client contacted concerning this sample delivery? YES NO

If YES, give details below.

Who was called? _____ By whom? _____ Date: _____

Additional Comments:



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ANALYTICAL REPORT

Prepared for:

Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 01-APR-98
Lab Job Number: 132944
Project ID: 3435.00.006
Location: Sherwin-Williams

Reviewed by:

Reviewed by:

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Laboratory Numbers: **132944**
Client: **Levine-Frickie-Recon**
Project #: **3435.00.006**
Location: **Sherwin-Williams**

Sampled Date: **03/31/98**
Received Date: **03/31/98**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples which were received from the site referenced above on March 31, 1998. The samples were received cold and intact.

Metals (EPA 6010) : No analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00.006
LOCATION: Sherwin-Williams
MATRIX: Water

DATE REPORTED: 04/01/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
PD-MP-W-0331	132944-001	03/31/98	03/31/98	39	5.0	1	39968	EPA 6010A	04/01/98
RD-MP-E-0331	132944-002	03/31/98	03/31/98	ND	5.0	1	39968	EPA 6010A	04/01/98
PD-RD-0331	132944-003	03/31/98	03/31/98	ND	5.0	1	39968	EPA 6010A	04/01/98

ND = Not detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132944



Curtis & Tompkins, Ltd.

DATE REPORTED: 04/01/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	39968	EPA 6010A	04/01/98

ND = Not Detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132944

DATE REPORTED: 04/01/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	2080	2080	ug/L	104	104	80-120	0	35	39968	EPA 6010A	04/01/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132944

 Curtis & Tompkins, Ltd.
DATE REPORTED: 04/01/98

BATCH QC REPORT
SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	132933-010	10.7	<5.000	ug/L	NC	20	39968	EPA 6010A	04/01/98

NC = Not Calculable



Curtis & Tompkins, Ltd.

DATE REPORTED: 04/01/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 132944

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	2000	132933-010	10.7	2090	ug/L	104	65-135	39968	EPA 6010A	04/01/98

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

[illegible]

Shipping Copy (White)

Lab Copy (Yellow)

File Copy (Pink)

Field Copy (Goldenrod)

COC.CDR 101596RYL



Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 132944 Date Received: 3/31 Number of Coolers: 1
Client: LVFR Project: Sherwin Williams 3435.00.006

A. Preliminary Examination Phase

Date Opened: 3/31 By (print): Tracy Belsic (sign) Tracy Belsic

1. Did cooler come with a shipping slip (airbill, etc.)? YES ☒ NO

If YES, enter carrier name and airbill number: _____

2. Were custody seals on outside of cooler? YES ☒ NO

How many and where? _____ Seal date: _____ Seal name: _____

3. Were custody seals unbroken and intact at the date and time of arrival? YES ☒ NO N/A

4. Were custody papers dry and intact when received? YES ☒ NO

5. Were custody papers filled out properly (ink, signed, etc.)? YES ☒ NO

6. Did you sign the custody papers in the appropriate place? YES ☒ NO

7. Was project identifiable from custody papers? YES ☒ NO

If YES, enter project name at the top of this form.

8. If required, was sufficient ice used? YES ☒ NO

Type of ice: Blue Temperature: 5-9°C

B. Login Phase

Date Logged In: 3/31 By (print): Tracy Belsic (sign) Tracy Belsic

1. Describe type of packing in cooler: _____

2. Did all bottles arrive unbroken? YES ☒ NO

3. Were labels in good condition and complete (ID, date, time, signature, etc.)? YES ☒ NO

4. Did bottle labels agree with custody papers? YES ☒ NO

5. Were appropriate containers used for the tests indicated? YES ☒ NO

6. Were correct preservatives added to samples? YES ☒ NO

7. Was sufficient amount of sample sent for tests indicated? YES ☒ NO

8. Were bubbles absent in VOA samples? If NO, list sample IDs below YES ☒ NO

9. Was the client contacted concerning this sample delivery? YES ☒ NO

If YES, give details below.

Who was called? _____ By whom? _____ Date: _____

Additional Comments:



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

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

Prepared for:

Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 08-APR-98
Lab Job Number: 133023
Project ID: 3435.00.006
Location: Sherwin-Williams

Reviewed by:

Reviewed by:

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Curtis & Tompkins, Ltd.

Laboratory Numbers: 133023
Client: Levine-Frickie-Recon
Project #: 3435.00.006
Location: Sherwin-Williams

Sampled Date: 04/02/98
Received Date: 04/03/98

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples which were received from the site referenced above on April 03, 1998. The samples were received cold and intact.

Metals (EPA 6010A):

No analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00.006
LOCATION: Sherwin-Williams
MATRIX: Water

DATE REPORTED: 04/07/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
PD-MP-W-0402	133023-001	04/02/98	04/03/98	23	5.0	1	40056	EPA 6010A	04/06/98
PD-MP-E-0402	133023-002	04/02/98	04/03/98	6.9	5.0	1	40056	EPA 6010A	04/06/98
PD-RD-0402	133023-003	04/02/98	04/03/98	5.5	5.0	1	40056	EPA 6010A	04/06/98



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133023

 Curtis & Tompkins, Ltd.
DATE REPORTED: 04/07/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	40056	EPA 6010A	04/06/98

ND = Not Detected at or above reporting limit

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133023

 Curtis & Tompkins, Ltd.
DATE REPORTED: 04/07/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	2030	2080	ug/L	102	104	80-120	2	35	40056	EPA 6010A	04/06/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133023

 Curtis & Tompkins, Ltd.
DATE REPORTED: 04/07/98

BATCH QC REPORT
SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	133023-001	23	19.9	ug/L	14	20	40056	EPA 6010A	04/06/98



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133023

DATE REPORTED: 04/07/98

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	2000	133023-001	23	2160	ug/L	107	65-135	40056	EPA 6010A	04/06/98

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Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

COC.CDR 101596RYL

Shawin-Williams



Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 133023 Date Received: 4/3 Number of Coolers: 1
Client: LFR Project: 3435.00-006

A. Preliminary Examination Phase

Date Opened: 4/3 By (print): Shawin-Williams (sign) [Signature]

1. Did cooler come with a shipping slip (airbill, etc.)?..... YES ☒ NO

If YES, enter carrier name and airbill number: _____

2. Were custody seals on outside of cooler?..... YES ☒ NO

How many and where? _____ Seal date: _____ Seal name: _____

3. Were custody seals unbroken and intact at the date and time of arrival?..... YES ☒ NO ☒

4. Were custody papers dry and intact when received?..... YES ☒ NO

5. Were custody papers filled out properly (ink, signed, etc.)?..... YES ☒ NO

6. Did you sign the custody papers in the appropriate place?..... YES ☒ NO

7. Was project identifiable from custody papers?..... YES ☒ NO

If YES, enter project name at the top of this form.

8. If required, was sufficient ice used?..... YES ☒ NO

Type of ice: blue Temperature: 4.79°C

B. Login Phase

Date Logged In: 4/3 By (print): Shawin-Williams (sign) [Signature]

1. Describe type of packing in cooler: _____

2. Did all bottles arrive unbroken?..... YES ☒ NO

3. Were labels in good condition and complete (ID, date, time, signature, etc.)?..... YES ☒ NO

4. Did bottle labels agree with custody papers?..... YES ☒ NO

5. Were appropriate containers used for the tests indicated?..... YES ☒ NO

6. Were correct preservatives added to samples?..... YES ☒ NO

7. Was sufficient amount of sample sent for tests indicated?..... YES ☒ NO

8. Were bubbles absent in VOA samples? If NO, list sample IDs below..... YES ☒ NO ☒

9. Was the client contacted concerning this sample delivery?..... YES ☒ NO

If YES, give details below.

Who was called? _____ By whom? _____ Date: _____

Additional Comments:



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

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

ANALYTICAL REPORT

Prepared for:

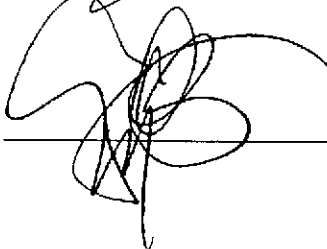
Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 13-APR-98
Lab Job Number: 133129
Project ID: 3435.00.006
Location: Sherwin-Williams

Reviewed by:



Reviewed by:



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Laboratory Numbers: **133129**
Client: **Levine-Frickie-Recon**
Project #: **3435.00.006**
Location: **Sherwin-Williams**

Sampled Date: **04/09/98**
Received Date: **04/10/98**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples and one fabric sample which were received from the site referenced above on April 10, 1998. The samples were received cold and intact.

Metals (EPA 6010A):

No analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00.006
LOCATION: Sherwin-Williams
MATRIX: Water

DATE REPORTED: 04/13/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
PD-RD-0409	133129-001	04/09/98	04/10/98	5.7	5.0	1	40177	EPA 6010A	04/13/98
PD-MP-W-0409	133129-002	04/09/98	04/10/98	20	5.0	1	40177	EPA 6010A	04/13/98
PD-MP-E-0409	133129-003	04/09/98	04/10/98	ND	5.0	1	40177	EPA 6010A	04/13/98

ND = Not detected at or above reporting limit



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CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133129

 Curtis & Tompkins, Ltd.
DATE REPORTED: 04/13/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	2050	2010	ug/L	103	101	80-120	2	35	40177	EPA 6010A	04/13/98
Arsenic	100	98	87	mg/Kg	98	87	80-120	12	35	40197	EPA 6010A	04/13/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133129

 Curtis & Tompkins, Ltd.
DATE REPORTED: 04/13/98

BATCH QC REPORT
SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	133128-001	43.4	47.1	ug/L	8	20	40177	EPA 6010A	04/13/98
Arsenic	133114-015	4.475	4.375	mg/Kg	2	35	40197	EPA 6010A	04/13/98

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133129

 Curtis & Tompkins, Ltd.
DATE REPORTED: 04/13/98

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	2000	133128-001	43.4	2100	ug/L	103	65-135	40177	EPA 6010A	04/13/98
Arsenic	99.01	133114-015	4.475	91.58	mg/Kg	88	65-135	40197	EPA 6010A	04/13/98

735, 9

Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod) CDC CDR 101596PYL



Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 133129 Date Received: 4/10 Number of Coolers: 1
Client: LVFR Project: Sherwin Williams 3435.00.00

A. Preliminary Examination Phase

Date Opened: 4/10 By (print): Tracy B. D. (sign) Tracy B. D.

1. Did cooler come with a shipping slip (airbill, etc.)? YES NO

If YES, enter carrier name and airbill number: _____

2. Were custody seals on outside of cooler? YES NO N/A

How many and where? _____ Seal date: _____ Seal name: _____

3. Were custody seals unbroken and intact at the date and time of arrival? YES NO

4. Were custody papers dry and intact when received? YES NO

5. Were custody papers filled out properly (ink, signed, etc.)? YES NO

6. Did you sign the custody papers in the appropriate place? YES NO

7. Was project identifiable from custody papers? YES NO

If YES, enter project name at the top of this form. C

8. If required, was sufficient ice used? YES NO

Type of ice: wet Temperature: 60

B. Login Phase

Date Logged In: 4/10 By (print): Tracy B. D. (sign) Tracy B. D.

1. Describe type of packing in cooler: Bottles

2. Did all bottles arrive unbroken? YES NO

3. Were labels in good condition and complete (ID, date, time, signature, etc.)? YES NO

4. Did bottle labels agree with custody papers? YES NO

5. Were appropriate containers used for the tests indicated? YES NO

6. Were correct preservatives added to samples? YES NO

7. Was sufficient amount of sample sent for tests indicated? YES NO

8. Were bubbles absent in VOA samples? If NO, list sample IDs below. YES NO

9. Was the client contacted concerning this sample delivery? YES NO

If YES, give details below.

Who was called? _____ By whom? _____ Date: _____

Additional Comments:



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

ANALYTICAL REPORT

Prepared for:

Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 08-MAY-98
Lab Job Number: 133497
Project ID: 3435.00.006
Location: Sherwin-Williams

Reviewed by:

Tracy B. [Signature]

Reviewed by:

Sue K Morris [Signature]

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Laboratory Numbers: 133497
Client: Levine-Fricke-Recon
Project #: 3435.00.006
Location: Sherwin Williams

Sampled Date: 05/05/98
Received Date: 05/06/98

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples which were received from the site referenced above on May 06, 1998. The samples were received cold and intact.

Metals (EPA 6010A)

No analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00.006
LOCATION: Sherwin-Williams
MATRIX: Water

DATE REPORTED: 05/08/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
PD-RD-0505	133497-001	05/05/98	05/06/98	ND	5.0	1	40725	EPA 6010A	05/08/98
PD-MP-E-0505	133497-002	05/05/98	05/06/98	ND	5.0	1	40725	EPA 6010A	05/08/98
PD-MP-W-0505	133497-003	05/05/98	05/06/98	7.1	5.0	1	40725	EPA 6010A	05/08/98

ND = Not detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133497



Curtis & Tompkins, Ltd.

DATE REPORTED: 05/08/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	40725	EPA 6010A	05/08/98

ND = Not Detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133497

DATE REPORTED: 05/08/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	2100	2130	ug/L	105	107	80-120	1	35	40725	EPA 6010A	05/08/98

12344

Shipping Copy (White) Lab Copy (Yellow) File Copy (Pink) Field Copy (Goldenrod)

Shawin-Williams



Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 13347 Date Received: 5/6 Number of Coolers: 1
Client: LFR Project: 3435.00.006

A. Preliminary Examination Phase

Date Opened: 5/6 By (print): Shawin (sign) Shawin

1. Did cooler come with a shipping slip (airbill, etc.)? YES ☒ NO

If YES, enter carrier name and airbill number: _____

2. Were custody seals on outside of cooler? YES ☒ NO

How many and where? _____ Seal date: _____ Seal name: _____

3. Were custody seals unbroken and intact at the date and time of arrival? YES ☒ NO ☒

4. Were custody papers dry and intact when received? YES ☒ NO

5. Were custody papers filled out properly (ink, signed, etc.)? YES ☒ NO

6. Did you sign the custody papers in the appropriate place? YES ☒ NO

7. Was project identifiable from custody papers? YES ☒ NO

If YES, enter project name at the top of this form.

8. If required, was sufficient ice used? YES ☒ NO

Type of ice: blue Temperature: 6.00C

B. Login Phase

Date Logged In: 5/6 By (print): Shawin (sign) Shawin

1. Describe type of packing in cooler: _____

2. Did all bottles arrive unbroken? YES ☒ NO

3. Were labels in good condition and complete (ID, date, time, signature, etc.)? YES ☒ NO

4. Did bottle labels agree with custody papers? YES ☒ NO

5. Were appropriate containers used for the tests indicated? YES ☒ NO

6. Were correct preservatives added to samples? YES ☒ NO

7. Was sufficient amount of sample sent for tests indicated? YES ☒ NO

8. Were bubbles absent in VOA samples? If NO, list sample IDs below. YES ☒ NO ☒

9. Was the client contacted concerning this sample delivery? YES ☒ NO

If YES, give details below.

Who was called? _____ By whom? _____ Date: _____

Additional Comments:



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ANALYTICAL REPORT

Prepared for:

Levine-Fricke-Recon
1900 Powell Street
12th Floor
Emeryville, CA 94608

Date: 14-MAY-98
Lab Job Number: 133592
Project ID: 3435.00.006
Location: Sherwin-Williams

Reviewed by:

Tracy Bob, 2

Reviewed by:

[Signature]

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Curtis & Tompkins, Ltd.

Laboratory Numbers: **133592**
Client: **Levine-Frickie-Recon**
Project #: **3435.00.006**
Location: **Sherwin-Williams**

Sampled Date: **05/12/98**
Received Date: **05/13/98**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for two water samples which were received from the site referenced above on May 13, 1998. The samples were received cold and intact.

Metals (EPA 6010A):

No analytical problems were encountered.

CLIENT: Levine-Fricke-Recon
PROJECT ID: 3435.00.006
LOCATION: Sherwin-Williams
MATRIX: Water

DATE REPORTED: 05/14/98

Metals Analytical Report

Arsenic

Sample ID	Lab ID	Sample Date	Receive Date	Result (ug/L)	Reporting Limit (ug/L)	IDF	QC Batch	Method	Analysis Date
PD-MP-E-0512	133592-001	05/12/98	05/13/98	ND	5.0	1	40830	EPA 6010A	05/14/98
PD-MP-W-0512	133592-002	05/12/98	05/13/98	8.5	5.0	1	40830	EPA 6010A	05/14/98

ND = Not detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133592

DATE REPORTED: 05/14/98

BATCH QC REPORT
PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic	ND	5	ug/L	1	40830	EPA 6010A	05/14/98

ND = Not Detected at or above reporting limit



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133592

DATE REPORTED: 05/14/98

BATCH QC REPORT
BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	2030	1970	ug/L	102	99	80-120	3	35	40830	EPA 6010A	05/14/98



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133592

DATE REPORTED: 05/14/98

BATCH QC REPORT
SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD %	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	133592-001	<5.000	<5.000	ug/L	NC	20	40830	EPA 6010A	05/14/98

NC = Not Calculable



Curtis & Tompkins, Ltd.

CLIENT: Levine-Fricke-Recon
JOB NUMBER: 133592

DATE REPORTED: 05/14/98

BATCH QC REPORT
SAMPLE SPIKE

Compound	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
Arsenic	2000	133592-001	<5.000	1990	ug/L	100	65-135	40830	EPA 6010A	05/14/98

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

[illegible]

Shawn Wili



Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 133592 Date Received: 5/13 Number of Coolers: 1
Client: LE Project: 34380006

A. Preliminary Examination Phase

Date Opened: 5/13 By (print): Jessie (sign) Jessie

1. Did cooler come with a shipping slip (airbill, etc.)?..... YES NO

If YES, enter carrier name and airbill number:

2. Were custody seals on outside of cooler?..... YES NO

How many and where? Seal date: Seal name:

3. Were custody seals unbroken and intact at the date and time of arrival?..... YES NO ✓

4. Were custody papers dry and intact when received?..... YES NO

5. Were custody papers filled out properly (ink, signed, etc.)?..... YES NO

6. Did you sign the custody papers in the appropriate place?..... YES NO

7. Was project identifiable from custody papers?..... YES NO

If YES, enter project name at the top of this form.

8. If required, was sufficient ice used?..... YES NO

Type of ice: blue Temperature: 5.0°C

B. Login Phase

Date Logged In: 5/13 By (print): Jessie (sign) Jessie

1. Describe type of packing in cooler:

2. Did all bottles arrive unbroken?..... YES NO

3. Were labels in good condition and complete (ID, date, time, signature, etc.)?..... YES NO

4. Did bottle labels agree with custody papers?..... YES NO

5. Were appropriate containers used for the tests indicated?..... YES NO

6. Were correct preservatives added to samples?..... YES NO

7. Was sufficient amount of sample sent for tests indicated?..... YES NO

8. Were bubbles absent in VOA samples? If NO, list sample IDs below..... YES NO ✓

9. Was the client contacted concerning this sample delivery?..... YES NO

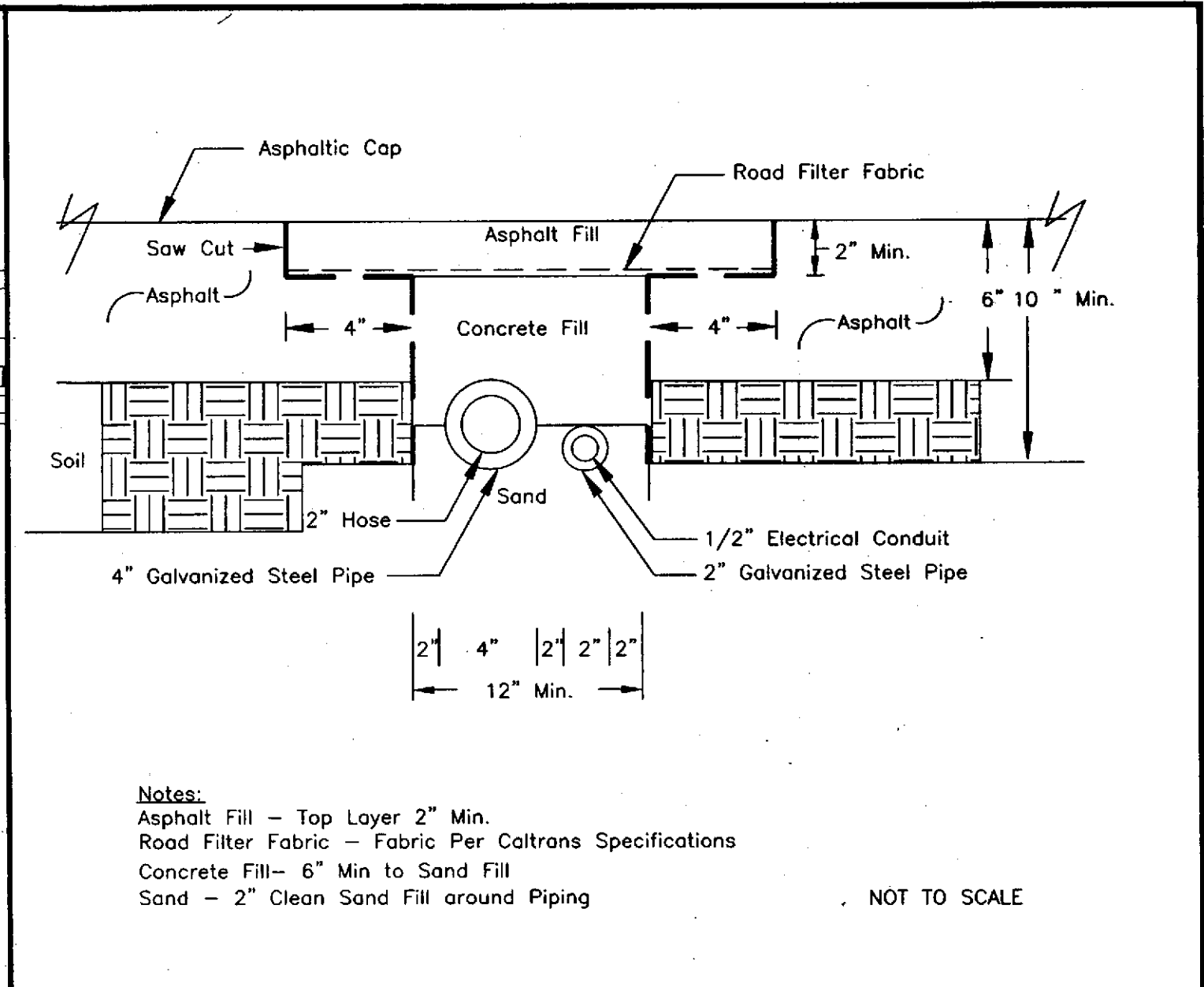
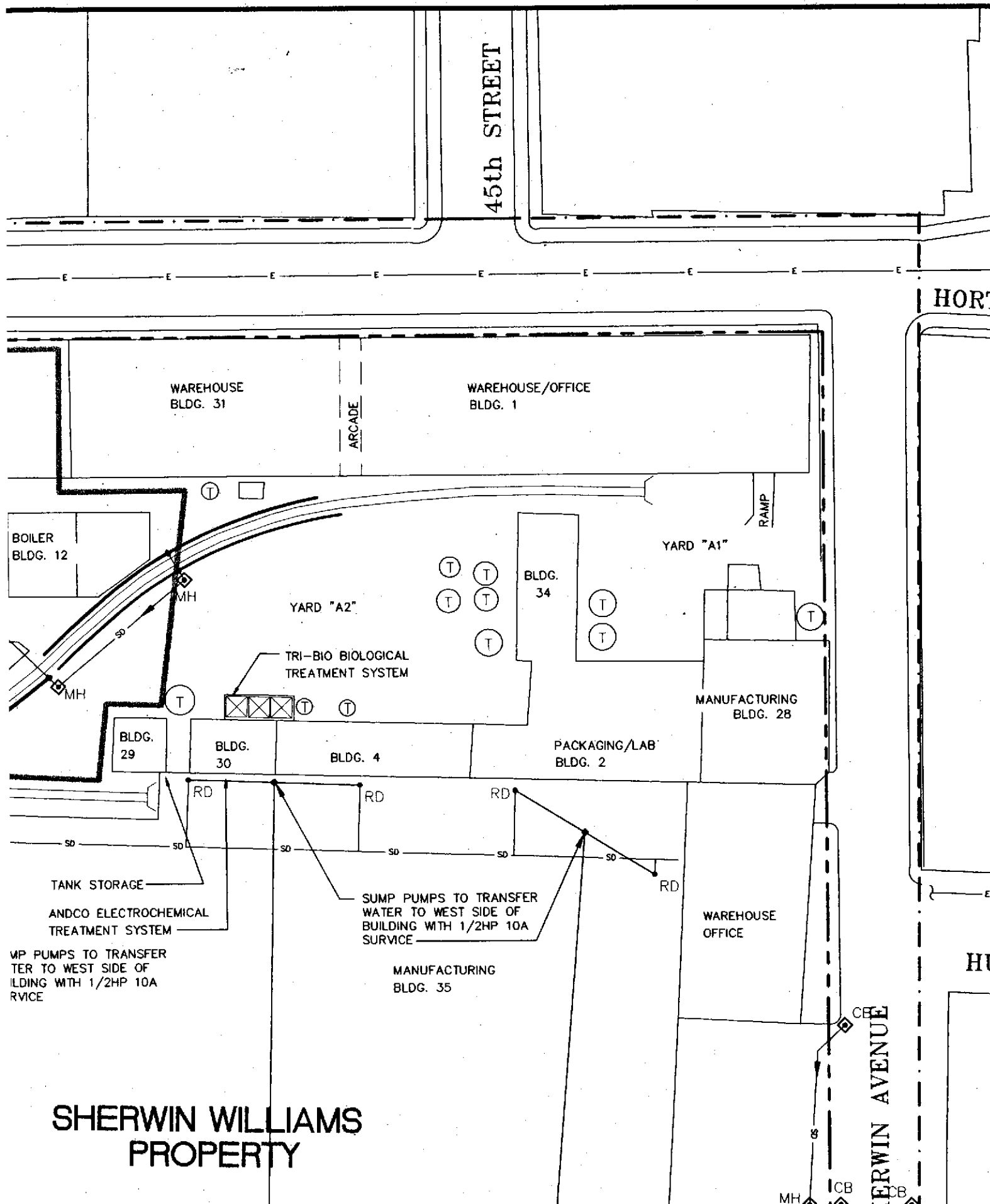
If YES, give details below.

Who was called? By whom? Date:

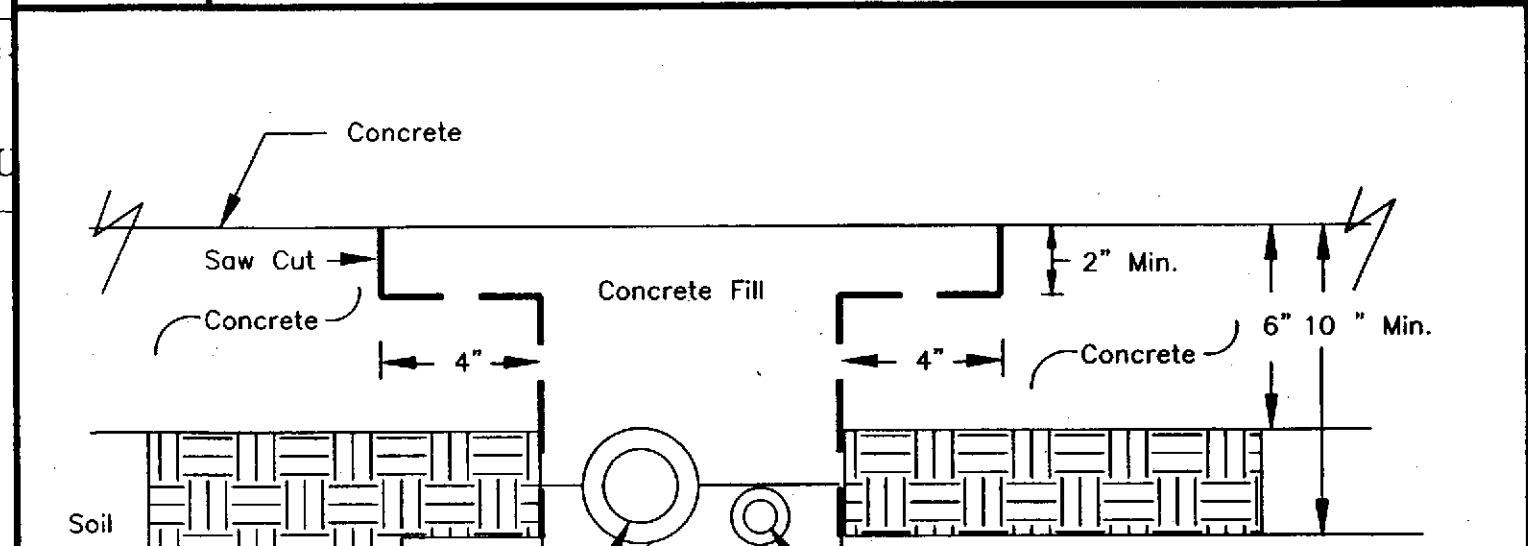
Additional Comments:

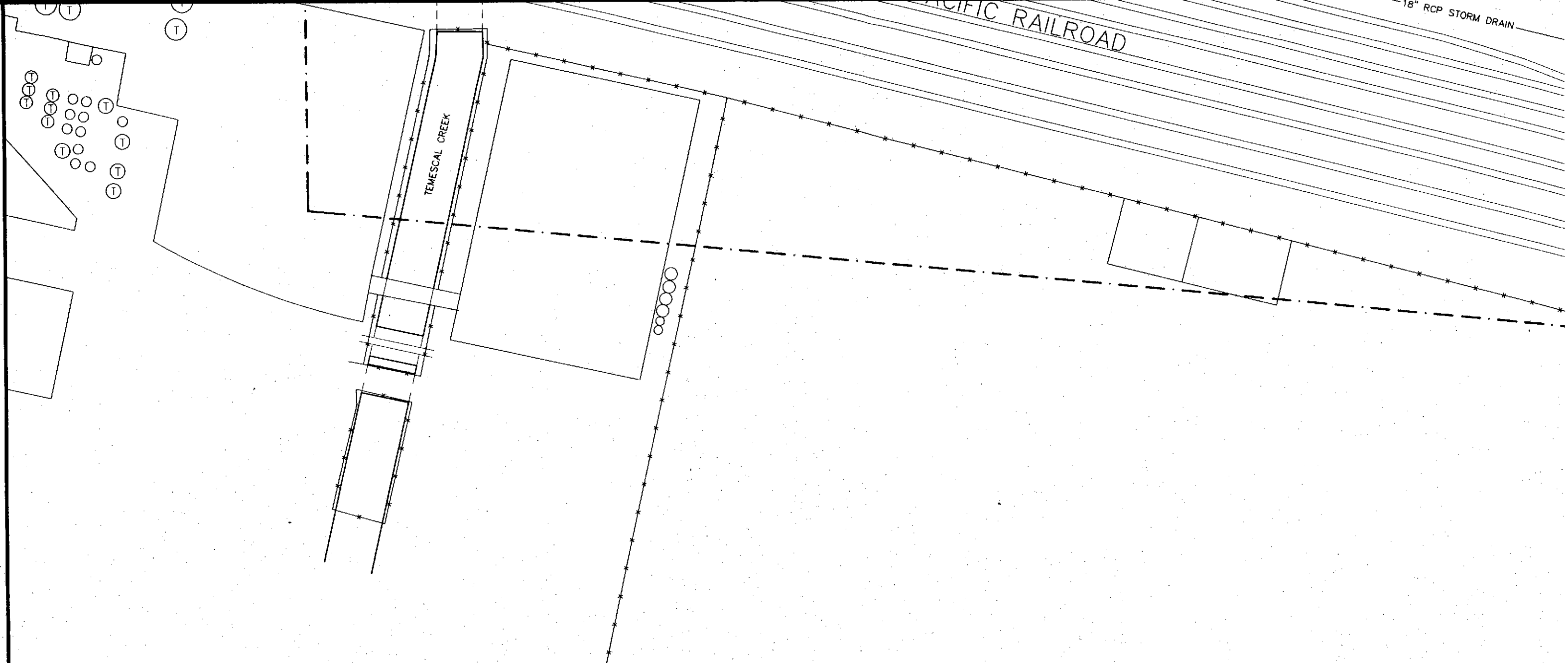
Appendix B

Multipoint System Design Drawings



A TRENCH AT ASPHALT SECTION





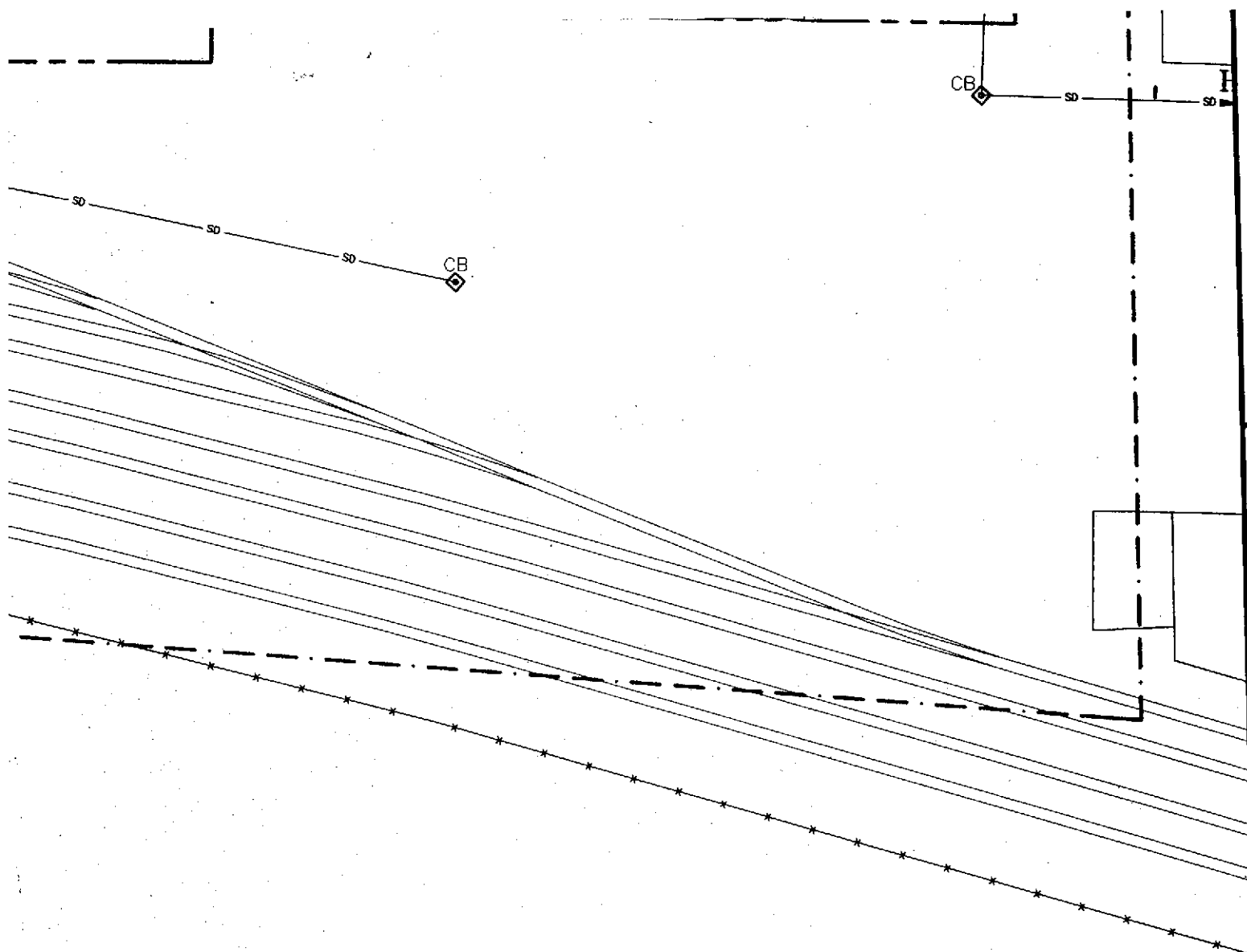
LEGEND

- x — x — x — FENCE
- ==== RAIL ROAD TRACKS
- PROPERTY BOUNDARY
- - - - - AREA OF INVESTIGATION BOUNDARY
- Ⓢ ABOVE GROUND TANKS
- CB ⬠ CATCH BASIN
- MH ⬠ MAN HOLE
- RD • ROOF DRAIN
- ▨ FORMER BUILDING LOCATION

- SD — STORM SEWER
- E — ELECTRICAL
- 4" — PUMP-OUT PIPING

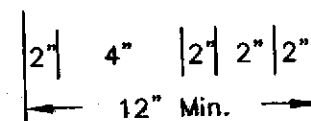
PUMP P-1
 GOULDS 3885
 1/2 HP, 50 GPM
 @ 25 FT HEAD
 460 V, 3-PHASE
 4.6A

CATCH BASIN PUMP-OUT
 EQUIPMENT INFORMATION



4" Galvanized Steel Pipe

2" Galvanized Steel Pipe



Notes:

- Concrete Fill - Top Layer 8" Min. to Sand Fill
- Sand - 2" Clean Sand Fill Around Piping

NOT TO SCALE

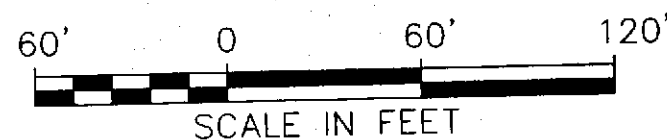
B

TRENCH AT CONCRETE SECTION

NOTES:

1. PLUG OFF ALL PIPE CONNECTIONS TO CATCH BASIN WITH AN INFLATABLE SEWER PLUG.
PLUG OFF TRENCH DRAINAGE TO PREVENT WATER FROM ENTERING THE SUBSURFACE PIPE.
2. A CHECK VALVE AND BALL VALVE TO BE PROVIDED AT THE DISCHARGE SIDE OF EACH PUMP.
3. ROOF DRAIN DOWN PIPES TO BE PLUGGED SITE INFLATABLE PLUGS AND WATER TRANSFERRED TO WEST SIDE OF BUILDING USING SUMP PUMPS.
4. ELECTRICAL SERVICE TO BE PROVIDED TO EACH PUMP IN ACCORDANCE WITH ALL APPLICABLE CODES.

Sherwin-Williams
Catch Basin Pump-Out Locations
with Sump Pump Equipment and
Pump-Out Piping to Temescal Creek



Appendix C

Fact Sheet Dated December 18, 1997



FACT SHEET ON RECENT ACTIVITIES AT THE SHERWIN-WILLIAMS PROPERTY EMERYVILLE, CALIFORNIA

December 18, 1997



INTRODUCTION

This fact sheet is intended to provide an overview of recent activities conducted at the Sherwin-Williams property in Emeryville, California, to prevent contaminated groundwater from infiltrating the on-site stormwater collection system and discharging to Temescal Creek. Information is also provided about the recent installation of fencing along a portion of the Sherwin-Williams property that fronts on Horton Street. This work is part of the ongoing investigation of site conditions that is being overseen by the Regional Water Quality Control Board (RWQCB).

BACKGROUND

In September and October 1997 Levine-Fricke-Recon (LFR), on behalf of Sherwin-Williams, was conducting a survey of underground utility lines as part of ongoing environmental investigations at the site. The survey included identifying the location of stormwater drain lines on the property. An in-pipe camera was used to verify the locations of lines shown on utility maps, and to identify any other unknown or abandoned stormwater lines. Prior to cleaning the stormwater system to prepare for the camera work, LFR collected sediment and water samples from the storm drain lines for routine characterization to determine how to handle these materials. The results indicated that elevated levels of arsenic were in the water and sediment. These results were unanticipated and in excess of what would be expected from normal parking lot runoff. Sherwin-Williams notified RWQCB of the results, and began to take corrective actions.

INITIAL RESPONSE ACTIVITIES

Additional stormdrain sampling was conducted immediately in nine on-site catch basins and manholes. Lab results confirmed that elevated levels of arsenic were present, indicating that affected groundwater was infiltrating the stormwater collection system. Since the first rains in mid-November, Sherwin-Williams has used a variety of methods to prevent discharge of contaminated water to Temescal Creek, including plugging the discharge pipe adjacent to the creek, evacuating infiltrating groundwater from the underground stormwater system, and collecting stormwater runoff in numerous 20,000-gallon portable tanks on site. In spite of these actions, several discharges of stormwater containing elevated levels of arsenic have occurred when on-site tank capacity was exhausted during heavy storms. On-site storage capacity has been expanded, and the collected stormwater is now being treated by the existing on-site groundwater extraction and treatment system prior to discharging it to the creek.

LONGER TERM SOLUTIONS

More permanent measures will be implemented to prevent contaminated groundwater from infiltrating the stormwater collection system and discharging to the creek. As an intermediate solution, a multi-point stormwater collection system has been designed. Eleven on-site catch

basins have been isolated by installing plugs in both the incoming and outgoing pipes. In addition, catch basin inserts have been installed in each basin to collect clean surface stormwater and prevent it from contacting the contaminated water in the storm drain system. Sump pumps will then be used to pump this uncontaminated storm runoff from the catch basin inserts through above-ground hoses to the creek. Discharges from this multipoint collection system will be sampled periodically to verify that the system is effective.

The longer-term solution to the groundwater infiltration problem will involve installing additional extraction wells within the slurry wall that surrounds the Sherwin-Williams property, as well as expanding the existing groundwater treatment system. Increasing the rate of groundwater extraction and treatment will result in lowering the groundwater level within the slurry wall to below the elevation of the stormwater system collection pipes. This will eliminate infiltration potential, as well as maintain an inward hydraulic gradient within the slurry wall. Expansion and upgrading of the groundwater extraction and treatment system is anticipated to be completed by the end of March 1998. This will increase the treatment system capacity from approximately 8 gallons per minute to at least 20 gallons per minute. In addition, the groundwater discharge line will be rerouted in the near future, to discharge under permit into the sanitary sewer instead of the creek.

HORTON STREET FENCING

After recent heavy rains, LFR engineers noticed that a precipitate was forming along the retaining wall that separates the above-grade parking lot on the Sherwin-Williams property from the public sidewalk on Horton Street. This retaining wall had been tested as part of the remediation work conducted along Horton Street earlier this year, and laboratory results indicated that there was no need for remediation in this area. The newly-discovered precipitate was tested, however, and indicated the presence of slightly elevated concentrations of arsenic, lead and zinc. While the relatively low levels of these metals do not pose an imminent public health threat, some type of remediation work will be required. Temporary fencing has been installed to prevent contact with the retaining wall while the regulatory agencies review Sherwin-Williams' proposed remediation plans for this area.

NEW BOARD ORDER TO BE ADOPTED

RWQCB plans to circulate a Tentative Order prescribing Site Cleanup Requirements for the Sherwin-Williams site before the end of December. This Order is expected to be finalized and adopted at a regular RWQCB meeting in Oakland in January or February 1998.

FOR MORE INFORMATION

A detailed report on the handling of infiltrating groundwater and the stormwater collection system will be prepared and submitted to RWQCB in January 1998. This report will be made available for public review in the RWQCB file room in Oakland, at the 45th Street Artists' Co-operative and at the Oakland Public Library Golden Gate Branch located at 5606 San Pablo Avenue. The proposed remediation plan for the Horton Street retaining wall will also be made available for public review at these locations. In the meantime, questions can be addressed to:

Larry Mencin
Sherwin-Williams
(510) 420-7200 ext. 8299

Mara Feeney
Mara Feeney & Associates
(415) 863-8760

Mark Johnson
RWQCB
(510) 286-0305