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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





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,

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
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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, P.E.

6 30 9 8 Date

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

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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.

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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.

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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 arseniccontaminated 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

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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.

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 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

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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 stormwater 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 onsite 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.

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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 stormdrain 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

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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

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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

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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

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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.

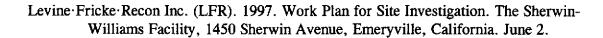
M 25 May 98 through Su 31 May 98 LFR received a letter from the DTSC with a copy of the analytical data from the samples of water collected from the 16 RFR tanks. The samples contained metals at concentrations less than hazardous levels (see Table 2 for analytical results). Permission to dispose of the 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



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.

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Table 1 Summary of Arsenic Data Original Samples

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-I017-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

Tank	Date	Sample ID	Arsenic	Notes
RFR-A	24-Oct-97	<u></u>		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
KI K-C	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
				Tank delivered to Site. First manifolded tank
RFR-E	18-Nov-97		~	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.

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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 (TTLC) limit of 500 mg/kg. The remaining metal concentrations were less than their respective TTLC 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

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"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 stormwater 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 that 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.

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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

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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.

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Table 1 Summary of Arsenic Data Original Samples

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

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		<u>.</u>	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	Hall	-	Water transported offsite to Seaport
	12-Jun-98		-	Tank cleaned and removed from Site
				Tank delivered to Site. First manifolded tank
RFR-E	18-Nov-97			after CB-1
Kr K-L	26-Nov-97	R4R-E	0.960	
	26-Јап-98	WS-TNK-E-1	0.140	- -
	3-Feb-98	WS-TNK-E-1	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	5 (1 5 1 2) OL	0.110	Water transported offsite to Seaport
	12-Jun-98		- -	Tank cleaned and removed from Site
	12 0411 50			Tama Sibaliba Bila Folilo Foli Dito

Table 2 Summary of Arsenic Data Rain-for-Rent Tanks

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	51.512501	0.050	Water transported offsite to Seaport
	12-Jun-98		_	Tank cleaned and removed from Site
	12 3411 30		_	Tank created and removed from Sic
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-Јап-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
255				
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
DCD I	25 Nov. 07			Tools delivered to Dite
RFR-J	25-Nov-97	 DAD I	-	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	LED sulle semale
	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

Tank	Date	Sample ID	Arsenic	Notes
RFR-L	26-Nov-97	••	_	Tank delivered to Site
	26-Jan-98	WS-TNK-L-1	1.1	rain derivoide to blue
	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
) Juli 70		_	Talk cleaned and removed from the
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
IXI IX I X	3-Feb-98	WS-TNK-N-1	0.041	Tank delivered to Site
	12-May-98	WS-TNK-N-0512	0.041	LFR split sample
	12-May-98	SW51298N	< 0.020	DTSC sample
	4-Jun-98	0 11 51 2 5011	~0.020	Water transported offsite to Seaport
	10-Jun-98		_	Tank cleaned and removed from Site
	10-3411-76		_	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	Talik delivered to one.
	12-May-98	WS-TNK-P-0512	0.067	LFR split sample
	12-May-98	SW51298P	0.007	DTSC sample
	4-Jun-98	5 W 512761 	0.070	Water transported offsite to Seaport
	10-Jun-98	 	-	Tank cleaned and removed from Site
	10-3411-36		-	Tank cleaned and temoved from Ske
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

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	π =	-	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 H20	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 ARU.

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-lan-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	n Basin (CB) Analytic	al 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.)

	Western			
Sampling Event	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

6	Western	Fastana Disabassa	Roof Dischause				
Sampling Event	Discharge	Eastern Discharge	Roof Discharge				
Sur	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 GAS.

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

6/30/98 3435-stormdrainTable5 1

¹ Sampling conducted as part of DTSC inspection.

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

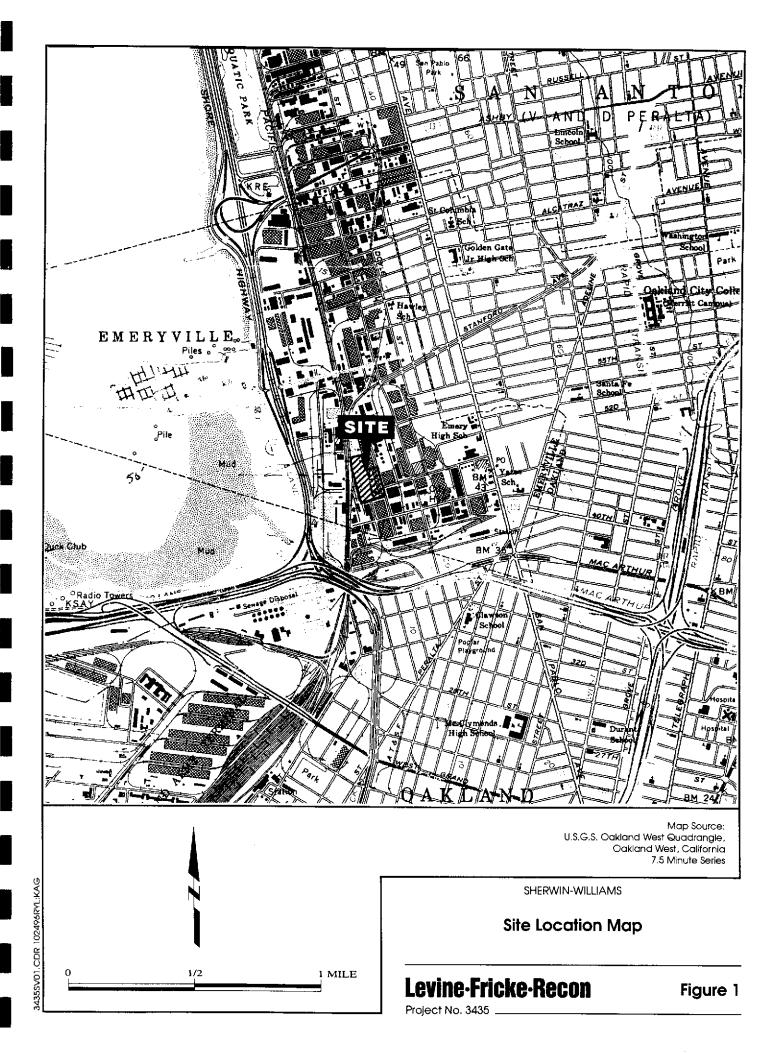
³ Sediment vacuumed out of all catch basin slip liners and stored on-site in a 55 gal drum. Drum contents sampled on 3/30/98, total Arsenic in sediment: 95 mg/Kg (95,000 ppb).

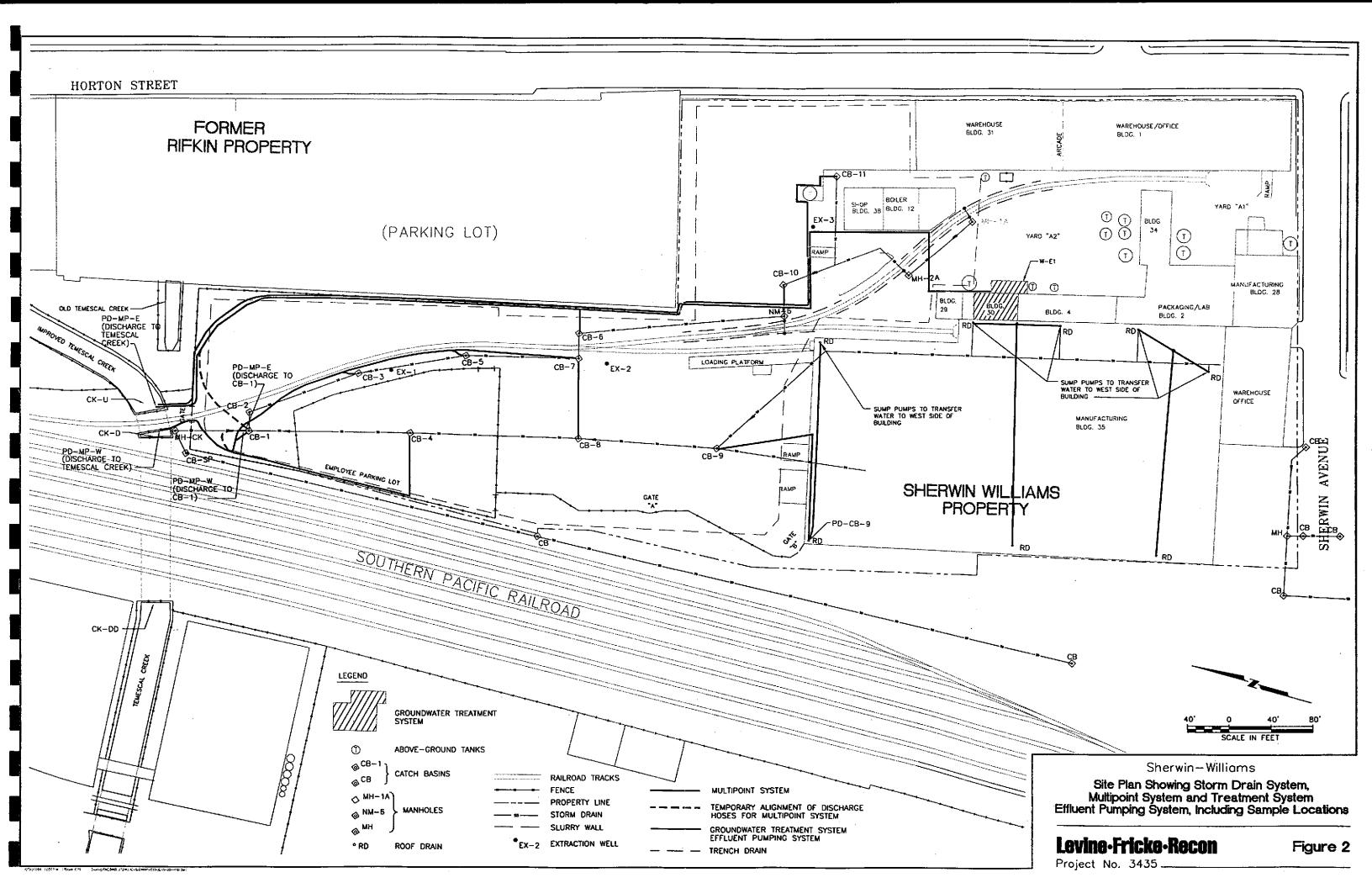
⁴ Western discharge was divided into Line A and Line B for flushing purposes.

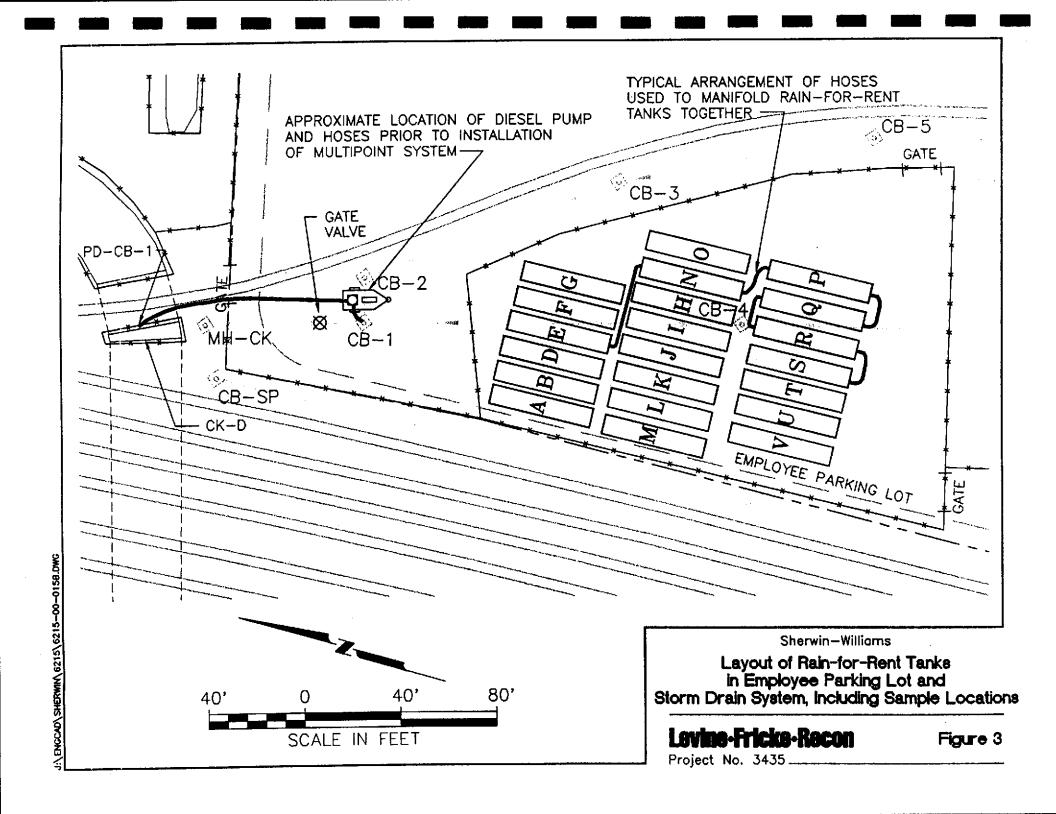
⁵ Line A: CB-1, -3, -5, -7, and -8 / Line B: CB-4

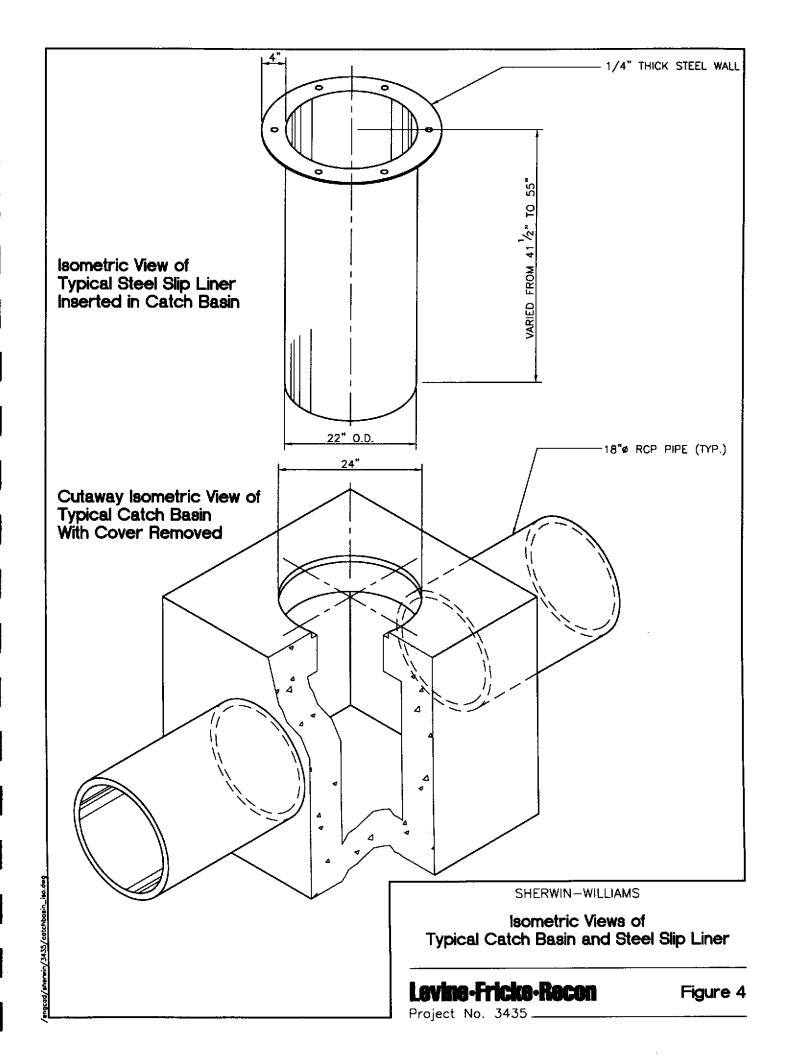
⁶ Unfiltered/Filtered/Duplicate

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









Appendix A

Laboratory Reports and Chain-of-Custody Forms

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AlHA Accreditation: 11134

PAGE 1

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

ATTN: ATTN:

CLIENT PROJ. ID: 6215.00.089 CLIENT PROJ. NAME: SHERWIN-WILLMS

C.O.C. NUMBER: 1388

REPORT DATE: 10/24/97

DATE(S) SAMPLED: 10/01/97

DATE RECEIVED: 10/01/97

AEN WORK ORDER: 9710007

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.

Largy 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

... pr

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

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT UNITS	DATE ANALYZED
				AIALIZED
#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 Arsenic Barium Beryllium Cadmium Cobalt Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Thallium Vanadium Zinc	EPA 6010 EPA 7060 EPA 6010	ND	0.005 mg/L 0.002 mg/L 0.002 mg/L 0.002 mg/L 0.005 mg/L 0.005 mg/L 0.01 mg/L	10/09/97 10/08/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 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 UN	DATE HITS ANALYZED
EPA 8020 for BTEX Benzene Toluene Ethylbenzene Xylenes, Total	EPA 8020 71-43-2 108-88-3 100-41-4 1330-20-7	16 * 320 * 340 * 1.100 *	10 ug/L 10 ug/L 10 ug/L 40 ug/L	10/14/97 10/14/97 - 10/14/97 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

American Environmental Network

PAGE 4

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	-	1	Extrn Date	10/02/97
TPH as Diesel	GC-FID	0.87 *	0.05 r	ng/L	10/04/97
TPH as Oil	GC-FID	ND	0.2 r	ng/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	REPORTIN LIMIT	G UNITS	DATE ANALYZED
EPA 8020 for BTEX Benzene Toluene Ethylbenzene Xylenes, Total	EPA 8020 71-43-2 108-88-3 100-41-4 1330-20-7	ND ND ND ND	5 5	ug/kg ug/kg ug/kg _ ug/kg	10/12/97 10/12/97 10/12/97 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 Arsenic Barium Beryllium Cadmium Cobalt Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Thallium Vanadium Zinc	EPA 6010 EPA 7060 EPA 6010 EPA 7740 EPA 7841 EPA 6010 EPA 6010	1.2 * 13 * 210 * 0.3 * 3.4 * 7.5 * 34 * 83 * 0.21 * 1.8 * 220 * ND ND ND ND ND ND 32 * 560 *	0.5 1 0.1 0.2 0.2 0.5 0.06 0.2 1 1 1 1 0.5	mg/kg	10/09/97 10/08/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 10/09/97 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

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Arsenic

MATRIX: Soil/Bulk

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Med INSTRUMENT: TJA 4000 UNITS: mg/kg METHOD:	dia blank		LAB ID: PREPARED: ANALYZED:	GFS_LCD_Q 10/08/97		INSTR RUN: 4000\971008110600/3/1 BATCH ID: GFS100697-Q DILUTION: 1.000000
ANALYTE Arsenic in soil EPA 7060	RESULT 8.47	REF RESULT ND	REPORTING LIMIT 0.5	SPIKE VALUE 10.0	RECOVERY (%) 84.7	REC LIMITS (\$) RPD LOW HIGH RPD (\$) LIMIT (\$) 77 141
SAMPLE TYPE: Spike-Method/Med INSTRUMENT: TJA 4000 UNITS: mg/kg METHOD:	lia blank		LAB ID: PREPARED: ANALYZED:	GFS_LCS_Q 10/08/97	••••••••	INSTR RUN: 4000\971008110600/2/1 BATCH ID: GFS100697-Q DILUTION: 1.000000
ANALYTE Arsenic in soil EPA 7060	RESULT 7.87	REF RESULT NO	REPORTING LIMIT 0.5	SPIKE VALUE 10.0	RECOVERY (%) 78.7	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 77 141

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 RESULT RESULT LIMIT VALUE (%) LOW HIGH RPD (%) LIMIT (%)
Arsenic in soil EPA 7060 8.47 7.87 0.5 7.34 15

QUALITY CONTROL REPORT

PAGE QR-4

ANALYSIS: Mercury

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9710007

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: Coleman Hg Analyzer 50D

UNITS: ug/L METHOD:

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

HGW PBS

INSTR RUN: HG\971009180000/1/

BATCH ID: HGW100997 DILUTION: 1.000000

REPORTING RECOVERY SPIKE ANALYTE **RESULT** RESULT LIMIT VALUE **(**2) Mercury ND 0.2

REC LIMITS (%) LOW HIGH RPD (X)

LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: Coleman Hg Analyzer 50D ug/L

UNITS: METHOD: LAB ID: HGW_LCD PREPARED:

REPORTING

0.2

SPIKE

VALUE

2.00

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

121

ANALYZED: 10/09/97

(*) 100

(4)

REC LIMITS (X) RECOVERY 89

LOW HIGH RPD (%) LIMIT (%)
89 121

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: Coleman Hg Analyzer 50D

UNITS:

LAB ID: PREPARED:

REF

ND

RESULT

RESULT

2.00

RESULT

1.97

RESULT

2.00

HGW_LCS ANALYZED: 10/09/97 INSTR RUN: HG\971009180000/2/1 BATCH ID: HGW100997 DILUTION: 1.000000

121

ug/L METHOD:

ANALYTE

Mercury

analyte

REF REPORTING RESULT LIMIT 0.2

ND

SPIKE VALUE 2.00

RECOVERY REC LIMITS (#) (%) LOM HIGH 89

RPD (%) LIMIT (X)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: Coleman Hg Analyzer 50D

UNITS:

ug/L

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

INSTR RUN: HG\971009180000/4/2

BATCH ID: HGW100997 DILUTION: 1.000000

METHOD: ANALYTE

Mercury

RESULT 1.97

REPORTING LIMIT 0 2

RECOVERY REC LIMITS (%)

LOW HIGH RPD (%)

1.51

RPD LIMIT (%) 10

MATRIX: Soil/Bulk

VALUE

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: Coleman Hg Analyzer 50D

UNITS:

mg/kg

LAB ID: HGS_BLNK PREPARED:

ANALYZED: 10/09/97

INSTR RUN: HG\971009200000/1/

BATCH ID: HGS100997 DILUTION: 1.000000

METHOD:

REF **RESULT** RESULT

REPORTING LIMIT

SPIKE VALUE (%)

RECOVERY REC LIMITS (%)

Mercury in soil EPA 7471

ND

0.06

LOW HIGH RPD (%) LIMIT (%)

QUALITY CONTROL REPORT

PAGE QR-5

ANALYSIS: Mercury

MATRIX: Soil/Bulk

LABORATORY	CONTROL	SAMPL	FS

SAMPLE TYPE: Spike-Method/Med INSTRUMENT: Coleman Hg Analy UNITS: mg/kg METHOD:	ia blank zer 500	• • • • • • •	LAB ID: PREPARED: ANALYZED:	HGS_LCD 10/09/97	•••••	INSTR RUN: HG\971009200000/3/1 BATCH ID: HGS100997 DILUTION: 1.000000
ANALYTE Mercury in soil EPA 7471	RESULT 0.362	REF RESULT ND	REPORTING LIMIT 0.06	SPIKE VALUE 0.400	RECOVERY (*) 90.5	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 79 118
SAMPLE TYPE: Spike-Method/Med INSTRUMENT: Coleman Hg Analy UNITS: mg/kg METHOD:	ia blank zer 50D		LAB ID: PREPARED: ANALYZED:	HGS_LCS 10/09/97	•	INSTR RUN: HG\971009200000/2/1 BATCH ID: HG\$100997 DILUTION: 1.000000
ANALYTE Mercury in soil EPA 7471	RESULT 0.373	REF RESULT ND	REPORTING LIMIT 0.06	SPIKE VALUE 0.400	RECOVERY (%) 93.3	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 79 118

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: Coleman Hg Analyzer 50D UNITS: mg/kg METHOO:			LAB ID: PREPARED: ANALYZED:	HGS_LCR	BATCH ID: HGS100997			000/4/2
ANALYTE Mercury in soil EPA 7471	0.362	REF RESULT 0.373	REPORTING LIMIT 0.06	SPIKE VALUE	RECOVERY (*)	REC LIMITS (%) LOW HIGH	RPO (%) 2.99	RPD LIMIT (*) 15

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix INSTRUMENT: Coleman Hg Analyzer 50D 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 Mercury in soil EPA 7471	RESULT 0.528	REF RESULT 0.210	REPORTING LIMIT 0.06	SPIKE VALUE 0.400	RECOVERY (な) 79.5	REC LIMITS (2 LOW HIGH 44 153		RPD LIMIT (%)
SAMDLE TYPE, Codes Completed				•••••				***********
SAMPLE TYPE: Spike-Sample/Mat INSTRUMENT: Coleman Hg Analy	rix zer 50D		LAB ID:	MS10007-05	A	INSTR RUN: H	G\971009200	000/6/5
UNITS: mg/kg METHOD:	20. 300		PREPARED: ANALYZED:	10/09/97			G\$100997 .000000	
ANALYTE Mercury in soil EPA 7471	RESULT 0.529	REF RESULT 0.210	REPORTING LIMIT 0.06	SPIKE VALUE 0.400	RECOVERY (%) 79.8	REC LIMITS (% LOW HIGH 44 153) RPD (%)	RPD LIMIT (*)
					••••••	**	• • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate INSTRUMENT: Coleman Hg Analyzer 50D 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 Mercury in soil EPA 7471	RESULT 0.528	REF RESULT 0.529	REPORTING LIMIT 0.06	SPIKE VALUE	RECOVERY (な)	REC LIMITS (%) LOW HIGH RPD (%) 0.189	RPD LIMIT (%) 15	

WORK ORDER: 9710007 QUALITY CONTROL REPORT

PAGE QR-6

ANALYSIS: Metals Scan by ICP

MATRIX: Water

METHOD BLANK SAMPLES

ANALYTE RESULT (%) LOW HIGH RPD (%) LIMIT (%) All Aluminum ND 0.005 As Arsenic ND 0.04 Ba Barium ND 0.01 Be Beryllium ND 0.002 Ca Calcium ND 0.005 Cd Cadmium ND 0.005 Co Cobalt ND 0.005 Cr Chromium ND 0.01 Cu Copper ND 0.01 Cu Copper ND 0.01 Fe Iron ND 0.05 K Potassium ND 0.1 Mg Magnesium ND 0.04 Mn Marganese ND 0.005	INSTRUME UNITS:	TYPE: Blank-Method/Med ENT: TJA Enviro 36 mg/L	ia blank		LAB ID: PREPARED: ANALYZED:	IFW_BLNK_R 10/07/97	 INSTR RUN: I BATCH ID: I DILUTION:	CP\97100712 FW100697-R	2400/1/
Na Sodium ND 0.1 Ni Nickel ND 0.01 Pb Lead ND 0.04 Sb Antimony ND 0.02 Se Selenium ND 0.07 T1 Thallium ND 0.05 V Vanadium ND 0.005 Zn Zinc ND 0.01	METHOD: ANALYTE Ag A1 As Be Ca CCC CCC Fe K Mg Mn Na Ni Pb Sb Se T1 V	Silver Aluminum Arsenic Barium Beryllium Calcium Cadmium Cobalt Chromium Copper Iron Potassium Magnesium Manganese Holybdenum Sodium Nickel Lead Antimony Selenium Thallium Vanadium	555555555555555555555555555555555555555	ESULT	REPORTING LIMIT 0.005 0.05 0.04 0.01 0.002 0.05 0.005 0.005 0.01 0.01 0.05 0.1 0.04 0.005 0.01	SPIKE	REC LIMITS (X LOW HIGH		

LABORATORY CONTROL SAMPLES

SAMPLI INSTRI UNITS METHO		od/Media blank 36		LAB ID: PREPAREI ANALYZEI	IFW_LCD_R D: D: 10/07/97		INSTR BATCH DILUTION	ID: IFW	7\97100712 /100697-R /100000	2400/3/1
			ref	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (%)		RPD
analy		result	result	LIMIT	VALUE	(%)	LOW	HIGH	RPD (%)	LIMIT (%)
Ag Al	Silver	0.0293	ND	0.005	0.0250	117	72	127		
	Aluminum	1.03	ND	0.1	1.00	103	89	116		
As	Arsenic	0.427	ND	0.04	0.400	107	75	125		
Ba	Barium.	1.10	ND	0.01	1.00	110	91	120		
Вe	Beryllium	0.0271	ND	0.002	0.0250	108	75 91 82	119		
Ca	Calcium	11.1	ND	0.2	10.0	111	80	120		
Cd	Cadmium	0.0524	ND	0.005	0.0500	105	80 84	120		
Co	Cobalt	0.287	ND	0.005	0.250	115	96 85 86	120		
Cr	Chromium	0.104	ND	0.01	0.100	104	85	128		
Cu	Copper	0.121	ND	0.01	0.125	96.8	86	123		
Fe	Iron	0.501	ND	0.1	0.500	100	84	133		
K	Potassium	10.6	ND	0.1	10.0	106	86	112		
Mg	Magnesium	10.5	ND	0.04	10.0	105	90	112		
Mn	Manganese	0.293	ND	0.005	0.250	117	93	122		
Mo	Molybdenum	0.230	ND	0.01	0.200	115	89	117		
Na	Sodium	10.3	ND	0.5	10.0	103	86	112		
Ni	Nickel	0.271	ND	0.01	0.250	108	92	121		
PЬ	Lead	0.575	ND	0.04	0.500	115	90	122		
Sb	Antimony	0.552	ND	0.02	0.500	110	82	113		
Se T1	Selenium	0.559	NO	0.07	0.500	112	75	125		
Tl	Thallium	0.517	ND	0.05	0.500	103	85	115		
٧	Vanadium	0.285	ND	0.005	0.250	114	91	118		
Zn	Zinc	0.264	ND	0.01	0.250	106	90	121		

WORK ORDER: 9710007

QUALITY CONTROL REPORT

PAGE QR-7

ANALYSIS: Metals Scan by ICP

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA Enviro 36 UNITS: mg/L METHOD:				INSTR RUN: ICP\971007122400/2/1 BATCH ID: IFW100697-R DILUTION: 1.000000						
ANALYI Agi As Ba Be Cad Co Cr Cu Fe Kg Mn Mo Nai Nb Se T1 Y Zn	Silver Aluminum Arsenic Barium Beryllium Calcium Cadmium Codmium Copper Iron Potassium Magnesium Manganese Molybdenum Sodium Nickel Lead Antimony Selenium Thallium Vanadium Zinc	RESULT 0.0287 0.996 0.430 1.09 0.0261 10.8 0.0486 0.278 0.102 0.119 0.506 10.4 10.3 0.287 0.222 10.2 0.259 0.560 0.544 0.539 0.524 0.279 0.524	REFUT RESULDED SEED SEED SEED SEED SEED SEED SEED	REPORTING LIMIT 0.005 0.1 0.04 0.01 0.002 0.2 0.005 0.005 0.01 0.1 0.1 0.04 0.005 0.01 0.5 0.01 0.05 0.01 0.05 0.01 0.05 0.01 0.05 0.01	SPIKE VALUE 0.0250 1.00 0.400 1.00 0.0250 10.0 0.0500 0.250 0.100 0.125 0.500 10.0 0.250 0.250 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500	RECOVERY (%) 115 99.6 108 109 104 108 97.2 111 102 95.2 101 104 103 115 111 102 104 112 109 108 105 112 102	REC LIM LOW 72 89 75 98 80 84 96 85 86 90 82 75 85 90 82 75 85 90 87 90 87 90 87 90 87 90 87 90 87 90 87 90 87 90 87 90 87 90 90 90 90 90 90 90 90 90 90 90 90 90	HIGH 127 116 127 116 120 120 120 120 120 120 120 121 121 112 112	RPD (X)	RPD LIMIT (*)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike INSTRUMENT: TJA Enviro 3 UNITS: mg/L METHOD:	Sample Duplicate	9	LAB ID: PREPARED: ANALYZED:	IFW_LCR_R : : 10/07/97	******	INSTR RUN: ICP\971007122400/4/2 BATCH ID: IFW100697-R DILUTION: 1.000000	
ANALYTE Ag Silver Al Aluminum As Arsenic Ba Barium Be Beryllium Ca Calcium Cd Cadmium Co Cobalt Cr Chromium Cu Copper Fe Iron K Potassium Mg Magnesium Mn Manganese Mo Molybdenum Na Sodium Ni Nickel Pb Lead Sb Antimony Se Selenium Tl Thallium V Vanadium Zn Zinc	1.03 0.427 1.10 0.0271 11.1	REF RESULT 0.0287 0.996 0.430 1.09 0.0261 10.8 0.0486 0.278 0.102 0.119 0.506 10.4 10.3 0.287 0.222 10.2 0.259 0.544 0.539 0.524 0.279	REPORTING LIMIT 0.005 0.1 0.04 0.01 0.002 0.2 0.005 0.01 0.01 0.1 0.1 0.1 0.1 0.04 0.005 0.01 0.5 0.01 0.5 0.01 0.5 0.01 0.5 0.01 0.05 0.01	SPIKE VALUE	RECOVERY (\$)	REC LIMITS (*) LOW HIGH RPD (*) 2.07 3.36 10 0.700 15 0.913 10 3.76 10 2.74 15 7.52 10 3.19 10 1.94 10 1.67 10 0.993 10 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1)

QUALITY CONTROL REPORT

PAGE QR-8

ANALYSIS: Metals Scan by ICP

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

WORK ORDER: 9710007

SAMPLE TYPE: Blank-Method/Media INSTRUMENT: TJA Enviro 36 UNITS: mg/kg METHOD:	a blank		LAB ID: PREPARED: ANALYZED:			INSTR RUN: ICP\971009115500/15/ BATCH ID: IFS100697-P DILUTION: 1.000000	
ANALYTE Cr Chromium Pb Lead	RESULT ND ND	REF RESULT	REPORTING LINIT 0.5 1	SPIKE VALUE	RECOVERY (2)	REC LIMITS (\$) RPD LOW HIGH RPD (\$) LIMIT (\$)	
SAMPLE TYPE: Blank-Method/Media INSTRUMENT: TJA Enviro 36 UNITS: mg/kg METHOD:	a blank		LAB ID: PREPARED: ANALYZED:			INSTR RUN: ICP\971009115500/1/ BATCH ID: IFS100697-P DILUTION: 1.000000	
ANALYTE Ag Silver Ba Barium Be Beryllium Cd Cadmium Co Cobalt Cr Chromium Cu Copper Mo Molybdenum Ni Nickel Pb Lead Sb Antimony V Vanadium Zn Zinc	RESULT ND	REF RESULT	REPORTING LIMIT 0.1 0.1 0.2 0.2 0.5 0.5 1 0.2	SPIKE VALUE	RECOVERY (%)	REC LIMITS (\$) RPD LOW HIGH RPD (\$) LIMIT (\$)	

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/M INSTRUMENT: TJA Enviro 36 UNITS: mg/kg METHOD:	edia blank			IFS LCD B 10/09/97 10/10/97		BATCH 1		100697-P	5500/18/16
ANALYTE Cr Chromium Pb Lead	RESULT 50.8 49.6	REF RESULT 0.524 ND	REPORTING LIMIT 0.5 1	SPIKE VALUE 50.0 50.0	RECOVERY (%) 101 99.2	REC LIMI LOW 85 90	ITS (%) HIGH 110 120	RPD (\$)	RPD LIMIT (%)
SAMPLE TYPE: Spike-Method/M INSTRUMENT: TJA Enviro 36 UNITS: mg/kg METHOD:	edia blank		LAB ID: PREPARED: ANALYZED:	IFS_LCD_P 10/09/97		INSTR I BATCH DILUTIO	ID: IFS	P\97100911 5100697-P 000000	5500/4/2
ANALYTE Ag Silver Ba Barium Be Beryllium Cd Cadmium Co Cobalt Cr Chromium Cu Copper Mo Molybdenum Ni Nickel Pb Lead Sb Antimony V Vanadium Zn Zinc	RESULT 4.78 103 5.01 4.88 51.4 48.4 49.0 46.1 48.9 50.0 42.2 50.8 45.7	REF RESULT ND 1.04 ND ND ND ND ND ND ND ND 1.01 ND ND	REPORTING LIMIT 0.1 0.1 0.2 0.2 0.5 0.5 0.5 1 1 0.5	SPIKE VALUE 5.00 100 5.00 50.0 50.0 50.0 50.0 50.0	RECOVERY (*) 95.6 102 100 97.6 103 96.8 98.0 92.2 97.8 98.0 84.4 102 91.4	REC LIM LOW 60 80 87 88 85 87 85 90 90 66 90	HIGH 120 115 110 110 116 110 113 110 120 120 114 120 111	RPD (%)	RPD LIMIT (%)

WORK ORDER: 9710007

QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Soil/Bulk

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/M INSTRUMENT: TJA Enviro 36 UNITS: mg/kg METHOD:	edia blank	• • • • • • • • • • • • • • • • • • • •	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 Cr Chromium Pb Lead	RESULT 52.1 50.9	REF RESULT 0.524 ND	REPORTING LIMIT 0.5 1	SPIKE VALUE 50.0 50.0	RECOVERY (%) 103 102	REC LII LOW 85 90	HITS (%) HIGH 110 120	RPD (\$)	RPD LIMIT (%)
SAMPLE TYPE: Spike-Method/Minstrument: TJA Enviro 36 UNITS: mg/kg METHOD:	edia blank		LAB ID: PREPARED ANALYZED	IFS_LCS_P : 10/09/97	••••••••••••	INSTR BATCH DILUTI	ID: IFS	2\97100911 5100697-P 000000	5500/3/2
ANALYTE Ag Silver Ba Barium Be Beryllium Cd Cadmium Co Cobalt Cr Chromium Cu Copper Mo Molybdenum Ni Nickel Pb Lead Sb Antimony V Vanadium Zn Zinc	RESULT 4.82 105 5.12 4.80 52.2 49.1 50.1 47.2 49.8 50.2 43.7 51.8 45.6	REF RESULT ND 1.04 ND ND ND ND ND ND ND ND ND ND	REPORTING LIMIT 0.1 1 0.1 0.2 0.2 0.5 0.5 1 1 1 0.5	SPIKE VALUE 5.00 100 5.00 5.00 50.0 50.0 50.0 50.0	RECOVERY (2) 96.4 104 102 96.0 104 98.2 100 94.4 99.6 98.4 87.4 104 91.2	REC LIM LOW 60 80 87 88 85 87 85 90 90 66 90 83	HITS (2) HIGH 120 115 110 116 110 113 110 120 120 114 120 111	RPD (*)	RPD LIMIT (*)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike S INSTRUMENT: TJA Enviro 36 UNITS: mg/kg METHOD:	• • • • • • •	LAB ID: PREPARED: ANALYZED:	IFS LCR B 10/09/97 10/10/97	*********	INSTR RUN: ICP\971009115500/19/17 BATCH ID: IFS100697-P DILUTION: 1.000000	
ANALYTE Cr Chromium Pb Lead	RESULT RE 50.8 5	REF SULT 52.1 50.9	REPORTING LIMIT 0.5 1	SPIKE VALUE	RECOVERY (な)	REC LIMITS (%) RPD (b) LIMIT (%) 2.53 10 2.59 10
SAMPLE TYPE: Method Spike S INSTRUMENT: TJA Enviro 36 UNITS: mg/kg METHOD:		*****	LAB ID: PREPARED: ANALYZED:	IFS_LCR_P 10/09/97	•••••	INSTR RUN: ICP\971009115500/5/3 BATCH ID: IFS100697-P DILUTION: 1.000000
ANALYTE Ag Silver Ba Barium Be Beryllium Cd Cadmium Co Cobalt Cr Chromium Cu Copper Mo Molybdenum Ni Nickel Pb Lead Sb Antimony V Vanadium Zn Zinc	RESULT RE 4.78 4 103 5.01 5 4.88 4 51.4 4 49.0 5 46.1 4 48.9 50.0 50.0 50.8 5	REF SULT 1.82 105 1.12 1.80 12.2 19.1 10.1 17.2 19.2 19.2 11.8 10.2 11.8	REPORTING LIMIT 0.1 0.1 0.2 0.2 0.5 0.5 0.5	SPIKE VALUE	RECOVERY (%)	REC LIMITS (*) RPD (*) LIMIT (*) 0.833 10 1.92 10 2.17 10 1.65 10 1.54 10 1.54 10 2.22 10 2.36 10 1.82 10 0.399 10 3.49 10 1.95 10 0.219 10

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

Motor Oil

RESULT ND

ref REPORTING RESULT LIMIT

SPIKE VALUE

(2)

RECOVERY REC LIMITS (%)

LOW HIGH RPD (%) LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike

UNITS: METHOD:

INSTRUMENT: IR Spectrophotometer mg/L

LAB ID: LCSD-1003-1

0.5

PREPARED: 10/03/97 ANALYZED: 10/05/97

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

ANALYTE Motor Oil

RESULT 9.53

REF REPORTING RESULT LIMIT ND 0.5

SPIKE VALUE 9.53

RECOVERY (x)100

REC LIMITS (%) LOW HIGH RPD (x) LIMIT (x) 73 112 112

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

REF REPORTING

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

LCSW-1003-1

RECOVERY

INSTR RUN: IR\9710030000000/2/1 BATCH ID: IR\100397-1 DILUTION: 1.000000 REC LIMITS (#)

RPD

ANALYTE Motor Oil

METHOD:

RESULT 9.73

RESULT ND

LIMIT 0.5

VALUE 9.53

(*) 102

LOW 112

HIGH RPD (#) LIMIT (#)

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank

INSTRUMENT: UNITS:

mg/kg

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

METHOD:

RESULT

ref RESULT REPORTING LIMIT 10.0

SPIKE

RECOVERY (%)

REC LIMITS (X)

ANALYTE Motor Oil

ND

VALUE

LOW HIGH RPD (%) LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike

INSTRUMENT: UNITS: mg/kg LAB ID: LCSS-1007-1 PREPARED: 10/07/97

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

METHOD:

ANALYZED: 10/07/97 ref REPORTING

RECOVERY

REC LIMITS (1) LOW HIGH RPD (%) LIMIT (%)
74 115

ANALYTE Motor Oil RESULT 318

RESULT ND

LIHIT 10.0

SPIKE VALUE 318

(X) 100

74 115

QUALITY CONTROL REPORT

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ANALYSIS: Selenium

MATRIX: Water

GFW_PBW_S

METHOD BLANK SAMPLES

WORK ORDER: 9710007

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: TJA 4000

UNITS: METHOD:

mg/L

ANALYTE Selenium in water by GFAA RESULT ND

RFF RESULT REPORTING LINIT 0.004

LAB ID: PREPARED:

ANALYZED: 10/08/97

ANALYZED: 10/08/97

LAB ID:

PREPARED:

ANALYZED: 10/08/97

SPIKE VALUE

RECOVERY (1)

DILUTION: REC LIMITS (%) LOW

HIGH RPD (%)

INSTR RUN: 4000\971008161500/3/1 BATCH ID: GFW100697-S DILUTION: 1.000000

INSTR RUN: 4000\971008161500/2/1 BATCH ID: GFW100697-S DILUTION: 1.000000

1.000000

BATCH ID: GFW100697-S

INSTR RUN: 4000\971008161500/1/

RPD LIHIT (X)

LABORATORY CONTROL SAMPLES

UNITS:

METHOD:

ANALYTE

METHOD:

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

Selenium in water by GFAA -----

RESULT 0.0717

RESULT ND

REPORTING LIMIT 0.004LAB ID: PREPARED:

SPIKE VALUE 0.0800

GFW_LCS_S

GFW_LCD_S

RECOVERY (4)

REC LIMITS (%) LOW 79 HIGH 115

RPD (%) LIMIT (x)

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

mg/L

ANALYTE Selenium in water by GFAA

RESULT 0.0776

0.0717

RESULT ND

REPORTING LIMIT 0.004

SPIKE VALUE 0.0800

RECOVERY (4) 97.D

REC LIMITS (1) LOW 79 HIGH 115

RPD LIMIT (%)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000 UNITS:

METHOD:

mg/L

RESULT

REF RESULT 0.0776

LIMIT 0.004

ANALYZED: 10/08/97 REPORTING

LAB ID:

PREPARED:

SPIKE VALUE

GFW_LCR_S

RECOVERY (1)

REC LIMITS (%) LOW HIGH

RPD (%) 7.90

INSTR RUN: 4000\971008161500/4/2

BATCH ID: GFW100697-S

DILUTION: 1.000000

RPD LIMIT (X) 13

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

Selenium in water by GFAA

SAMPLE TYPE: Blank Method/Media blank INSTRUMENT: TJA 4000

UNITS:

METHOD:

mg/kg

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

GFS_PBS_Q

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

REPORTING SPIKE ANALYTE RESULT RESULT LIMIT VALUE Selenium in soil EPA 7740 ND

RECOVERY (X)

REC LIMITS (%) LOW HIGH RPD (%) LIMIT (%)

QUALITY CONTROL REPORT

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ANALYSIS: Selenium

MATRIX: Soil/Bulk

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Me INSTRUMENT: TJA 4000 UNITS: mg/kg METHOO:		LAB ID: PREPARED ANALYZED	GFS_LCD_Q : : 10/08/97		INSTR RUN: 4000\971008110700/3/1 BATCH ID: GFS100697-Q DILUTION: 1.000000			
ANALYTE Selenium in soil EPA 7740	RESULT 15.5	REF RESULT ND	REPORTING LIMIT 1	SPIKE VALUE 20.0	RECOVERY (%) 77.5	REC LIMITS (\$) RPD LOW HIGH RPD (\$) LIMIT (\$) 70 127		
SAMPLE TYPE: Spike-Method/Me INSTRUMENT: TJA 4000 UNITS: mg/kg METHOD:	dia blank	******	LAB ID: PREPARED ANALYZED	GFS_LCS_Q : 10/08/97		INSTR RUN: 4000\971008110700/2/1 BATCH ID: GFS100697-Q DILUTION: 1.000000		
ANALYTE Selenium in soil EPA 7740	RESULT 15.5	REF RESULT ND	REPORTING LIMIT 1	SPIKE VALUE 20.0	RECOVERY (%) 77.5	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 70 127		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sa INSTRUMENT: TJA 4000 UNITS: mg/kg METHOD:				GFS_LCR_Q : 10/08/97		INSTR RUN: 4000\971008110700/4/2 BATCH ID: GFS100697-Q DILUTION: 1.000000			
ANALYTE Selenium in soil EPA 7740	RESULT 15.5	REF RESULT 15.5	REPORTING LIMIT 1	SPIKE VALUE	RECOVERY (*)	REC LIMITS (%) RPD (%) LIMIT (%) 0 13			

QUALITY CONTROL REPORT

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ANALYSIS: Thallium

MATRIX: Soil/Bulk

LAB ID: GFS_PBS_Q

ANALYZED: 10/09/97

LAB ID: GFS_LCD_Q PREPARED:

ANALYZED: 10/09/97

ANALYZED: 10/09/97

METHOD BLANK SAMPLES

WORK ORDER: 9710007

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: TJA 4000

UNITS: mg/kg METHOD:

ANALYTE Thallium by GFAA RESULT ND

REF RESULT REPORTING LIMIT

PREPARED:

SPIKE VALUE

RECOVERY (4)

REC LIMITS (%) LOW HIGH RPD (*)

BATCH ID: GFS100697-0

DILUTION: 1.000000

INSTR RUN: 4000\971009171500/1/

INSTR RUN: 4000\971009171500/3/1

INSTR RUN: 4000\971009171500/2/1

BATCH ID: GFS100697-Q DILUTION: 1.000000

RPD LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

UNITS: METHOD:

ANALYTE

METHOD:

ANALYTE

mg/kg

RESULT 9.93

REF RESULT ND

REPORTING

LAB ID: PREPARED:

SPIKE VALUE 10.0

GFS_LCS_Q

RECOVERY

REC LIMITS (2) LOW HIGH 75 125

RPD (X) LIMIT (%)

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

Thallium by GFAA

Thallium by GFAA

mg/kg

RESULT ND

REPORTING LIMIT

SPIKE VALUE 10.0

RECOVERY 100

BATCH ID: GFS100697-Q DILUTION: 1.000000 REC LIMITS (2) LOW HIGH RPD (%)

LIMIT (1)

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

Thallium by GFAA

RESULT 9.93

RESULT

10.0

RESULT 10.0

REF

REPORTING LIMIT

SPIKE VALUE RECOVERY (1)

REC LIMITS (%) LOW HIGH RPD (*) 0.702

RPD[®] LIMIT (X)

QUALITY CONTROL REPORT

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ANALYSIS: TPH as Diesel

MATRIX: Water

METHOD BLANK SAMPLES

INSTRUMENT: HP 5 UNITS: mg/L	ITS: mg/L				LAB ID: BLNK-1002-1 PREPARED: 10/02/97 ANALYZED: 10/03/97				INSTR RUN: GC C\9710020000000/1/ BATCH ID: DSCW100297-1 DILUTION: 1.000000				
ANALYTE Diesel Motor Oil		RESULT ND ND	ref Result	REPORTING LIMIT 0.05	SPIKE Value	RECOVERY (な)	REC LIM LOW	ITS (‡) HIGH	RPD (X)	RPD LIMIT (%)			
n-Pentacosane	(surr)	92.0		0.2	100	92.0	65	125					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Contr 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: DSTW100297-1 DILUTION: 1.000000			
ANALYTE Diesel n-Pentacosane (surr)	RESULT 1.86 91.9	REF RESULT ND 92.0	REPORTING LIMIT 0.05	SPIKE VALUE 2.00 100	RECOVERY (%) 93.0 91.9	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 60 110 65 125		
SAMPLE TYPE: Laboratory Contro INSTRUMENT: HP 5890 UNITS: mg/L METHOD: GC-FID	ol Spike		LAB ID: PREPARED: ANALYZED:	LCSW-1002- 10/02/97 10/03/97	1	INSTR RUN: GC C\971002000000/2/1 BATCH ID: DSCW100297-1 DILUTION: 1.000000		
ANALYTE Diesel n-Pentacosane (surr)	RESULT 1.80 90.4	REF RESULT ND 92.0	REPORTING LIMIT 0.05	SPIKE VALUE 2.00 100	RECOVERY (%) 90.0 90.4	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 60 110 65 125		

LABORATORY CONTROL DUPLICATES

INSTRUMENT: HP 5890 UNITS: mg/L METHOD: GC-FID	Sample Duplicate	LAB ID: PREPARED: ANALYZED:	INSTR RUN: GC C\971002000000/4/2 BATCH ID: DSEW100297-1 DILUTION: 1.000000						
Diesel Motor Oil	REF RESULT RESULT 1.86 1.80 ND ND	REPORTING LIMIT 0.05 0.2	SPIKE VALUE 2030 200	RECOVERY	REC LIM LOW	ITS (%) HIGH	RPD (*) 3.28	RPD LIMIT (%) 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 n-Pentacosane (surr)	RESULT 103	REF RESULT	REPORTING LIMIT	SPIKE VALUE 100	RECOVERY (な) 103		S (*) RPD HIGH RPD (*) LIMIT (*) L25		

QUALITY CONTROL REPORT

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ANALYSIS: TPH as Diesel

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

WORK ORDER: 9710007

INSTRUMENT: F	Blank-Method/Media B 5890 B/kg C-FID	blank		LAB ID: PREPARED: ANALYZED:	BLNK-1003- 10/03/97 10/05/97	1	INSTR F BATCH I DILUTIO	LD: DS	CS\971003 ES100397-1	3000000/1/
ANALYTE Diesel Motor Oil		RESULT ND ND	ref Result	REPORTING LIMIT	SPIKE VALUE	RECOVERY (な)	REC LIMI LOW	ITS (%) HIGH	RPD (X)	RPD LIMIT (%)
n-Pentacosane	(surr)	79.9		3	100		55	115		

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: INSTRUMENT: UNITS: METHOD:	Laboratory Cou HP 5890 mg/kg GC-FID	ntrol Spike		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 Diesel n-Pentacosane	e (surr)	RESULT 31.5 80.3	REF RESULT ND 79.9	REPORTING LIMIT 1	SPIKE VALUE 40.0 100	RECOVERY (*) 78.8 80.3	REC LIN LOW 55 55	HIGH 110 115	RPD (X)	RPD LIMIT (%)		

SAMPLE SURROGATES

INSTRUMENT: HP UNITS: mg/	UNITS: mg/kg			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 n-Pentacosane	(surr)	RESULT D	ref Result	REPORTING LIMIT	SPIKE VALUE 100	RECOVERY (%) 0 !	REC LIMITS (%) LOW HIGH 55 115	RPD (%)	RPD LIMIT (%)		

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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 Toluene Ethylbenzene Total Xylenes	71-43-2 108-88-3 100-41-4 1330-20-7	ND ND ND ND	0.5 0.5 0.5

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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)	Reportin g 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

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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

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

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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

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

CHAIN OF CUSTODY / ANALYSES REQUEST FORM R-3

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Project Name: S	her	uin -	(A): Il ion s			Logbook	<u></u>	mery	rille,	<u>cA</u>		Date	: 10	01/97	Ser	ial No.:
Sampler (Signatu	ıre):	Gom	L A. Bo					NA		· · · · · · · · · · · · · · · · · · ·						^{]⁰} 138
			SAMPLES	my_	<u> </u>	<u>-</u>					NALYS	ES	MO JE	p) >	Sam	plers:
j	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-	SAME	LE /	wreter	3/et 10%	Diese C	OH /	ANALYSI	Lon S.	MIL	RUSH	/	
215-CBX-LIM	10/197	1205	01A	TAINERS	Liguic		4	2. 16.	100		BROK	CH X	10	W)	REN	MARKS
RIS-CBCG-LBX 1	0/1/97	1200	02ABC 03A	3	Liguid)	X			-		ļ	-		ML HOP	ξ
215-CBOI-50 10	1.10-	1100	24		Liguid		 	_X_	X					<u>3-4</u> 1-1	UML VO	As
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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).

Kec LFR 1115/97

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.

Langy Klein

Laboratory Director

PAGE 2

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	-	F	iltr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	-	F	Prep Date	10/17/97
Arsenic	EPA 7060	0.02 *	0.01 n	ng/L	10/20/97

ND = Not detected at or above the reporting limit \star = Value at or above reporting limit

PAGE 3

LEVINE-FRICKE-RECON

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

ANALYTE	METHOD/ CAS#	RI RESULT	EPORTING 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

PAGE 4

LEVINE-FRICKE-RECON

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

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

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

PAGE 5

LEVINE-FRICKE-RECON

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

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	•	F	iltr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	~	Р	rep Date	10/17/97
Arsenic	EPA 7060	7.2 *	0.01 m	g/L	10/20/97

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

PAGE 6

LEVINE-FRICKE-RECON

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

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0. 4 5 um	-	F	iltr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	-	Р	rep Date	10/17/97
Arsenic	EPA 7060	8.8 *	0.01 m	g/L	10/20/97

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

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LEVINE-FRICKE-RECON

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

ANALYTE	METHOD/ CAS#	RI RESULT	EPORTING 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

PAGE 8

LEVINE-FRICKE-RECON

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

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-	F	iltr Date	10/17/97
#Digestion, Metals by GFAA	EPA 3020	-	Р	rep Date	10/17/97
Arsenic	EPA 7060	17 *	0.01 m	g/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 3042.95.004 CLIENT PROJECT ID:

Quality Control and Project Summary

Sample (CB06-1017-SO):

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.

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. instrument performance.

D: Surrogates diluted out.

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9710233

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: TJA 4000

PREPARED:

LAB ID: GFW_BLNK_V1

ANALYZED: 10/20/97

INSTR RUN: 4000\971020120900/1/

BATCH ID: GFW101797-V1 DILUTION: 1.000000

METHOD: ANALYTE

UNITS:

Arsenic in water by GFAA

RESULT ND

REF RESULT

REPORTING LIMIT 0.002

SPIKE VALUE

RECOVERY (X)

REC LIMITS (%) LOW

HIGH RPD (%)

RPD LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

UNITS:

mg/L

LAB ID: GFW_LCD_V1 PREPARED:

ANALYZED: 10/20/97

BATCH ID: GFW101797-V1 DILUTION: 1.000000

INSTR RUN: 4000\971020120900/3/1

METHOD:

ANALYTE Arsenic in water by GFAA ------ 0.0379

REF REPORTING RESULT LIMIT ND 0.002

SPIKE **VALUE** 0.0400

GFW_LCS_V1

RECOVERY (1)

REC LIMITS (%) LOW HIGH 82 140

RPD (%) LIMIT (%)

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

mg/L

LAB ID: PREPARED:

ANALYZED: 10/20/97

BATCH ID: GFW101797-V1 DILUTION: 1.000000

METHOD: ANALYTE

UNITS:

Arsenic in water by GFAA

RESULT 0.0389

REPORTING RESULT LIMIT ND 0.002

SPIKE VALUE 0.0400

RECOVERY 97.3

REC LIMITS (%) 82 140

HIGH RPD (%) LIMIT (%)

INSTR RUN: 4000\971020120900/2/1

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000

UNITS:

Arsenic in water by GFAA

LAB ID: GFW_LCR_V1 PREPARED:

ANALYZED: 10/20/97

INSTR RUN: 4000\971020120900/4/2

BATCH ID: GFW101797-V1 DILUTION: 1.000000

METHOD: ANALYTE

RESULT 0.0379

REF RESULT 0.0389

REPORTING LIMIT 0.002

SPIKE VALUE

RECOVERY (%)

REC LIMITS (%) LOW HIGH

RPD (%) LIMIT (X) 2,60 13

OUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Cadmium

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

INSTR RUN: AA V12\971021141500/1/ SAMPLE TYPE: Blank-Method/Media blank LAB ID: IFS_PBS_W BATCH ID: IFS102097-W DILUTION: 1.000000 INSTRUMENT: Video 12 aa spectrometer PREPARED:

ANALYZED: 10/21/97 UNITS: mg/kg EPA 7130 METHOD:

SPIKE REPORTING RECOVERY REC LIMITS (%) REF LOW HIGH RPD (%) LIMIT (%) **RESULT** RESULT LIMIT VALUE **(**2) ANALYTE

Cadmium in soil by Flame ND

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: Video 12 aa spectrometer INSTR RUN: AA V12\971021141500/4/2 LAB ID: IFS_LCD_W PREPARED:

BATCH ID: IFS102097-W DILUTION: 1.000000

ANALYZED: 10/21/97 mg/kg EPA 7130 UNITS: METHOD:

RECOVERY REC LIMITS (%) REF SPIKE REPORTING LOW HIGH RPD (%) LIMIT (%) 75 125 RESULT VALUE (X)ANALYTE RESULT LIMIT

95.6 Cadmium in soil by Flame 4.78 ND 5.00 ______

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: Video 12 aa spectrometer INSTR RUN: AA_V12\971021141500/3/2 LAB ID: IFS_LCS_W PREPARED:

BATCH ID: IFS102097-W DILUTION: 1.000000 ANALYZED: 10/21/97

mg/kg EPA 7130 UNITS: METHOD:

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

98.6 75 Cadmium in soil by Flame 4.93 ND 5.00 125 1

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate LAB ID: IFS_LCR_W
INSTRUMENT: Video 12 aa spectrometer PREPARED: INSTR RUN: AA V12\971021141500/5/3 BATCH ID: IF5102097-W DILUTION: 1.000000 ANALYZED: 10/21/97 UNITS:

mg/kg EPA 7130 METHOD: REPORTING RECOVERY REC LIMITS (%) SPIKE REF

RPD LOW HIGH RPD (%) VALUE LIMIT (%) RESULT RESULT (%) LIMIT 3.09 20 Cadmium in soil by Flame 4.93 4.78 1

MATRIX SPIKE SAMPLES

INSTR RUN: AA_V12\971021141500/8/6 SAMPLE TYPE: Spike-Sample/Matrix INSTRUMENT: Video 12 aa spectrometer LAB ID: MD10233-11A BATCH ID: IFS102097-W DILUTION: 1.000000 PREPARED:

ANALYZED: 10/21/97 UNITS:

mg/kg EPA 7130 METHOD: RECOVERY REC LIMITS (%) REPORTING

LOW HIGH 60 140 RPD (%) LIMIT (%) RESULT. RESULT LIMIT VALUE (%) ANAI YTF 1.49 5.00 Cadmium in soil by Flame

______ LAB ID: MS10233-11A

INSTR RUN: AA V12\971021141500/7/6 BATCH ID: IFS102097-W DILUTION: 1.000000 SAMPLE TYPE: Spike-Sample/Matrix INSTRUMENT: Video 12 aa spectrometer PREPARED: ANALYZED: 10/21/97 mg/kg EPA 7130 UNITS:

METHOD: RECOVERY RPD REC LIMITS (%) REPORTING SPIKE

HIGH RPD (%) LIMIT (%) VALUE RESULT RESULT LIMIŢ Cadmium in soil by Flame 7.56 1.49 5.00 60 140 1

QUALITY CONTROL REPORT

PAGE QR-4

ANALYSIS: Cadmium

MATRIX: Soil/Bulk

MATRIX SPIKE DUPLICATES

WORK ORDER: 9710233

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: IF5102097-W DILUTION: 1.000000

RECOVERY REC LIMITS (%)
(%) LOW HIGH RPD (%)
19.9

ANALYTE Cadmium in soil by Flame

REF RESULT RESULT 7.56 6.19

REPORTING

SPIKE VALUE

LIMIT (*) 35

OUALITY CONTROL REPORT

PAGE QR-5

ANALYSIS: Mercury

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: Coleman Hg Analyzer 50D

PREPARED:

LAB_ID: HGS_BLNK

INSTR RUN: HG\971020143000/1/

mg/kg UNITS:

BATCH ID: HGS102097 DILUTION: 1.000000

METHOD:

ANALYZED: 10/20/97

ANALYTE Mercury in soil EPA 7471 **RESULT** ND REPORTING LIMIT

SPIKE VALUE

RECOVERY REC LIMITS (%) LOW HIGH RPD (%) LIMIT (%)

REF

RESULT

0.06

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: Coleman Hg Analyzer 50D

LAB ID: HGS_LCD PREPARED:

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

METHOD:

mg/kg

Mercury in soil EPA 7471

ANALYZED: 10/20/97

RECOVERY REC LIMITS (%)

ANALYTE

LABORATORY CONTROL SAMPLES

REF REPORTING **RESULT** LIMIT ND 0.06

SPIKE VALUE 0.400

(%)

(%)

LOW HIGH RPD (%) LIMIT (%) 79 118

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: Coleman Hg Analyzer 50D

LAB ID: HGS_LCS PREPARED:

INSTR RUN: HG\971020143000/2/1

ANALYZED: 10/20/97

BATCH ID: HGS102097 DILUTION: 1.000000

UNITS: METHOD: mg/kg

REF REPORTING

SPIKE

RECOVERY REC LIMITS (%)

ANALYTE

RESULT 0.395

0.378

RESULT LIMIT ND 0.06

VALUE 0.400 98.8

LOW HIGH RPD (%) LIMIT (%) 79 118

LABORATORY CONTROL DUPLICATES

Mercury in soil EPA 7471

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: Coleman Hg Analyzer 50D

LAB_ID: HGS_LCR

INSTR RUN: HG\971020143000/4/2

UNITS:

PREPARED:

ANALYZED: 10/20/97

BATCH ID: HGS102097 DILUTION: 1.000000

METHOD:

mg/kg

REF REPORTING SPIKE

RECOVERY

REC LIMITS (%)

RPD

Mercury in soil EPA 7471

RESULT 0.378

RESULT 0.395

LIMIT 0.06

VALUE

(*)

LOW HIGH RPD (%)

LIMIT (ギ) 4.40 15

WORK ORDER: 9710233

QUALITY CONTROL REPORT

PAGE QR-6

ANALYSIS: Metals Scan by ICP

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPL INSTR UNITS METHO		d/Media blank 36		LAB ID: PREPARED ANALYZED	IFS_PBS_W : : 10/21/97		INSTR RUN: BATCH ID: 1 DILUTION: 1	CP\97102112 FS102097-W	22900/1/
ANALY Ag Ba Be Cd Cr Cu Mo Ni Pb Sb V Zn	TE Silver Barium Beryllium Cadmium Cobalt Chromium Copper Molybdenum Nickel Lead Antimony Vanadium Zinc	RESULT ND	REF RESULT	REPORTING LIMIT 0.1 0.1 0.2 0.2 0.5 0.5 0.2 1 1 0.5	SPIKE VALUE	RECOVERY (%)	REC LIMITS (X LOW HIGH		RPD LIMIT (%)

LABORATORY CONTROL SAMPLES

	1-1-1-1		· -	••••••			<i></i> .			
SAMPL INSTR	E TYPE: Spike-Method/Med UMENT: TJA Enviro 36 : mg/kg D:	lia blank		LAB ID: PREPARED	IFS_LCD_W		INSTR BATCH	RUN: IC ID: IF		22900/4/2
METHO	D:			ANALYZED	: 10/21/97		DILUTI	ON: 1.	000000	
ANALY Ag Ba Be Cd Co Cr Cu Mo Ni Pb Sb V Zn	Silver Barium Beryllium Cadmium Cobalt Chromium Copper Molybdenum Nickel Lead Antimony Vanadium Zinc	RESULT 4.92 99.3 5.00 4.95 52.1 48.9 46.6 48.8 49.5 51.5 42.1 51.7	REF RESULT ND 1.29 ND ND ND ND ND ND ND ND ND ND ND ND ND		SPIKE VALUE 5.00 100 5.00 5.00 50.0 50.0 50.0 50.0	RECOVERY (%) 98.4 98.0 100 99.0 104 96.0 93.2 97.6 99.0 100 84.2 103 93.0	REC LIM 60 80 80 87 88 85 87 85 90 90 66 90	HTS (%) HIGH 120 115 110 110 116 110 113 110 120 120 114 120 111	RPD (%)	RPD LIMIT (北)
SAMPLI INSTRI UNITS METHOI	E TYPE: Spike-Method/Med UMENT: TJA Enviro 36 : mg/kg				IFS_LCS_W 10/21/97		INSTR BATCH DILUTI	RUN: ICF ID: IFS ON: 1.0	P\97102112 \$102097-W	2900/3/2
ANALY Ag Ba Be Cd Co Cr Cu Mo Ni Pb Sb V	TE Silver Barium Beryllium Cadmium Cobalt Chromium Copper Molybdenum Nickel Lead Antimony Vanadium Zinc	49.6 47.0	REF RESULT ND 1.29 ND ND ND 0.902 ND ND ND ND ND ND ND ND	0.1 1 0.1	SPIKE VALUE 5.00 100 5.00 5.00 50.0 50.0 50.0 50.0	RECOVERY (%) 99.0 98.7 101 99.2 105 97.4 94.0 97.4 99.8 101 84.2 104 94.2	REC LIM LOW 60 80 87 88 85 87 85 90 90 66 90 83	ITS (%) HIGH 120 115 110 110 116 110 113 110 120 120 1114 120 111	RPD (%)	RPD LIMIT (∜)

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: PREPARED: ANALYZED:	IFS_LCR_W 10/21/97			CP\97102112 FS102097-W .000000	2900/5/3
ANALYTE Ag Silver Ba Barium Be Beryllium Cd Cadmium Co Cobalt Cr Chromium Cu Copper Mo Molybdenum Ni Nickel Pb Lead Sb Antimony V Vanadium Zn Zinc	RESULT 4.92 99.3 5.00 4.95 52.1 48.9 46.6 48.8 49.5 51.5 42.1 51.7 46.5	REF RESULT 4.95 100 5.04 4.96 52.6 49.6 47.0 48.7 49.9 52.1 42.1 52.2 47.1	REPORTING LIMIT 0.1 0.1 0.2 0.2 0.5 0.5 0.5 1	SPIKE VALUE	RECOVERY	REC LIMITS (& LOW HIGH		RPD LIMIT (%) 10 10 10 10 10 10 10 10 10 10 10 10 10

QUALITY CONTROL REPORT

PAGE OR-8

ANALYSIS: 017 & Grease (IR)

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT:

mg/kg

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

METHOD: ANALYTE Motor Oil

UNITS:

RESULT ND

REF RESULT REPORTING LIMIT 10.0

SPIKE VALUE RECOVERY (%)

REC LIMITS (%)

LOW HIGH RPD (%) LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike INSTRUMENT:

UNITS: METHOD:

mg/kg

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 Motor Oil

RESULT 324

REF RESULT ND

REPORTING LIMIT 10.0

SPIKE VALUE 318

RECOVERY 102

REC LIMITS (%) LOW HIGH 74 115

LIMIT (%)

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix

INSTRUMENT: UNITS: METHOD:

LAB ID: MD10233-11A

PREPARED: 10/20/97 ANALYZED: 10/21/97

INSTR RUN: IRS\971020000000/5/3

RPD (%)

BATCH ID: IRS102097-1 DILUTION: 1.000000

ANALYTE

RESULT 2440

RESULT

2100

REPORTING RESULT LIMIT 10.0

SPIKE VALUE 318

RECOVERY (λ)

REC LIMITS (%) LOW HIGH

61

RPD (%) LIMIT (%)

SAMPLE TYPE: Spike-Sample/Matrix INSTRUMENT:

mg/kg

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

INSTR RUN: IRS\971020000000/4/3

127

BATCH ID: IRS102097-1 DILUTION: 1.000000

METHOD: ANALYTE

UNITS:

RESULT 2440

REPORTING LIMIT 10.0

VALUE 318

RECOVERY (%) -107 !

REC LIMITS (%) LOW HIGH 61 127

RPD (%) LIMIT (%)

MATRIX SPIKE DUPLICATES

INSTRUMENT:

mg/kg

SAMPLE TYPE: Spiked Sample Duplicate

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 Motor Oil

UNITS:

METHOD:

RESULT 2440

RESULT 2100

REPORTING LIMIT 10.0

SPIKE VALUE 318

RECOVERY (な)

REC LIMITS (%) LOW HIGH RPD (%)

RPD LIMIT (%) 14.98 14

QUALITY CONTROL REPORT

PAGE QR-9

ANALYSIS: TPH as Diesel

MATRIX: Soil/Bulk

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank- INSTRUMENT: HP 589 UNITS: mg/kg METHOD: GC-FID	0	a blank	********	LAB ID: PREPARED: ANALYZED:		1	INSTR F BATCH I DILUTIO	ID: DSI	CS\971020 S102097-1 000000	
ANALYTE Diesel Motor Oil		RESULT ND ND	REF RESULT	REPORTING LIMIT 1	SPIKE VALUE	RECOVERY (%)	REC LIM: LOW	ITS (%) HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	85.7		J	100	85.7	55	115		

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Co INSTRUMENT: HP 5890 UNITS: mg/kg METHOD: GC-FID	ntrol Spike		LAB ID: PREPARED ANALYZED	LCSS-1020 : 10/20/97 : 10/21/97	·1	INSTR BATCH DILUTI	ID: DSI	CS\971020 S102097·1 000000	000000/2/1
ANALYTE Diesel n-Pentacosane (surr)	RESULT 33.9 87.2	REF RESULT ND 85.7	REPORTING LIMIT 1	SPIKE VALUE 40.0 100	RECOVERY (*) 84.8 87.2	REC LIM LOW 55 55	ITS (%) HIGH 110 115	RPD (%)	RPD LIMIT (%)

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sam INSTRUMENT: HP 5890 UNITS: mg/kg METHOD: GC-FID	ole/Matrix		MD10233-11A : 10/20/97 : 10/20/97	INSTR RUN: GC CS\971020000000/5/3 BATCH ID: DSES102097-1 DILUTION: 1.000000			
ANALYTE Diesel n-Pentacosane (si	RESULT RESL 237 13 urr) D	LT LIMIT	SPIKE RECOVER VALUE (%) 40.0 245 ! 100 0 !	Y REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (% 50 115 55 115	()		
SAMPLE TYPE: Spike-Sam INSTRUMENT: HP 5890 UNITS: mg/kg METHOD: GC-FID	ole/Matrix		MS10233-11A : 10/20/97 : 10/20/97	INSTR RUN: GC CS\971020000000/4/3 BATCH ID: DSES102097-1 DILUTION: 1.000000	3		
ANALYTE Diesel n-Pentacosane (si	RESULT RESU 311 13 urr) D	LT LIMIT	SPIKE RECOVER (%) 40.0 430 ! 100 0 !	Y REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (% 50 115 55 115	()		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked INSTRUMENT: HP 589 UNITS: mg/kg METHOD: GC-FID	Sample Duplic	ate	LAB ID: PREPARED ANALYZED	MR10233-11 : 10/20/97 : 10/20/97	A	INSTR 1 BATCH DILUTIO	ID: D	C CS\971020 SES102097-1 .000000	000000/6/4
ANALYTE Diesel Motor Oil	RE	REF ESULT RESULT 245 311 ND ND	REPORTING LIMIT 1	SPIKE VALUE 40.0	RECOVERY (%)	REC LIM LOW	HIGH	RPD (%) 23.7 !	RPD LIMIT (%) 20
n-Pentacosane	(surr)	Ď Ď		100	0 !	55	115		

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

WORK ORDER: 9710233

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

ANALYZED: 10/20/97

INSTR RUN: GC CS\9710200000000/7/ BATCH ID: DSES102097-1 DILUTION: 1.000000

ANALYTE

n-Pentacosane

(surr)

RESULT D

REF RESULT REPORTING LIMIT

SPIKE VALUE 100

RECOVERY (%) 0 !

REC LIMITS (%) ĽOW 55 HIGH 115

RPD RPD (%) LIMIT (%)

PAGE QR-11

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

PAGE QR-12

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-S0	11	89
QC Limits:			70-130

DATE ANALYZED: 10/21/97

SAMPLE SPIKED: INSTRUMENT: H LCS

Laboratory Control Sample Recovery

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

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3042.		Project Location: Emeryville Date: 10/17									7/97	Serial N			
Project Name: Sherw				Field Logi									·	Nº	1414
Sampler (Signature):			-				4	Ps	AN.	ALYSES	S			Sampler	s: GAB
		SAMPLES				/,	/EVU	/	(A) 1				/、/		
SAMPLE NO. DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE	Ac	ا در المراز المراز	Solve Ar	201	5317 N	ALYSES		KOLD	RUSH	REMAR	
MH 1A-1017-LM 10/17/97 NB4-1017-LM	1525	OIAB OZAB OBAB	-/-	H20	X X X	×						X	2 DA	Y TAT fo	for Liquid r Sediment
NB1 1017-4M NB1 1017-4M NB2-1017-4M	1545 1545 1540	04AB 05AB			X X X	×							FILTER 513506	+ PRESE	CVE FOR FNIC
NM6-1017-LM NB03-1017-LM MHZA-1017-LM	M6-1017-LA 13:45 OGAB							_					·	•	TAL ARSOUL
CBC6-1017-LM 545-1017-LM	155c	09AB 10AB		\$ 6 X	_ <u> </u>	X		×					'		M. EMACORE
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RELINQUISHED BY: (Signature)	_		DAT	re 	TIME	,	RECEIVI (Signa	ED BY:						DATE	TIME
METHOD OF SHIPMENT:			DAT	F E	TIME		LAB CO	MMENT	S:						
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-182 (510) 652-4500						٠.	Analytical Laboratory: AEN PLEASANT HILL, CA								

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

W 1 -

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		F	rep Date	11/06/97
Arsenic	EPA 206.2	59 *		g/L	11/06/97
Reporting limit elevated compound.	due to high level	of target			
ND = Not detected at or a	bove the reporting	a 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.

PAGE QR-1

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.

<u>Definitions</u>

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.
- Interference.
- !: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9711055

OUALITY CONTROL REPORT

PAGE QR-2

RPD

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

METHOD:

SAMPLE TYPE: Blank-Method/Media blank LAB_ID: GFW_PBW_Q INSTR RUN: 4000\971106163600/1/

BATCH ID: GFW110697-Q DILUTION: 1.000000 INSTRUMENT: TJA 4000 PREPARED:

mg/L UNITS: ANALYZED: 11/06/97

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

Arsenic in water by GFAA ND 0.002

LABORATORY CONTROL SAMPLES

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

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

UNITS: ANALYZED: 11/06/97

METHOD: RFF REPORTING SPIKE RECOVERY REC LIMITS (%)

RPD (*) LIMIT (*) 82 140 ANALYTE **RESULT** RESULT VALUE LIMIT Arsenic in water by GFAA ND 0.002 0.0400 -----

LAB ID: GFW_LCS_Q INSTR RUN: 4000\971106163600/2/1

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 BATCH ID: GFW110697-Q DILUTION: 1.000000 PREPARED:

UNITS: ANALYZED: 11/06/97 METHOD:

RECOVERY RFF REPORTING SPIKE REC LIMITS (%) LOW HIGH RPD (X) ANALYTE RESULT RESULT **(X)** LIMIT (X) LIMIT VALUE

Arsenic in water by GFAA 0.0452 0.002 0.0400 82 140

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate LAB ID: GFW_LCR_Q INSTR RUN: 4000\971106163600/4/2

INSTRUMENT: TJA 4000 PREPARED: BATCH ID: GFW110697-Q DILUTION: 1.000000

ANALYZED: 11/06/97 UNITS: mg/L

METHOD:

ref REPORTING SPIKE RECOVERY REC LIMITS (%) RPD LOW, HIGH RPD (X) ANALYTE RESULT RESULT LIMIT VALUE LIMIT (%) (Y)

1.10 13 Arsenic in water by GFAA 0.0452 0.002 0.0457

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

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

	Project No.: 26/6,97-0/																+11035			
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Sampler (Si	gnature)	:Stri	re thornte	<u></u>					Α	NALY	/SES		_		Samp	lers:				
	,	S/	AMPLES				2000	$\overline{}$	$\overline{/}$		/	$\overline{/}$	101	25t/	54T					
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE	A TOPA							×	43.		REMARKS				
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METHOD OF SHIPMENT: AEN COURIER					DATE	TI	ME		AB COM					-			_1			
Sample Collector: LEVINE-FRICKE						<u> </u>		Ā	naly	ical	Labo	orato	rv:							
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The

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/ 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

PAGE 2

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					
#Digestion/G. Furnace	EPA 200.0	-	Р	rep Date	11/17/97			
Arsenic	EPA 206.2	0.99 *	0.002 m	g/L	11/18/97			

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	LYTE METHOD/ CAS#		EPORTING 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

PAGE 4

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

LEVINE-FRICKE-RECON

SAMPLE ID: R4R-C

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

ANALYTE	METHOD/ CAS#	RESULT F	REPORTING LIMIT UNITS	DATE S ANALYZED
#Digestion/G. Furnace	EPA 200.0	-	Prep Dat	te 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.

<u>Definitions</u>

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

LAB ID: GFW_PBW_H

INSTR RUN: 4000\971118114200/1/

PREPARED: BATCH ID: GFW111797-H DILUTION: 1.000000 ANALYZED: 11/18/97

UNITS: METHOD: mg/L

RECOVERY

ANALYTE

Arsenic in water by GFAA

RESULT ND

REF REPORTING RESULT

LIMIT 0.002 SPIKE VALUE

(1)

REC LIMITS (%) LOW

HIGH RPD (%) LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

LAB_ID: GFW_LCD_H PREPARED:

ANALYZED: 11/18/97

INSTR RUN: 4000\971118114200/3/1

BATCH ID: GFW111797-H DILUTION: 1.000000

UNITS: METHOD: **ANALYTE**

Arsenic in water by GFAA

Arsenic in water by GFAA

REF RESULT RESULT 0.0404 ND

REPORTING LIMIT 0.002

VALUE 0.0400 *********************

RECOVERY (%) 101

REC LIMITS (%)

LOW HIGH RPD (%) LIMIT (%) 82 140 140

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

mg/L

PREPARED: ANALYZED: 11/18/97

LAB ID: GFW_LCS_H

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

UNITS: METHOD: ANALYTE

REF RESULT RESULT

ND

REPORTING LIMIT 0.002

VALUE 0.0400

RECOVERY REC LIMITS (*) (%) LOW 96.3 82 140

HIGH RPD (*) LIMIT (*)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000

Arsenic in water by GFAA

mg/L

ANALYZED: 11/18/97

LAB ID: GFW_LCR_H PREPARED:

INSTR RUN: 4000\971118114200/4/2

BATCH ID: GFW111797-H DILUTION: 1.000000

UNITS: METHOD:

RESULT 0.0404

0.0385

REF RESULT 0.0385

REPORTING LIMIT 0.002

VALUE

RECOVERY (X)

REC LIMITS (%)

LOW HIGH RPD (*)

4.82

RPD LIMIT (%) 13

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

CHAIN OF CUSTODY / A LYSES REQUEST FORM

	9711218 Project No.: 2616.97-01						ì/s	on	ч.										
Project No.	: 20	616.0	97-01		Field	Logi	oook	No.				Date	illi	197	Serial	No.:			
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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.

Larky 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

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion/G. Furnace	EPA 200.0	-	Pr	ep Date	11/10/97
#Digestion/ICP	EPA 200.0	-	Pr	ep Date	11/10/97
EPA 8240B - Water Matrix Acetone Benzene Bromodichloromethane Bromomethane 2-Butanone Carbon Disulfide Carbon Tetrachloride Chlorobenzene Chloroethane 2-Chloroethyl Vinyl Ether Chloroform Chloromethane Dibromochloromethane 1,1-Dichloroethane 1,2-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloropropene trans-1,3-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene 2-Hexanone Methylene Chloride 4-Methyl-2-pentanone Styrene 1,1,2,2-Tetrachloroethane Tetrachloroethene Toluene 1,1,1-Trichloroethane Trichloroethene Vinyl Acetate Vinyl Chloride Xylenes. Total	EPA 8240B 67-64-1 71-43-2 75-27-4 75-25-2 74-83-9 78-93-3 75-15-0 56-23-5 108-90-7 75-00-3 110-75-8 67-66-3 74-87-3 124-48-1 75-34-3 107-06-2 75-35-4 156-59-2 156-60-5 78-87-5 10061-01-5 10061-02-6 100-41-4 591-78-6 75-09-2 108-10-1 100-42-5 79-34-5 127-18-4 108-88-3 71-55-6 79-00-5 79-01-6 108-05-4 75-01-4 1330-20-7	ND N	1000 ug 50 ug 50 ug 100 ug 1000 ug 1000 ug 50 ug 100 ug 50 ug		11/11/97 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

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 11/11/97
Co Cobalt	EPA 200.7	ND ND	0.005 mg/L 0.01 mg/L	11/11/97
Cr Chromium	EPA 200.7 EPA 200.7	0.02 *	0.01 mg/L 0.01 mg/L	11/11/97
Cu Copper Hg Mercury	EPA 245.1	ND	0.0002 mg/L	11/11/97
Hg Mercury Mo Molybdenum	EPA 200.7	ND	0.00 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
Se Selenium 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	e 11/10/97
EPA 8270B - Water Matrix	EPA 8270B			
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 11/12/97
Benzo(g,h,i)perylene	191-24-2	ND ND	10 ug/L	11/12/97
Benzo(a)pyrene	50-32-8	ND ND	10 ug/L 20 ug/L	11/12/97
Benzyl Alcohol Bis(2-chloroethoxy)methane	100-51-6 111-91-1	ND	10 ug/L	11/12/97
Bis(2-choroethyl) Ether	111-44-4	ND	10 ug/L	11/12/97
Bis(2-chloroisopropyl) Ether		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 uğ/L	11/12/97
Butylbenzyl Phthalate	85-68-7	ND	10 ug/L	11/12/9
4-Chloroaniline	106-47-8	ND	20 ug/L	11/12/97
	01 50 7	NID.	10//	11/19/0 ⁻
2-Chloronaphthalene 4-Chlorophenyl Phenyl Ether	91-58-7 7005-72-3	ND ND	10 ug/L 10 ug/L	11/12/91 11/12/91

LEVINE-FRICKE-RECON

SAMPLE ID: STORM DRAIN AEN LAB NO: 9711109-01 AEN WORK ORDER: 9711109 CLIENT PROJ. ID: 2616.97.01

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Chrysene	218-01-9	ND	10 ug	ı/l	11/12/97
Dibenzo(a,h)anthracene	53-70-3	ND	10 ug		11/12/97
Dibenzofuran	132-64-9	ND	10 ug		11/12/97
Di-n-butyl Phthalate	84-74-2	ND	10 ug		11/12/97
1.2-Dichlorobenzene	95-50-1	ND	10 ug		11/12/97
1,3-Dichlorobenzene	541-73-1	ND	10 ug		11/12/97
1.4-Dichlorobenzene	106-46-7	ND	10 ug		11/12/97
3,3'-Dichlorobenzidine	91-94-1	NĎ	20 ug	/Ī.	11/12/97
Diethyl Phthalate	84-66-2	ND	10 ug	, <u> </u>	11/12/97
Dimethyl Phthalate	131-11-3	ND	10 ug		11/12/97
2,4-Dinitrotoluene	121-14-2	ND	10 ug		11/12/97
2.6-Dinitrotoluene	606-20-2	ND	10 ug	, <u> </u>	11/12/97
Di-n-octyl Phthalate	117-84-0	ND	10 ug	/E	11/12/97
Fluoranthene	206-44-0	ND	10 ug	, <u> </u>	11/12/97
Fluorene	86-73-7	ND	10 ug		11/12/97
Hexachlorobenzene	118-74-1	ND	10 ug	/[11/12/97
Hexachlorobutadiene	87-68-3	ND	10 ug	/ <u> </u>	11/12/97
Hexachlorocyclopentadiene	77-47-4	ND	10 ug		11/12/97
Hexachloroethane	67-72-1	ND	10 ug		11/12/97
Indeno(1,2,3-cd)pyrene	193-39-5	ND	10 ug	 /[11/12/97
Isophorone	78-59-1	ND	10 ug		11/12/97
2-Methylnaphthalene	91-57-6	ND	10 ug		11/12/97
Naphthalene	91-20-3	11 *			11/12/97
2-Nitroaniline	88-74-4	ND	50 ug	/L	11/12/97
3-Nitroaniline	99-09-2	ND	50 ug	/Ē	11/12/97
4-Nitroaniline	100-01-6	ND	50 uğ	/L	11/12/97
Nitrobenzene	98-95-3	ND	10 uğ	/Ē	11/12/97
N-Nitrosodiphenylamine	86-30-6	ND	10 ug		11/12/97
N-Nitrosodi-n-propylamine	621-64-7	ИD	10 uğ		11/12/97
Phenanthrene	85-01-8	В	10 uǧ		11/12/97
Pyrene_	129-00-0	ND	10 ug		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		11/12/97
2.4-Dimethylphenol	105-67-9	ИD	10 ug		11/12/97
4.6-Dinitro-2-methylphenol	534-52-1	ND	50 ug		11/12/97
2.4-Dinitrophenol	51-28-5	ND	50 ug		11/12/97
2-Methylphenol	95-48-7	ND	10 ug		11/12/97
4-Methylphenol	106-44-5	ND	10 ug		11/12/97
2-Nitrophenol	88-75-5	ND	10 ug		11/12/97
4-Nitrophenol	100-02-7	МD	50 ug		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

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	DATE ANALYZED	
Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	108-95-2 95-95-4 88-06-2	ND ND ND	10 ug 10 ug 10 ug	3/L	11/12/97 11/12/97 11/12/97

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

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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

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

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory (INSTRUMENT: HP-5890 for UNITS: ug/L	Laboratory Co HP-5890 for S ug/L	ontrol Spike Semi-volatiles		LAB ID: PREPARED	LCS 1110	INSTR RUN: GCMS10\971110080000/3/2 BATCH ID: BNAW111097 DILUTION: 1.00				0080000/3/2
METHOD: ANALYTE	EPA 8270B	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIM LOW	HIGH	RPD (%)	RPD LIMIT (*)
Pyrene		116	ND	10	100	116	32	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Contr INSTRUMENT: HP-5890 for Semi UNITS: ug/L	ol Sample Duplicate -volatiles	LAB ID: PREPARED ANALYZED	LCR 1110 : 11/10/97 : 11/12/97		INSTR RUN: GCMS10\971110080000/5/3 BATCH ID: BNAW111097 DILUTION: 1.00				
METHOD: EPA 8270B ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2,4,6-Tribromophenol(surr)	REF RESULT RESULT 92.3 99.8 91.6 97.0 90.3 96.4 99.1 103 105 110	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100	RECOVERY (%) 92.3 91.6 90.3 99.1 105 124	REC LIMITS (% LOW HIGH 42 110 40 122 46 109 41 140 46 116 35 165	RPD (*)	RPD ŁIMIT (%)		
Terphenyl-d14 (surr) Phenol 2-Chlorophenol 1,4-Dichlorobenzene N-Nitrosodi-n-propylamine 1,2,4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2,4-Dinitrotoluene Pentachlorophenol Pyrene	124 128 74.5 75.0 83.0 84.2 91.2 91.6 67.6 64.9 96.8 99.6 81.0 80.8 96.1 95.5 54.1 59.6 90.5 95.2 56.4 62.9 121 116	10 10 10 10 10 10 10 50 10 50	100 100 100 100 100 100 100 100 100 100			0.669 1.44 0.438 4.08 2.85 0.247 0.626 9.67 5.06 10.9 4.22	40 40 30 30 30 30 30 40 40 40 30		

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client INSTRUMENT: HP-5890 for Semi-volati UNITS: ug/L	les	LAB ID: PREPARED: ANALYZED:	9711109-01 11/10/97 11/12/97	С	INSTR I BATCH DILUTIO	ID: BN/	W111097	0080000/1/
### AVALYTE RESULT 2-Fluorophenol (surr) ### 89. Phenol-d5 (surr) ### 94. Nitrobenzene-d5 (surr) ### 88. 2-Fluorobiphenyl (surr) ### 96. 2.4.6-Tribromophenol(surr) ### 11 Terphenyl-d14 (surr) ### 11	; } !	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100	RECOVERY (%) 89.7 94.1 88.8 96.1 115 111	REC LIM LOW 42 40 46 41 46 35	ITS (%) HIGH 110 122 109 140 116 165	RPD (%)	RPD LIMIT (%)

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9711109

SAMPLE TYPE: Blank Method/Media INSTRUMENT: HP mass spec for Vo UNITS: ug/L	blank latiles	LAB ID: PREPARED: ANALYZED:	BLNK_1110 11/10/97		BATCH 3	RUN: GCM [D: MS1 DN: 1.0	3W111197-	0210000/1/ 2
METHOD: EPA 8240B	_ REF_	REPORTING	SPIKE	RECOVERY	REC LIMI	ITS(な) HIGH	RPD (%)	RPD LIMIT (*)
	RESULT RESULT	LIMIT	VALUE 100	(な) 96.7	75	129	147	
1,2-DCA-d4 (surr) 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 5 5 5						
Benzene	ND	5						
Trichloroethene	ND	5						
Toluene	ND	5						
Ch] orobenzene	ND							
Acetone	ND	100						
Bromodichloromethane	ND	5						
Bromoform	ND	5 10						
Bromomethane	ND	100						
2-Butanone	ND	100						
Carbon Disulfide	ND ND	5						
Carbon Tetrachloride	ND ND	10				•		
Chloroethane	ND	10						
2-Chloroethyl Vinyl Ether	ND ND	Š						
Chloroform	ND	10						
Chloromethane Dibromochloromethane	ND	- <u>`</u> 5						
1.1-Dichloroethane	ND	5						
1.2-Dichloroethane	ND	55555555555555555555555555555555555555						
cis-1,2-Dichloroethene	ND	5						
trans-1,2-Dichloroethene	ND	5						
1.2-Dichloropropane	ND	5						
cis-1.3-Dichloropropene	ND	ž						
trans-1.3-Dichloropropene	ND	ā						
Ethylbenzene	ND	בה						
2-Hexanone	ND	10						
Methylene Chloride	ND ND	50						
4-Methyl-2-pentanone	ND ND	50						
Styrene	ND ND	š						
1.1,2.2-Tetrachloroethane	ND	5						
Tetrachloroethene 1.1.1-Trichloroethane	ND	50 5 5 5 5 5 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	ž						
1 3-Dichlorobenzene	ND	5 5 5 5						
1.4-Dichlorobenzene	ND	10 10						
Dichlorodifluoromethane	ND	E TO		•				
Trichlorofluoromethane	ND ND							
Trichlorotrifluoroethane	ND ND	50 50						
Tetrahydrofuran	ND ND	100						
Ethanol	MO					• • •		

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: ANALYTE 1.2-DCA-d4 Toluene-d8 p-BFB 1.1-Dichlore	EPA 8240B (surr) (surr) (surr)	RESULT 122 104 105 64.0	REF RESULT 96.7 98.1 99.3 ND	REPORTING LIMIT 5	SPIKE VALUE 100 100 100 50.0	RECOVERY (%) 122 104 105 128	REC LIM LOW 75 81 78 77	(TS (%) HIGH 129 111 131 137	RPD (%)	RPD LIMIT (%)	

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Cont INSTRUMENT: HP mass spec for	LAB ID: LCS_1111 PREPARED:					INSTR RUN: GCMS13\971110210000/6/1 BATCH ID: MS13W111197-2				
UNITS: ug/L	ANALYZED: 11/11/97				DILUTION: 1.00					
METHOD: EPA 82408		REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (%)		RPD	
ANALYTE	RESULT	RESULT	LIMIT	VALUE	(1)	LOW	HIGH	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	Š	50.0	106	88	124			

MATRIX SPIKE SAMPLES

			-					
SAMPLE TYPE: Spike-Sample/Mat INSTRUMENT: HP mass spec for UNITS: ug/L	rix Volatiles	LAB ID: PREPARED: ANALYZED:	MD11109-01/	A	INSTR F BATCH I DILUTIO	ID: MS1	.3W111197 -	0210000/4/2 2
METHOD: EPA 8240B ANALYTE 1,2-DCA-d4 (surr) Toluene-d8 (surr)	REF RESULT RESULT 106 113 96.3 97.6	REPORTING LIMIT	SPIKE VALUE 100 100	RECOVERY . (%) 106 96.3	REC LIM LOW 75 81	ITS (%) HIGH 129 111	RPD (%)	RPD LIMIT (%)
p-BFB (surr) 1,1-Dichloroethene Benzene Trichloroethene	108 108 58.2 ND 62.5 8.59 46.9 ND 345 324	5 5 5 5 5	100 50.0 50.0 50.0 50.0	108 116 108 93.8 42.0 !	78 77 89 83 81	131 137 142 121 121		
Toluene Chlorobenzene	53.8 ND	 5	50.0	108	88	124		
SAMPLE TYPE: Spike-Sample/Mat INSTRUMENT: HP mass spec for UNITS: ug/L	rix Volatiles	LAB ID: PREPARED: ANALYZED:	MS11109-01	A	INSTR I BATCH DILUTIO	ID: MS1	L3W111197-	0210000/3/2 2
METHOD: EPA 8240B ANALYTE 1,2-DCA-d4 (surr) Toluene-d8 (surr)	REF RESULT RESULT 105 113 99.2 97.6	REPORTING LIMIT	SPIKE VALUE 100 100	RECOVERY (%) 105 99.2	REC LIM LOW 75 81	ITS (%) HIGH 129 111	RPD (%)	RPD LIMIT (%)

METHOD: EPA 82408		REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (%)		RPD
ANALYTE 1,2-DCA-d4 (surr) Toluene-d8 (surr) p-BFB (surr) 1,1-Dichloroethene Benzene Trichloroethene Toluene	RESULT 105 99.2 108 58.8 61.9 46.4 348	RESULT 113 97.6 108 ND 8.59 ND 324	LIMIT 5 5 5 5	VALUE 100 100 100 50.0 50.0 50.0 50.0	(*) 105 99.2 108 118 107 92.8 48.0 !	LOW 75 81 78 77 89 83 81	HIGH 129 111 131 137 142 121 121	RPD (%)	LIMIT (*)
Chlorobenzene	54.0	ND		50.0	108	88	124 		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked INSTRUMENT: HP mas	l Sample Du s spec for	uplicate ~ Volatiles		LAB ID: PREPARED		LA .	BATCH	ID: MS:	13W111197-	0210000/5/3 2
UNITS: ug/L METHOD: EPA 82	240B			ANALYZED	: 11/11/97		DILUTI		00	
		DECULT	REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (%) HIGH	RPD (%)	RPD LIMIT (%)
ANALYTE 1.2-DCA-d4	(surr)	RESULT 106	RESULT 105	LIMIT	VALUE 100	(%) 106	LOW 75	129	RPU (4)	LIMII (4)
Toluene-d8	(surr)	96.3	99.2		100	96.3	81	îīí		
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 0.866	25 25 25 25 25
Toluene Chlorobenzene		345 53.8	348 54.0	5	50.0 50.0				0.371	25

grade to the

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

SAMPLE SURROGATES

SAMPLE TYPE: INSTRUMENT: UNITS: METHOD:	Sample-Client HP mass spec for Volat- ug/L EPA 8240B	les	LAB ID: PREPARED: ANALYZED:	9711109-01 11/11/97	A	INSTR BATCH DILUTI	ID: MS	13W111197-	0210000/7/ 2
ANALYTE 1,2-DCA-d4 Toluene-d8 p-BFB	RESU (surr) 90. (surr) 10 (surr) 93.	B 5	REPORTING LIMIT	SPIKE VALUE 100 100 100	RECOVERY (%) 90.8 105 93.9	REC LIM LOW 75 81 78	ITS (%) HIGH 129 111 131	RPD (%)	RPD ŁIMIT (%)

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

R-3,5-3 ORG CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9711109 Date: 140/97 Project No.: 26/6.97-0/ Field Logbook No.: Serial No.: Project Location: EMERYVILLE NΩ Project Name: SHERWIN · WILLIAMS 14482 Sampler (Signature): Streethornton **ANALYSES** Samplers: HOLD 547 SAMPLES NO. OF SAMPLE LAB SAMPLE **REMARKS** DATE TIME CON -SAMPLE NO. TYPE NO. TAINERS OLAB 2, STORM DRAIN 11/10 10:15 OICD 2 OIE 李 24 Hour TURNAROUND 11 021 × R4R-B 03A w:ANDEFF METALS SAMPLES SHALL BE ANALYZED FOR TOTAL UNFILTERED CONSTIT'S RELINQUISHED BY: Staves RAMES DATE /97 TIME RECEIVED BY: A) (Signature) Ment 1100 RECEIVED BY RELINQUISHED BY: TIME (Signature) (Signature) RELINQUISHED BY DATE RECEIVED BY: TIME (Signature) (Signature) METHOD OF SHIPMENT: AEN COURIER DATE TIME LAB COMMENTS: Sample Collector: Analytical Laboratory: LEVINE-FRICKE 1900 Powell Street, 12th Floor Emeryville, California 94608 (510) 652-4500 'd Copy (Pink) Shipping (White) Lab Copy (Green) File Copy (Yellow) FORM NO

86/COC/ARF

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: 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

PAGE 2

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	-	Pi	rep Date	11/26/97
Arsenic	EPA 7060	0.012 *	0.002 mg	g/L	12/01/97

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:

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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.

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Larry/Klein

Laboratory Director

PAGE 2

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	-	F	Prep Date	11/26/97
Arsenic	EPA 7060	0.012 *	0.002 n	ıg/L	12/01/97

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	-	F	rep Date	11/10/97
Arsenic	EPA 206.2	0.014 *	0.005 п	ng/L	11/11/97

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-QAO3.

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.

<u>Definitions</u>

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

 $\label{lem:matrix_spike} \begin{tabular}{lll} Matrix Spike(s): & Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory. \\ \end{tabular}$

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 I 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

OUALITY CONTROL REPORT

PAGE OR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank Method/Media blank

INSTRUMENT: TJA 4000

UNITS: mg/L METHOD:

ANALYTE Arsenic in water by GFAA RESULT ND

REF RESULT

REF

RESULT

ND

REPORTING LIMIT 0.002

PREPARED:

PREPARED:

LAB ID:

PREPARED:

ANALYZED: 11/11/97

ANALYZED: 11/11/97

SPIKE VALUE

LAB ID: GFW_LCD_W

SPIKE

VALUE

GFW_LCS_W

0.0400

LAB ID: GFW_PBW_W

ANALYZED: 11/11/97

RECOVERY (1)

REC LIMITS (%)

LOW HIGH RPD (*) LIMIT (*)

INSTR RUN: 4000\971111122100/1/

INSTR RUN: 4000\971111122100/3/1

INSTR RUN: 4000\971111122100/2/1

INSTR RUN: 4000\971111122100/4/2

BATCH ID: GFW111097-W DILUTION: 1.000000

140

BATCH ID: GFW111097-W DILUTION: 1.000000

BATCH ID: GFW111097-W DILUTION: 1.000000

BATCH ID: GFW111097-W DILUTION: 1.000000

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

UNITS: mg/L METHOD:

ANALYTE Arsenic in water by GFAA

RESULT 0.0403

............

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

ANALYTE Arsenic in water by GFAA

RESULT 0.0356

RESULT ND

REF

REPORTING LIMIT 0.002

REPORTING

LIMIT

0.002

SPIKE VALUE 0.0400

RECOVERY

RECOVERY

REC LIMITS (%)

REC LIMITS (%)

82

LOW HIGH

RPD LOW HIGH RPD (%) LIMIT (%) 82 140

RPD (%) LIMIT (%)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate

INSTRUMENT: TJA 4000 UNITS: mg/L

METHOD:

Arsenic in water by GFAA

RESULT 0.0403

REF RESULT 0.0356

REPORTING LIMIT 0.002

VALUE

LAB ID: GFW_LCR_W PREPARED:

ANALYZED: 11/11/97

RECOVERY (1)

REC LIMITS (*) LOW HIGH RPD (%)

LIMIT (%) 12.4

QUALITY CONTROL REPORT

PAGE QR-7

ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Medi INSTRUMENT: HP-5890 for Semi- UNITS: ug/L METHOD: EPA 8270B		•••••	LAB ID: PREPARED: ANALYZED:	BLNK 1110 11/10/97 11/12/97		BATCH		AW111097	0080000/2/
ANALYTE 2.Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2.Fluorobiphenyl (surr) 2.4.6.Tribromophenol(surr) Terphenyl-d14 (surr) Phenol	RESULT 95.4 89.9 91.1 95.6 93.5 118 ND	REF RESULT	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100	RECOVERY (%) 95.4 89.9 91.1 95.6 93.5 118	REC LIM LOW 42 40 46 41 46 35	HTS (%) HIGH 110 122 109 140 116 165	RPD (%)	RPD LIMIT (%)
2-Chlorophenol 1,4-Dichlorobenzene N-Nitrosodi-n-propylamine 1,2,4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2,4-Dinitrotoluene Pentachlorophenol Pyrene	NO NO NO NO NO NO NO NO NO NO NO NO NO N		10 10 10 10 10 10 50 10 50		<i>,</i>	w			
Acenaphthylene Anthracene Benzidine Benzoic Acid Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(g,h,i)perylene Benzo(a)pyrene Benzyl Alcohol			10 50 50 10 10 10 10 20						
Bis(2-chloroethoxy)methane Bis(2-chloroethyl) Ether Bis(2-chloroisopropyl) Eth Bis(2-ethylhexyl) Phthalat 4-Bromophenyl Phenyl Ether Butylbenzyl Phthalate 4-Chloroaniline 2-Chloronaphthalene 4-Chlorophenyl Phenyl Ethe Chrysene	ND ND ND ND ND ND ND ND ND		10 10 10 10 10 20 10 10						
Dibenzo(a,h)anthracene Dibenzofuran Di-n-butyl Phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 3,3'-Dichlorobenzidine Diethyl Phthalate Dimethyl Phthalate 2,6-Dinitrotoluene Di-n-octyl Phthalate			10 10 10 10 20 10 10 10						
1.2-Diphenylhydrazine Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachloroethane Indeno(1,2,3-cd)pyrene Isophorone 2-Methylnaphthalene	ND ND ND ND ND ND ND ND		10 10 10 10 10 10 10 10 10						
Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene N-Nitrosodimethylamine N-Nitrosodiphenylamine	ND ND ND NO NO NO		10 50 50 50 10 10						

QUALITY CONTROL REPORT

PAGE QR-8

ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Me INSTRUMENT: HP-5890 for Sem UNITS: ug/L	dia blank ni-volatiles			BLNK 1110 11/10/97 11/12/97		INSTR RUN: GCMS10 BATCH ID: BNAW11 DILUTION: 1.00	
METHOD: EPA 8270B ANALYTE Phenanthrene 2.4-Dichlorophenol 2.4-Dimethylphenol 4.6-Dinitro-2-methylphenol 2.4-Dinitrophenol 2.4-Dinitrophenol 2.4-Dinitrophenol 2.4-Dinitrophenol 2.4-Dinitrophenol 2.4-Dinitrophenol 2.4-Dinitrophenol	RESULT ND	REF RESULT	REPORTING LIMIT 10 10 10 50 50 10 10 10	SPIKE VALUE	RECOVERY (%)	REC LIMITS (*) LOW HIGH RP!	RPD D(%) LIMIT(%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control INSTRUMENT: HP-5890 for Semi-v UNITS: ug/L	Spike colatiles	LAB ID: LCD 1110 INSTR RUN: GCMS10\971110080 PREPARED: 11/T0/97 BATCH ID: BNAW111097 ANALYZED: 11/12/97 DILUTION: 1.00						
METHOD: EPA 8270B ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2-Fluorobiphenyl (surr) Terphenyl-d14 (surr) Phenol 2-Chlorophenol 1.4-Dichlorobenzene N-Nitrosodi-n-propylamine 1.2.4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2.4-Dinitrotoluene Pentachlorophenol Pyrene	REF RESULT RESULT 92.3 95.4 91.6 89.9 90.3 91.1 99.1 95.6 105 93.5 124 118 74.5 ND 83.0 ND 91.2 ND 96.6 ND 96.8 ND 81.0 ND 96.1 ND 96.1 ND 90.5 ND 90.5 ND	REPORTING LIMIT 10 10 10 10 10 10 10 10 10 10 10 10 10	SPIKE VALUE 100 100 100 100 100 100 100 100 100 10	RECOVERY (%) 92.3 91.6 90.3 99.1 105 124 74.5 83.0 91.2 67.6 96.8 81.0 96.1 54.1 90.5 56.4 121	REC LIMI LOW 42 40 46 41 46 35 44 52 54 48 57 54 60 22 43 38		RPD (*)	RPD ŁIMIT (%)
							•••••	

•••••									
SAMPLE TYPE: Laboratory Contr INSTRUMENT: HP-5890 for Semi UNITS: ug/L	ol Spike -volatiles	. • • • • • • • • • • • • • • • • • • •	LAB ID: PREPARED: ANALYZED:	LCS 1110 11/T0/97 11/12/97		INSTR F BATCH I DILUTIO	ID: BNA	W111097	0080000/3/2
METHOD: EPA 8270B ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2.4.6-Tribromophenol(surr) Terphenyl-d14 (surr) Phenol 2-Chlorophenol 1,4-Dichlorobenzene N-Nitrosodi-n-propylamine 1,2,4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2,4-Dinitrotoluene Pentachlorophenol	RESULT 99.8 97.0 96.4 103 110 128 75.0 84.2 91.6 64.9 99.6 80.8 95.5 59.6 95.2 62.9	REF RESULT 95.4 89.9 91.1 95.6 93.5 118 ND ND ND ND ND ND	10 10 10 10 10 10 10 10 10	SPIKE VALUE 100 100 100 100 100 100 100 100 100 10	RECOVERY (*) 99.8 97.0 96.4 103 110 128 75.0 84.2 91.6 64.9 99.6 80.8 95.5 59.6 95.2	REC LIM: LOW 42 40 46 41 46 35 44 52 54 48 57 54 60 22 43 38	HIGH 110 122 109 140 116 165 94 111 116 141 107 113 114 119 130	RPD (%)	RPD LIMIT (%)

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QUALITY CONTROL REPORT

ANALYSIS: Semi-Volatile Organics

MATRIX: Water

LABORATORY CONTROL SAMPLES

WORK ORDER: 9711109

UNITS: ug/L	HP-5890 for Se ug/L	ntrol Spike emi-volatiles		LAB ID: LCS 1110 PREPARED: 11/I0/97 ANALYZED: 11/12/97			INSTR RUN: GCMS10\971110080000/3/2 BATCH ID: BNAW111097 DILUTION: 1.00				
METHOD: ANALYTE Pyrene	EPA 8270B	RESULT 116	REF RESULT NO	REPORTING LIMIT 10	SPIKE VALUE 100	RECOVERY (%) 116	REC LIM LOW 32	ITS (%) HIGH 121	RPD (%)	RPD LIMIT (%)	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Control: INSTRUMENT: HP-5890 for Semi-vo UNITS: ug/L METHOD: EPA 82708	ol Sample Duplicate -volatiles	LAB ID: PREPARED ANALYZED	PREPARED: 11/I0/97 B.			INSTR RUN: GCMS10\971110080000/5/3 BATCH ID: BNAW111097 DILUTION: 1.00			
METHOD: EPA 8270B ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2.4,6-Tribromophenol(surr)	RESULT RESULT 92.3 99.8 91.6 97.0 90.3 96.4 99.1 103 105 110 124 128	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100	RECOVERY (*) 92.3 91.6 90.3 99.1 105 124	REC LIMITS LOW HIG 42 116 40 122 46 109 41 144 46 111 35 169	H RPD (%)	RPD LIMIT (%)		
Terphenyl-d14 (surr) Phenol 2-Chlorophenol 1,4-Dichlorobenzene N-Nitrosodi-n-propylamine 1,2,4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2,4-Dinitrotoluene Pentachlorophenol Pyrene	124 128 74.5 75.0 83.0 84.2 91.2 91.6 67.6 64.9 96.8 99.6 81.0 80.8 96.1 95.5 54.1 59.6 90.5 95.2 56.4 62.9 121 116	10 10 10 10 10 10 50 10	100 100 100 100 100 100 100 100 100 100	ZEY	33 10.	0.669 1.44 0.438 4.08 2.85 0.247 0.626 9.67 5.06 10.9 4.22	40 40 30 30 30 30 30 40 40 40 30		

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client INSTRUMENT: HP-5890 for Semi-volatile: UNITS: USAL	s		9711109-01 : 11/10/97 : 11/12/97	IC	INSTR BATCH DILUTI	ID: BN/	AW111097	0080000/1/
METHOD: EPA 8270B ANALYTE RESULT 2-Fluorophenol (surr) 89.7 Phenol-d5 (surr) 94.1 Nitrobenzene-d5 (surr) 88.8 2-Fluorobiphenyl (surr) 96.1 2,4,6-Tribromophenol(surr) 115 Terphenyl-d14 (surr) 111	REF RESULT	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100 100	RECOVERY (*) 89.7 94.1 88.8 96.1 115 111	REC LIM LOW 42 40 46 41 46 35	ITS (%) HIGH 110 122 109 140 116 165	RPD (%)	RPD LIMIT (%)

QUALITY CONTROL REPORT

PAGE QR-10

ANALYSIS: Volatile GC/MS

MATRIX: Water

METHOD BLANK SAMPLES

INSTRUMENT:	: Blank-Method/Med HP mass spec for	dia blank r Volatiles		LAB ID: PREPARED:	BLNK_1110 11/10/97		INSTR BATCH DILUTI	ID: MS	L3W111197-	.0210000/1/ 2
UNITS: METHOD:	ug/L EPA 8240B		REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (X)	DDD (#1)	RPD
ANALYTE		RESULT	RESULT	LIMIT	VALUE	(*)	ΓŌΜ	HIGH	RPD (%)	LIMIT (X)
1.2 DCA-d4	(surr)	96.7			100	96.7	75	129		
Toluene-d8	(surr)	98.1			100	98.1	81	111		
	(surr)	99.3			100	99.3	78	131		
p-BFB		ND		5						
1.1-Dichlor	oethene	ND		ξ						
Benzene		ND		5 5 5 5						
Trichloroet	nene			Ĕ						
Toluene		ND		ž						
Chlorobenze	ene	ND		100						
Acetone		ND		τοō						
Bromodich10	romethane	ND		5						
Bromoform		ND		, <u>5</u>						
Bromomethar	ne	ND		10						
2-Butanone		ND		100						
Carbon Dist	ılfide	ND		10				•		
Carbon Tetr	rachloride	ND		5					•	
Chloroethar		ND		10						
2.Chloroati	nyl Vinyl Ether	ND		10						
Chloroform	igi Tiligi Collei	ND		5						
	200	ND		10						
Chlorometha	arie	ND								
Dibromochlo		ND		5555555555						
1.1-Dichlo	roetnane	ND		Š						
1,2-Dichlo	roetnane	ND ND		Ĕ						
cis-1,2-D19	chloroethene	ND ND		ž						
trans-1.2-	Dichloroethene			ž						
1,2-Dichlo	ropropane	ND		2						
cis-1.3-Di	chloropropene	ND		ב ב						
trans-1,3-	Dichloropropene	ND		5						
Ethylbenze	ne	ND		50						
2-Hexanone		ND		⊃ ∪						
Methylene	Chloride	ND		10						
4-Methy1-2	-pentanone	ND		50						
Styrene	P	ND		5						
1 1 2 2-Te	trachloroethane	ND		5						
Tetrachlor	oethene	ND		50 5 5 5 5 5						
1 1 1 Tric	hloroethane	ND		5						
1,1,1-11 10 1 1 2 Train	chloroethane	ND		5						
		ND		50						
Vinyl Acet	alt.	NĎ		10			•			
Vinyl Chlo	riue	ND		10						
Xylenes, l	OLAI	ND		ĪŠ						
1,2-Dibron		ND ND		š						
1,2-Dichle	propenzene			ž						
1,3-Dichlo	propenzene	ND ND		5 5 5 5						
1,4-Dichlo	probenzene	ND		10						
Dichlorod	ifluoromethane	ND		10						
Trichloro	fluoromethane	ND		-5 5						
	trifluoroethane	ND		5 50						
		ND		50						
Tetrahydro	oluran	ND		100						

LABORATORY CONTROL SAMPLES

INSTRUMENT:	UNITS: ug/L			LAB ID: LCS_1111 PREPARED: ANALYZED: 11/11/97					INSTR RUN: GCMS13\971110210000/6/1 BATCH ID: MS13W111197-2 DILUTION: 1.00				
METHOD:	EPA 8240B		REF	REPORTING	SPIKE VALUE	RECOVERY (%)	REC LIM LOW	ITS (%) HIGH	RPD (%)	RPD LIMIT (%)			
ANALYTE 1,2-DCA-d4 Toluene-d8 p-BFB 1 1-Dichlore	(surr) (surr) (surr)	RESULT 122 104 105 64.0	RESULT 96.7 98.1 99.3 ND	LIMIT 5	100 100 100 100 50.0	122 104 105 128	75 81 78 77	129 111 131 137	\ = \				

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 Volatile	¢	LAB ID: LCS_1111 PREPARED:					INSTR RUN: GCMS13\971110210000/6/1 BATCH ID: MS13W111197-2					
UNITS: ug/L METHOD: EPA 8240B	3		: 11/11/97		DILUTI							
	REF	REPORTING	SPIKE	RECOVERY	REC LIM		DDD (44)	RPD				
ANALYTE RESULT	result	LIMIT	VALUE	(%)	LOW	HIGH	RPD (%)	LIMIT (な)				
Benzene 54.1	ND	5	50.0	108	89	142						
		2										
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	Ě	50.0	106	88	124						
Unioropenzene 55.2	שא	3	50.0	100	00	167						

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike- INSTRUMENT: HP mas UNITS: ug/L		LAB ID: PREPARED: ANALYZED:		4	INSTR I BATCH DILUTIO	ID: MS.	L3W111197	.0210000/4/2 2		
METHOD: EPA 82 ANALYTE 1,2-DCA-d4 Toluene-d8 p-BFB 1,1-Dichloroethene Benzene Trichloroethene Toluene Chlorobenzene	(surr) (surr) (surr)	RESULT 106 96.3 108 58.2 62.5 46.9 345 53.8	REF RESULT 113 97.6 108 ND 8.59 ND 324 ND	REPORTING LIMIT 5 5 5 5 5 5	SPIKE VALUE 100 100 50.0 50.0 50.0 50.0 50.0	RECOVERY (%) 106 96.3 108 116 108 93.8 42.0 1 108	REC LIM LOW 75 81 78 77 89 83 81 88	ITS (*) HIGH 129 111 131 137 142 121 121 124	RPD (%)	RPD LIMIT (%)

SAMPLE TYPE: INSTRUMENT:		Sample/Ma			LA	INSTR RUN: GCMS13\971110210000/3/2 BATCH ID: MS13W111197-2						
INSTRUMENT: HP mass spec for Volatiles UNITS: ug/L METHOD: EPA 8240B					PREPARED ANALYZED	11/11/97		DILUTION: 1.00				
ANALYTE	EFA QZ	400	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY	REC LIM LOW	ITS (*) HIGH	RPD (%)	RPD LIMIT (%)	
1.2-DCA-d4		(surr)	105	113	FIMII	100	105	75	129	10 (4)	LIMIT (4)	
Toluene-d8		(surr)	99.2	97.6		100	99.2	81	111			
p-BFB		(surr)	_108	108	_	100	108	78	131			
1.1-Dichloro	oethene		58.8	ND	ž	50.0	118 107	89	137 142			
Benzene Trichloroeth	hana		61.9 46.4	8.59 ND	ž	50.0 50.0	92.8	83	121			
Toluene	HEHE		348	324	5	50.0	48.0 !	81	121			
Chlorobenzer	ne		54.0	ND	5	50.0	108	88	124			
												

MATRIX SPIKE DUPLICATES

UNITS: ug/L	ss spec for	plicate Volatiles		LAB ID: MR11109-01A PREPARED: ANALYZED: 11/11/97				INSTR RUN: GCMS13\971110210000/5/3 BATCH ID: MS13W111197-2 DILUTION: 1.00			
METHOD: EPA 82 ANALYTE 1,2-DCA-d4 Tolucne-d8 D-BFB	(surr) (surr) (surr) (surr)	RESULT 106 96.3 108	REF RESULT 105 99.2 108	REPORTING LIMIT	SPIKE VALUE 100 100 100	RECOVERY (*) 106 96.3 108	REC LIM LOW 75 81 78	ITS (%) HIGH 129 111 131	RPD (%)	RPD LIMIT (*)	
1,1-Dichloroethene Benzene Trichloroethene Toluene Chlorobenzene		58.2 62.5 46.9 345 53.8	58.8 61.9 46.4 348 54.0	5 5 5 5 5	50.0 50.0 50.0 50.0 50.0				1.03 0.965 1.07 0.866 0.371	25 25 25 25 25 25	

WORK ORDER: 9711109

QUALITY CONTROL REPORT

PAGE QR-12

ANALYSIS: Volatile GC/MS

MATRIX: Water

SAMPLE SURROGATES

INSTRUMENT:	Sample-Client HP mass spec for Vo		LAB ID: PREPARED:	9711109-01	Α	INSTR RUN: GCMS13\971110210000/7/ BATCH ID: MS13W111197-2				
UNITS: METHOD:	ug/L EPA 8240B			ANALYZED:			DILUTI		.0	
ANALYTE		RESULT	ref Result	REPORTING LIMIT	SPIKE VALUE	RECOVERY (な)	REC LIM LOW	ITS (%) HIGH	RPD (*)	RPD LIMIT (%)
1,2-DCA-d4 Toluene-d8 p-8FB	(surr) (surr) (surr)	90.8 105 93.9			100 100 100	90.8 105 93.9	75 81 78	129 111 131		

····· End of Quality Control Report ·····

R-3,5-3 ORG
CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9711109 Date: 10 /97 Serial No.: Project No.: 26/6,97-0/ Field Logbook No.: Project Location: EMERYVILLE Νö 14482 Project Name: SHERWIN WILLIAMS Samplers: **ANALYSES** Sampler (Signature) : Stree Thornton HOLD 547 SAMPLES NO. OF SAMPLE LAB SAMPLE REMARKS CON-DATE TIME SAMPLE NO. TYPE NO. TAINERS OLAB 2. STORM DRAIN 11/10 10:15 OICD OIE 24 Hour TURNMROUND 021 X R4R-B 03A W.ANDEFF METALS SAMPLES SHALL BE ANALYZED FOR TOTAL UNFILTERED CONSTIT'S TIME RECEIVED BY: /1 RELINQUISHED BY: Stave / Warnton TIME /S/5 (Signature) // 11/0/97 1100 RECEIVED BY TIME RELINQUISHED BY: (Signature) (Signature) RECEIVED BY: RELINQUISHED BY DATE TIME (Signature) (Signature) METHOD OF SHIPMENT: AEN COURIER TIME DATE LAB COMMENTS: Analytical Laboratory: Sample Collector: LEVINE-FRICKE 1900 Powell Street, 12th Floor Emeryville, California 94608 (510) 652-4500

'd Copy (Pink)

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OUALITY CONTROL REPORT

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ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank

LAB ID: GFW_PBW_W

INSTR RUN: 4000\971111122100/1/

INSTRUMENT: TJA 4000

PREPARED:

BATCH ID: GFW111097-W DILUTION: 1.000000

UNITS:

mg/L

ANALYZED: 11/11/97

METHOD:

RFF REPORTING RESULT

RECOVERY

REC LIMITS (%)

ANALYTE Arsenic in water by GFAA RESULT ND

LIMIT 0.002

SPIKE VALUE

(1)

LOW HIGH RPD (%) LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

PREPARED:

ANALYZED: 11/11/97

LAB ID: GFW LCD W INSTR RUN: 4000\971111122100/3/1 BATCH ID: GFW111097-W DILUTION: 1.000000

UNITS: METHOD:

REF

REF

REPORTING

SPIKE VALUE RECOVERY REC LIMITS (%)

LOW HIGH RPD (*) LIMIT (*) 82 140

ANALYTE

Arsenic in water by GFAA

RESULT 0.0403

RESULT LIMIT 0.002 ND

0.0400

(%)

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

LAB_ID: GFW_LCS_W PREPARED:

BATCH ID: GFW111097-W DILUTION: 1.000000

INSTR RUN: 4000\971111122100/2/1

UNITS:

mg/L

ANALYZED: 11/11/97

RECOVERY REC LIMITS (%) RPN

METHOD:

ANALYTE Arsenic in water by GFAA

RESULT 0.0356

REPORTING **RESULT** LIMIT 0.002 ND

SPIKE VALUE 0.0400

(1) 89.0

LOW HIGH RPD (%) LIMIT (%) 82 140

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000

LAB ID: GFW_LCR_W PREPARED:

INSTR RUN: 4000\971111122100/4/2

BATCH ID: GFW111097-W DILUTION: 1.000000

UNITS:

mg/L

ANALYZED: 11/11/97

RPD

METHOD:

RESULT

REF RESULT 0.0356

REPORTING LIMIT 0.002

SPIKE

RECOVERY REC LIMITS (*) (%) LOW HIGH RPD (%)

Arsenic in water by GFAA

0.0403

VALUE

12.4

LIMIT (%) 13`

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Mercury

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank

INSTRUMENT: Coleman Hg Analyzer 50D

UNITS: METHOD:

mg/L

LAB ID: PREPARED:

HGW BLNK

ANALYZED: 11/11/97

INSTR RUN: HG\971111130000/1/

BATCH ID: HGW111197

DILUTION: 1.000000

ANALYTE Mercury in water RESULT ND

REPORTING LIMIT 0.0002

SPIKE VALUE RECOVERY (x)

REC LIMITS (*) LOW HIGH

RPD RPD (%) LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: Coleman Hg Analyzer 50D

LAB ID: HGW_LCD PREPARED:

ANALYZED: 11/11/97

INSTR RUN: HG\971111130000/3/1

INSTR RUN: HG\971111130000/2/1

BATCH ID: HGW111197 DILUTION: 1.000000

METHOD: ANALYTE

UNITS:

METHOD:

UNITS:

Mercury in water

REF REPORTING RESULT LIMIT ND 0.0002

REF

RESULT

SPIKE VALUE 0.00200

RECOVERY 97.5

REC LIMITS (%) HIGH 89 121

RPD (%) LIMIT (X)

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: Coleman Hg Analyzer 50D

mg/L

RESULT

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

SPIKE

HGW LCS

RECOVERY

BATCH ID: HGW111197 DILUTION: 1.000000 REC LIMITS (%)

RPD

ANALYTE Mercury in water

0.00195

RESULT

0.00195

REF REPORTING RESULT LIMIT ND 0.0002

VALUE 0.00200

HIGH 89 121

RPD (*) LIMIT (%)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: Coleman Hg Analyzer 50D

LAB ID: PREPARED:

HGW LCR ANALYZED: 11/11/97 INSTR RUN: HG\971111130000/4/2

BATCH ID: HGW111197 DILUTION: 1.000000

UNITS: METHOD: mg/L

RESULT

RESULT

REPORTING LIMIT

SPIKE

RECOVERY

REC LIMITS (%)

ANALYTE

0.0002

(X)

Mercury in water

0.00195

0.00195

VALUE

LOW HIGH

RPD (%) LIMIT (%) 0 10

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix INSTRUMENT: Coleman Hg Analyzer 50D

LAB ID: MS11109-01E PREPARED:

INSTR RUN: HG\971111130000/6/5

BATCH ID: HGW111197 DILUTION: 1.000000

UNITS: METHOD: mg/L

ANALYZED: 11/11/97 REF

REPORTING

SPIKE

RECOVERY

REC LIMITS (%) HIGH

RPD RPD (%)

ANALYTE Mercury in water

RESULT 0.00195

RESULT ND

LIMIT 0.0002

VALUE 0.00200

69 128 LIMIT (%)

QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Water

METHOD BLANK SAMPLES

	TYPE: Blank-Method	d/Media blank		LAB ID: PREPARED	IFW_BLNK_V	• • • • • • • • • • •		P\971111145700/1/ W111097-V	
UNITS: METHOU		30			11/11/97		DILUTION: 1.	000000	
ANALY		RESULT	ref Result	REPORTING LIMIT	SPIKE VALUE	RECOVERY (オ)	REC LIMITS (%) LOW HIGH	RPD (%) LIMIT (%)	
Ag Ba Be Çd	Silver Barium	ND ND ND		0.005 0.01 0.002					
Cd Co	Beryllium Cadmium Cobalt	Nid Nid		0.005 0.005					
Cr Cu	Chromium Copper	ND ND		0.01 0.01					
Mo Ni Ph	Molybdenum Nickel Lead	ND ND ND		0.01 0.01 0.04					
Pb Sb T1	Antimony Thallium	ND ND		0.02 0.05					
V Zn	Vanadium Zinc	ND ND		0.005 0.01					

LABORATORY CONTROL SAMPLES

									<i></i>	
SAMPLE	TYPE: Spike-Meth	od/Media blank		LAB ID:	IFW_LCD_V				P\97111114	5700/3/1
UNITS	INSTRUMENT: TJA Enviro 36 UNITS: mg/L METHOD:			PREPARED ANALYZED	11/11/97		BATCH DILUTION		W111097-V D00000	
METHOL	J:		REF	REPORTING	SPIKE	RECOVERY	REC_LIM		DDD (81)	RPD
ANALY	TF .	RESULT	RESULT	LIMIT	VALUE	(%)	LOW	HIGH	RPD(な)	LIMIT (%)
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		
Çď	Cadmium	0.0500	ND	0.005	0.0500	100	84	120		
Co	Cobalt	0.276	ND	0.005	0.250	110	96	120		
Čr	Chromium	0.109	ND	0.01	0.100	109	85	128		
Ču	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		
SÞ	Antimony	0.542	ND	0.02	0.500	108	82 85	113		
Τĭ	Thallium	0.523	ND	0.05	0.500	105	85	115		
v'	Vanadium	0.270	ND	0.005	0.250	108	91	118		
Žn	Zinc	0.265	ND	0.01	0.250	106	90	121		
211	Z tilc	V,205								
						. .				
SAMPI	E TYPE: Spike-Meth	hod/Media blank		LAB ID:	IFW_LCS_V		INSTR	RUN: IC	P\9711111	15/00/2/1
INSTR	UMENT: TJA Enviro	36		PREPARED			BATCH		W111097-V	
				AMAI V7ED	. 11/11/07		DILLITA	∩N - 1	000000	

UNITS:	mg/L			ANALYZE	D: 11/11/9/		DILOTI	UN: I.U	100000	
METHOD	:		REF	REPORTING	SPIKE	RECOVERY	REC LIM			RPD
ANALYTI	F	RESULT	RESULT	LIMIT	Value	(%)	LOW	HIGH	RPD (%)	LIMIT (%)
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		
Вe	Beryllium	0.0278	ND	0.002	0.0250	111	82	119		
Cď	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		
Ču	Copper	0.123	ND	0.01	0.125	98.4	86	123		
Mo	Mol ybdenum	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		
Τĭ	Thallium	0.514	ND	0.05	0.500	103	85	115		
ν	Vanadium	0.265	ND	0.005	0.250	106	91	118		
Žn	Zinc	0.265	ND	0.01	0.250	106	90	121		

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Met INSTRUMENT: HP-5890 for Sem UNITS: ug/L	dia blank i-volatiles			BLNK 1110 11/10/97 11/12/97		BATCH I	RUN: GCI ID: BN/ ON: 1.0	4W111097	.0080000/2/
METHOD: EPA 8270B ANALYTE 2-Fluorophenol (surr) Phenol·d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2,4,6-Tribromophenol(surr) Terphenyl-d14 (surr) Phenol	RESULT 95.4 89.9 91.1 95.6 93.5 118 ND	REF RESULT	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100 100	RECOVERY (*) 95.4 89.9 91.1 95.6 93.5 118	REC LIMI LOW 42 40 46 41 46 35	ITS (%) HIGH 110 122 109 140 116 165	RPD (%)	RPD LIMIT (%)
Terphenyl-d14 (surr) Phenol 2-Chlorophenol 1,4-Dichlorobenzene N-Nitrosodi-n-propylamine 1,2,4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2,4-Dinitrotoluene Pentachlorophenol Pyrene Acenaphthylene Anthracene Benzoic Acid Benzo(a)anthracene Benzo(b)fluoranthene Benzo(b)fluoranthene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(g,h,i)perylene Benzo(a)pyrene Benzyl Alcohol Bis(2-chloroethoxy)methane Bis(2-chloroethoxy)methane Bis(2-chloroethoxy) Phthalat 4-Bromophenyl Phenyl Ether Butylbenzyl Phthalate 4-Chloroaniline 2-Chlorophenyl Phenyl Ether Chrysene Dibenzo(a,h)anthracene Dibenzofuran Di-n-butyl Phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene	118		10 10 10 10 10 10 50 10 50 10 10 10 10 10 10 10 10 10 10 10 10 10		118				
Indeno(1,2,3-cd)pyrene Isophorone 2-Methylnaphthalene Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene N-Nitrosodimethylamine N-Nitrosodiphenylamine	ND NO ND ND ND NO NO NO ND		10 10 10 10 50 50 50 10 10						

QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Water

METHOD BLANK SAMPLES

INSTRU UNITS:	mg/L	/Media blank 6	• • • • • • • • • • • • • • • • • • • •	LAB ID: PREPARED: ANALYZED:	IFW_BLNK_V 11/11/97	•		P\9711114 W111097·V 000000	5700/1/
ANALYT Ag Ba Ecd Co Cr Cu Mo Ni Pb Sb TT Y		RESULT ND	REF RESULT	REPORTING LIMIT 0.005 0.01 0.002 0.005 0.005 0.01 0.01 0.01 0.01 0.04 0.02 0.05 0.005	SPIKE VALUE	RECOVERY	REC LIMITS (%)	RPD (\$)	RPD LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLI INSTRI UNITS METHO	: mg/L	/Media blank 6		LAB ID: PREPARED ANALYZED	IFW_LCD_V : 11/11/97		INSTR F BATCH I DILUTIO	id: IFN	P\9711114 V111097-V 000000	
ANALY Ag Ba Be CCo Cr Cu Mo Ni Pb STI V Zn		RESULT 0.0232 1.03 0.0276 0.0500 0.276 0.109 0.124 0.216 0.280 0.544 0.542 0.523 0.270	REF RESULT ND ND ND ND ND ND ND ND ND ND ND ND ND	REPORTING LIMIT 0.005 0.01 0.002 0.005 0.005 0.01 0.01 0.01 0.04 0.02 0.05 0.005 0.005	SPIKE VALUE 0.0250 1.00 0.0250 0.0500 0.250 0.100 0.125 0.200 0.250 0.500 0.500 0.500 0.250	RECOVERY (%) 92.8 103 110 100 110 109 99.2 108 112 109 108 105 108 106	REC LIM 1.0W 72 91 82 84 96 85 86 89 92 90 82 85 91	HIGH 127 120 119 120 120 120 123 117 121 122 113 115 118 121	RPD (%)	RPD LIMIT (%)
SAMPL	E TYPE: Spike-Methoc UMENT: TJA Enviro	Media blank 6		LAB ID: PREPAREI ANALYZEI		••••	INSTR BATCH DILUTI	ID: IF	P\9711111 W111097 V 000000	¥5700/2/1

UNITS:	: mg/L			ANALYZEC	: 11/11/97		DILUTIO	ON: 1.0	00000	
METHOD):		REF	REPORTING	SPIKE	RECOVERY	REC_LIM		DDD (4)	RPD
ANALYT Ag Ba Be Cd Co Cr Cu Mo Ni	TE Silver Barium Beryllium Cadmium Cobalt Chromium Copper Molybdenum Nickel	RESULT 0.0229 1.02 0.0278 0.0491 0.273 0.105 0.123 0.213 0.278	RESULT ND ND ND ND ND ND ND ND ND	LIMIT 0.005 0.01 0.002 0.005 0.005 0.01 0.01 0.01	VALUE 0.0250 1.00 0.0250 0.0500 0.250 0.100 0.125 0.200 0.250	(%) 91.6 102 111 98.2 109 105 98.4 107 111	LOW 72 91 82 84 96 85 86 89	HIGH 127 120 119 120 120 128 123 117 121	RPD (%)	LIMIT (%)
Pb Sb T1 V Zn	Lead Antimony Thallium Vanadium Zinc	0.546 0.528 0.514 0.265 0.265	ND ND ND ND ND	0.04 0.02 0.05 0.005 0.01	0.500 0.500 0.500 0.250 0.250	109 106 103 106 106	90 82 85 91 90	122 113 115 118 121		

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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				LAB ID: PREPARED	IFW_LCR_V		INSTR RUN: ICP\971111145700/4/2 BATCH ID: IFW111097-V			
UNITS		-			: 11/11/97		DILUTION: 1.000000	•		
METHO				745 141 440	,,		212012011. 1,000000			
			REF	REPORTING	SPIKE	RECOVERY	REC LIMITS (%)	RPD		
ANALY	TE	RESULT	RESULT	LIMIT	VALUE	(%)	LOW HIGH RPD (
Ag	Silver	0.0232	0.0229	0.005	******	***	1.30	10		
Вã	Barium	1.03	1.02	0.01			0.976			
Вe	Beryllium	0.0276	0.0278	0.002			0.722	10		
Cd	Cadmium	0.0500	0.0491	0.005			1.82	10		
Со	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		
PЬ	Lead	0.544	0.546	0.04			0.367	10		
Sb	Antimony	0.542	0.528	0.02			2.62	10		
TI	Thallium	0.523	0.514	0.05			1.74	10		
Ā	Vanadium	0.270	0.265	0.005			1.87	10 10 10 10 10 10 10 10 10 10		
Zn	Zinc	0.265	0.265	0.01			0	10		

QUALITY CONTROL REPORT

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ANALYSIS: Selenium

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: TJA 4000

LAB ID: GFW_PBW_W INSTR RUN: 4000\971111122200/1/ PREPARED: BATCH ID: GFW111097-W BATCH ID: GFW111097-W DILUTION: 1.000000

UNITS: METHOD:

ANALYZED: 11/11/97 mg/L

SPIKE RECOVERY REC LIMITS (%) REF REPORTING LOW HIGH RPD (%) LIMIT (%) RESULT RESULT LIMIT VALUE (2) ANALYTE

Selenium in water by GFAA

0.004 ND

LABORATORY CONTROL SAMPLES

INSTR RUN: 4000\971111122200/3/1

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 UNITS: mg/L LAB ID: GFW_LCD_W PREPARED: BATCH ID: GFW111097-W DILUTION: 1.000000 ANALYZED: 11/11/97

METHOD:

REC LIMITS (%) RECOVERY

LOW HIGH RPD (%) LIMIT (%)
79 115 REF SPIKE REPORTING (7) RESULT RESULT LIMIT VALUE 0.0800 Selenium in water by GFAA 0.0775 ND 0.004

......

LAB ID: GFW_LCS_W

INSTR RUN: 4000\971111122200/2/1

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 BATCH ID: GFW111097-W DILUTION: 1.000000 PREPARED:

mg/L UNITS:

ANALYZED: 11/11/97

METHOD: SPIKE VALUE RECOVERY REC LIMITS (%) REF REPORTING RESULT VALUE

LOW HIGH RPD (%) LIMIT (%)
79 115 LIMIT 0.004 (X) 95.9 RESULT ANALYTE 0.0800 Selenium in water by GFAA 0.0767 ND -------

LABORATORY CONTROL DUPLICATES

0.0775

INSTR RUN: 4000\971111122200/4/2

LAB ID: GFW_LCR_W PREPARED: SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000 UNITS: mg/L BATCH ID: GFW111097-W DILUTION: 1.000000

UNITS:

Selenium in water by GFAA

mg/L

ANALYZED: 11/11/97

METHOD: RPD SPIKE RECOVERY REC LIMITS (%) REPORTING REF (%) LOW HIGH RPD (%) LIMIT (%) RESULT RESULT LIMIT VALUE 1.04 13 0.0767 0.004

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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 I INSTRUMENT: HP-5890 for Semi-vo UNITS: ug/L METHOD: EPA 8270B			BLNK 1110 11/10/97 11/12/97		BATCH		AW111097	.0080000/2/
ANALYTE R 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2,4,6-Tribromophenol(surr) Terphenyl-d14 (surr) Phenol	REF ESULT RESULT 95.4 89.9 91.1 95.6 93.5 118 ND	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100	RECOVERY (%) 95.4 89.9 91.1 95.6 93.5 118	REC LIM LOW 42 40 46 41 46 35	ITS (%) HIGH 110 122 109 140 116 165	RPD (省)	RPD LIMIT (%)
2-Chlorophenol 1.4-Dichlorobenzene N-Nitrosodi-n-propylamine 1.2.4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2.4-Dinitrotoluene Pentachlorophenol Pyrene	ND ND NO NO ND ND ND ND ND	10 10 10 10 10 10 50 10 50		2.				
Acenaphthylene Anthracene Benzidine Benzoic Acid Benzo(a)anthracene Benzo(b)fluoranthene Benzo(b,fluoranthene Benzo(g,h,i)perylene Benzo(a)pyrene	NO NO NO NO NO NO NO NO	10 10 50 50 10 10 10 10						
Benzyl Alcohol Bis(2-chloroethoxy)methane Bis(2-chloroethyl) Ether Bis(2-chloroisopropyl) Eth Bis(2-ethylhexyl) Phthalat 4-Bromophenyl Phenyl Ether Butylbenzyl Phthalate 4-Chloroaniline 2-Chloronaphthalene	ND ND ND ND ND ND ND ND ND ND	20 10 10 10 10 10 10 20						
4-Chlorophenyl Phenyl Ethe Chrysene Dibenzo(a,h)anthracene Dibenzofuran Di-n-butyl Phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 3,3'-Dichlorobenzidine Diethyl Phthalate Dimethyl Phthalate	ND ND ND ND ND ND ND ND ND	10 10 10 10 10 10 20 10			٠			
2,6-Dinitrotoluene Di-n-octyl Phthalate 1,2-Diphenylhydrazine Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachloroethane	ND ND ND ND ND ND ND ND	10 10 10 10 10 10 10 10						
Indeno(1.2.3-cd)pyrene Isophorone 2-Methylnaphthalene Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene N-Nitrosodimethylamine N-Nitrosodiphenylamine	ND ND ND ND ND ND ND ND ND ND	10 10 10 10 50 50 50 10						

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/M INSTRUMENT: HP-5890 for Se UNITS: UG/L		dia blank i-volatiles		LAB ID: PREPARED: ANALYZED:	BLNK 1110 11/10/97 11/12/97	***************************************		CMS10\97111 NAW111097 .00	.0080000/2/
METHOD: ANALYTE Phenanthren 2,4-Dichlor 2,4-Dimethy 4,6-Dinitro 2,4-Dinitro 2-Methylphe 4-Mitrophen 2,4,5-Trich 2,4,6-Trich	ophenol lphenol -2-methylphenol phenol nol nol ol lorophenol	RESULT ND	REF RESULT	REPORTING LIMIT 10 10 10 50 50 10 10 10	SPIKE VALUE	RECOVERY (%)	REC LIMITS (% LOW HIGH) RPD (%)	RPD LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Contr INSTRUMENT: HP-5890 for Semi UNITS: ug/L	ol Spike -volatiles	LAB ID: PREPARED: ANALYZED:	LCD 1110 11/T0/97 11/12/97		INSTR F BATCH I DILUTIO	D: BN	4W111097	0080000/4/2
UNITS: ug/L METHOD: EPA 8270B ANALYTE 2-Fluorophenol (surr) Phenol -d5 (surr) Nitrobenzene -d5 (surr) 2-Fluorobiphenyl (surr) 2-Fluorobiphenyl (surr) 1-Fluorophenol (surr) Terphenyl -d14 (surr) Phenol 2-Chlorophenol 1,4-Dichlorobenzene N-Nitrosodi -n-propylamine 1,2,4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2,4-Dinitrotoluene Pentachlorophenol Pyrene	REF RESULT RESULT 92.3 95.4 91.6 89.9 90.3 91.1 99.1 95.6 105 93.5 124 118 74.5 ND 83.0 ND 91.2 ND 67.6 ND 96.8 ND 96.8 ND 96.1 ND 96.1 ND 90.5 ND 90.5 ND	REPORTING LIMIT 10 10 10 10 10 10 10 10 10 10 10 10 10	SPIKE VALUE 100 100 100 100 100 100 100 100 100 10	RECOVERY (*) 92.3 91.6 90.3 99.1 105 124 74.5 83.0 91.2 67.6 96.8 81.0 96.1 54.1 90.5 56.4 121	REC LIMI LOW 42 40 46 41 46 35 44 52 54 48 57 54 60 22 43 38 32	HIGH 110 122 109 140 116 165 94 111 116 141 107 113 114 119 130 110 121	RPD (%)	RPD LIMIT (%)

SAMPLE TYPE: Laboratory Contr INSTRUMENT: HP-5890 for Sem UNITS: ug/L	rol Spike i-volatiles		LAB ID: PREPARED ANALYZED	LCS 1110 : 11/10/97 : 11/12/97		INSTR F BATCH I DILUTIO	ID: BN/	W111097	0080000/3/2
ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2-fluorobiphenyl (surr) 2-fluorobiphenol (surr) Terphenyl-d14 (surr) Phenol 2-Chlorophenol 1,4-Dichlorobenzene N-Nitrosodi-n-propylamine 1,2,4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2,4-Dinitrotoluene Pentachlorophenol	RESULT 99.8 97.0 96.4 103 110 128 75.0 84.2 91.6 64.9 99.6 80.8 95.5 59.6 95.5	REF RESULT 95.4 95.4 99.1 95.6 93.5 118 ND ND ND ND ND ND	10 10 10 10 10 10 10 10 10	SPIKE VALUE 100 100 100 100 100 100 100 100 100 10	RECOVERY (\$) 99.8 97.0 96.4 103 110 128 75.0 84.2 91.6 64.9 99.6 80.8 95.5 59.6 95.2 62.9	REC LIM LOW 42 40 46 41 46 35 44 52 54 48 57 54 60 22 43 38	HIGH 110 122 109 140 116 165 94 111 116 141 107 113 114 119 130 110	RPD (%)	RPD LIMIT (%)

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

LABORATORY CONTROL SAMPLES

WORK ORDER: 9711109

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			
METHOU:	EPA 82/08		REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (%)		RPD
ANALYTE Pyrene		RESULT 116	RESULT ND	LIMIT 10	VALUE 100	(¥) 116	LOW 32	HIGH 121	RPD (%)	LIMIT (%)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Contr INSTRUMENT: HP-5890 for Semi UNITS: ug/L	ol Sample Duplicate -volatiles	LAB ID: PREPARED ANALYZED	LCR 1110 : 11/10/97 : 11/12/97		BATCH ID: 1	CMS10\97111 BNAW111097 L.00	10080000/5/3
METHOD: EPA 8270B ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2,4,6-Tribromophenol(surr)	REF RESULT RESULT 92.3 99.8 91.6 97.0 90.3 96.4 99.1 103 105 110 124 128	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100 100	RECOVERY (%) 92.3 91.6 90.3 99.1 105 124	REC LIMITS (LOW HIGH 42 110 40 122 46 109 41 140 46 116 35 165		RPD LIMIT (%)
Terphenyl-d14 (surr) Phenol 2-Chlorophenol 1.4-Dichlorobenzene N-Nitrosodi-n-propylamine 1.2.4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2.4-Dinitrotoluene Pentachlorophenol Pyrene	124 128 74.5 75.0 83.0 84.2 91.2 91.6 67.6 64.9 96.8 99.6 81.0 80.8 96.1 95.5 54.1 59.6 90.5 95.2 56.4 62.9 121 116	10 10 10 10 10 10 10 50 10	100 100 100 100 100 100 100 100 100 100	124	33 103	0.669 1.44 0.438 4.08 2.85 0.247 0.626 9.67 5.06 10.9 4.22	40 40 30 30 30 30 30 40 40 40 30

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client INSTRUMENT: HP-5890 for Semi UNITS: ug/L METHOD: EPA 8270B	-volatiles		9711109-0 11/10/97 11/12/97	1C	INSTR BATCH DILUTI	ID: BN/	₩111097	0080000/1/
ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2,4,6-Tribromophenol(surr) Terphenyl-d14 (surr)	REF RESULT RESULT 89.7 94.1 88.8 96.1 115 111	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100 100	RECOVERY (\$) 89.7 94.1 88.8 96.1 115 111	REC LIM LOW 42 40 46 41 46 35	HIGH 110 122 109 140 116 165	RPD (%)	RPD LIMIT (%)

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9711109

SAMPLE TYPE: Blank-Method/Mec INSTRUMENT: HP mass spec for UNITS: ug/L	dia blank r Volatiles		LAB ID: PREPARED ANALYZED	BLNK_1110 : : 11/10/97		BATCH ID:	GCMS13\97111 MS13W111197- 1.00	0210000/1/ 2
METHOD: EPA 8240B			0 = DOG= T110	COTVE	RECOVERY	REC LIMITS (Y)	RPD
···=		REF	REPORTING	SPIKE VALUE	(X)	LOW HIG		LIMIT (%)
ANALYTE	result	RESULT	LIMIT	100	96.7	75 129		
1,2-DCA-d4 (surr)	96.7			100	98.1	81 111		
Toluene-d8 (surr)	98.1			100	99.3	78 131		
_{D-BFB} (surr)	99.3		_	100	33.5	,0 10-		
1.1-Dichloroethene	ND		ž					
Benzene	ND		5 5 5 5 5					
Trichloroethene	ND		ž					
Toluene	ND		ž					
Chlorobenzene	ND		100					
Acetone	ND		100					
Bromodichloromethane	ND		5 5					
Bromoform	ND		10					
Bromomethane	ND		10					
2-Butanone	ND		100					
Carbon Disulfide	ND		10				,	
Carbon Tetrachloride	ND		.5 10					
Chloroethane	ND		10					
2 Chloroethyl Vinyl Ether	ND		10					
Chloroform	ND		5 10					
Chloromethane	ND		10					
Dibromochloromethane	· ND		ž					
1 1-Dichloroethane	ND		5 5 5					
1.2-Dichloroethane	ND		5					
cis-1.2-Dichloroethene	ND		5 5 5					
trans-1.2-Dichloroethene	ND		5					
1,2-Dichloropropane	ND		5					
cis-1 3-Dichloropropene	ND		5 5 5					
trans-1,3-Dichloropropene	ND		5					
Ethylbenzene	ND		50					
2-Hexanone	ND		10					
Methylene Chloride	ND		50					
4-Methyl-2-pentanone	ND		פֿב					
Styrene	ND		5					
1,1,2,2-Tetrachloroethane	ND		5					
Tetrachloroethene	ND		5 5 5 5 5					
1.1.1-Trichloroethane	ND		E					
1,1,2.Trichloroethane	ND		50 50					
Vinyl Acetate	ND		10			•		
Vinyl Chloride	ND		10					
Xylenes, Total	ND		16					
1,2-Dibromoethane	ND		5					
1,2-Dichlorobenzene	ND		10 10 5 5 5 5					
1,3-Dichlorobenzene	ND ND		Š					
1.4-Dichlorobenzene	ND		10					
Dichlorodifluoromethane	ND		10					
Trichlorofluoromethane	ND MD		5 5					
Trichlorotrifluoroethane	ND		50 50					
Tetrahydrofuran	ND ND		100					
Ethanol	ND		TOU					

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: INSTRUMENT: UNITS:	Laboratory Contr HP mass spec for ug/L	ol Spike Volatiles		INSTR RUN: GCMS13\971110210000/6/1 BATCH ID: MS13W111197-2 DILUTION: 1.00						
METHOD:	EPA 8240B		REF	REPORTING	SPIKE VALUE	RECOVERY	REC LIM	ITS (%) HIGH	RPD (%)	RPD LIMIT (%)
ANALYTE 1,2-DCA-d4 Toluene-d8 p-BFB 1 1-Dichloro	(surr) (surr) (surr) ethene	RESULT 122 104 105 64.0	RESULT 96.7 98.1 99.3 ND	LIMIT 5	100 100 100 50.0	122 104 105 128	75 81 78 77	129 111 131 137		

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Co INSTRUMENT: HP mass spec UNITS: ug/L METHOD: EPA 8240B	ntrol Spike for Volatiles		LAB ID: PREPARED: ANALYZED:	LCS_1111 11/11/97		INSTR RUN: GCMS13\971110210000/6/1 BATCH ID: MS13W111197-2 DILUTION: 1.00				
METHOU: EFA 02406		REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (%)		RPD	
ANALYTE	result	RESULT	LIMIT	VALUE	(%)	LOW	HIGH	RPD (%)	LIMIT (%)	
Benzene	54.1	ND	5	50.0	108	89	142			
Trichloroethene	45.9	ND	5	50.0	91.8	83	121			
To1ue n e	51.8	ND	5	50.0	104	81	121			
Chlorobenzene	53.2	ND	5	50.0	106	88	124			

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spi INSTRUMENT: HP	ke-Sample/Mat	rix Volatiles		LAB ID: MD11109-01A PREPARED:				INSTR RUN: GCMS13\971110210000/4/2 BATCH ID: MS13W111197-2			
UNITS: ug/		15.25.165		ANALYZED:	11/11/97		DILUTI		00	_	
			REF	REPORTING	SPIKE	recovery .	REC LIM			RPD	
ANALYTE		RESULT	RESULT	LIMIT	VALUE	(%)	LOW	HIGH	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-Dichloroethe	ne	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			
						• • • • • • • • • • • • • • • • • • • •					

	ole/Matrix sec for Volatiles		LAB ID: PREPARED:	MS11109-01	A	INSTR BATCH DILUTI	ID: MS1	L3W111197-	.0210000/3/2 2
UNITS: ug/L METHOD: EPA 8240B		_REF_	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (%)		RPD
ANALYTE	RESULT	RESULT	LIMIT	VALUE	(%)	FÖM	HIGH	RPD (%)	LIMIT (%)
	ırr) <u>105</u>	113		100	105	75	129		
	ırr) 99.2	97.6		100	99.2	81	111		
D-BFB (St	ırr) 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	Š	50.0	108	88	124		

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: INSTRUMENT:	Spiked Sample D HP mass spec fo	uplicate r Volatiles		LAB ID: MR11109-01A PREPARED:				INSTR RUN: GCMS13\971110210000/5/3 BATCH ID: MS13W111197-2			
UNITS:	ug/L EPA 8240B			11/11/97		DILUTI			_		
METHOD:	LITT OF 100		REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (%)		RPD	
ANALYTE		RESULT	RESULT	LIMIT	VALUE	(*)	LOW	HIGH	RPD (な)	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-Dichloro	ethene	58.2	58.8	5	50.0				1.03	25	
Benzene		62.5	61.9	5	50.0				0.965	25	
Trichloroeth	ene	46.9	46.4	5	50.0				1.07	25	
Toluene		345	348	5	50.0				0.866	25 25 25 25 25 25	
Chlorobenzen	ie	53.8	54.0	5	50.0				0.371	25	

QUALITY CONTROL REPORT WORK ORDER: 9711109

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ANALYSIS: Volatile GC/MS

MATRIX: Water

SAMPLE SURROGATES

INSTRUMENT: UNITS:	Sample-Client HP mass spec for Volatiles ug/L	••	LAB ID: PREPARED: ANALYZED:	INSTR RUN: GCMS13\971110210000/7/ BATCH ID: MS13WI11197-2 DILUTION: 10.0					
METHOD: ANALYTE 1,2-DCA-d4 Toluene-d8 p-BFB	EPA 8240B RESULT (surr) 90.8 (surr) 105 (surr) 93.9	REF RESULT	REPORTING LIMIT	SPIKE VALUE 100 100 100	RECOVERY (%) 90.8 105 93.9	REC LIM LOW 75 81 78	ITS (*) HIGH 129 111 131	RPD (%)	RPD LIMIT (%)

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

R-3,5-3 ORG
CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9711109 Date: 160/97 Project No.: 26/6,97-0/ Field Logbook No.: Serial No. Project Location: EMERYVILLE Νö Project Name: SHERWIN WILLIAMS 14482 **ANALYSES** Samplers: Sampler (Signature): Street Thornton 547 SAMPLES NO. OF LAB SAMPLE SAMPLE TIME CON -REMARKS SAMPLE NO. DATE TYPE TAINERS OLAB STORM DRAIN יטוליוו 10:15 OICD 2 DIE 奎 24 Hour TURNAROUND 11 021 × R4R-B 03A W.ANDEFF METALS SAMPLES SHALL BE ANALYZED FOR TOTAL UNFILTERED CONSTIT'S RECEIVED BY: (Signature) RELINQUISHED BY: Stave / Warn to DATE /1/0/97 TIME 1100 RELINQUISHED BY: TIME RECEIVED BY (Signature) (Signature) RELINCUISHED BY! RECEIVED BY: (Signature) (Signature) METHOD OF SHIPMENT: AEN COURIER DATE TIME LAB COMMENTS: Sample Collector: Analytical Laboratory: LEVINE-FRICKE 1900 Powell Street, 12th Floor Emeryville, California 94608 (510) 652-4500

'd Copy (Pink)

FORM Nº 86/COC/ARE

Shipping

(White)

Lab Copy (Green)

File Copy (Yellow)

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	-	Pr€	ep 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

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LEVINE-FRICKE-RECON

SAMPLE ID: 3425-CK-003 AEN LAB NO: 9711400-03 AEN WORK ORDER: 9711400 CLIENT PROJ. ID: 3435-00-006

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-	Pr	rep Date	11/26/97
Arsenic	EPA 7060	0.013 *	0.002 mg	g/L	12/01/97

ND = Not detected at or above the reporting limit \star = 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 F	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

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-	Pr	rep Date	11/26/97
Arsenic	EPA 7060	11 *	0.002 m g	J/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

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-	Pi	rep Date	11/26/97
Arsenic	EPA 7060	0.96 *	0.002 mg	g/L	12/01/97

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

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LEVINE-FRICKE-RECON

SAMPLE ID: R4R-G

AEN LAB NO: 9711400-07 AEN WORK ORDER: 9711400

CLIENT PROJ. ID: 3435-00-006

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-	Pr	ep Date	11/26/97
Arsenic	EPA 7060	8.1 *	0. 002 mg	J/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

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-	Pr	rep Date	11/26/97
Arsenic	EPA 7060	6.9 *	0.002 mg	j/L	12/01/97

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

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LEVINE-FRICKE-RECON

SAMPLE ID: R4R-K

AEN LAB NO: 9711400-09 AEN WORK ORDER: 9711400

CLIENT PROJ. ID: 3435-00-006

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA Arsenic	EPA 3020 EPA 7060	- 1.1 *	Pr 0.002 mc	rep Date	11/26/97 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	-	Pr	rep Date	11/26/97
Arsenic	EPA 7060	9.5 *	0.002 mg	J/L	12/01/97

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

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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

PAGE QR-1

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

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.

QUALITY CONTROLARED OR Environmental Network

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: TJA 4000

UNITS:

mg/L

LAB ID: PREPARED:

GFW_PBW_B ANALYZED: 12/01/97

INSTR RUN: 4000\971201110400/1/

BATCH ID: GFW112697 B

DILUTION: 1.000000

METHOD: ANALYTE

Arsenic in water by GFAA

RESULT ND

REF REPORTING RESULT LIMIT 0.002

SPIKE VALUE RECOVERY (%)

REC LIMITS (X) LOW HIGH

LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

UNITS: mg/L METHOD:

LAB ID: PREPARED:

GFW_LCD_B

ANALYZED: 12/01/97

INSTR RUN: 4000\971201110400/3/1 BATCH ID: GFW112697-8

RPD (1)

DILUTION: 1.000000

ANALYTE Arsenic in water by GFAA

RESULT 0.0402

REF REPORTING RESULT ND

ND

LIMIT 0.002

0.002

LAB ID: PREPARED:

SPIKE VALUE 0.0400

GFW_LCS_B

RECOVERY

REC LIMITS (#) LOW HIGH 82 140

RPD (%) LIMIT (1)

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

METHOD:

ANALYTE

mg/L

RESULT Arsenic in water by GFAA 0.0407

ANALYZED: 12/01/97 REPORTING RESULT LIMIT

SPIKE VALUE 0.0400

RECOVERY REC LIMITS (%)

INSTR RUN: 4000\971201110400/2/1 BATCH ID: GFW112697-B DILUTION: 1.000000

HIGH

140

82

RPD LIMIT (%)

13

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000

UNITS: mg/L

RFF RESULT

PREPARED: ANALYZED: 12/01/97 REPORTING

LAB ID:

GFW_LCR_B

INSTR RUN: 4000\971201110400/4/2 BATCH ID: GFW112697-B DILUTION: 1,000000

ANALYTE

METHOD:

Arsenic in water by GFAA

RESULT 0.0402

0.0407

LIMIT 0.002 SPIKE VALUE RECOVERY (%)

REC LIMITS (%) LOW HIGH

RPD RPD (X) LIMIT (次) 1.24

MATRIX SPIKE SAMPLES

SAMPLE TYPE: <u>Spike-Sample/Matrix</u> INSTRUMENT: TJA 4000

UNITS: mg/L METHOD:

LAB ID: MS11400-06A PREPARED: ANALYZED: 12/01/97

LAB ID:

PREPARED

BATCH ID: GFW112697-B

INSTR RUN: 4000\971201110400/11/10

DILUTION: 1.000000

RESULT ANALYTE RESULT 0.986 Arsenic in water by GFAA

REF REPORTING LIMIT 0.963 0.002

SPIKE VALUE 0.0400

RECOVERY

REC LIMITS (%) LOW HIGH 167

RPD RPD (X) LIMIT (%)

MATRIX SPIKE DUPLICATES

SAMPLE TYPE: Spiked Sample Duplicate INSTRUMENT: TJA 4000

UNITS: mg/L METHOD:

ANALYTE

RESULT Arsenic in water by GFAA 0.954

REF RESULT 0.986

ANALYZED: 12/01/97 REPORTING LIMIT 0.002

SPIKE VALUE

MR11400-06A

RECOVERY

REC LIMITS (%) LOW

DILUTION: 1.000000 RPD (%)

BATCH ID: GFW112697-B

INSTR RUN: 4000\971201110400/13/11

3.30

RPD LIMIT (%) 13

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

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9711400

Project No.: 3	435-	-00-	006		Project Lo		Em	eryville		D	ate: 11 / Z	6/97	Serial No.	
Project Name:					Field LogI	ook No).: <u>/</u>)Ā					Nº	1392
			R.J	رف					ANA	LYSES			Samplers:	ARJ
			SAMPLES		·		يخ کيد	•/ / /	/ /			/		
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE		M. Solice					aust	REMARK	S
3435-CK-001	11/260	01:05	410	1-500 mg		X					TAT	preserv	ed HNO3	
3435-PD-002	11/26	01:10	02A	1-500 ml	118	×						2/10	urturnaro	٠
3435-CK-003	11/26	68:00	03A 04A		H20 H20	3					- 3	24 not	ar jurnairo	una
3435-PD-004	11/26	<i>093</i> 0	420		720	2					\rightarrow			
RAR-B	1126	L930	06A	1	1	X						RESULTS	70:A.JE	NKINS
R4R-6	1	1	07A			X					X		3, SH	IL
R4R-AI			08A			X					X		M, KN	OK
RAREL		1		- \ -	/	X								
R4R-3K	7	<u></u>	MA.	1	HED	X					- 	84	SAMPLES SH	P-E
R4R-C	11/26	0900	10A	 	PRU	文							NEILTERES	ALL DE I GO
RAR-J	11/26	0930	7 (17)	, , , , , , , , , , , , , , , , , , ,							·		TUENTS	
	-													
				<u> </u>										
RELINQUISHED I (Signature)	Stri	19 Tho	nter	DAT	126/97	TIME /a.	40	RECEIVED BY: (Signature)	Riè	15	Bilm	one	DATE 11-26-97	TIME /2:/0
RELINQUISHED (Signature)	3Y: P	ish d	Dilmor	DAT		TIME	205	RECEIVED BY: (Signature)	arn	iau	<u>Bilm</u> Uisçiu		DATE 11-26-97	TIME 1405
RELINQUISHED I	,			DAT		TIME		RECEIVED BY: (Signature)		0			DATE	TIME
METHOD OF SHI	PMENT:			DAT	E	TIME		LAB COMMENTS	3:					
Sample Collecto	or:	1900 Pd	•FRICKE•RECON well Street, 12th lle, California 94t 52-4500	Floor				Analytical Labo	ratory:	AEN	sont lik , (A		

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/ S.THORNTON

CLIENT PROJ. ID: 2616.97.01 CLIENT PROJ. NAME: SHERWIN WMS

C.O.C. NUMBER: 14490

REPORT DATE: 12/27/97

DATE(S) SAMPLED: 12/18/97

DATE RECEIVED: 12/18/97

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.

Larr√Klein

Laboratory Director

PAGE 2

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	DATE ANALYZED		
#Digestion/G. Furnace	EPA 200.0	-	Pr	rep Date	12/18/97
Arsenic	EPA 206.2	2.2 *	0.002 mg	ı/L	12/22/97
#Digestion/ICP	EPA 200.0	-	Pr	ep 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	-	Р	rep Date	12/18/97
Arsenic	EPA 206.2	0.004 *	0.002 mg	g/L	12/22/97

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

PAGE 4

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	-	Р	rep Date	12/18/97
Iron	EPA 200.7	150 *	0.1 m	g/L	12/19/97

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					
#Digestion/G. Furnace	EPA 200.0	-	Р	rep Date	12/18/97			
Arsenic	EPA 206.2	0.005 *	0.002 m	g/L	12/22/97			

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

PAGE 6

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	-	Pi	rep Date	12/18/97
Arsenic	EPA 206.2	0.81 *	0.002 mg	g/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.

<u>Definitions</u>

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.

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9712309

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: TJA 4000

mg/L

UNITS:

METHOD:

LAB ID: GFW_PBW_A PREPARED:

ANALYZED: 12/22/97

INSTR RUN: 4000\971222160200/1/

BATCH ID: GFW121897-A

DILUTION: 1.000000

ANALYTE Arsenic in water by GFAA

REF **RESULT** RESULT ND

REPORTING LIMIT 0.002

SPIKE RECOVERY VALUE (%)

REC LIMITS (1)

LOW HIGH RPD (%) LIMIT (%)

LIMIT (X)

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

REF REPORTING SPIKE RECOVERY REC LIMITS (1) ANALYTE RESULT RESULT LIMIT (%) 107 VALUE LOW HIGH RPD (%) Arsenic in water by GFAA 0.0428ND 0.0020.0400 82 140

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

mg/L

LAB ID: PREPARED: GFW_LCS_A ANALYZED: 12/22/97

INSTR RUN: 4000\971222160200/2/1 BATCH ID: GFW121897-A DILUTION: 1.000000

REF REPORTING SPIKE RECOVERY REC LIMITS (%) RPD ANALYTE RESULT RESULT LOW 82 LIMIT VALUE HIGH RPD (%) LIMIT (%) Arsenic in water by GFAA 0.0402 ND 0.002 140

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000

LAB ID: GFW_LCR_A PREPARED:

ANALYZED: 12/22/97

INSTR RUN: 4000\971222160200/4/2

BATCH ID: GFW121897-A DILUTION: 1.000000

UNITS: METHOD:

METHOD:

mg/L

REF REPORTING RESULT LIMIT

SPIKE

RECOVERY

REC LIMITS (%)

RPD LOW HIGH RPD (%) LIMIT (%) 6.27

ANALYTE Arsenic in water by GFAA

RESULT 0.0428

0.0402

0.002

VALUE

WORK ORDER: 9712309

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Metals Scan by ICP

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLI INSTR UNITS METHO	d/Media blank 36		LAB ID: PREPARED ANALYZED	IFW_PBW_Z 12/19/97	•••••	INSTR BATCH DILUTI	ID: IF	P\97121912 V121897-Z 000000	25200/1/
ANALY AS AS Be CCo Cr Cu Fe Moi Pb SSe T1 V Zn	RESULT ND	REF RESULT	REPORTING LIMIT 0.005 0.04 0.01 0.002 0.005 0.005 0.01 0.01 0.01 0.01 0.01 0.	SPIKE VALUE	RECOVERY	REC LIM LOW	ITS (%) HIGH	RPD (%)	RPD LIMIT (*)

LABORATORY CONTROL SAMPLES

SAMPLI INSTRI UNITS	E TYPE: Spike-Method UMENT: TJA Enviro 3 : mg/L			LAB ID: PREPAREI):	**********	BATCH	ID: IF	P\97121912 V121897-Z	5200/3/1
METHO				ANALIZEL	D: 12/19/97		DILUIT	ON: 1.0	100000	
ANALY Ag As Ba Be Cd Cr Cu Fe Mo Ni Pb Sb Se T1 V Zn		RESULT 0.0257 0.447 1.07 0.0284 0.0520 0.284 0.104 0.130 0.516 0.212 0.270 0.556 0.549 0.524 0.278	REF RESULT ND ND ND ND ND ND ND ND ND ND ND ND ND	REPORTING LIMIT 0.005 0.04 0.01 0.002 0.005 0.005 0.01 0.01 0.01 0.01 0.01 0.	SPIKE VALUE 0.0250 0.400 1.00 0.0250 0.0500 0.125 0.500 0.250 0.250 0.500 0.500 0.500 0.500 0.500	RECOVERY (%) 103 112 107 114 104 104 103 106 108 111 110 105 108 111 115	REC LIM LOW 72 75 91 82 84 96 85 86 84 89 90 82 75 85 91	ITS (*) HIGH 127 125 120 119 120 128 123 133 117 121 122 113 125 115 118 121	RPD (%)	RPD LIMIT (%)
SAMPLI	E TYPE: Spike-Method UMENT: TJA Enviro 3	d/Media blank 36		Preparei			BATCH	RUN: ICI	P\97121912 W121897-Z	25200/2/1

UNITS: METHÓD:	mg/L :			ANALYZEI): 12/19/97		DILUTI	ON: 1.0	000000	
			REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (%)		RPD
ANALYTI		RESULT	RESULT	LIMIT	VALUE	(%)	LOW	HIGH	RPD (な)	LIMIT (%)
Ag	Silver	0.0249	ND	0.005	0.0250	99.6	72	127	, , ,	
As	Arsenic	0.432	ND	0.04	0.400	108	75	125		
Вa	Barium	1.03	ND	0.01	1.00	103	91	120		
Вe	Beryllium	0.0275	ND	0.002	0.0250	110	82	119		
Cd	Cadmium	0.0511	ND	0.005	0.0500	102	84	120		
Со	Cobalt	0.270	ND	0.005	0.250	108	96	120		
Cr	Chromium	0.101	ND	0.01	0.100	101	85	128		
Cu	Copper	0.125	ND	0.01	0.125	100	86	123		
Fe	Iron	0.499	ND	0.1	0.500	99.8	84	133		
Мо	Molybdenum	0.202	NÐ	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/ INSTRUMENT: TJA Enviro 36 UNITS: mg/L METHOD:		•	LAB ID: PREPAREI ANALYZEI	IFW_LCS_Z):): 12/19/97		INSTR BATCH DILUTI	ID: IF	P\9712191; W121897-Z 000000	25200/2/1
ANALYTE Ni Nickel Pb Lead Sb Antimony Se Selenium Tl Thallium V Vanadium Zn Zinc	RESULT 0.253 0.531 0.523 0.537 0.515 0.266 0.272	REF RESULT ND ND ND ND ND ND	REPORTING LIMIT 0.01 0.04 0.02 0.07 0.05 0.005	SPIKE VALUE 0.250 0.500 0.500 0.500 0.500 0.250 0.250	RECOVERY (%) 101 106 105 107 103 106 109	REC LIM LOW 92 90 82 75 85 91	HITS (\$) HIGH 121 122 113 125 115 118 121	RPD (%)	RPD LIMIT (%)

LABORATORY CONTROL DUPLICATES

SAMPL INSTR UNITS METHO		ike Sample Duplica 36	ite	LAB ID: PREPARED ANALYZED	IFW_LCR_Z : : 12/19/97		INSTR RUN BATCH ID: DILUTION:	: ICP\97121912 IFW121897-Z 1.000000	25200/4/2
ANALY Ag As Be Cd Cr Cu Fe Mo Ni Pb Sb Sc T1 V Zn	Silver Arsenic Barium Beryllium Cadmium Cobalt Chromium Copper Iron Molybdenum Nickel Lead Antimony Selenium Thallium Vanadium	RESULT 0.0257 0.447 1.07 0.0284 0.0520 0.284 0.104 0.130 0.516 0.212 0.270 0.556 0.549 0.524 0.524	REF RESULT 0.0249 0.432 1.03 0.0275 0.0511 0.270 0.101 0.125 0.499 0.202 0.253 0.531 0.523 0.537 0.515 0.266 0.272	REPORTING LIMIT 0.005 0.04 0.01 0.002 0.005 0.005 0.01 0.01 0.01 0.01 0.02 0.02 0.07 0.05 0.05	SPIKE VALUE	RECOVERY (%)	REC LIMITS LOW H	(*) 1GH RPD (*) 3.16 3.41 3.81 3.22 1.75 5.05 2.93 3.92 3.35 4.83 6.50 4.60 4.85 2.45 5.11 4.41 5.37	RPD LIMIT (*) 10 10 10 10 10 10 10 10 10 10 10 10 10

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

Project No	.:							ANALYSES REQUES						•	INURG		
	roject No.: 26/6,97.0/ roject Name: SHERWIN' WILLIAMS					_	ook					Date	12/	18/97	Serial No.	•	.,
Project Na	me: 5H	ERWIN	·WILLIAMS		Projec	t Lo	catio	n: El	MER	YVI	LE	, CA	, <u>, , , , , , , , , , , , , , , , , , </u>	, , , ,	Ng	144	190
Sampler (Si	gnature)	· Sur	re Cherrie	7					A	NALY	/SES	,			Sampler	5:	
		S/	AMPLES				/.2	740		7,			1017	Kish/	SAT		·
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON - TAINERS	SAMPLE TYPE	EPK	100.74 100.74	80°/					*/	&/	RE	MARKS	
W·11	12/18	12:30	14	1	HeD	×							X	7			
W·11			B	1			×						X				
W-ANDEFF			2A	<u> </u>		×	ļ						X\	24	hour tumo	round	
W-ECELLEFF			3A	1			×						X	,	. UNFILTER		NEN IS
w.€1)		4A	1		X							X	<u></u>			
R4R-C		ا بــا	5k			×	ļ						X				
						-								RESUL	75 To: A.	JENKINS.	
				<u> </u>													
													FAX 1	6: S.THOR			
							ļ								408727		
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				<u> </u>													
		<u> </u>												·			
RELINQUISHED (Signature)	BY: Sta	~ TR.	no tone		DATE 12/18	1	IME 4:00	RE (S	CEIVE ignat	D BY: ure)	R	7:16	1 5	5- /ma	~1	DATE 12-18-97	TIME 16:15
WELLINGOLOUGE	BY: 0 -	190	1000	- ,	DATE /8/	77 T	IME 8:2		CEIVE	D BY	/	>		12			
	RELINQUISHED BY: Rich Dilmore RELINQUISHED BY:				DATE	7//	/ 8 - 2. IME			ure) -		-	8 (eut	Joeler	12/18/87	1820
(Signature)	(Signature)							(S	ignat	ure)						DATE	TIME
METHOD OF SHIPMENT:				DATE		IME	LA	B COM	MENTS:						<u>-</u>		
Sample Collector: LEVINE-FRICKE 1900 Powell Street, 12th F Emeryville, California 94 (510) 652-4500				h Floor				naly	tical	Labo		ry: AZ	EN				

All

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

Rev. 194

PAGE 2

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	DATE ANALYZED	
#Digestion, Metals by GFAA	EPA 3020	-	F	rep Date	01/21/98
Arsenic	EPA 7060	0.098 *	0.005 π	g/L	01/22/98

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.
- 1: Indicates result outside of established laboratory QC limits.

OUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9801188

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: TJA 4000

UNITS:

mg/L METHOD:

ANALYTE Arsenic in water by GFAA **RESULT**

REF RESULT

REF

REPORTING LIMIT 0.005

LAB ID:

PREPARED:

ANALYZED: 01/22/98

SPIKE VALUE

GFW_PBW_J

RECOVERY (%)

REC LIMITS (%) LOW HIGH

LIMIT (%)

INSTR RUN: 4000\980122112700/1/

BATCH ID: GFW012198-J DILUTION: 1.000000

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

mg/L UNITS:

LAB ID: GFW LCD J PREPARED:

LAB ID:

PREPARED:

ANALYZED: 01/22/98

ANALYZED: 01/22/98

BATCH ID: GFW012198-J DILUTION: 1.000000

INSTR RUN: 4000\980122112700/3/1

INSTR RUN: 4000\980122112700/2/1

METHOD:

ANALYTE

ANAL YTE Arsenic in water by GFAA

RESULT 0.0490

REPORTING RESULT LINIT ND 0.005

VALUE 0.0400 GFW_LCS_J

SPIKE

RECOVERY (1) 123

REC LIMITS (%) HIGH RPD (1) LOW 82

LIMIT (%)

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

UNITS: mg/L METHOD:

Arsenic in water by GFAA

RESULT 0.0466

RESULT

0.0490

REF REPORTING RESULT LIMIT ND 0.005

VALUE 0.0400

RECOVERY

(%)

REC LIMITS (%) HIGH 82 140

BATCH ID: GFW012198-J DILUTION: 1.000000 LIMIT (お)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000

UNITS: mg/L METHOD:

Arsenic in water by GFAA

PREPARED: ANALYZED: 01/22/98 REF REPORTING

LIMIT

0.005

LAB ID: GFW_LCR_J

SPIKE

INSTR RUN: 4000\980122112700/4/2 BATCH ID: GFW012198-J DILUTION: 1.000000

LOW HIGH RPD (X)

REC LIMITS (%)

5.02

LIMIT (次)

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample/Matrix INSTRUMENT: TJA 4000

Arsenic in water by GFAA

UNITS: mg/L METHOD:

RESULT

ANALYZED: 01/22/98 REF REPORTING RESULT LIMIT 0.0977 0.005

LAB ID:

PREPARED:

ANALYZED: 01/22/98

LAB ID:

PREPARED:

SPIKE VALUE 0.0400

MS01188-01A

MD01188-01A

RECOVERY

BATCH ID: GFW012198-J DILUTION: 1.000000 REC LIMITS (%)

INSTR RUN: 4000\980122112700/7/5

RPD LOW HIGH RPD (%) LIMIT (%)

SAMPLE TYPE: Spike-Sample/Matrix INSTRUMENT: TJA 4000

UNITS: mg/L METHOD:

REPORTING LIMIT 0.005

SPIKE VALUE RECOVERY

INSTR RUN: 4000\980122112700/6/5 BATCH ID: GFW012198-J DILUTION: 1.000000

RPD

ANAL YTF

Arsenic in water by GFAA

RESULT 0.136

0.144

RESULT

RESULT

0.0466

0.0400

REC LIMITS (%) HIGH 41 167

167

RPD (%) LIMIT (%)

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Arsenic

MATRIX: Water

MATRIX SPIKE DUPLICATES

WORK ORDER: 9801188

SAMPLE TYPE: Spiked Sample Duplicate INSTRUMENT: TJA 4000

LAB ID: MR01188-01A PREPARED:

INSTR RUN: 4000\980122112700/8/6 BATCH ID: GFW012198-J DILUTION: 1.000000

mg/L UNITS:

ANALYZED: 01/22/98

METHOD:

ANALYTE Arsenic in water by GFAA RESULT 0.144

REF RESULT 0.136

REPORTING LIMIT 0.005

SPIKE VALUE

RECOVERY REC LIMITS (%) (1)

LOW HIGH RPD (%) LIMIT (%)
5.71 13

RPD

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

luorg.

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9801188

Project No.: 3	Project No.: 3435-00.006						En	16ryull	le c	A		Date	1-21	-98	Serial No	.:
Project Name:	Sheru	vin-N	Alliami		Field Lo	gbook No	·:	,	-y						Nº	2221
1			end Als	U						Al	VALYSI	ΞS			Samplers	MJ
			SAMPLES				7				/			///	/	
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE	M	ienit						HOLD	RISH	REMARK	S
WS-TNKQ-1	1-21-48	9:20	DIA	1	water	 >						-	×	24 10	(or best) TAT	
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														Ke	ichael Stoil	· · · · · · · · · · · · · · · · · · ·
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(Signature)	The	relevy	Stall		1-48	TIME 10 =4	BAM	RECEIV (Sign:	ature)	Rie	12	Zil	mo	re.	1-21-98	TIME /Diffy
RELINQUISHED E (Signature)	Rich	12	lmore	DATI	1-98	TIME 13:3	0	RECEIV (Sign:	/ED BY: ature)	gru	i c	Fill	mo	ン	DATE 1-21-98	TIME /330
RELINQUISHED E (Signature)	BY:			DATI	:	TIME		RECEIV (Signa	ED BY:			0	 -		DATE	TIME
METHOD OF SHIP		iviés.		DAT		TIME		LAB CO	MMENT	S:			<u> </u>			
Sample Collecto		1900 Pov	FRICKE•RECON vell Street, 12th I e, California 946 2-4500					Analytic	cal Lab			Plea	sant H	hill, CA		
Thinning Cook (Milhita	(Emeryvill (510) 652	e, California 946 -4500									Plea	sant H	hill, CA		

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

ATTN: K. FRAZIER/ S. SHIU CLIENT PROJ. ID: 3435.00.006 CLIENT PROJ. NAME: SHERWIN WMS

C.O.C. NUMBER: 2279

REPORT DATE: 01/29/98

DATE(S) SAMPLED: 01/26/98

DATE RECEIVED: 01/26/98

AEN WORK ORDER: 9801240

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

Recipala

PAGE 2

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	-	Pre	ep 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

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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	-	Pr	rep Date	01/26/98
Arsenic	EPA 7060	7.8 *	0.005 mg	ı/L	01/27/98

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	-	1	Prep Date	01/26/98
Arsenic	EPA 7060	0.14 *	0.005 r	mg/L	01/27/98

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

PAGE 6

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	-	Pr	rep Date	01/26/98
Arsenic	EPA 7060	8.0 *	0.005 mg	g/L	01/27/98

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	G 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

PAGE 8

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 R	REPORTING LIMIT UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-	Prep Date	01/26/98
Arsenic	EPA 7060	0.87 *	0. 0 05 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	-	Pr	rep Date	01/26/98
Arsenic	EPA 7060	1.1 *	0.005 mg	g/L	01/27/98

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

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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

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-H-1 AEN LAB NO: 9801240-10 AEN WORK ORDER: 9801240 CLIENT PROJ. JD: 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	-	Р	rep Date	01/26/98
Arsenic	EPA 7060	0.23 *	0.005 m	g/L	01/27/98

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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	-	Pr	ep 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	-	Pr	ep Date	01/26/98
Arsenic	EPA 7060	0.50 *	0.005 mg	/L	01/27/98

PAGE 14

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-T-1 AEN LAB NO: 9801240-13 AEN WORK ORDER: 9801240

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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	-	P	rep Date	01/26/98
Arsenic	EPA 7060	0.27 *	0.005 mg	g/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	-	Į	Prep Date	01/26/98
Arsenic	EPA 7060	1.5 *	0.005 r	ng/L	01/27/98

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	-	F	rep Date	01/26/98
Arsenic	EPA 7060	0.042 *	0.005 m	ıg/L	01/27/98

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/Me		LAB ID:	INSTR RUN: 4000\980127120800/1/					
INSTRUMENT: TJA 4000		PREPARED	BATCH ID: GFW012698-0					
UNITS: mg/L		ANALYZED	DILUTION: 1.000000					
METHOD: ANALYTE Arsenic in water by GFAA	RESULT ND	ref Result	REPORTING LIMIT 0.005	SPIKE VALUE	RECOVERY (な)	REC LIMITS (%)) RPD (*)	RPD LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/M INSTRUMENT: TJA 4000 UNITS: mg/L METHOD:	edia blank		LAB ID: PREPARED: ANALYZED:	GFW_LCD_0 01/27/98		INSTR RUN: 4000\980127120800/3/1 BATCH ID: GFW012698-0 DILUTION: 1.000000
ANALYTE Arsenic in water by GFAA	RESULT 0.0430	REF RESULT ND	REPORTING LIMIT 0.005	SPIKE VALUE 0.0400	RECOVERY (%) 108	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 82 140
SAMPLE TYPE: Spike-Method/M INSTRUMENT: TJA 4000 UNITS: mg/L METHOD:	edia blank		LAB ID: PREPARED: ANALYZED:	GFW_LCS_0 01/27/98		INSTR RUN: 4000\980127120800/2/1 BATCH ID: GFW012698-0 DILUTION: 1.000000
ANALYTE Arsenic in water by GFAA	RESULT 0.0421	REF RESULT ND	REPORTING LIMIT 0.005	SPIKE VALUE 0.0400	RECOVERY (%) 105	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 82 140

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sa 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 Arsenic in water by GFAA	0.0430 0.	REF RESULT .0421	REPORTING LIMIT 0.005	SPIKE VALUE	RECOVERY (な)	REC LIMITS (%) LOW HIGH	RPD (%) 2.12	RPD LIMIT (*) 13

MATRIX SPIKE SAMPLES

			• • • • • • • • • •					
SAMPLE TYPE: Spike-Sample/Ma INSTRUMENT: TJA 4000 UNITS: mg/L		LAB ID: MD01240-10A PREPARED: ANALYZED: 01/27/98			INSTR RUN: 4000\980127120800/7/5 BATCH ID: GFW012698-0			
			ANALIZEU:	01/2//90		DILUTION: 1.000000		
METHOD: ANALYTE Arsenic in water by GFAA	RESULT 0.282	REF RESULT 0.232	REPORTING LIMIT 0.005	SPIKE VALUE 0.0400	RECOVERY (X) 125	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 41 167		
SAMPLE TYPE: Spike-Sample/Ma INSTRUMENT: TJA 4000	trix		LAB ID: PREPARED:	MS01240-10	A	INSTR RUN: 4000\980127120800/6/5 BATCH ID: GFW012698-0		
UNITS: mg/L METHOD:				01/27/98		DILUTION: 1.000000		
ANALYTE Arsenic in water by GFAA	RESULT 0.271	REF RESULT 0.232	REPORTING LIMIT 0.005	SPIKE VALUE 0.0400	RECOVERY (%) 97.5	REC LIMITS (*) RPD LOW HIGH RPD (*) LIMIT (*) 41 167		

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Arsenic

MATRIX: Water

MATRIX SPIKE DUPLICATES

WORK ORDER: 9801240

LAB ID: MR01240-10A PREPARED:

INSTR RUN: 4000\980127120800/8/6 BATCH ID: GFW012698-0 DILUTION: 1.000000

3.98

SAMPLE TYPE: Spiked Sample Duplicate
INSTRUMENT: TJA 4000
UNITS: mg/L

METHOD:

Arsenic in water by GFAA

ANALYZED: 01/27/98

ANALYTE

RESULT 0.282

REF REPORTING RESULT LIMIT 0.271 0.005

SPIKE VALUE

13

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

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

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			C	HAIN C	of CUS	TODY / AI	NALYSES	REQUEST	FORM 7	NORC	9801246	
Project No.: 3435, 00, 006 Project Location:				ocation: Em	eryville	CA	Date: 1-26	Date: 1-26-98 Serial				
Project Name: (roject Name: Shewin - Williams Field Logb					<i></i>				Nº	2279	
Sampler (Signat	ure): ∠	we					<u> </u>	ANALYSE	ES		Samplers:	RJ/LG
		-	SAMPLES			/:,	,///			/、/		•
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE	hr.swil			kord (AUSH	REMARKS	
WS-TNK-A-1	1-26-95	1425	14	1	WATER	×			> <	24-1	HOUR TA	7
WS-78K-B-1		1433	2/-	ı	1	×			><			
WS -7NK -D-1		1436	3Å	,		×			><			
WS-TNK-E-1		1442		,		Y			><	AUALY	LE FOR TO	TAL
W3-TNK-F-I	\neg	1445	4A 5 A	i		Y			><		FILTERED)	
WS-TAK-C-1	1	1456	GA	1		X			><		ENIC	
WS -7NK - M-1	1	1348	7Å	1	T	2		1	>~			
WS -TNK-L-1		1350	8A			X			D-4	RESUL	TS TO	
WS-TNK-1-1		1407	9A			×			7		FAZIER/	
WS -TNK-H-1		1404	(oA	1		1	1		><		HIU	
WS TAK-V-I		1320	ŰÀ	1		X	1		><		>H.>	
VS-TVK-U-1		1325	12.A	1		X.					· · · · · · · · · · · · · · · · · · ·	
W3-TNK-T-1	_	1345	(3)t	<u> </u>	1	X			~		· · · · · · · · · · · · · · · · · · ·	
WS-TNK-1-1	1	1404	144	j.	1	X	1	 	7<	. , , , , , , , , , , , , , , , , , , ,		
WS-TWK-K-1		1859	ish	1		8	+ + + -		><			
W 3 10/C 1	_	10-7	—— [21, ——	1	-		·					
RELINQUISHED B (Signature)	Y		ę_	DAT	26.98	TIME 40	RECEIVED (Y: Rich	Bilmo	ro	DATE /-26-48	IME :40
RELINQUISHED B (Signature)	Y: R	ich a	Dilmo		E 26-98	TIME 17:45	RECEIVED 6 (Signature	3Y	Paul	che		TIME (745
RELINQUISHED B (Signature)	Υ:			DAT		TIME	RECEIVED E (Signature					ПМЕ
METHOD OF SHIP	MENT:			DAT	E	TIME	LAB COMME	ENTS:				
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500					Analytical L	aboratory: N Plesa	+ Hill,	CA				

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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: 02/05/98

DATE(S) SAMPLED: 02/02/98

DATE RECEIVED: 02/02/98

ATTN: KERSTIN FRAZIER

CLIENT PROJ. ID: 3435.00.006 CLIENT PROJ. NAME: SHERWIN WMS

C.O.C. NUMBER: 1499

AEN WORK ORDER: 9802010

PROJECT SUMMARY:

On February 2, 1998, this laboratory received 1 water sample(s).

remile for

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

PAGE 2

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNK-K-2 AEN LAB NO: 9802010-01 AEN WORK ORDER: 9802010 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 Dat	e 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.

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9802010

SAMPLE TYPE: Blank-Method/Media blank

INSTRUMENT: TJA 4000

Arsenic in water by GFAA

UNITS: mg/L **METHOD:**

ANALYTE

UNITS:

METHOD:

RESULT

REF RESULT

ANALYZED: 02/03/98 REPORTING LIMIT

0.005

REPORTING

LIMIT

0.005

REPORTING

LAB ID: GFW_PBW_Y PREPARED:

LAB ID: GFW_LCD_Y

ANALYZED: 02/03/98

LAB ID: GFW_LCS_Y PREPARED: ANALYZED: 02/03/98

PREPARED:

SPIKE **VALUE**

SPIKE

VALUE

SPIKE

0.0400

RECOVERY (%)

RECOVERY

REC LIMITS (*) LOW HIGH RPD (%)

LIMIT (%)

RPD (%) LIMIT (%)

INSTR RUN: 4000\980203181400/1/

INSTR RUN: 4000\980203181400/3/1

INSTR RUN: 4000\980203181400/2/1

INSTR RUN: 4000\980203181400/4/2

BATCH ID: GFW020398-Y DILUTION: 1.000000

BATCH ID: GFW020398-Y DILUTION: 1.000000

BATCH ID: GFW020398-Y DILUTION: 1.000000

LABORATORY CONTROL SAMPLES

mg/L

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

ANALYTE Arsenic in water by GFAA

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

UNITS: METHOD:

ANALYTE Arsenic in water by GFAA

RESULT

RESULT

0.0377

RESULT ND

REF

RESULT

0.0350

REF

REF

ND

RESULT

LIMIT 0.005

VALUE 0.0400 87.5

RECOVERY

REC LIMITS (%) HIGH 82 140

REC LIMITS (%)

LOW HIGH 82 140

RPD (%)

RPD LIMIT (X)

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000 UNITS:

METHOD:

mg/L

Arsenic in water by GFAA

RESULT

0.0377

PREPARED: ANALYZED: 02/03/98 REPORTING

LIMIT

0.005

LAB ID:

SPIKE VALUE

GFW_LCR_Y

RECOVERY (1)

REC LIMITS (%)

LOW HIGH RPD (X) 7.43

BATCH ID: GFW020398-Y DILUTION: 1.000000

LIMIT (%) 13

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

C-1,5-4 CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9802010

Project No.: 3/	H35, 00	.006			Project L	ocation:	Er	nervill	P, (!	f		Date:	22.98	3	Serial No.	
Project Name:	Sher	win -1	Milliams		Field Log										Nº	1499
Sampler (Signat	ure): <	/ was			<u> </u>					AN	NALYSE	s			Samplers:	L 6
			SAMPLES										/_	/, /		
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE	P	e se mi						HOLD	ANST	REMARK	S
WS1-TNK-K-Z	2/4/46	12:15	/A	ı	water	\times							\succ	24-6,	TAT	
														A 100 C 100		
														Resul	tu to:	
														k	(entin Frazie	
RELINQUISHED E (Signature)	3Y:		Æ,	DA 2	TE. /45/	TIME 7	:30	RECEIV (Signa		Re	ik	Di	lm	orl	DATE 2-48	TIME 77:30
RELINQUISHED 8 (Signature)	Y: Re	h 2	Lilmore	DA	TE	TIME /8	35	RECEIV (Signa		fac	Lo de	fun	Sol	W	DATE 2/2/98	
RELINQUISHED 8 (Signature)	IY:			DA	TE	TIME		RECEIV (Signa							DATE	TIME
METHOD OF SHIP	PMENT:	Courie,	-	DA	.TE	TIME		LAB CO	MMEN ⁻	ΓS:						
Sample Collecto	r:	1900 Po	FRICKE•RECON well Street, 12th le, California 946 2-4500	Floor			·	Analytic			: nt Hi	II, CA				

All

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: KERSTIN FRAZIER/ SUSAN SHIU

CLIENT PROJ. ID: 3435.00.006 CLIENT PROJ. NAME: SHERWIN WMS

C.O.C. NUMBER: 2227

REPORT DATE: 02/05/98

DATE(S) SAMPLED: 02/03/98

DATE RECEIVED: 02/03/98

AEN WORK ORDER: 9802023

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.

Larky Klein

Laboratory Director

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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	-	Pr	ep Date	02/04/98
Arsenic	EPA 7060	0.49 *	0.005 mg	ı/L	02/05/98

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

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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	-	Pr	ep Date	02/04/98
Arsenic	EPA 7060	0.060 *	0.005 mg	/L	02/05/98

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	-	F	Prep Date	02/04/98
Arsenic	EPA 7060	0.018 *	0.005 n	ng/L	02/05/98

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	-	Pı	rep Date	02/04/98
Arsenic	EPA 7060	0.48 *	0.005 mg	g/L	02/05/98

LEVINE-FRICKE-RECON

SAMPLE ID: WS-TNKS-1 AEN LAB NO: 9802023-06 AEN WORK ORDER: 9802023 DATE SAMPLED: 02/03/98 DATE RECEIVED: 02/03/98 REPORT DATE: 02/05/98

CLIENT PROJ. ID: 3435.00.006

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

PAGE QR-1

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.

<u>Definitions</u>

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 instrument performance.

- D: Surrogates diluted out.
- I: Interference.
- !: Indicates result outside of established laboratory QC limits.

OUALITY CONTROL REPORT

WORK ORDER: 9802023

PAGE OR-2

RPD

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank LAB ID: GFW_PBW_B INSTR RUN: 4000\980205114200/1/

BATCH ID: GFW020498-B DILUTION: 1.000000 INSTRUMENT: TJA 4000 PREPARED:

mg/L ANALYZED: 02/05/98 UNITS: METHOD:

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

ND Arsenic in water by GFAA 0.005

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 INSTR RUN: 4000\980205114200/3/1 LAB ID: GFW_LCD_B

PREPARED:

BATCH ID: GFW020498-B DILUTION: 1.000000 UNITS: mg/L ANALYZED: 02/05/98

METHOD:

RECOVERY REC LIMITS (%) REF REPORTING SPIKE LIMIT LOW HIGH RPD (%) LIMIT (%) 82 140 ANALYTE RESULT RESULT VALUE

Arsenic in water by GFAA 0.005 0.0400 0.0394

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 LAB ID: GFW_LCS_B PREPARED: INSTR RUN: 4000\980205114200/2/1 BATCH ID: GFW020498-B DILUTION: 1.000000

mg/L UNITS: ANALYZED: 02/05/98

METHOD:

RECOVERY REC LIMITS (X) REPORTING SPIKE (*) ANALYTE. RESULT RESULT VALUE LIMIT

LOW HIGH RPD (%) LIMIT (%) 82 140 91.0 Arsenic in water by GFAA 0.0364 ND 0.005 0.0400

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTR RUN: 4000\980205114200/4/2

LAB ID: GFW_LCR_B PREPARED: BATCH ID: GFW020498-B DILUTION: 1.000000 INSTRUMENT: TJA 4000

UNITS: mg/L ANALYZED: 02/05/98

METHOD: RECOVERY REC LIMITS (%) REF REPORTING SPIKE

RESULT LOW HIGH RPD (%) LIMIT (%) RESULT LIMIT VALUE (%) ANALYTE

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 LAB ID: MD02023-02A INSTR RUN: 4000\980205114200/7/5

BATCH ID: GFW020498-B DILUTION: 1.000000 PREPARED:

ANALYZED: 02/05/98 UNITS:

mg/L METHOD:

RECOVERY REC LIMITS (%) REF REPORTING SPIKE LOW HIGH RPD (%) LIMIT (%) VALUE (*) 77.0 RESULT RESULT ANALYTE ITMIT

Arsenic in water by GFAA 0.0400 41 0.0718 0.04100.005 167

SAMPLE TYPE: Spike-Sample/Matrix INSTRUMENT: TJA 4000 UNITS: mg/L INSTR RUN: 4000\980205114200/6/5 BATCH ID: GFW020498-B DILUTION: 1.000000 LAB ID: MS02023-02A

PREPARED:

ANALYZED: 02/05/98 METHOD:

REPORTING RECOVERY REC LIMITS (%) REF SPIKE RESULT RESULT VALUE IIMIT

LOW HIGH RPD (%) LIMIT (%) 41 167 Arsenic in water by GFAA 0.0731 0.0410 80.3 41 0.0400 0.005

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Arsenic

MATRIX: Water

MATRIX SPIKE DUPLICATES

WORK ORDER: 9802023

SAMPLE TYPE: Spiked Sample Duplicate INSTRUMENT: TJA 4000 mg/L

Arsenic in water by GFAA

METHOD:

ANALYTE

RESULT

0.0718

REF RESULT 0.0731

REPORTING LIMIT 0.005

SPIKE VALUE

RECOVERY (%)

REC LIMITS (%)
LOW HIGH RPD (%)
1.79

INSTR RUN: 4000\980205114200/8/6 BATCH ID: GFW020498-B DILUTION: 1.000000

RPD LIMIT (%) 13

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

LAB ID: MR02023-02A PREPARED:

ANALYZED: 02/05/98

9802023 Emeryuille Project Location: Serial No.: Project No.: 3435.00.006 $N_{\bar{0}}$ 2227 Field Logbook No.: 14 Project Name: Sherwin-Williams Sampler (Signature): Gene Bany
SAMPLES Samplers: ART, MIT **ANALYSES** RUSH HOLD NO. OF LAB SAMPLE REMARKS SAMPLE CON-DATE TIME SAMPLE NO. NO. TYPE **TAINERS** 1A Life With X 24 hr TAT W5-TNKE-Z 2/3/98 12725 LIGHTY X 2A WS-TNKN-1 2/3/48 12:30 WS ALL GB 3A LIXWA X WS-TNKP-1 2/3/98 12 15 WS-TNKQ-2 2/3/98 12:15 -14 X WS-TAKR-1 2/3/98 1210 **5**A WS-TNKS-1 2/3/98 12:05 Desults to: Kerstin Frazier Swan Shiu RECEIVED BY: Rich Bilmore
(Signature) RELINQUISHED BY: Meslevel_ TIME DATE DATE TIME / 7:00 2-3-98 DATE TIME RECEIVED BY: DATE TIME RELINQUISHED BY: (Signature) ---7-7-98 17:30 1730 (Signature) RECEIVED BY: DATE TIME DATE TIME RELINQUISHED BY: (Signature) (Signature) TIME DATE LAB COMMENTS: METHOD OF SHIPMENT: Courter FAX RESults to 8 Analytical Laboratory: AEN LEVINE*FRICKE*RECON Sample Collector: Kerstin Frazier 1900 Powell Street, 12th Floor Pleasant Hill, CA Emeryville, California 94608-1827 susan Shiu (510) 652-4500

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Shipping Copy (White)

Lab Copy (Yellow)

File Copy (Pink)

Field Copy (Goldenrod)

COC.CDR 101596RYL

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

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 Acetone	EPA 8240B	ND	1000		
Benzene	67-64-1	ND	1000		11/11/97
	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 i	ug/L	11/11/97
cis-1,3-Dichloropropene	10061-01-5	ND	50 i	ug/L	11/11/97
trans-1,3-Dichloropropene	10061-02-6	ND	50 i	ug/L	11/11/97
Ethylbenzene	100-41-4	210 *	50 i	ug/L	11/11/97
2-Hexanone	591-78-6	ND	500 i	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 i	ug/L	11/11/97
1.1.2.2-Tetrachloroethane	79-34-5	ΝD	50 (ug/L	11/11/97
Tetrachloroethene	127-18-4	ND	50 (ug/L	11/11/97
Toluene	108-88-3	460 *		ug/L	11/11/97
1.1.1-Trichloroethane	71-55-6	ND	50 i	ug/L	11/11/97
1.1.2-Trichloroethane	79-00-5	ND		ug/L	11/11/97
Trichloroethene	79-01-6	ND		ug/L	11/11/97
Vinyl Acetate	108-05-4	ND	500 (11/11/97
Vinyl Chloride	75-01-4	ND	100 (11/11/97
Xylenes, Total	1330-20-7	690 *	100 (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

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT UNITS	DATE ANALYZED
CCR 17 Metals				
Ag Silver As Arsenic Ba Barium	EPA 200.7 EPA 206.2 EPA 200.7	ND 10 * 0.09 *	0.005 mg/L 0.5 mg/L 0.01 mg/L	11/11/97 11/11/97 11/11/97
Be Beryllium Cd Cadmium Co Cobalt Cr Chromium	EPA 200.7 EPA 200.7 EPA 200.7 EPA 200.7	ND ND ND ND	0.002 mg/L 0.1 mg/L 0.005 mg/L 0.01 mg/L	11/11/97 11/11/97 11/11/97 11/11/97
Cu Copper Hg Mercury Mo Molybdenum	EPA 200.7 EPA 245.1 EPA 200.7	0.02 * ND ND	0.01 mg/L 0.0002 mg/L 0.01 mg/L	11/11/97 11/11/97 11/11/97
Ni Nickel Pb Lead Sb Antimony	EPA 200.7 EPA 200.7 EPA 200.7	ND ND ND ND	0.01 mg/L 0.04 mg/L 0.02 mg/L 1 mg/L	11/11/97 11/11/97 11/11/97 11/11/97
Se Selenium Tl Thallium V Vanadium Zn Zinc	EPA 270.2 EPA 200.7 EPA 200.7 EPA 200.7	ND 0.006 * 0.31 *	0.05 mg/L 0.005 mg/L 0.01 mg/L	11/11/97 11/11/97 11/11/97 11/11/97
#Extraction for BNAs	EPA 3520	.	Extrn Date	11/10/97
EPA 8270B - Water Matrix Acenaphthene Acenaphthylene Anthracene Benzidine Benzoic Acid Benzo(a)anthracene Benzo(b)fluoranthene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(a)pyrene Benzo(a)pyrene Benzyl Alcohol Bis(2-chloroethoxy)methane Bis(2-chloroethyl) Ether Bis(2-chloroisopropyl) Ether Bis(2-ethylhexyl) Phthalate 4-Bromophenyl Phenyl Ether Butylbenzyl Phthalate 4-Chloroaniline 2-Chloronaphthalene 4-Chlorophenyl Phenyl Ether	117-81-7 101-55-3 85-68-7 106-47-8 91-58-7		10 ug/L 10 ug/L 10 ug/L 10 ug/L 50 ug/L 50 ug/L 10 ug/L	11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 11/12/97 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

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	5 41- 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 -4 7-4	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 uğ/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 *		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	ИD	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 RESULT LIMIT UNITS					
Phenol 2.4.5-Trichlorophenol 2.4.6-Trichlorophenol	108-95-2 95-95-4 88-06-2	ND ND ND	10 u 10 u 10 u	ığ/L	11/12/97 11/12/97 11/12/97			

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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 L	JNITS	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

LEVINE-FRICKE-RECON

SAMPLE ID: W-ANDEFF AEN LAB NO: 9711109-03 AEN WORK ORDER: 9711109 CLIENT PROJ. ID: 2616.97.01

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT			
#Digestion/G. Furnace	EPA 200.0	-	F	Prep Date	11/10/97	
Arsenic	EPA 206.2	0.014 *	0.005 п	ıg/L	11/11/97	
ND = Not detected at or a * = Value at or above re	bove the reportin		0.000	. 5. –		

PAGE QR-1

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.

<u>Definitions</u>

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

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QUALITY CONTROL REPORT

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ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: TJA 4000 LAB_ID: GFW_PBW_W INSTR RUN: 4000\971111122100/1/

BATCH ID: GFW111097-W DILUTION: 1.000000 PREPARED: ANALYZED: 11/11/97

mg/L METHOD:

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

Arsenic in water by GFAA ND 0.002

LABORATORY CONTROL SAMPLES

LAB ID: GFW_LCD_W INSTR RUN: 4000\971111122100/3/1

SAMPLE TYPE: Spike Method/Media blank INSTRUMENT: TJA 4000 BATCH ID: GFW111097-W DILUTION: 1.000000 PREPARED:

mg/L ANALYZED: 11/11/97 UNITS: Method:

RECOVERY REC LIMITS (*) REF SPIKE LOW HIGH RPD (%) LIMIT (%) 82 140 REPORTING VALUE RESULT RESULT ANALYTE

LIMIT VALUE 0.002 0.0400 0.0403 82 140 Arsenic in water by GFAA ND

LAB ID: GFW_LCS_W PREPARED: SAMPLE TYPE: Spike Method/Media blank INSTRUMENT: TJA 4000 INSTR RUN: 4000\971111122100/2/1 BATCH ID: GFW111097-W DILUTION: 1.000000

mg/L ANALYZED: 11/11/97 UNITS:

METHOD:

RECOVERY REC LIMITS (x) RPD (x) LOW HIGH RPD (x) LIMIT (x) 89.0 82 140 SPIKE ref REPORTING LIMIT RESULT RESULT VALUE

ND 0.0400 Arsenic in water by GFAA 0.0356

LABORATORY CONTROL DUPLICATES

LAB ID: GFW_LCR_W SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000 INSTR RUN: 4000\971111122100/4/2 BATCH ID: GFW111097-W DILUTION: 1.000000 PREPARED:

ANALYZED: 11/11/97 UNITS: mg/L

METHOD:

REC LIMITS (%) RECOVERY RPD REF REPORTING LOW HIGH RPD (%) LIMIT (%) ANALYTE RESULT RESULT LIMIT VALUE (%)

0.002 12.4 Arsenic in water by GFAA 0.0403 0.0356

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QUALITY CONTROL REPORT

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ANALYSIS: Mercury

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Me INSTRUMENT: Coleman Hg Anal 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 Mercury in water	RESULT ND	ref Result	REPORTING LIMIT 0.0002	SPIKE Value	RECOVERY (*)	REC LIMITS (%) LOW HIGH	RPD (X)	RPD LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method INSTRUMENT: Coleman Hg A UNITS: mg/L METHOD:	/Media blank nalyzer 50D	LAB ID: HGW_LCD PREPARED: ANALYZED: 11/11/97				INSTR RUN: HG\971111130000/3/1 BATCH ID: HGW111197 DILUTION: 1.000000			
ANALYTE Mercury in water	RESULT 0.00195	REF RESULT ND	REPORTING LIMIT 0.0002	SPIKE VALUE 0.00200	RECOVERY (*) 97.5	REC LIMITS (\$) RPD LOW HIGH RPD (\$) LIMIT (\$ 89 121	*)		
SAMPLE TYPE: Spike-Method INSTRUMENT: Coleman Hg A UNITS: mg/L METHOD:	/Media blank nalyzer 500		LAB ID: PREPARE ANALYZE			INSTR RUN: HG\971111130000/2/1 BATCH ID: HGW111197 DILUTION: 1.000000			
ANALYTE Mercury in water	RESULT 0.00195	REF RESULT ND	REPORTING LIMIT 0.0002	SPIKE VALUE 0.00200	RECOVERY (*) 97.5	REC LIMITS (*) RPD LOW HIGH RPD (*) LIMIT (* 89 121	r) 		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike S. INSTRUMENT: Coleman Hg Ana UNITS: mg/L METHOD:	ample Duplica lyzer 50D	ate	LAB ID: PREPARED ANALYZED	HGW_LCR):): 11/11/97			5\97111130 5W111197 .000000	000/4/2
ANALYTE Mercury in water	RESULT 0.00195	REF RESULT 0.00195	REPORTING LIMIT 0.0002	SPIKE VALUE	RECOVERY (%)	REC LIMITS (*) LOW HIGH	RPD (*)	RPD LIMIT (%) 10

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Sample INSTRUMENT: Coleman Hg / UNITS: mg/L METHOD:	e/Matrix		LAB ID: PREPAREI	MS11109-01		INSTR RUN BATCH ID: DILUTION:	t: HG		11300	
ANALYTE Mercury in water	RESULT 0.00195	REF RESULT ND	REPORTING LIMIT 0.0002	SPIKE VALUE 0.00200	RECOVERY (*) 97.5		(*) IIGH 28	RPD ((%)	RPD LIMIT (%)

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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/Med INSTRUMENT: TJA Enviro 36 UNITS: mg/L	• • • • • • • • •	LAB ID: PREPARED: ANALYZED:	IFW_BLNK_V 11/11/97		INSTR RUBATCH ID	: IFV	7\97111114 V111097-V 000000	5700/1/	
METHOD:		REF	REPORTING	SPIKE	RECOVERY	REC LIMIT	S (2)		RPD
ANALYTE Ag Silver Ba Barium Be Beryllium Cd Cadmium Co Cobalt Cr Chromium Cu Copper Mo Molybdenum Ni Nickel Pb Lead Sb Antimony Tl Thallium V Vanadium Zn Zinc	Result ND ND ND ND ND ND ND ND ND ND ND	RESULT	LIMIT 0.005 0.01 0.002 0.005 0.005 0.01 0.01 0.01 0.01 0.04 0.02 0.05 0.005	VALUE	(*)		ĂΙĠĤ	RPD (*)	LIMÎT (*)

LABORATORY CONTROL SAMPLES

INSTRU UNITS:	SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA Enviro 36 UNITS: mg/L METHOD:			LAB ID: PREPARED ANALYZED	IFW_LCD_V 1: 11/11/97	•••••	INSTR RUBATCH ID): IFI	P\9711114 √111097·V 000000	5700/3/1
METHOD ANALYT Ag Ba Be Cd Co Cr Cr Cu Mo Ni Pb Sb TT V Zn		RESULT 0.0232 1.03 0.0276 0.0500 0.276 0.109 0.124 0.216 0.280 0.542 0.542 0.523 0.270 0.265	REF RESULT ND ND ND ND ND ND ND ND ND ND ND ND ND	REPORTING LIMIT 0.005 0.01 0.002 0.005 0.005 0.01 0.01 0.01 0.01 0.04 0.02 0.05 0.005	SPIKE VALUE 0.0250 1.00 0.0250 0.0500 0.250 0.100 0.125 0.200 0.250 0.500 0.500 0.500 0.250	RECOVERY (\$) 92.8 103 110 100 109 99.2 108 112 109 108 105 108	72 91 82 84 96 85 86 89 92 90 82 85 91	HIGH 127 120 119 120 120 128 123 117 121 122 113 115 118 121	RPD (%)	RPD LIMIT (%)
CAMPI	TYPE Snike Metho	nd/Media blank		LAB ID:	IFW LCS V		INSTR R	UN: IC	P\9711114	5700/2/1

Zn	Zinc	0.265	ND	0.01	0.250	100	90	121		
INSTRU	E TYPE: Spike-Metho JMENT: TJA Enviro : mg/L	d/Media blank 36		LAB ID: PREPARED ANALYZE	IFW_LCS_V):): 11/11/97		INSTR F BATCH I DILUTIO	ID: IFW	\97111114 111097-V 00000	5700/2/1
UNITS: METHOD ANALY	D:	RESULT 0.0229	REF RESULT ND	REPORTING LIMIT 0.005	SPIKE VALUE 0.0250	RECOVERY (%) 91.6	REC LIM LOW 72	HIGH 127	RPD (%)	RPD LIMIT (%)
Ag Ba Be Çd	Barium Beryllium Cadmium	1.02 0.0278 0.0491	ND ND ND	0.01 0.002 0.005	1.00 0.0250 0.0500 0.250	102 111 98.2 109	91 82 84 96	120 119 120 120		
Co Cr Cu Mo	Cobalt Chromium Copper Molybdenum	0.273 0.105 0.123 0.213	ND ND ND ND	0.005 0.01 0.01 0.01	0.100 0.125 0.200	105 98.4 107	85 86 89	128 123 117		
Ni Pb Sb	Nickel Lead Antimony	0.278 0.546 0.528	ND ND ND	0.01 0.04 0.02	0.250 0.500 0.500	111 109 106	92 90 82 85	121 122 113 115		
T1 V Zn	Thallium Vanadium Zinc	0.514 0.265 0.265	ND ND ND	0.05 0.005 0.01	0.500 0.250 0.250	103 106 106	91 90	118 121		

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QUALITY CONTROL REPORT

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ANALYSIS: Metals Scan by ICP

MATRIX: Water

LABORATORY CONTROL DUPLICATES

INSTRU UNITS:	SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA Enviro 36 UNITS: mg/L METHOD:			LAB ID: PREPARED ANALYZED	IFW_LCR_V : 11/11/97		INSTR R BATCH I DILUTIO	D: IFW:	\9711114 111097-V 00000	5700/4/2
ANALYT Ag Ba Be Cd Co Cr Cu Mo Ni Pb Sb T1 V Zn		RESULT 0.0232 1.03 0.0276 0.0500 0.276 0.109 0.124 0.216 0.280 0.544 0.542 0.523 0.270 0.265	REF RESULT 0.0229 1.02 0.0278 0.0491 0.273 0.105 0.123 0.213 0.278 0.546 0.528 0.514 0.265	REPORTING LIMIT 0.005 0.01 0.002 0.005 0.005 0.01 0.01 0.01 0.04 0.02 0.05 0.005 0.005	SPIKE VALUE	RECOVERY	REC LIMI LOW	0 0 0 0	RPD (%) 1.30 .976 .722 1.82 1.82 1.09 3.74 .810 1.40 .717 .367 2.62 1.74 1.87	RPD LIMIT (%) 10 10 10 10 10 10 10 10 10 10 10

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QUALITY CONTROL REPORT

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ANALYSIS: Selenium

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Med INSTRUMENT: TJA 4000 UNITS: mg/L	dia blank		LAB ID: PREPARED ANALYZED	GFW_PBW_W : 11/11/97		INSTR RUN: 4000\971111122200/1/ BATCH ID: GFW111097-W DILUTION: 1.000000	
METHOD: ANALYTE Selenium in water by GFAA	RESULT ND	REF RESULT	REPORTING LIMIT 0.004	SPIKE VALUE	RECOVERY (な)	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%)	

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 UNITS: mg/L			LAB ID: PREPARED: ANALYZED:	GFW_LCD_W : 11/11/97		INSTR RUN: 4000\971111122200/3/1 BATCH ID: GFW111097-W DILUTION: 1.000000			
METHOD: ANALYTE Selenium in water by GFAA	RESULT 0.0775	REF RESULT ND	REPORTING LIMIT 0.004	SPIKE VALUE 0.0800	RECOVERY (%) 96.9	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 79 115			
SAMPLE TYPE: Spike-Method/Me INSTRUMENT: TJA 4000 UNITS: mg/L	edia blank		LAB ID: PREPARED: ANALYZED:	GFW_LCS_W 11/11/97	•••••	INSTR RUN: 4000\971111122200/2/1 BATCH ID: GFW111097-W DILUTION: 1.000000			
METHOD: ANALYTE Selenium in water by GFAA	RESULT	ref Result	REPORTING LIMIT 0.004	SPIKE VALUE 0.0800	RECOVERY (よ) 95.9	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 79 115			

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Dupli INSTRUMENT: TJA 4000 UNITS: mg/L		LAB ID: GFW_LCR_W INSTR RUN: 4000\971111122200 PREPARED: BATCH ID: GFW111097-W ANALYZED: 11/11/97 DILUTION: 1.000000					
METHOD: ANALYTE RESULT Selenium in water by GFAA 0.0775	REF RESULT 0.0767	REPORTING LIMIT 0.004	SPIKE VALUE	RECOVERY (X)	REC LIMITS (%) LOW HIGH	RPD (%) 1.04	RPD LIMIT (%) 13

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

LABORATORY CONTROL SAMPLES

WORK ORDER: 9711109

SAMPLE TYPE: Laboratory Control Spike INSTRUMENT: HP-5890 for Semi-volatile: UNITS: ug/L	ontrol Spike Semi-volatiles		INSTR RUN: GCMS10\971110080000/3/2 BATCH ID: BNAW111097 DILUTION: 1.00							
METHOD: ANALYTE	EPA 8270B	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY	REC LIM	HIGH	RPD (%)	RPD LIMIT (%)
Pyrene		116	ND	10	100	116	32	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Contr INSTRUMENT: HP-5890 for Semi UNITS: ug/L	LAB ID: PREPARED: ANALYZED:	LCR 1110 11/10/97 11/12/97		INSTR RUN: GCMS10\971110080000/5/3 BATCH ID: BNAW111097 DILUTION: 1.00			
METHOD: EPA 8270B ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2,4,6-Tribromophenol(surr) Terphenyl-d14 (surr)	REF RESULT RESULT 92.3 99.8 91.6 97.0 90.3 96.4 99.1 103 105 110 124 128	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100 100	RECOVERY (*) 92.3 91.6 90.3 99.1 105 124	REC LIMITS (*) LOW HIGH 42 110 40 122 46 109 41 140 46 116 35 165	RPD (%)	RPD LIMIT (%)
Phenol 2-Chlorophenol 1,4-Dichlorobenzene N-Nitrosodi-n-propylamine 1,2,4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2,4-Dinitrotoluene Pentachlorophenol Pyrene	74.5 75.0 83.0 84.2 91.2 91.6 67.6 64.9 96.8 99.6 81.0 80.8 96.1 95.5 54.1 59.6 90.5 95.2 56.4 62.9 121 116	10 10 10 10 10 10 10 50 10	100 100 100 100 100 100 100 100 100 100			0.669 1.44 0.438 4.08 2.85 0.247 0.626 9.67 5.06 10.9 4.22	40 40 30 30 30 30 40 40 30 30

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client INSTRUMENT: HP-5890 for Semi UNITS: UPA	i-volatiles	9711109-010): 11/10/97): 11/12/97	;	INSTR (BATCH) DILUTIO	ID: BN/	W111097	0080000/1/
METHOD: EPA 82708 ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2,4,6-Tribromophenol(surr) Terphenyl-d14 (surr)	RESULT RESU 89.7 94.1 88.8 96.1 115 111	SPIKE VALUE 100 100 100 100 100 100	RECOVERY (%) 89.7 94.1 88.8 96.1 115 111	REC LIM LOW 42 40 46 41 46 35	ITS (%) HIGH 110 122 109 140 116 165	RPD (%)	RPD LIMIT (%)

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ANALYSIS: Volatile GC/MS

MATRIX: Water

METHOD BLANK SAMPLES

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SAMPLE TYPE: Blank-Method/Me INSTRUMENT: HP mass spec fo UNITS: ug/L	dia blank r Volatiles		LAB ID: PREPARED: ANALYZED:	BLNK_1110 11/10/97		Batch	RUN: GC! ID: MS: ON: 1.0	L3W111197-	10210000/1/ ·2
METHOD: EPA 8240B			FERRETTUR	COTE	OFCOUEDY	OCC LIM	TTC /#%		กกก
	· · · -	REF	REPORTING	SPIKE	RECOVERY	REC LIM	HIGH	RPD (%)	RPD
ANALYTE	result	RESULT	LIMIT	VALUE	(%) 96.7	LO₩.		KPD (X)	LIMIT (%)
1.2-DCA-d4 (surr)	96.7			100	96./	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	NĎ		Š					•	
Trichloroethene	NĎ		5 5 5 5						
	ND		š						
Toluene	ND		5						
Chlorobenzene			100						
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 10						
Chloromethane	ND		10						
Dibromochloromethane	ND		5						
1.1-Dichloroethane	ND		5						
1,2-Dichloroethane	ND		555555						
cis-1,2-Dichloroethene	ND		Š						
trans-1,2-Dichloroethene	ND		Š						
1 2 Dish anangana	ND		ត័						
1.2-Dichloropropane	ND		Ĕ						
cis-1,3-Dichloropropene	ND		5 5 5						
trans-1,3-Dichloropropene	ND ND		ž						
Ethylbenzene			50						
2-Hexanone	ND		10						
Methylene Chloride	ND .		10 50						
4-Methyl-2-pentanone	ND		50 5 5 5 5 5 5 5 5 5 5						
Styrene	ND		5						
1.1.2.2-Tetrachloroethane	ND		5						
Tetrachloroethene	ND		5						
1,1,1-Trichloroethane	ND		ž						
1,1,2-Trichloroethane	ND		.5						
Vinyl Acetate	ND		50						
Vinyl Chloride	ND		10			•			
Xylenes, Total	ND		10						
1,2-Dibromoethane	ND		5 5 5						
1.2-Dichlorobenzene	ND		5						
1,3-Dichlorobenzene	ND		5						
1.4-Dichlorobenzene	ND		5						
Dichlorodifluoromethane	NĎ		10						
Trichlorofluoromethane	ND		5						
Trichlorotrifluoroethane	ND		5 5						
Tetrahydrofuran	ND		5Ŏ					•	
	ND		100						
Ethanol	ND		200						

LABORATORY CONTROL SAMPLES

UNITS: ug/L	iss spec for	ol Spike Volatiles		LAB ID: PREPARED ANALYZED	LCS_1111):): 11/11/97		INSTR BATCH DILUTI	ID: MSI	L3W111197-	0210000/6/1 2
METHOD: EPA 8 ANALYTE 1.2-DCA-d4 Toluene-d8 p-BFB 1,1-Dichloroethene	(surr) (surr) (surr)	RESULT 122 104 105 64.0	REF RESULT 96.7 98.1 99.3 ND	REPORTING LIMIT	SPIKE VALUE 100 100 100 50.0	RECOVERY (%) 122 104 105 128	REC LIM LOW 75 81 78 77	ITS (%) HIGH 129 111 131 137	RPD (%)	RPD LIMIT (%)

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ANALYSIS: Volatile GC/MS

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Contr INSTRUMENT: HP mass spec for UNITS: ug/L METHOD: EPA 8240B	ol Spike Volatiles		LAB ID: PREPARED ANALYZED	LCS_1111 11/11/97		INSTR BATCH DILUTI	ID: MS.	13W111197 -	0210000/6/1 2
ANALYTE Benzene Trichloroethene Toluene Chlorobenzene	RESULT 54.1 45.9 51.8 53.2	REF RESULT ND ND ND ND	REPORTING LIMIT 5 5 5 5	SPIKE VALUE 50.0 50.0 50.0 50.0	RECOVERY (%) 108 91.8 104 106	REC LIM LOW 89 83 81 88	ITS (%) HIGH 142 121 121 124	RPD (X)	RPD LIMIT (%)

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike INSTRUMENT: HP mas	LAB ID: MD11109-01A PREPARED:				INSTR RUN: GCMS13\971110210000/4/2 BATCH ID: MS13W111197-2					
UNITS: ug/L METHOD: EPA 82					: 11/11/97		DILUTI	,		
			REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (%)		RPD
ANALYTE		RESULT	RESULT	LIMIT	VALUE	(*)	LOW	HIGH	RPD (%)	LIMIT (な)
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	81 78	131		
1.1-Dichloroethene	(50,	58.2	ND	5	50.0	116	77	137		
Benzene		62.5	8.59	Š	50.0	108	89	142		
Trichloroethene		46.9	ND	Š	50.0	93.8	83	121		
Toluene		345	324	Š	50.0	42.0 !	81	121		
Chlorobenzene		53.8	ÑĎ	Š	50.0	108	88	124		
SAMPLE TYPE: Spike	-Sample/Ma	trix		LAB ID:	MS11109-03	LA	INSTR	run: GCI	MS13\97111	0210000/3/2

SAMPLE TIPE: Spike-Samp			DAD ID;	H211102.03	rv.	DATES TO METOLISTA OF O					
INSTRUMENT: HP mass sp	ec for Volatiles		PREPARED:					BATCH ID: MS13WI11197-2			
UNITS: ug/L		analyzed		DILUTION: 1,00							
METHOD: EPA 8240B											
		REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (*)		RPD		
ANALYTE	result	RESULT	LIMIT	VALUE	(2)	LOW	HIGH	RPD (な)	LIMIT (%)		
1.2-DCA-d4 (su	rr) 105	113		100	105	75	129				
Toluene-d8 (su		97.6		100	99.2	81	111				
p-BFB (su	rr) 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 INSTRUMENT: HP mas		LAB ID: MR11109-01A INSTR RUN: GCMS13\9711102100 PREPARED: BATCH ID: MS13W111197-2								
UNITS: ug/L METHOD: EPA 82	•	Volatiles			11/11/97		DILUTI			-
	- 102		REF	REPORTING	SPIKE	RECOVERY	REC_LIM		nan (II)	RPD
ANALYTE		result	RESULT	LIMIT	VALUE	(*)	FOM	HIGH	RPD (X)	LIMIT (%)
1,2-DCA-d4	(surr)	106	105		100	106	75	129		
Toluene · d8	(surr)	96.3	99.2 108		100	96.3 108	81 78	111		
p-8FB 1,1-Dichloroethene	(surr)	108 58.2	58.8	E	100 50.0	100	70	131	1.03	25
Benzene		62.5	61.9	S E	50.0				0.965	25
Trichloroethene		46.9	46.4	Š	50.0				1.07	25
Toluene		345	348	5	50.0				0.866	25 25 25 25 25
Chlorobenzene		53.8	54.0	Š	50.0				0.371	25

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ANALYSIS: Selenium

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Med INSTRUMENT: TJA 4000 UNITS: mg/L		LAB ID: PREPARED	GFW_PBW_W	INSTR RUN: 4000\971111122200/1/ BATCH ID: GFW111097-W DILUTION: 1.000000			
METHOD: ANALYTE Selenium in water by GFAA	RESULT ND	ref Result	REPORTING LIMIT 0.004	SPIKE VALUE	RECOVERY (*)	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%	()

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Me INSTRUMENT: TJA 4000 UNITS: mg/L	LAB ID: GFW_LCD_W PREPARED: ANALYZED: 11/11/97			INSTR RUN: 4000\971111122200/3/1 BATCH ID: GFW111097-W DILUTION: 1.000000			
METHOD: ANALYTE Selenium in water by GFAA	RESULT 0.0775	REF RESULT ND	REPORTING LIMIT 0.004	SPIKE VALUE 0.0800	RECOVERY (%) 96.9	REC LIHITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 79 115	
SAMPLE TYPE: Spike-Method/Me INSTRUMENT: TJA 4000 UNITS: mg/L	edia blank		LAB ID: PREPARED ANALYZED	GFW_LCS_W 11/11/97	•••••	INSTR RUN: 4000\971111122200/2/1 BATCH ID: GFW111097-W DILUTION: 1.000000	
METHOD: ANALYTE Selenium in water by GFAA	RESULT 0.0767	REF RESULT ND	REPORTING LIMIT 0.004	SPIKE VALUE 0.0800	RECOVERY (%) 95.9	REC LIMITS (%) RPD LOW HIGH RPD (%) LIMIT (%) 79 115	

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sa INSTRUMENT: TJA 4000 UNITS: mg/L				LAB ID: GFW_LCR_W PREPARED: ANALYZED: 11/11/97			INSTR RUN: 4000\971111122200/4/2 BATCH ID: GFW111097-W DILUTION: 1.000000			
METHOD: ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW HIGH	RPD (%)	RPD LIMIT (な)		
Selenium in water by GFAA	0.0775	0.0767	0.004				1.04	10		

QUALITY CONTROL REPORT

WORK ORDER: 9711109

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Mec INSTRUMENT: HP-5890 for Semi UNITS: ug/L				BLNK 1110 : 11/10/97 : 11/12/97		INSTR F BATCH I DILUTIO	ID: BN	AW111097	.0080000/2/
METHOD: EPA 8270B		REF	REPORTING	SPIKE	RECOVERY	REC LIM	TS (%)		RPD
ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2,4,6-Tribromophenol(surr) Terphenyl-d14 (surr) Phenol 2-Chlorophenol	95.4 89.9 91.1 95.6 93.5 118 ND ND	ESULT	LIMIT 10 10	VALUE 100 100 100 100 100 100	95.4 89.9 91.1 95.6 93.5 118	LOW 42 40 46 41 46 35	HIGH 110 122 109 140 116 165	RPD (\$)	LIMÎT (*)
1.4-Dichlorobenzene N-Nitrosodi-n-propylamine 1.2.4-Trichlorobenzene 4-Chloro-3-methylphenol	ND ND ND ND		10 10 10 10						
Acenaphthene 4-Nitrophenol 2,4-Dinitrotoluene Pentachlorophenol	ND ND ND ND		10 50 10 50		. •				
Pyrene Acenaphthylene Anthracene Benzidine	ND ND ND ND		10 10 10 50						
Benzoic Acid Benzo(a)anthracene Benzo(b)fluoranthene	ND ND ND ND		50 10 10 10						
Benzo(k)fluoranthene Benzo(g,h,i)perylene Benzo(a)pyrene Benzyl Alcohol	ND ND ND		10 10 20						
Bis(2-chloroethoxy)methane Bis(2-chloroethyl) Ether Bis(2-chloroisopropyl) Eth Bis(2-ethylhexyl) Phthalat	ND ND ND ND		10 10 10 10						
4-Bromophenyl Phenyl Ether Butylbenzyl Phthalate 4-Chloroaniline 2-Chloronaphthalene	ND ND ND ND		10 10 20 10						
4-Chlorophenyl Phenyl Ethe Chrysene Dibenzo(a.h)anthracene Dibenzofuran	ND ND ND ND		10 10 10 10			•			
Di-n-butyl Phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 3,3'-Dichlorobenzidine	ND ND ND ND		10 10 10 20						
Diethyl Phthalate Dimethyl Phthalate 2,6-Dinitrotoluene Di-n-octyl Phthalate	ND ND ND ND		10 10 10 10						
1.2-Diphenylhydrazine Fluoranthene Fluorene	ND ND ND ND		10 10 10 10						
Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachloroethane	ND ND ND		10 10 10						
Indeno(1,2,3-cd)pyrene Isophorone 2-Methylnaphthalene Naphthalene	ND ND ND ND		10 10 10 10						
2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene	ND ND ND ND		50 50 50 10						
N-Nitrosodimethylamine N-Nitrosodiphenylamine	ND ND ND		10 10 10						

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9711109

SAMPLE TYPE: Blank-Method/M INSTRUMENT: HP-5890 for Se UNITS: ug/L	dedia blank mi-volatiles		LAB ID: PREPARED: ANALYZED:			INSTR RUN: GCMS10\9713 BATCH ID: BNAW111097 DILUTION: 1.00	110080000/2/
METHOD: EPA 82708 ANALYTE	RESULT	REF Result	REPORTING LIMIT	SPIKE VALUE	RECOVERY (*)	REC LIMITS (%) LOW HIGH RPD (%)	RPD LIMIT (%)
Phenanthrene 2,4-Dichlorophenol	ND ND		10 10				
2.4-Dimethylphenol 4.6-Dimitro-2-methylphenol	ND ND		10 50				
2,4-Dinitrophenol	ND		50 10				
2-Methylphenol 4-Methylphenol	ND ND		10				
2-Nitrophenol 2.4.5-Trichlorophenol	ND ND		10 10				
2.4.6-Trichlorophenal	ND		10				

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Contr INSTRUMENT: HP-5890 for Semi UNITS: ug/L	ol Spike -volatiles	LAB ID: LCD 1110 PREPARED: 11/I0/97 ANALYZED: 11/12/97					INSTR RUN: GCMS10\971110080000/4/2 BATCH ID: BNAW111097 DILUTION: 1.00			
METHOD: EPA 8270B		REF	REPORTING	SPIKE	RECOVERY	REC LIM		DDD (*)	RPD	
ANALYTE	result	RESULT	LIMIT	VALUE	(%)	LOW	HIGH	RPD (%)	LIMIT (%)	
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 35	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	īŏ	100	96.8	57	107			
4-Chloro-3-methylphenol	81.0	ND	10 10 10 10 10 10 50	100	81.0	54	113			
4-CHIOLO-2-MECHATPHICAGE	96.1	ND	ĨŇ	100	96.1	60	114			
Acenaphthene	54.1	ND	ร์ดั	100	54.1	22	119			
4-Nitrophenol	90.5	ND	10	100	90.5	43	130			
2.4-Dinitrotoluene	56.4	ND	10 50	100	56.4	38	110			
Pentachlorophenol	121	ND	10	100	121	32	121			
Pyrene						• • • • • • • • •				

Pyrene	121	ND	10	100	121	32	121		
SAMPLE TYPE: Laboratory ContrinsTRUMENT: HP-5890 for Semi	ol Spike		LAB ID: PREPARED:	LCS 1110 11/T0/97		BATCH	ID: BNA	W111097	0080000/3/2
METHOD: ug/L METHOD: EPA 8270B ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2-4.6-Tribromophenol(surr) Terphenyl-d14 (surr) Phenol 2-Chlorophenol 1.4-Dichlorobenzene N-Nitrosodi-n-propylamine 1.2.4-Trichlorobenzene 4-Chloro-3-methylphenol Accenaphthene 4-Nitrophenol 2.4-Dinitrotoluene	RESULT 99.8 97.0 96.4 103 110 128 75.0 84.2 91.6 64.9 99.6 80.8 95.5 59.6	REF RESULT 95.4 89.9 91.1 95.6 93.5 118 ND ND ND ND ND ND	ANALYZED: REPORTING LIMIT 10 10 10 10 10 10 10 10 10 10 10 10 10	SPIKE VALUE 100 100 100 100 100 100 100 100 100 10	RECOVERY (X) 99.8 97.0 96.4 103 110 128 75.0 84.2 91.6 64.9 99.6 80.8 95.5 59.6 95.2 62.9	REC LIM LOW 42 40 46 41 46 35 44 52 54 48 57 54 60 22 43 38	ON: 1.0 ITS (%) HIGH 110 122 109 140 116 165 94 111 116 141 107 113 114 119 130 110	10 RPD (*)	RPD LIMIT (%)
Pentachlorophenol	62.9	ND	50	100	02.5	30	110		

QUALITY CONTROL REPORT

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ANALYSIS: Semi-Volatile Organics

MATRIX: Water

LABORATORY CONTROL SAMPLES

WORK ORDER: 9711109

INSTRUMENT: UNITS:	NITS: ug/L			LAB ID: LCS 1110 PREPARED: 11/IO/97 ANALYZED: 11/12/97				INSTR RUN: GCMS10\9711100800000/3/2 BATCH ID: BNAW111097 DILUTION: 1.00			
METHOD: ANALYTE	EPA 8270B	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (な)	REC LIM	HIGH	RPD (%)	RPD LIMIT (%)	
Pyrene		116	ND	10	100	116	32	121			

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Contr INSTRUMENT: HP-5890 for Semi UNITS: ug/L	LAB ID: PREPARED: ANALYZED:	LAB ID: LCR 1110 INSTR RUN: GCMS10\971 PREPARED: 11/10/97 BATCH ID: BNAW111097 ANALYZED: 11/12/97 DILUTION: 1.00				0080000/5/3	
METHOD: EPA 8270B ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2.4,6-Tribromophenol(surr)	REF RESULT RESULT 92.3 99.8 91.6 97.0 90.3 96.4 99.1 103 105 110 124 128	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100	RECOVERY (%) 92.3 91.6 90.3 99.1 105 124	REC LIMITS (** LOW HIGH 42 110 40 122 46 109 41 140 46 116 35 165		RPD LIMIT (\$)
Terphenyl-d14 (surr) Phenol 2-Chlorophenol 1,4-Dichlorobenzene N-Nitrosodi-n-propylamine 1,2,4-Trichlorobenzene 4-Chloro-3-methylphenol Acenaphthene 4-Nitrophenol 2,4-Dinitrotoluene Pentachlorophenol Pyrene	74.5 75.0 83.0 84.2 91.2 91.6 67.6 64.9 96.8 99.6 81.0 80.8 96.1 95.5 54.1 59.6 90.5 95.2 56.4 62.9 121 116	10 10 10 10 10 10 10 50 10	100 100 100 100 100 100 100 100 100 100	<u> </u>	U 1 1 1 1 1 1 1 1 1 1	0.669 1.44 0.438 4.08 2.85 0.247 0.626 9.67 5.06 10.9 4.22	40 40 30 30 30 30 30 40 40 30

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client INSTRUMENT: HP-5890 for Semi- UNITS: ug/L MFTHOD: EPA 82708	-volatiles		9711109-010 11/10/97 11/12/97	;	INSTR BATCH DILUTI	ID: BN/	W111097	0080000/1/
ANALYTE 2-Fluorophenol (surr) Phenol-d5 (surr) Nitrobenzene-d5 (surr) 2-Fluorobiphenyl (surr) 2,4,6-Tribromophenol(surr) Terphenyl-d14 (surr)	REF RESULT RESULT 89.7 94.1 88.8 96.1 115 111	REPORTING LIMIT	SPIKE VALUE 100 100 100 100 100 100	RECOVERY (%) 89.7 94.1 88.8 96.1 115 111	REC LIM LOW 42 40 46 41 46 35	ITS (%) HIGH 110 122 109 140 116 165	RPD (%)	RPD LIMIT (%)

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9711109

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: HP mass spec for Volati UNITS: ug/L	es PREPARLU	BLNK_1110 :: : 11/10/97	INSTR RUN: GCMS13\971 BATCH ID: MS13W11119 DILUTION: 1.00	110210000/1/ 7-2
METHOD: EPA 8240B	REF REPORTING	SPIKE RECOVERY	Y REC LIMITS (%)	RPD
ANALYTE RESUL 1,2-DCA-d4 (surr) 96.7 Toluene-d8 (surr) 98.1		VALUE (*) 100 96.7 100 98.1	LOW HIGH RPD (%) 75 129 81 111	LIMIT (%)
p-BFB (surr) 99.3 1.1-Dichloroethene ND	5	100 99.3	78 131	
Benzene ND	5 5 5 5 5 5		•	
Trichloroethene ND	5			
Toluene ND	5			
Chlorobenzene ND				
Acetone	100			
Bromodichloromethane ND Bromoform ND	5 5			
DI GIROTO III	10			
Bromomethane NU 2-Butanone ND	100			
Carbon Disulfide ND	10			
Carbon Tetrachloride NC	5			
Chloroethane NC	10			•
2-Chloroethyl Vinyl Ether NE	10	•		
Chloroform NU	_5 _5			
Chloromethane NE				
Dibromochloromethane ND				
1,1-Dichloroethane NC	96			
1,2-Dichloroethane NC cis-1,2-Dichloroethene NC	ត្ត			
trans-1,2-Dichloroethene NE	5			
1,2-Dichloropropane	5			
cis-1,3-Dichloropropene NE	5			
trans-1.3-Dichloropropene NE	5			
Ethylbenzene NC	_5			
2-Hexanone NE	50			
Methylene Chloride NC	10			
4-Methyl-2-pentanone NL	שלי			
Styrene NO	Š			
1,1,2,2-Tetrachloroethane NC Tetrachloroethene NC	Š			
1,1,1-Trichloroethane				
1,1,2-Trichloroethane	Š			
Vinyl Acetate N	50			
Vinyl Chloride N			•	
Xylenes, Total N	10			
1.2-Dibromoethane	5			
1,2-Dichlorobenzene				
1,3-Dichlorobenzene N 1,4-Dichlorobenzene N	, 5 1			
1,4-Dichlorobenzene N Dichlorodifluoromethane N			-	
Trichlorofluoromethane N	. Š			
Trichlorotrifluoroethane N	າ 5			
Tetrahydrofuran N	50	•	·	
Ethanol N	100			

LABORATORY CONTROL SAMPLES

INSTRUMENT: UNITS:	Laboratory Contr HP mass spec for ug/L	ol Spike Volatiles		LAB ID: PREPARED ANALYZED	LCS_1111 11/11/97	••••	INSTR RUN: GCMS13\971110210000/6/1 BATCH ID: MS13W111197-2 DILUTION: 1.00				
METHOD: ANALYTE 1,2-DCA-d4 Toluene-d8 p-BFB 1.1-Dichloro	(surr) (surr) (surr) (surr)	RESULT 122 104 105 64.0	REF RESULT 96.7 98.1 99.3 ND	REPORTING LIMIT	SPIKE VALUE 100 100 100 50.0	RECOVERY (%) 122 104 105 128	REC LIM LOW 75 81 78 77	ITS (%) HIGH 129 111 131 137	RPD (\$)	RPD LIMIT (%)	

WORK ORDER: 9711109

QUALITY CONTROL REPORT

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ANALYSIS: Volatile GC/MS

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control INSTRUMENT: HP mass spec for UNITS: ug/L METHOD: EPA 82408	l Spike Volatiles	LAB ID: LCS_1111 PREPARED: ANALYZED: 11/11/97				INSTR RUN: GCMS13\971110210000/6/1 BATCH ID: MS13W111197-2 DILUTION: 1.00			
ANALYTE Benzene Trichloroethene Toluene Chlorobenzene	RESULT 54.1 45.9 51.8 53.2	REF RESULT ND ND ND ND	REPORTING LIMIT 5 5 5 5 5	SPIKE VALUE 50.0 50.0 50.0 50.0	RECOVERY (%) 108 91.8 104 106	REC LIM LOW 89 83 81 88	ITS (%) HIGH 142 121 121 124	RPD (\$)	RPD LIMIT (%)

MATRIX SPIKE SAMPLES

SAMPLE TYPE: Spike-Samp INSTRUMENT: HP mass sc	ole/Matrix sec for Volatiles		LAB ID:	LAB ID: MD11109-01A INSTR RUN: GCMS13\971110210 PREPARED: BATCH ID: MS13W111197-2					
UNITS: ug/L	ec for foracties			11/11/97		DILUTI			_
METHOD: EPA 8240B		REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (X)		RPD
ANALYTE	result	result	LIMIT	VALUE	(X)	LOW	HIGH	RPD (*)	LIMIT (%)
1.2-DCA-d4 (su	rr) 106	113		100	106	75	129		
Toluene-d8 (su	rr) 96.3	97.6		100	96.3	81 78	111		
p-BFB (su	ırr) 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	8 9	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- INSTRUMENT: HP mas	Sample/Mate s spec for	rix Volatiles		LAB ID: PREPARED:	HS11109-01	IA .	INSTR RUN: GCMS13\971110210000/3/ BATCH ID: MS13W111197-2			
UNITS: ug/L METHOD: EPA 82	•			ANALYZED:	11/11/97		DILUTI	ON: 1.0	00	
			REF	REPORTING	SPIKE	RECOVERY	REC LIM	ITS (X)		RPD
ANALYTE		RESULT	RESULT	LIMIT	VALUE	(1)	LOW	HIGH	RPD (%)	LIMIT (な)
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 S INSTRUMENT: HP mass UNITS: ug/L	Sample Dup spec for	licate Volatiles		LAB ID: PREPARED: ANALYZED	MR11109-01	iA	INSTR RUN: GCMS13\971110210000/5/ BATCH ID: MS13W111197-2 DILUTION: 1.00			
METHOD: EPA 8240 ANALYTE 1,2-DCA-d4	(surr)	RESULT 106 96.3	REF RESULT 105 99.2	REPORTING LIMIT	SPIKE VALUE 100 100	RECOVERY (%) 106 96.3	REC LIM LOW 75	ITS (X) HIGH 129 111	RPD (X)	RPD LIMIT (%)
Toluene-d8 p-8FB 1,1-Dichloroethene Benzene Trichloroethene Toluene Chlorobenzene	(surr) (surr)	108 58.2 62.5 46.9 345 53.8	108 58.8 61.9 46.4 348 54.0	5 5 5 5 5	100 100 50.0 50.0 50.0 50.0	108	81 78	131	1.03 0.965 1.07 0.866 0.371	25 25 25 25 25

QUALITY CONTROL REPORT WORK ORDER: 9711109

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ANALYSIS: Volatile GC/MS

MATRIX: Water

SAMPLE SURROGATES

INSTRUMENT:	Sample-Client HP mass spec for	Volatiles		LAB ID: PREPARED:	9711109-01	A	BATCH	ID: MS1	L3W111197 -	.0210000/7/
UNITS: METHOD:	ug/L EPA 8240B		REF	ANALYZED: REPORTING	11/11/97 SPIKE	RECOVERY	DILUTION REC LIM		.0	RPD
ANALYTE 1,2-DCA-d4 Toluene-d8 p-BFB	(surr) (surr) (surr)	RESULT 90.8 105 93.9	RESULT	LIMIT	VALUE 100 100 100	(%) 90.8 105 93.9	LOW 75 81 78	HIGH 129 111 131	RPD (X)	LIMÎT (%)

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

R-3,5-3 ORG

CHAIN OF CUSTODY / ANALYSES REQUEST FORM 97/1109 Project No.: 26/6,97-0/ Date: 140 /97 Field Logbook No.: Serial No.: Project Name: SHERWIN · WILLIAMS Project Location: EMERYVILLE CA No 14482 Sampler (Signature): Stre Thornton **ANALYSES** Samplers: SAMPLES 547 NO. OF LAB SAMPLE SAMPLE CON-SAMPLE NO. DATE TIME REMARKS : NO. TYPE TAINERS OLAB 14/10 STORM DRAIN 2, 10:15 OICD OIE * 11 24 HOUR TURNOROUND 021 R4R-B × 03 A WIANDEFF METALS SAMPLES SHALL BE ANALYZED FOR TOTAL UNFILTERED CONSTIT'S RELINQUISHED BY: RECEIVED BY: TIME TIME 11/10/97 (Signature) 1100 (Signature) RELINQUISHED BY: DATE TIME RECEIVED BY (Signature) (Signature) RELINOUISHED BY RECEIVED BY: (Signature) (Signature) METHOD OF SHIPMENT: DATE TIME LAB COMMENTS: AEN COURIER Sample Collector: LEVINE-FRICKE Analytical Laboratory: 1900 Powell Street, 12th Floor Emeryville, California 94608 (510) 652-4500 (White) Shipping Lab Copy (Green) File Copy (Yellow) ¹d Copy (Pink) FORM NO 86/COC/ARF

All

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. 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.

Larny Klein

Laboratory Director

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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	-	Pro	ep Date	11/13/97
Arsenic	EPA 206.2	14 *	0.002 m g/	/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.

<u>Definitions</u>

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.

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9711173

SAMPLE TYPE: Blank-Method/Media blank

INSTRUMENT: TJA 4000 UNITS:

METHOD:

mg/L

0.002

LAB ID: PREPARED:

GFW PBW B

ANALYZED: 11/14/97

BATCH ID: GFW111397-B

INSTR RUN: 4000\971114120900/1/

DILUTION: 1.000000

ANALYTE

Arsenic in water by GFAA

RESULT ND

REF REPORTING RESULT LIMIT

SPIKE VALUE

RECOVERY (%)

REC LIMITS (%) LOW

HIGH RPD (%) LIMIT (%)

LABORATORY CONTROL SAMPLES

UNITS:

METHOD:

ANALYTE

ANALYTE

mg/L

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

LAB ID: GFW_LCD_B PREPARED:

REPORTING

LIMIT

0.002

ANALYZED: 11/14/97 SPIKE

VALUE

GFW_LCS_B

0.0400

RECOVERY

INSTR RUN: 4000\971114120900/3/1 BATCH ID: GFW111397-B DILUTION: 1.000000

REC LIMITS (%) LOW 82 HIGH RPD (X) LIMIT (X) 140

INSTR RUN: 4000\971114120900/2/1

RPD (%)

UNITS: mg/L METHOD:

Arsenic in water by GFAA

Arsenic in water by GFAA

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000

RESULT

0.0397

RESULT

0.0414

REF REPORTING RESULT LIMIT ND 0.002

REF

RESULT

ND

LAB ID: GFW_LCS_E PREPARED: ANALYZED: 11/14/97 SPIKE VALUE 0.0400

RECOVERY (1)99.3

BATCH ID: GFW111397-B DILUTION: 1.000000 REC LIMITS (*) LOW HIGH

82

LIMIT (X)

LABORATORY CONTROL DUPLICATES

UNITS:

METHOD:

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000

mg/L

REF

LAB ID: PREPARED: REPORTING

GFW_LCR_B ANALYZED: 11/14/97

INSTR RUN: 4000\971114120900/4/2 BATCH ID: GFW111397-B DILUTION: 1.000000

140

Arsenic in water by GFAA

RESULT 0.0414

RESULT 0.0397

LIMIT 0.002 SPIKE VALUE RECOVERY (X)

REC LIMITS (%) LOW HIGH

RPD (%) LIMIT (%) 4.19

RPD 13

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

CHAIN OF CUSTODY / A _YSES REQUEST FORM 9711173

Project No.	.: 2	616	,97-01		1	d Logbook N					!	Date	11/	3/97	Serial N	lo.:	•	
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	Sample Collector: LEVINE-FRICKE 1900 Powell Street, 12th Floor Emeryville, California 94608 (510) 652-4500 File Copy (Yellow)					tical			-	EN				·				

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American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AlHA Accreditation: 11134

PAGE 1

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

ATTN: M. KNOX/A. JENKINS/S. SHIU CLIENT PROJ. ID: 3435.00.006 CLIENT PROJ. NAME: SHERWIN WLLMS. C.O.C. NUMBER: 1462

REPORT DATE: 11/18/97

DATE(S) SAMPLED: 11/14/97

DATE RECEIVED: 11/14/97

AEN WORK ORDER: 9711200

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.

Larky Klein

Laboratory Director

PAGE 2

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	J/L	11/17/97
#Digestion/ICP	EPA 200.0	-	Pr	ep Date	11/14/97

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

PAGE QR-1

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.

<u>Definitions</u>

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 OC limits.

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9711200

SAMPLE TYPE: Blank-Method/Media blank LAB ID: GFW_PBW_F INSTR RUN: 4000\971117114300/1/ INSTRUMENT: TJA 4000 PREPARED:

BATCH ID: GFW111497-F DILUTION: 1.000000 UNITS: mg/L ANALYZED: 11/17/97 METHOD:

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

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 LAB ID: GFW_LCD_F INSTR RUN: 4000\971117114300/3/1 PREPARED: BATCH ID: GFW111497 F UNITS: mg/L ANALYZED: 11/17/97 DILUTION: 1.000000

METHOD:

REF REPORTING SPIKE RECOVERY REC LIMITS (%) ANALYTE RESULT RESULT VALUE LIMIT LOW HIGH RPD (%) LIMIT (%) Arsenic in water by GFAA 0.0485 ND 0.002 0.0400 82

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 UNITS: mg/L LAB ID: GFW_LCS_F INSTR RUN: 4000\971117114300/2/1 PREPARED: ANALYZED: 11/17/97 BATCH ID: GFW111497-F DILUTION: 1.000000

METHOD: REF REPORTING RECOVERY REC LIMITS (%)

ANALYTE RESULT RESULT LIMIT VALUE HIGH RPD (%) LIMIT (%) Arsenic in water by GFAA 0.0454 0.002 0.0400 140

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000 LAB ID: PREPARED: GFW_LCR_F INSTR RUN: 4000\971117114300/4/2 UNITS: mg/L

BATCH ID: GFW111497-F DILUTION: 1.000000 ANALYZED: 11/17/97 METHOD:

REF REPORTING SPIKE RECOVERY REC LIMITS (%) RPD ANALYTE RESULT RESULT LIMIT VALUE (X)LOW HIGH RPD (X) LIMIT (%) Arsenic in water by GFAA 0.0454 0.0485 0.002 6.60 13

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

CHAIN OF CUSTODY / ANALYSES REQUEST FORM 97/1200 INOR6 Project Location: EMERTVILLE, CA Project No.: 3435.00.006 Serial No.: $N_{\bar{0}}$ 1462 Project Name: SHERWIN-WILLIAMS Field Logbook No.: Sampler (Signature): Olere R. Jeer **ANALYSES** Samplers: A P. **SAMPLES** RUSH HOLD NO. OF LAB SAMPLE SAMPLE TIME CON-REMARKS DATE SAMPLE NO. NO. · TYPE **TAINERS** STORAWATER DISCH 11/14 06:35 iA WATER Z4-HOUR TAT ANALYZE SAMPLE FOR TOTAL (UNFILTERED) ARSONIC RESULTS TO M. KNOX / A. JENKING! 3.5410 RECEIVED BY: 14 RELINQUISHED BY: OLEFOR R. J. C. (Signature) TIME (Signature) DATE, TIME RECEIVED BY RELINQUISHED BY: DATE TIME 1835 (Signature) (Signature) DATE TIME RECEIVED BY: DATE RELINQUISHED BY: TIME (Signature) (Signature) DATE TIME LAB COMMENTS: METHOD OF SHIPMENT:

Analytical Laboratory:

Shipping Copy (White)

Sample Collector:

Lab Copy (Yellow)

(510) 652-4500

LEVINE*FRICKE*RECON

1900 Powell Street, 12th Floor Emeryville, California 94608-1827

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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/ 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

PAGE 2

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	-	Pr	ep 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

PAGE 3

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	- .	F	Prep Date	11/17/97
Arsenic	EPA 206.2	12 *	0.002 m	ng/L	11/18/97

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

PAGE 4

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	-	Р	rep Date	11/17/97
Arsenic	EPA 206.2	8.6 *	0.002 m	g/L	11/18/97

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

PAGE 5

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	-	İ	Prep Date	11/17/97
Arsenic	EPA 206.2	25 *	0.002 r	ng/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.

<u>Definitions</u>

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 OR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: TJA 4000 INSTR RUN: 4000\971118114200/1/ BATCH ID: GFW111797-H DILUTION: 1.000000 LAB ID: GFW_PBW_H PREPARED:

UNITS:

mg/L ANALYZED: 11/18/97 METHOD:

REF REPORTING SPIKE RECOVERY REC LIMITS (*) ANALYTE RESULT RESULT LIMIT VALUE LOW HIGH RPD (%) LIMIT (%) (1) Arsenic in water by GFAA 0.002

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank LAB ID: GFW_LCD_H INSTR RUN: 4000\971118114200/3/1 INSTRUMENT: TJA 4000 PREPARED:

BATCH ID: GFW111797-H DILUTION: 1.000000 mg/L UNITS:

ANALYZED: 11/18/97 METHOD:

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

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 LAB ID: GFW_LCS_H PREPARED: INSTR RUN: 4000\971118114200/2/1

BATCH ID: GFW111797-H DILUTION: 1.000000 UNITS: mg/L

ANALYZED: 11/18/97 METHOD:

REPORTING SPIKE RECOVERY REC LIMITS (*) ANALYTE RESULT VALUE RESULT HIGH RPD (x) LIMIT (x) LIMIT

Arsenic in water by GFAA 0.0385 0.0400 0.002140

LABORATORY CONTROL DUPLICATES

INSTR RUN: 4000\971118114200/4/2 LAB_ID: GFW_LCR_H

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000 PREPARED: BATCH ID: GFW111797-H DILUTION: 1.000000 UNITS:

ANALYZED: 11/18/97 mg/L METHOD:

REF REPORTING SPIKE RECOVERY REC LIMITS (1) RPD RESULT RESULT LIMIT VALUE (1) LIMIT (%)

LOW HIGH RPD (%) 4.82 Arsenic in water by GFAA 0.0404 0.0385 0.002 13

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

CHAIN OF CUSTODY / A LYSES REQUEST FORM

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Certificate of Analysis

OHS 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

PAGE 2

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	-	Pr	ep Date	11/26/97
Arsenic	EPA 7060	0.012 *	0.002 m g	/L	12/01/97

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

PAGE 3

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

PAGE 4

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	_	Pr	ep Date	11/26/97
Arsenic	EPA 7060	0.013 *	0.002 m g	/L	12/01/97

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

PAGE 5

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	-	Pr	ep Date	11/26/97
Arsenic	EPA 7060	0.17 *	0. 0 02 mg	ı/L	12/01/97

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

PAGE 6

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

PAGE 7

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 F	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-	Pro	ep 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

PAGE 8

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		ſ	Prep Date	11/26/97
Arsenic	EPA 7060	8.1 *	0.002 r	ng/L	12/01/97
ND = Not detected at or abo * = Value at or above repo	ve the reportin rting limit	g limit	y eer	· · · · · · · · · · · · · · · · · · ·	·

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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 ·	-	Р	rep Date	11/26/97
Arsenic	EPA 7060	6.9 *	0.002 m	g/L	12/01/97

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

PAGE 10

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 F	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-	Pı	rep Date	11/26/97
Arsenic	EPA 7060	1.1 *	0.002 mg	g/L	12/01/97

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

PAGE 11

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	-	Pr	ep Date	11/26/97
Arsenic	EPA 7060	9.5 *	0.002 m g	/L	12/01/97

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

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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	- .	Pre	ep 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.

<u>Definitions</u>

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.
- 1: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9711400

OUALITY CONTROLAREPORT Environmental Network

RPD

ANALYSIS: Arsenic

MATRIX: Water

METHOD	RI	ANK	SA	MPI	FS

LAB ID: GFW_PBW_B INSTR RUN: 4000\971201110400/1/ SAMPLE TYPE: Blank-Method/Media blank

BATCH ID: GFW112697-B DILUTION: 1.000000 PREPARED: INSTRUMENT: TJA 4000

UNITS: mg/L ANALYZED: 12/01/97

METHOD: REF REPORTING SPIKE REC LIMITS (%) LOW HIGH RPD (*) RESULT RESULT LIMIT VALUE (%) ANALYTE LIMIT (%)

ND 0.002 Arsenic in water by GFAA

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 UNITS: mg/L INSTR RUN: 4000\971201110400/3/1 BATCH ID: GFW112697-B LAB ID: GFW_LCD_B

PREPARED:

ANALYZED: 12/01/97 DILUTION: 1.000000

METHOD: REPORTING RECOVERY REC LIMITS (%)

RPD RESULT RESULT LIMIT VALUE HIGH RPD (X) LIMIT (%) ANALYTE Arsenic in water by GFAA 0.002 0.0400

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 GFW_LCS_B INSTR RUN: 4000\971201110400/2/1 LAB ID:

BATCH ID: GFW112697-B DILUTION: 1.000000 PREPARED:

ANALYZED: 12/01/97 UNITS: mg/L

METHOD: REC LIMITS (%) SPIKE RECOVERY REF REPORTING

VALUE RESULT RESULT rom High RPD (X) LIMIT (X) ANALYTE LIMIT 82 Arsenic in water by GFAA ND 0.0020.0400 140

LABORATORY CONTROL DUPLICATES

INSTR RUN: 4000\971201110400/4/2 BATCH ID: GFW112697-B DILUTION: 1.000000 LAB ID: GFW_LCR_B

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000 PREPARED:

ANALYZED: 12/01/97 UNITS: mg/L

METHOD: REPORTING SPIKE RECOVERY REC LIMITS (%) REF

RESULT LIMIT RPD (X) LIMIT (%) RESULT VALUE analyte 1.24 13 Arsenic in water by GFAA 0.0402 0.0407 0.002

MATRIX SPIKE SAMPLES

INSTR RUN: 4000\971201110400/11/10 LAB ID: MS11400-06A

SAMPLE TYPE: Spike-Sample/Matrix INSTRUMENT: TJA 4000 PREPARED: BATCH ID: GFW112697-B

mg/L DILUTION: 1.000000 ANALYZED: 12/01/97

UNITS: METHOD:

RECOVERY REC LIMITS (%) REPORTING RPD (%) RESULT LIMIT VALUE (%) HIGH LIMIT (%) analyte 0.963 167 0.002 0.0400 Arsenic in water by GFAA 0.986

MATRIX SPIKE DUPLICATES

METHOD:

SAMPLE TYPE: Spiked Sample Duplicate INSTRUMENT: TJA 4000 LAB ID: MR11400-06A INSTR RUN: 4000\971201110400/13/11

PREPARED: BATCH ID: GFW112697-B

ANALYZED: 12/01/97 DILUTION: 1.000000 UNITS: mg/L

RECOVERY REF REPORTING REC LIMITS (%) RPD LIMIT (%) **RESULT** RESULT VALUE (%) LOW HIGH RPD (1) ANALYTE LIMIT

3.30 Arsenic in water by GFAA 0.954 0.9860.002

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9711400

Project No.: 3435-00-006 Project No.: 3435-00-006		oject Location: Emery ville		Date: 11 26 97	Serial No.:	•		
Project Name: Shorwin Williams	Field Log	book No.:	ıA		N₀	1392		
Sampler (Signature): Olethar R. Jee			ANALYS	ES	Samplers:	ARJ		
SAMPLES		/ 3	,/////					
SAMPLE NO. DATE TIME LAB SAMPLE NO. OF CONTAINER	SAMPLE	No Mison is		HOLD RIGH	REMARKS	6		
3435-CK-01 11/26 01:05 DIA 1-500 M	U	X		THE PRESERV	red HNOz			
3435-PD-002 11/26 01:10 02A 1-570m		<u> </u>		13000				
3435~K-00311/26 08100 U3A 1	H=0	 		X 24 hou	urturnaro	una		
7+35-PD-0041/26 0800 04A 1	H20	 						
R4R-B: 11/26 C930 OSA 1	+	 ->- 	 	1 2 2 2 1 1 2	70. A. JE	- 10 1 C X		
R4R.E. ObA	+	 		TESUE/S	5,5H	NKING		
R4R-6 07A	 	 \ 		1-121	M. KN			
R4R-FI OSA		X			111. 1370	<u> </u>		
R4R-ZK J CAA	7	2						
	40			X METALS	SAMPLES SH	MI BEFOR		
	7,20	🗙	TOTAL UNFILTERED			<u> </u>		
R4R-J 11/26 0930 11A 1					TUENTS			
	ATE 11/26/97	TIME /0;40	RECEIVED BY: Rich	Bilmore	DATE 11-26-97	TIME 12:10		
BELINQUISHED BY:	ate 1 26 97	TIME 105	RECEIVED BY: (Signature)	Bilmone Julispie	DATE 11-26-97	TIME 1405		
RELINQUISHED BY: (Signature)	ATE	TIME	RECEIVED BY: (Signature)	0	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 Ploasonthis, CA					

American Environmental Network

Certificate of Analysis

OHS Certification: 1172

AIHA Accreditation; 11134

PAGE 1

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

ATTN: M.KNOX/A.JENKINS/S.SHIU CLIENT PROJ. ID: 3435.00.006 CLIENT PROJ. NAME: SHERWIN WILLMS

C.O.C. NUMBER: 1498

REPORT DATE: 12/09/97

DATE(S) SAMPLED: 12/07/97-12/08/97

DATE RECEIVED: 12/08/97

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

American Environmental Network

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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 VAEN 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

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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

American Environmental Network

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LEVINE-FRICKE-RECON

SAMPLE ID: EAST 2
AEN LAB NO: 9712096-03 AEN WORK ORDER: 9712096

DATE SAMPLED: 12/07/97 DATE RECEIVED: 12/08/97 REPORT DATE: 12/09/97

CLIENT PROJ. ID: 3435.00.006

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	•	Pr	rep Date	12/08/97
Arsenic	EPA 7060	0.11 *	0.002 mg	g/L	12/08/97

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

American Environmental Network

PAGE 6

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

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PAGE QR-1

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.

<u>Definitions</u>

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.

American Environmental Network

WORK ORDER: 9712096

QUALITY CONTROL REPORT

PAGE OR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank INSTRUMENT: TJA 4000 LAB ID: GFW_PBW_X

UNITS: mg/L METHOD:

ANALYTE

ANALYTE

UNITS:

METHOD:

UNITS:

METHOD:

Arsenic in water by GFAA

RESULT ND

REF

REPORTING LIMIT 0.002

PREPARED:

ANALYZED: 12/08/97

SPIKE VALUE

RECOVERY (7)

REC LIMITS (%)

LOW HIGH RPD (%) LIMIT (%)

INSTR RUN: 4000\971208173400/1/

INSTR RUN: 4000\971208173400/3/1 BATCH ID: GFW120897-X DILUTION: 1.000000

BATCH ID: GFW120897-X DILUTION: 1.000000

LABORATORY CONTROL SAMPLES

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

METHOD:

mg/L

RESULT Arsenic in water by GFAA

0.0441

REF RESULT ND

REPORTING LIMIT 0.002

0.0400

LAB ID: GFW_LCD_X PREPARED:

ANALYZED: 12/08/97

SPIKE VALUE

RECOVERY REC LIMITS (*) RPD (*) LOW HIGH RPD (*) LIMIT (*) 110 82 140

------SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 LAB ID: GFW_LCS_X PREPARED:

ANALYZED: 12/08/97

INSTR RUN: 4000\971208173400/2/1 BATCH ID: GFW120897-X DILUTION: 1.000000

REPORTING SPIKE REF RECOVERY REC LIMITS (%) RESULT RESULT LIMIT VALUE LOW HIGH RPD (x) LIMIT (x)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

mg/L

LAB ID: GFW_LCR_X PREPARED:

ANALYZED: 12/08/97

INSTR RUN: 4000\971208173400/4/2 BATCH ID: GFW120897-X DILUTION: 1.000000

REPORTING RECOVERY REC LIMITS (%)
(%) LOW HIGH RPD (%)
1.37 REF SPIKE RPD RESULT 0.0435 **ANALYTE** RESULT LIMIT VALUE LIMIT (%) Arsenic in water by GFAA 0.0441 0.002 1.37

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

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3	435	.00	. 00	60		Project Lo	cation:	EME	RYVIL	JE,	Α)		Date:	12/7	97	Serial No.:	
Project Name:	SHET	ZWIN	-WI	LLIAT	45	Field Log	book No	o.:								IN ²	1498
Sampler (Signa	ture):	361	LR	٠. ا	٠						AN	ALYSE:	s			Samplers:	ir) mok
			SAMPI	_ES				/.	/			/	/		//		
SAMPLE NO.	DATE	TIME		SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE	يام	priv	/-					, kord	NUST	REMARKS	
WEST 1		08:30		01A	1	WATER	><							\approx	24-	HOUR TA	<u>T:</u>
EAST 1	12/7/97	08:25	A,M	02A		WATER	><										
		<u>-</u>				-		1	-						RESULT	S TO M.KI	JOX /
															ア・フロ	JKINS / 5.	SHIU
EAST 2		2:00		03A	<u> </u>	WATER	1 - 2 -		ļ	•				>	24	HR TA	-
WEST 2	12/7/9-	2:05	r.m	04A	t	WATER	- X									7,7	
EAST 3	2/8/97	4:15	A.M	05A	1	WATER	X							×	24	HRTA	7
WEST 3	28/97	8:15	A.M	06A	_/	WATER								×		11/ 1/1	<i>'</i>
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RELINQUISHED (Signature)	BY:	m	D.X	~×	I2		TIME	20m	RECEIV (Sign	/ED BY: ature)	Ri	ch e	Di	mo	re	12-8-97	10:20 m
RELINQUISHED (Signature) RELINQUISHED (Signature)	BY: L	al d	Bil	more	DAT 12	-8-97	TIME	05	RECEIV (Sign	/ED BY: ature)	em	ald c	e a	lmo ens	en	DATE 12/8/97	TIME 12:05
RELINQUISHED (Signature)					DAT	Ē	TIME .		RECEIV	/ED BY: ature)				_	•	DATE	TIME
METHOD OF SH	PMENT:	· · · ·			DAT	Ē	TIME		LAB CC	MMEN	rs:	. ,					
Sample Collecte	or:	1900 Pc	well Sti lle, Cali	E•RECON reet, 12th fornia 946	Floor					cal Lab	oratory	·:					

Shipping Copy (White)

Lab Copy (Yellow)

File Copy (Pink)

Field Copy (Goldenrod)

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American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

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AIHA Accreditation: 11,34

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PAGE 1

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

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

REPORT DATE: 01/08/98

DATE(S) SAMPLED: 01/02/98-01/04/98

DATE RECEIVED: 01/05/98

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.

Lary 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	-	Pr	rep Date	01/06/98
Arsenic	EPA 7060	0.008 *	0.002 mg	ı/L	01/07/98

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

America Residence in No.

PAGE 3

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 UN	DATE ITS 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	-	Pi	rep Date	01/06/98
Arsenic	EPA 7060	ND	0.002 mg	g/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

DATE SAMPLED: 01/04/98 DATE RECEIVED: 01/05/98 **REPORT DATE: 01/08/98**

A March of the Contracting Ages

CLIENT	PROJ.	ID:	3435.	.00.006	

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-	P	rep Date	01/06/98
Arsenic	EPA 7060	0.008 *	0.002 m	g/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

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ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by GFAA	EPA 3020	-	Р	rep Date	01/06/98
Arsenic	EPA 7060	ND	0.002 m	g/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	-	F	Prep Date	01/06/98
Arsenic	EPA 7060	0.004 *	0.002 n	ng/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	-		rep Date	01/06/98
Arsenic	EPA 7060	ND	0.002 m	g/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	-	Pr∈	ep 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

PAGE QR-1

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.

<u>Definitions</u>

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 OR-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 DILUTION: 1.000000 UNITS: mg/L ANALYZED: 01/07/98

METHOD:

REF REPORTING SPIKE ANALYTE **RESULT** RESULT LIMIT VALUE Arsenic in water by GFAA ND 0.002

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 LAB_ID: GFW_LCD_F INSTR RUN: 4000\980107123000/3/1

PREPARED:

BATCH ID: GFW010698-F DILUTION: 1.000000 UNITS: mg/L ANALYZED: 01/07/98

METHOD: REF REPORTING RECOVERY REC LIMITS (%)

ANALYTE RESULT LOW HIGH RPD (%) LIMIT (%) RESULT LIMIT VALUE Arsenic in water by GFAA

0.002 0.0400 82 140

SAMPLE TYPE: Spike-Method/Media blank INSTRUMENT: TJA 4000 LAB ID: GFW_LCS_F PREPARED: INSTR RUN: 4000\980107123000/2/1

BATCH ID: GFW010698-F DILUTION: 1.000000 UNITS: mg/L ANALYZED: 01/07/98

METHOD:

REF REPORTING RECOVERY REC LIMITS (%) SPIKE ANALYTE RESULT LOW HIGH RPD (%) LIMIT (%) 82 140 RESULT LIMIT VALUE **(**\$)

Arsenic in water by GFAA 0.0385 ND 0.002 0.0400 96.3

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 DILUTION: 1.000000

UNITS: mg/L ANALYZED: 01/07/98 METHOD:

REF REPORTING SPIKE RECOVERY REC LIMITS (%) RPD ANALYTE RESULT RESULT LIMIT VALUE (*)

LOW HIGH RPD (%) LIMIT (%) 7.74 13 Arsenic in water by GFAA 0.0416 0.0385 0.002

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

				CHAIN (OF CUS	TODY	/ AN	NALYSES R	EQU	EST F	ORM	IN	ORG	9801	009
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Project Name: 4	SHER	~IN-	WILLIAMS			gbook No					l		•	Nº	2264
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SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE	Ratio	Jake.				//.	HOLD &	JISH	REMARI	KS
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COC CDR 101596RYL



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: 12-MAR-98 Lab Job Number: 132664

Project ID: 3435.00-006

Location: Sherwin Williams

Reviewed by:

Reviewed by:

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Laboratory Numbers: 132664 Client: Levine-Frickie-Recon

Sampled Date: 03/11/98
Received Date: 03/12/98

Project #: 3435.00-006

Location: Sherwin-Williams

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

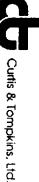
DATE REPORTED: 03/12/98

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 CARB EFF-0311 CB-1-0311 CB-7-0311 CB-9-0311 EX-2-0311 EX-1-0311 CB-11-0311	132664-001 132664-002 132664-003 132664-004 132664-005 132664-006 132664-007 132664-008	03/11/98 03/11/98 03/11/98 03/11/98 03/11/98 03/11/98	03/12/98 03/12/98 03/12/98 03/12/98 03/12/98 03/12/98	ND ND 13 200 53 22000 320 11	5.0 5.0 5.0 5.0 5.0 5.0 5.0	1 1 1 100 1	39545 39545 39545 39545 39545 39545	EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A	03/12/98 03/12/98 03/12/98 03/12/98 03/12/98 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 PREP BLANK

Compound		Result	Result Reporting Units IDF QC Metho Limit Batch				Method	Analysis Date
Arsenic		ND	5	ug/L	1	39545	EPA 6010A	03/12/98
	ND) = Not Detect	ed at or a	above r	ceport	ing li	mit	

Curtis & Tompkins, Ltd.
DATE REPORTED: 03/12/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132664

BATCH QC REPORT BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	8SD Result	Units	BS∜ Rec.	BSD% Rec.	Rec. Limits	RPD	RPD Limit	QC Batch	Method	Analysis Date
Arsenic	2000	1990	2080	ng/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 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 Cal	culable			7	- 	<u>.i</u> .

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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

1. solar

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Proje	ct Location: 5	newin W - E	meryville	Date: 3-/	1-98	Serial	No.:
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COC.CDR 101596RYL

Shawin William

COOLER RECEIPT CHECKLIST

Curtis & Tomokins, Ltd.

Rev. 1 4/95

Login#	H: 13.464 Date Received: 3/12 Number of Coolers:	(
Client:	Leving - Frick R Project: 3435,00-006	
A.	Preliminary Examination Phase	برادر
1.	Did cooler come with a shipping slip (airbill, etc.)?	YES NO
2.	Were custody seals on outside of cooler?	YES NO
3.	How many and where? Seal date: Seal name: Were custody seals unbroken and intact at the date and time of arrival?	VES NO N
4.	Were custody papers dry and intact when received?	
5.		
6.	Were custody papers filled out properly (ink, signed, etc.)? Did you sign the custody papers in the appropriate place?	TES NO
7. _.	Was project identifiable from sustada manage?	TES NO
	Was project identifiable from custody papers? If YES, enter project name at the top of this form.	(IE) NO
8.	If required was sufficient ice used?	VES NO Alle
٥.	If required, was sufficient ice used? Type of ice: Temperature: 6.0°	125 NO \$ (1
	Type of ice. Nit Temperature.	<u> </u>
B.	Login Phase	•
 .	Date Logged In: 3/12 By (print): 3.01/2 (sign)	کرد چک کے
1.	Describe type of packing in cooler:	
2.	Did all bottles arrive unbroken?	. YES NO
	Were labels in good condition and complete (ID, date, time, signature, etc.)?	
	Did bottle labels agree with custody papers?	
5.	Were appropriate containers used for the tests indicated?	
	Were correct preservatives added to samples?	
7,	Was sufficient amount of sample sent for tests indicated?	
8.	Were bubbles absent in VOA samples? If NO, list sample Ids below	
9.	Was the client contacted concerning this sample delivery?	
	If YES, give details below.	21
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Filename: F:\qc\forms\cooler.wpd



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

2323 Fifth Street, Berkeley, CA 9471O, 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: 132685

Project ID: 3435.00-006 Location: Sherwin Williams

Reviewed by:

Reviewed by:

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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 W'lliams

MATRIX: Water

Curtis 8

Metals Analytical Report

DATE REPORTED:

03/13/98

B

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		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 Detect	ted at or a	above 1	report	ing li	imit		

Curtis & Tompkins, Ltd.
DATE REPORTED: 03/13/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132685

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	սց/Լ	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 REFORTED: 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 Not Meaningful				·	i	

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CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3	435.	00-	006		Project	Location:	Emeryville	CA	Date:	7//	3/98	Seria	No.:
Project Name:	Shew	vin-u	itlliams	· · · · · · · · · · · · · · · · · · ·	Field Lo	gbook No.:	NA	,	<u> </u>	- <u>11</u>	21.11	N₀	2302
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<u> </u>			SAMPLES				1.0//		7 7			/	9/13
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE	the s	orio /	///		HOLD .	RUSH	REMA	ARKS
K-W-0313	3/13	0816	-	1-500ml	Lig	X				X	Same	Day	TAT
NK-E-0313	3/15	0815		1-500ml	48	X				X	Serm	e Day	TAT
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COOLER RECEIPT CHECKLIST

Curtis & Tomokins, Ltd.

Rev. 1 4/95

		Number of	て Coolers:
Client	t: <u>LFL</u> Proje		
A.	Preliminary Examination Phase	1	
	Date Opened: 3 13 By (print):	J.W. (sig.)	
1.	Did cooler come with a shipping slip (air	thill etc.)?	VECTO
Λ.	If YES, enter carrier name and airbill mu	mber	
2.	Were custody seals on outside of cooler).	VEC (NO
	How many and where?	Seal date: S	cal name:
.	Were custody seals unbroken and intact	at the date and time of an	rivel? VES NO P
).	Were custody papers dry and intact when	received?	AMES NO
i.	Were custody papers filled out properly	ink signed etc)?	WE'S NO
i <u>.</u>	Did you sign the custody papers in the ar	propriate place?	(YE) NO
	Was project identifiable from custody pa	pers?	WE'S NO
	If YES, enter project name at the top of	this form.	•
	If required, was sufficient ice used? Type of ice:	***************************************	VES NO
	Type of ice: hue	Temperature: 6.0	ייני ז והייני
		<u> </u>	
•	Login Phase	(`	
	Date Logged In: 3 By (print):	- Julli- (sign)	An Church
	Describe type of packing in cooler:	(****	0
	Did all bottles arrive unbroken?		YES) NO
	Were labels in good condition and comple	ete (ID, date, time, signat	ture, etc.)?(YES NO
•	Did bottle labels agree with custody paper	rs?	YES NO
	Were appropriate containers used for the	tests indicated?	NO
	Were correct preservatives added to same	ples?	VES NO
•	Was sufficient amount of sample sent for	tests indicated?	
	Were bubbles absent in VOA samples? If	NO, list sample Ids below	W YES NO
	Was the client contacted concerning this	sample delivery?	YES NO
	If YES, give details below.	•	1 22
	Who was called?	By whom?	Date:
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Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 9471O, 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

MATREX: Water

Metals Analytical Report

DATE REPORTED: 03/16/98

Arsenic

Sample ID	Ląb 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	, , ,	, , ,	31	5.0			EPA 6010A	, , ,
CB-4-0313	132694-004	, ,		35	5.0	1		EPA 6010A	
CE-5-0313	132694-005	03/13/98	03/13/98	10	5.0			EPA 6010A	
CB-6-0313	132694-006	03/13/98	03/13/98	ND	5.0	1	39596	EPA 601CA	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

Curtis & Tompkins, Ltd.
DATE REPORTED: 03/16/98

JOB NUMBER: 132694

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 Detect	ed at or a	above 1	eport	ing li	mit	

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132694

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

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132694

Curtis & Tompkins, Ltd.
DATE REPORTED: 03/16/98

BATCH QC REPORT SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units RPD		QC Batch	Method	Analysis Date
Arsenic	132699-001	<5.000	<5.000	ug/L NC	20	39596	EPA 6010A	03/16/98
			NC = Not Cal	culable.				<u>i</u>

LIENT: Levine-Fricke-Recon

DB NUMBER: 132694

BATCH QC REPORT SAMPLE SPIKE

ompend	Spike Amount	Sample	Sample Result	Spike Result	Units	Percent Rec.	Rec. Limit	QC Batch	Method	Analysis Date
nic	2000	132699-001	<5.000	2040	ug/L	102	65-135	39596	EPA 6010A	03/16/98



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

2323 Fifth Street, Berkeley, CA 9471O, Phone (51O) 486-0900

Laboratory Numbers: 132798 Client: Levine-Frickie-Recon

Project #: 3435.00.006

Location: Sherwin-Williams

Sample Date: 03/19,20/98 Received Date: 03/20/98

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):

No analytical problems were encountered.

CLlLNT: 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 FLUSH-B-0319 FLUSH-C-0320	132798-001 132798-002 132798-003	03/19/98	03/20/98	18 ND ND	5.0 5.0 5.0	1	39759	EPA 6010A EPA 6010A 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 Detect	ed at or a	above 1	ceport	ing li	mit	<u> </u>

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132798

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

Arsenic 132797-011 17.3 21 ug/L 19 20 39759 EPA 6010A 03/23/98	Compound	Sample	Sample Result	Duplicate Result	Units	RPD		QC Batch	Method	Analysis Date
	 Arsenic 	132797-011	17.3	 21 	ug/L	19	20	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 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

Project No.: 3.1	435	. OC. 8	206		Project I	Location	:En	myrille	CA	. "	Date: 2	3/2	0198	Serial N	o.:
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		<u> </u>	SAMPLES		 		<u> </u>	ر/ ر			$\overline{}$	—	-/-/	/	240/1/10
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METHOD OF SHIPM	MENT:	·		DATE	<u>.</u>	TIME		LAB COMME	NTS:						
Sample Collector:	1 E	1900 Po	FRICKE•RECON well Street, 12th F le, California 9460 2-4500					Analytical L	aboratory	r Chi	pm i	4 Pich	Thoma	5 riday 3/20/	/agr

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Login Client	
Chon	TVFR. TIOJON. CATONY WITH COST
A.	Preliminary Examination Phase Date Opened: 100 By (print): Train Bhase Did cooler come with a shipping slip (airbill, etc.)? YES NO
1.	Did cooler come with a chinning clin (airbill, etc.)?
4. .	If VES enter carrier name and airfull number
2.	If YES, enter carrier name and airtill number:
4.	How many and where? Seal date: Seal name:
3.	Were custody seals unbroken and intact at the date and time of arrival?
4.	Were custody papers dry and intact when received?
5.	Were custody papers dry and intact when received? Were custody papers filled out properly (ink, signed, etc.)? NO
6,	Did you sign the custody papers in the appropriate place?
7.	Was project identifiable from custody papers?
٠.	If YES, enter project name at the top of this form.
8.	If required, was sufficient ice used? YES NO
J .	Type of ice: Blud Temperature: 5.0
	Temperature.
B.	Login Phase
D .	Date Logged In: 3/20 By (print): Tracy Below (sign) Tracy Below (sign) Tracy Below (sign)
1.	Describe type of packing in cooler: 51-11 CC
2.	Did all bottles arrive unbroken?
3.	Were labels in good condition and complete (ID, date, time, signature, etc.)? ES NO
4.	Did bottle labels agree with custody papers?
5.	Were appropriate containers used for the tests indicated?
6.	Were correct preservatives added to samples?
7.	Was sufficient amount of sample sent for tests indicated?
8.	Were bubbles absent in VOA samples? If NO, list sample Ids below
o. 9.	
٧.	Was the client contacted concerning this sample delivery?
	Who was called? By whom? Date:
A .d.d:4	ional Comments:
Adem	ional Comments;

Rev. 1 4/95

Filename: F:\qc\forms\cooler.wpd



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: 24-MAR-98

Lab Job Number: 132809 Project ID: 3435.00.006

Location: Sherwin-Williams

Reviewed by:

Reviewed by:

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

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 observered 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 PD-MP-E-0321 PD-RD-0321	132809-001 132809-002 132809-003	03/21/98	03/23/98	19 34 16	5.0 5.0 5.0	1	39778	EPA 6010A EPA 6010A EPA 6010A	03/23/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132809

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 Detect	ed at or a	above 1	ceport	ing l	Lmit	

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132809

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

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132809

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	В1	65-135	39778	EPA 6010A	03/23/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132809

BATCH QC REPORT SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units		RPD Limit	QC Batch	Method	Analysis Date
Arsenic	132809-001	19	15.2	ug/L	22*	20	39778	EPA 6010A	03/23/98
·	<u> </u>		* = Out of	Limits		II			<u> </u>

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3	435,6	00.00	ે દ		Project '.	ocation:	Emozville	CA	Date: 3	21/98	Serial N	
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CRK-F-0321	0/4/15	13:32	- my			×			-4	ms		
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PD-MP-W-032				1	Water	\times			X	Ker.	stin Fraz	ier
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Sample Collector	1	1900 Pot Emeryvili	FRICKE•RECON well Street, 12th F e, California 9460 2-4500				Analytical Lat	poratory:	Tompki	- <i>y</i>	<u> </u>	
		(510) 65							Γ.			

Shipping Copy (White)

Lab Copy (Yellow)

Fife Copy (Pink)

Field Copy (Goldenrod)

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COOLER RECEIPT CHECKLIST

Login#	: 132809 Date Received: 3/23 Number of Coolers:	
Client:		34350006f
A.	Preliminary Examination Phase	O.
	Date Opered: 3/23 By (print): Trac & Box (sign) [Caps	1389
1.	Date Opered: By (print): _rac By (sign) _\frac Sign) _\frac Sign) _\frac By (print): _rac By (sign) _\frac Sign) _\frac By (print): _rac	YES\NO
	it VIII anter common mass and archill supplate	
2.	Were custody seals on outside of cooler?	YES NO
	How many and where? Seal date: Seal name	e:
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?	VE8 NO
	If YES, enter project name at the top of this form.	_
8.	If required, was sufficient ice used?	(YES)`NO
	Type of ice: Breeze Temperature: 5.6.6	
В.	Login Phase	an d
	Date Logged In: 3/2 3 By (print): Troop Depitr (sign) 1/05	Pob.y
1.	Date Logged In: 3/2 5 By (print): Troop Debyler (sign) Troop Describe type of packing in cooler:	
2.	Did all bottles arrive unbroken?	(YES)NO (Trill 23/7
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?	XE8' NO
6.	Were correct preservatives added to samples?	YE\$ '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	VES NO
9.	Was the client contacted concerning this sample delivery?	YES NO
	If YES, give details below.	
	Who was called?	Date:
Additi	onal Comments:	
Filenam	e: F:\qc\forms\cooler.wpd	Rev. 1 4/95



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: 24-MAR-98

Lab Job Number: 132817

Project ID: 3435.00.006

Location: Sherwin-Williams

Reviewed by: Traph Sh

Reviewed by:

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

2323 Fifth Street, Berkeley, CA 9471O, Phone (51O) 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.

CL1__T: 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 PD-MP-W-0323 PD-MP-E-0323	132817-001 132817-002 132817-003	03/23/98	03/23/98	5.3 28 ND	5.0 5.0 5.0	1	39791	EPA 6010A EPA 6010A 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 Detect	ed at or a	above r	report	ing li	mit	

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132817

BATCH QC REPORT BLANK SPIKE / BLANK SPIKE DUPLICATE

Arsenic 2000 2040 1970 ug/L 102 99 80-120 4 35 39791 EPA 6010A 03/24	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

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132817

BATCH QC REPORT SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units RP	D RPD Limit	QC Batch	Method	Aπalysis Date
Arsenic	132817-001	5.25	 <5.000	ug/L NC	20	39791	EPA 6010A	03/24/98
			NC = Not Cal	culable	- i , _ [

CLIENT: Levine-Fricke-Recon JOB NUMBER: 132817 Curtis & Tompkins, Ltd.
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

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3		Project L	ocation:	Ene	neryville, CA Date: 3/23/98 Serial No.									
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METHOD OF SHIPMENT: DATE					TIME		LAB COMM	ENTS:						
Sample Collector: LEVINE•FRICKE•RECON 1900 Powell Street, 12th Floor Emeryville, California 94608-1827 (510) 652-4500								Analytical		_	+ Tomp	Kns		

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File Copy (Pink)

Field Copy (Goldenrod)

COC.CDR 101596RYL



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

2323 Fifth Street, Berkeley, CA 9471O, Phone (510) 486-0900

ANALYTICAL REPORT

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 PD-MP-W-0327-F PD-MP-E-0327 PD-MP-E-0327-F PD-MP-RD-0327 PD-MP-RD-0327-F	132913-001 132913-002 132913-003 132913-004 132913-005 132913-006	03/27/98 03/27/98 03/27/98 03/27/98	03/30/98 03/30/98 03/30/98 03/30/98	20 17 ND ND ND ND	5.0 5.0 5.0 5.0 5.0	1 1 1	39919 39919 39919 39919	EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A	03/30/98 03/30/98 03/30/98 03/30/98

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 PREP BLANK

Compound	Compound		Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic		ND	5	ug/L	1	39919	EPA 6010A	03/31/98
	NE) = Not Detect	ed at or a	above r	ceport	L	lmit	

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 601GA	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

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132913

Curtis & Tompkins, Ltd.
DATE REPORTED: 03/31/98

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	132882-001	16.4	2080	ug/L	103	65-135	39919	EPA 6010A	03/31/98

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

1329/3

Project No.: 3	43S.	00.0	006	;	Project L	ocation:	Empille	CA	Date: 3/27	198	Serial No)!
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METHOD OF SHIPN	MENT:	-		DATE		TIME	LAB COMMENTS	3:				
Sample Collector:	1 E	900 Pov	FRICKE•RECON vell Street, 12th F e, California 9460 -4500				Analytical Labo	-	d Tomph	وس		

COOLER RECEIPT CHECKLIST

Login#: /329/) Date Recei	ved: 3/30/98 Number of Coolers: / Project: 3435.60.00% - Skeruh wil
A. Preliminary Examination Phase Date Opened: 3/30/99 B	se sy (print): TrackBoyce (sign) Track Bahse ing slip (airbill, etc.)?
1. Did cooler come with a shippi	ing slip (airbill, etc.)? YES NO
ICATEC	1 · 1 · 1 · 1
2. Were custody seals on outside	e of cooler?YES NO /U//
	Seal date: Seal name:
	and intact at the date and time of arrival? YES NO
	intact when received? NO
	tt properly (ink, signed, etc.)?
	ers in the appropriate place?
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: 5.8	Temperature: Lock
B. Login Phase	
Date Logged In 3/20/92	By (print) Too Bho (sign) los Dobe
1. Describe type of packing in co	By (print): Tray Bbo (sign) Tray Dobz
2. Did all bottles arrive unbroker	n?
	and complete (ID, date, time, signature, etc.)? (FS NO
	ustody papers?
	used for the tests indicated?XES\NO
	Ided to samples?
	ple sent for tests indicated?
	samples? It NO, list sample Ids below
	erning this sample delivery? YES NO
If YES, give details below.	~ · · ·
Who was called?	By whom? Date:
Additional Comments:	
,	
Filename: F:\qc\forms\cooler.wpd	Rev. 1 4/95

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: KERSTIN FRAZIER

CLIENT PROJ. ID: 3435.00.006 CLIENT PROJ. NAME: SHERWIN-WMS

C.O.C. NUMBER: 1603

REPORT DATE: 04/10/98

DATE(S) SAMPLED: 03/27/98

DATE RECEIVED: 03/30/98

AEN WORK ORDER: 9803371

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:

3440 Vincent Road • Pleasant Hill, CA 94523 • (510) 930-9090 • FAX (510) 930-0256

Analytical Services for the Environment

American Environmental Network

PAGE 2

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	-	Pre	ep 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

PAGE 3

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	-	Pı	rep Date	04/07/98
Arsenic	EPA 7060	ND	0.005 mg	g/L	04/08/98

ND = Not detected at or above the reporting limit \star = Value at or above reporting limit

PAGE 4

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

PAGE QR-1

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.

<u>Definitions</u>

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

- D: Surrogates diluted out.
- I: Interference.
- !: Indicates result outside of established laboratory QC limits.

American Environmental Network

INSTR RUN: 4000\980408193200/1/

INSTR RUN: 4000\980408193200/3/1

INSTR RUN: 4000\980408193200/2/1

BATCH ID: GFW040898-E DILUTION: 1.000000

BATCH ID: GFW040898-E DILUTION: 1.000000

BATCH ID: GFW040898-E DILUTION: 1.000000

BATCH ID: GFW040898-E DILUTION: 1.000000

QUALITY CONTROL REPORT

PAGE OR-2

ANALYSIS: Arsenic

MATRIX: Water

METHOD BLANK SAMPLES

WORK ORDER: 9803371

SAMPLE TYPE: Blank Method/Media blank INSTRUMENT: TJA 4000

Arsenic in water by GFAA

RESULT ND

REF RESULT

REPORTING LIMIT 0.005

SPIKE VALUE

LAB ID: GFW_PBW_E PREPARED: ANALYZED: 04/08/98

(%)

RECOVERY REC LIMITS (%)

LOW HIGH RPD (%) LIMIT (%)

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank LAB ID: GFW_LCD_E
INSTRUMENT: TJA 4000 PREPARED:

UNITS:

METHOD:

ANALYTE

METHOD:

UNITS: METHOD:

ANALYTE

mg/L

RESULT ANALYIE RESULT
Arsenic in water by GFAA 0.0385

REPORTING REF RESULT ND

LIMIT 0.005

ANALYZED: 04/08/98

ANALYZED: 04/08/98

SPIKE R VALUE 0.0400

RECOVERY REC LIMITS (%)

(%) LOW HIGH RPD (%) LIMIT (%) 96.3 82 140

SAMPLE TYPE: Spike-Method/Media blank LAB ID: GFW_LCS_E INSTRUMENT: TJA 4000 PREPARED: UNITS:

Arsenic in water by GFAA

mg/L

RESULT 0.0379

REPORTING RESULT LIMIT ND 0.005

SPIKE VALUE 0.0400

(%) 94.8

RECOVERY REC LIMITS (%) LOW HIGH RPD (%) LIMIT (%) 82 140

LABORATORY CONTROL DUPLICATES

ANALYTE

UNITS: METHOD:

SAMPLE TYPE: Method Spike Sample Duplicate INSTRUMENT: TJA 4000

mg/L

RESULT Arsenic in water by GFAA 0.0385

REF RESULT 0.0379

REPORTING LIMIT 0.005

ANALYZED: 04/08/98 SPIKE VALUE

RECOVERY REC LIMITS (%) (%) LOW HIGH RPD (%) LIMIT (%)

LAB ID: GFW_LCR_E INSTR_RUN: 4000\980408193200/4/2 PREPARED: BATCH_ID: GFW040898-E

1.57

RPD 13

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

C-3 S-Z

9803371

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

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File Copy (Pink)

Field Copy (Golden: "\



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

2323 Fifth Street, Berkeley, CA 9471O, Phone (510) 486-0900

ANALYTICAL REPORT

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:

Reviewed by:

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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.

DATE SAMPLED: 03/30/98 DATE RECEIVED: 03/30/98 DATE REPORTED: 03/31/98

SAMPLE ID: D-CBSED-0330

LAB ID: 132914-001

) CLIENT: Levine-Fricke-Recon PROJECT ID: 3435.00.006 LOCATION: Sherwin-Williams

MATRIX: Soil

California TITLE 26 Metals

Compound	Result (mg/Kg)	Reporting Limit (mg/Kg)	IDF	QC Batch	Method n	Analysis Date
Antimony Arsenic Barium Beryllium Cadmium Chromium (total)Cobalt Copper Lead Mercury Molybdenum Nickel Selenium Silver Thallium Vanadium Zinc	ND 95 91 0.19 0.12 29 7.0 36 44 ND 2.7 29 ND ND ND 3.4 22 500	3.0 0.25 0.51 0.10 0.10 0.51 1.0 0.51 0.080 1.0 1.0 0.25 0.51 0.25	1 1 1 1 1 1 1 1 1 1 1 1 1 50	39921 39921 39921 39921 39921 39921 39921 39921 39921 39921 39921 39921 39921 39921	EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A EPA 6010A	03/31/98 03/31/98 03/31/98 03/31/98 03/31/98 03/31/98 03/31/98 03/31/98 03/31/98 03/31/98 03/31/98 03/31/98 03/31/98
	TD 17 1	1	<u> </u>	i		

ND = Not detected at or above reporting limit

CLIENT: Levine-Fricke-Recon JOB NUMBER: 132914 Curtis & Tompkins, Ltd.

DATE REPORTED: 03/31/98

BATCH QC REPORT PREP BLANK

Compound	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Antimony Arsenic Barium Beryllium Cadmium Chromium (total) Cobalt Copper Lead Mercury Jolybdenum Mickel Selenium Silver Thallium Vanadium Zinc	ND ND ND ND ND ND ND ND ND ND ND ND ND N	3 0.25 0.5 0.1 0.5 0.5 0.15 0.1 1 0.25 0.5 0.5 0.5	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	1 1 1 1 1 1 1 1	39921 39921 39921 39921 39921 39921 39921 39921 39921 39921 39921 39921	EPA 6010A EPA 6010A	03/31/98 03/31/98 03/31/98

ND = Not Detected at or above reporting limit

Curtis & Tompkins, Ltd.
DATE REPORTED: 03/31/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132914

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	2-						i					
	25	26.1	25.35	mg/Kg	104	101	80-120	3	35	39921	EPA 6010A	03/31/9
Arsenic	100	88	88	[mg/Kg	88	88	80-120	٥	35	39921	EPA 6010A	03/31/9
Barium	100	93	93	mg/Kg	93	93	80-120	0	35	39921	EPA 6010A	03/31/9
Beryllium	2.5	2.395	2.42	mg/Kg	96	97	80-120	1	35	39921	EPA 6010A	03/31/9
Cadmium	2.5	2.34	2.36	mg/Kg	94	94	80-120	1	35	39921	EPA 6010A	03/31/9
Chromium (total)	10	9.3	9.3	mg/Kg	93	93	80-120	0	35	39921	EPA 6010A	03/31/9
Cobalt	25	23.35	23.5	mg/Kg	93	94	80-120	1	35	39921	EPA 6010A	03/31/9
Copper	12.5	12.2	12.2	mg/Kg	98	98	80-120	0	35	39921	EPA 6010A	03/31/9
Lead	25	22.9	23.1	[mg/Kg]	92	92	80-120	1	35	39921	EPA 6010A	03/31/9
Mercury	2.500	2.588	2.622	mg/Kg	104	105	80-120	7 1	35	39918	EPA 7471	03/30/9
Molybdenum [20	18.3	18.4	mg/Kg	92	92	80-120	1 1	35	39921	EPA 6010A	03/31/9
Nickel	25	23	23.05	mg/Kg	92	92	80-120	ō	35	39921	EPA 6010A	03/31/9
Selenium	100	86 İ	87	mg/Kg	86	87	80-120	7 1	35	39921	EPA 6010A	03/31/9
Silver	5 j	4.585	4.58	mg/Kg	92	92	80-120	a i	35	39921	EPA 6010A	03/31/9
Thallium	100	94.5	94	mg/Kg	95	94	80-120	1 1	35	39921	EPA 6010A	
Vanadium j	25	23.5	23.55	mq/Kq	94	94	80-120	0 1	35	39921	EPA 6010A	03/31/9
Zinc	25	23.1	23.2	mg/Kg	92	93	80-120	0 1	35	39921	EPA 6010A	03/31/9 03/31/9
j	i	i		[- 120	- 1		3,721	DEM GOTON	1 03/31/3

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CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3	435.0	20.00	96		Project L	ocation	: Ev	nez	lle	CA		Date: 3	3/30	Ş	Serial No.	:
Project Name:	Sher	vi (Williams		Field Log								-/		Nº	1605
Sampler (Signat	ure):	(ve	SAMPLES	<u></u>	Lucus	6.4	رسواه	Aguls		A	NALYSE	S		//s	Samplers;	LXG
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE		19 A		//	//	//	, ko	D RUSH	/ ,	REMARK	S
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Sample Collector	1 E	900 Pov	FRICKE•RECON vell Street, 12th F e, California 9460 -4500	floor 98-1827				Analyti	cal Lab	oratory			i Curtis	s o-d	Tomp	Lis

Shipping Copy (White)

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File Copy (Pink)

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COC.CDR 101596RYL

COOLER RECEIPT CHECKLIST

Login# Client:	Date Received: 3/3/4/98 Number of Coolers: 1	<u>r = 343</u> 5.60.0
A.	Preliminary Examination Phase	101
	Date Opened: / DO By (print): Tracy Scholing) / GC	<u>// シカセ</u> ,
1.	Date Opened:	YES NO'
	If YES, enter carrier name and airbill number:	
2.	If YES, enter carrier name and airbill number: Were custody seals on outside of cooler?	YES NO) ~//-
	How many and where? Sea! date: Seal name: Were custody seals unbroken and intact at the date and time of arrival?	
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?	OES NO
5.	Were custody papers filled out properly (ink, signed, etc.)?	YES-NO
6.	Did you sign the custody papers in the appropriate place?	ZES 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
٥.	If required, was sufficient ice used? Type of ice: Temperature: Section Temperature: S	
B.	Login Phase	0 .
D .	Date Logged In: 3/2 By (print) T CCC1/By Fulsign) Trans	obole E
1.	Date Logged In: 3/3 By (print): Trace (sign) Describe type of packing in cooler: Did all bottles arrive unbroken?	
2.	Did all bottles arrive unbroken?	(YES NO
3.	Were labels in good condition and complete (ID, date, time, signature, etc.)?	
<i>3</i> . 4.	Did bottle labels agree with custody papers?	XES NO
5.	Were appropriate containers used for the tests indicated?	YES NO
5. 6.	Were correct preservatives added to samples?	VES NO
7.	Was sufficient amount of sample sent for tests indicated?	VES NO
	Were bubbles absent in VOA samples? If NO, list sample Ids below	VES NO
8.	Was the client contacted concerning this sample delivery?	VES NO
9.		225 110
	If YES, give details below.	ta·
	Who was called? By whom? Da	
A 3344	1 0	
Additi	onal Comments:	
		717-1-11-1-11-1
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		Rev. 1 4/95
Filenam	e: F:\qa\forms\cooler.wpd	INCY. 1 7135



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

2323 Fifth Street, Berkeley, CA 9471O, Phone (510) 486-0900

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

7 (31)

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.

CLI__T: 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 RD-MP-E-0331 PD-RD-0331	132944-001 132944-002 132944-003	03/31/98	03/31/98	39 ND ND	5.0 5.0 5.0	1	39968	EPA 6010A EPA 6010A EPA 6010A	04/01/98

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.
DATE REPORTED: 04/01/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132944

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 Detec	ted at or a	above 1	report	ing l	imit	

Curtis & Tompkins, Ltd.

DATE REPORTED: 04/01/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132944

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

Curtis & Tompkins, Ltd.
DATE REPORTED: 04/01/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 132944

BATCH QC REPORT SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPI	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 Cal	culable	<u></u> -			1	<u>i</u>

CLIENT: Levine-Fricke-Recon JOB NUMBER: 132944 Curtis & Tompkins, Ltd.
DATE REPORTED: 04/01/98

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	132933-010	10.7	2090	ug/L	104	65-135	39968	EPA 6010A	04/01/98

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.:	935. C	10-00	6		Project L	ocation: ¿	Emuzil	Te 1	CA		Date: -	2/21	198	Serial No).:
Project Name:	Shen	1in - V	Villians s		1	jbook No.:	,			 	<u>.</u>	- 1 (+) 	<u>-</u>	Nº	1628
Sampler (Signa	ture):	ug	- Ell	Elvies	Colde	Ĺ,			AN	ALYSE	S		$\overline{}$	Samplers	:: [LG
			SAMPLES		_	,	7			$\overline{}$	7	$\overline{/}$	/-/	·	
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE	16,	٧,٠٠٠				/ 1	31D &	USH	REMAR	<s< td=""></s<>
PD-MP-20331	03/31/98	8:00			Water				<u> </u>			X	<u> </u>		
PD-MF-E-0331	1,	8:05		1		X						X	74	hr TA	
PD-RD-0331	↓	8:10				X						\mathbf{x}^{\top}		·	
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						<u> </u>									
						-									7,80
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(Signature)	1/2		1	DATE 3	; 3)	TIME 9:50	RECEIV (Signa		1100		5.7			DATE -3/3//99	TIME G.S.
RELINQUISHED B (Signature)	Y :			DATE		TIME	RECEIV (Signa		0	<i>,</i> - 20-	70			DATE	TIME
RELINQUISHED B (Signature)	Y:			DATE		TIME	RECEIV (Signa					•	<u>-</u>	DATE	TIME
METHOD OF SHIP	MENT:			DATE		TIME	LAB CO	MMENTS	3:						
Sample Collector	1 E	900 Pow	FRICKE•RECON rell Street, 12th f e, California 9460 -4500				Analytic	al Labor	•	UrTT 3	· -	d	Tony	Z., Z	

Shipping Copy (White)

Lab Copy (Yellow)

File Copy (Pink)

Field Copy (Goldenrod)

COC.CDR 101596RYL



COOLER RECEIPT CHECKLIST

Login#	132944 Date Received: 3/31 Number of Coolers: /
Client:	ZUFR Project: Shorwin Williams 3435.CO.00
A.	Preliminary Examination Phase
•	Date Opened: 3/3/ By (print): Too Booksign) Too YES (NO)
1.	Did cooler come with a shipping slip (airbill, etc.)?
2	If YES, enter carrier name and airbill number:
2.	How many and where? Coal date: Coal name:
3.	How many and where? Seal date: Seal name: Were custody seals unbroken and intact at the date and time of arrival? YES NO WA
3. 4.	Were custody papers dry and intact when received?
4. 5.	Were custody papers dry and intact when received?
5. 6.	Were custody papers filled out properly (ink, signed, etc.)? Did you sign the custody papers in the appropriate place? NO
0. 7.	Was project identifiable from custody papers? NO
7.	TEXTES anton mariest name at the tark of this forms
8.	If YES, enter project name at the top of this form.
٥.	If required, was sufficient ice used? Type of ice: 3/40 Temperature: 5-9°C
	Type of ice. 3/40 Temperature: 2-7
В.	Login Phase
ъ.	Date Logged In: Star By (print): Tron /R/A (cign) Tron RA
1.	Date Logged In: 37 By (print): Tracy Reby (sign) 100 Bs NO
2.	Did all bottles arrive unbroken?
2. 3.	Did all bottles arrive unbroken:
3. 4.	Were labels in good condition and complete (ID, date, time, signature, etc.)? YEN NO Did bottle labels agree with custody papers?
4. 5.	Were appropriate containing used for the tests indicated?
5. 6.	Were appropriate containers used for the tests indicated?
	Were correct preservatives added to samples? NO
7.	Was sufficient amount of sample sent for tests indicated?
8.	Were bubbles absent in VOA samples? If NO, list sample Ids below
9.	Was the client contacted concerning this sample delivery? YES NO
	If YES, give details below.
	Who was called? By whom? Date:
Additio	onal Comments:
*	
Filename	: F:\qc\forms\cooler.wpd Rev. 1 4/95
I HOUSE	COLUMN TO THE PROPERTY OF THE



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: 08-APR-98

Lab Job Number: 133023

Project ID: 3435.00.006

Location: Sherwin-Williams

Reviewed by:

Reviewed by:

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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 PD-MP-E-0402 PD-RD-0402	133023-001 133023-002 133023-003	04/02/98	04/03/98	23 6.9 5.5	5.0 5.0 5.0	1	40056	EPA 6010A EPA 6010A EPA 6010A	04/06/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133023

Curtis & Tompkins, Ltd. DATE REPORTED: 04/07/98

BATCH QC REPORT PREP BLANK

Compound	d	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							

Curtis & Tompkins, Ltd.
DATE REPORTED: 04/07/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133023

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.
DATE REPORTED: 04/07/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133023

BATCH QC REPORT SAMPLE SPIKE

Сотроила	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

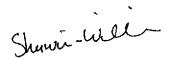
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CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3	43S. C	90.0	06		Project L	ocation:	Eme,	ville	CA	Date: Ou	or lax	Serial No	
Project Name:	Sheri	Nin -	Williams		Field Log			, , , , , ,			, , , , , , , , , , , , , , , , , , , ,	Nº	1618
Sampler (Signat	ture):	1un	68	Lucas	Colo	lor			ANALYS	ES		Samplers	LXG
SAMPLE NO.	DATE	TIME	SAMPLES LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE		Ben C	//		, koro	RUSH	REMARK	S
PD-MD-W-0402 PD-MD-E-0402 PD-RD-0407	04/02/92	18:40			wtu	XXX				X	<u> </u>	TAT	
											Kerstin	Frazier Coldstein	
											DVCAS	Vitosiei	
RELINQUISHED B (Signature)	Y:		-be-	DATE		TIME	REC (S	EIVED BY:		3/2,2	į .	JATE 1/3/4 %	TIME
RELINQUISHED B (Signature)	Y:			DATE	Ē	TIME	REC (Si	EIVED BY: gnature)	5	. 7/2)	-	72/46 DATE	/0:30 TIME
RELINQUISHED B' (Signature)	Y:			DATE	.	TIME	i	EIVED BY: gnature)			C	PATE	TIME
METHOD OF SHIP	MENT:			DATE		TIME	LAB	COMMENTS	3:				
Sample Collector	1 E	900 Pow	FRICKE•RECON vell Street, 12th F e, California 9460 -4500	Floor 08-1827		-	Anal	ytical Labo		tis ad	Tomph	\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.	
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Field Copy (Goldenrod)

COC.CDR 101596RYL





COOLER RECEIPT CHECKLIST

	133023 113	1	
Login			
Client	: LFV Project: 3435,00:005	_ -	
Α.	Proliminary Evenination Phase		•
A.	Preliminary Examination Phase Date Opened: By (print): (sign)	0,,1	
1	Date Opened: 4/2 By (print): world (sign) (10%)	XUC	62
1.	Did cooler come with a shipping slip (airbill, etc.)?	YES	N/O
•	If YES, enter carrier name and airbill number:	T.E.G	-600
2.	Were custody seals on outside of cooler?		₩O
•	How many and where? Seal date: Seal name:		`
3.	Were custody seals unbroken and intact at the date and time of arrival?	YES	NOON
4.	Were custody papers dry and intact when received?		
5.	Were custody papers filled out properly (ink, signed, etc.)?		
6.	Did you sign the custody papers in the appropriate place?		
7.	Was project identifiable from custody papers?	. YES	NO
	If YES, enter project name at the top of this form.	\sim	
8.	If required, was sufficient ice used? Type of ice: Temperature: 1750	(ES)	NO
	Type of ice: Yum Temperature: 4,7500		
		~	
В.	Login Phase	1	
	Date Logged In: 4/3 By (print): (sign) fra le	<i>v</i> ~	
1.	Describe type of packing in cooler:		
2.	Did all bottles arrive unbroken?	MES	NO
3.	Were labels in good condition and complete (ID, date, time, signature, etc.)?	. (YES	МО
4.	Did bottle labels agree with custody papers?	YES	NO
5.	Were appropriate containers used for the tests indicated?		
6.	Were correct preservatives added to samples?		
7.	Was sufficient amount of sample sent for tests indicated?		
8.	Were bubbles absent in VOA samples? If NO, list sample Ids below		
9.	Was the client contacted concerning this sample delivery?		
	If YES, give details below.		
	Who was called? By whom? Date	··	
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Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 9471O, Phone (51O) 486-0900

ANALYTICAL REPORT

Prepared for:

Levine-Fricke-Recon 1900 Powell Street 12th Floor Emeryville, CA 94608

1542

hrely to be

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 PD-MP-W-0409 PD-MP-E-0409	133129-001 133129-002 133129-003	04/09/98	04/10/98	5.7 20 ND	5.0 5.0 5.0	1	40177	EPA 6010A EPA 6010A EPA 6010A	04/13/98

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.
DATE REPORTED: 04/13/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133129

BATCH QC REPORT BLANK SPIKE / BLANK SPIKE DUPLICATE

Compound	Spike Amount	BS Result	BSD Result	Units	BS% Rec.	BSD% Rec.	Rec. Limits	RPD ŧ	RPD Limit	QC Batch	Method	Analysis Date
Arsenic Arsenic	2000	2050 98	2010 87	ug/L mg/Kg	103 98	101 87	80-120 80-120		35 35	40177 40197		04/13/98 04/13/98

Curtis & Tompkins, Ltd.
DATE REPORTED: 04/13/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133129

BATCH QC REPORT SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units	RPD	RPD Limit	QC Batch	Method	Analysis Date
Arsenic Arsenic	133128-001 133114-015	43.4 4.475	47.1 4.375	ug/L mg/Kg	8 2	20 35	40177 40197	 EPA 6010A EPA 6010A	04/13/98 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 Arsenic		133128-001 133114-015	43.4	2100 91.58	ug/L	103 88	65-135 65-135	40177	EPA 6010A EPA 6010A	

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3	135	,00	.006		Project Lo	ocation:	Er	nery u i	lle		Date: 4/6	1/98	Serial No	.:
Project Name:				21	Field Log			'					Nº	2342
Sampler (Signate		,	1 Small	Lhow	4				Α	NALYSES	3		Samplers	SMR KFB/L
		ece s	SAMPLES				/0) wit			/ /,	/, /		
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE	Q. L.S	F /	Jail Arsinit			<u> </u>	RUSH	REMARK	s
PD- RD-0409	4/9/98	12:10		11	420	X	+	·			X			
PO-MF-W-040		12:15	· 	<u> </u>	 	K						24 h	WY TA	<u> </u>
PO-MP-E-0409		12:20		(F1 2 204 4	K	×	ļ			×			
D. FILTER-0404	4/9/48	17:30		1	FABOKA	VP	1		+	+ +		Please	Fax re	15 (2) 1-5
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RELINQUISHED B (Signature)			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	DAT		TIME		RECEIVED E (Signature		Y -V	11		DATE	TIME
RELINQUISHED 9 (Signature)	Y:			DAT	'E	TIME		RECEIVED E (Signature			•		DATE	TIME
METHOD OF SHIF	MENT:			DAT	E	TIME		LAB COMME	NTS:			į		
Sample Collecto	•	1900 Po	FRICKE•RECON well Street, 12th le, California 94t 2-4500	Floor				Analytical L		=	5 4	Tomp	KINS	



Rev. 1 4/95

Login	#: 133/29 Date Received: 4/10 Number of Coolers:	/		
	LUER Project: Shower (1) Wign	2	34	135
		-		
A.	Preliminary Examination Phase	a	,	
	Date Opened: By (print): Con Sol (sign)		٨,	1
1.	Date Opened: By (print): Cory By (sign) Did cooler come with a shipping slip (airbill, etd.)?	Y	E8 1	Ю
	If YES, enter carrier name and airbill number:			
2.	Were custody seals on outside of cooler?	Y	ES N	$\overline{10}$
	How many and where? Seal date: Seal name:			/
3.	Were custody seals unbroken and intact at the date and time of arrival?	X	ES, N	Ю
4.	Were custody papers filled out properly (ink, signed, etc.)?	<u>'</u>	⊞3 ′N	O
5 .	Were custody papers filled out properly (ink, signed, etc.)?	:¥	£S³N	O
6.	Did you sign the custody papers in the appropriate place?	X	ŧs, n	Ο
7.	Was project identifiable from custody papers?	(Y	£ġ' Ν	О
	If YES, enter project name at the top of this form.			
8.	If required, was sufficient ice used?	Y	ES N	O
	Type of ice: Temperature: 60			
В.	I agin Phase			
В.	Login Phase Date Logged In: 4/4 Profession T A B & Gian T C	- 1	, 3	A
1.	Date Logged In: By (print): By (sign) By (print): By (sign)	1)_	<u> </u>	\triangle
2.	Did all bottles arrive unbroken?	Ki	ES N	
3,	Were labels in good condition and complete (ID, date, time, signature, etc.)	١.		
4.	Did bottle labels agree with custody papers?			
5.	Were appropriate containers used for the tests indicated?		ES N	0
6.	Were correct preservatives added to samples?	ر ا	EO N	0
7.	Was sufficient amount of sample sent for tests indicated?	سر ملاک	EC N	0
8.	Were bubbles absent in VOA samples? If NO, list sample Ids below	Cv	EC AI	<u>0</u>
9.	Was the client contacted concerning this sample delivery?			
	If YES, give details below.	k.	L3 I1	0
	17 11 10	ite:		
Additio	onal Comments:			
Filename:	F:\qc\forms\cooler.wpd	Rev 1.4	V95	



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: 08-MAY-98

Lab Job Number: 133497

Project ID: 3435.00.006

Location: Sherwin-Williams

Reviewed by:

Reviewed by:

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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 PD-MP-E-0505 PD-MP-W-0505	133497-001 133497-002 133497-003	05/05/98	05/06/98	ND ND 7.1	5.0 5.0 5.0	1	40725	EPA 6010A EPA 6010A EPA 6010A	05/08/98

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

DATE REPORTED: 05/08/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133497

BATCH QC REPORT PREP BLANK

Compound	Ē.	Result	Reporting Limit	Units	IDF	QC Batch	Method	Analysis Date
Arsenic		ND	5	ug/L	1	40725	EPA 6010A	05/08/98
	ND	= Not Detec	ted at or a	above 1	report	ing li	Lmit	<u> </u>

Curtis & Tompkins, Ltd.
DATE REPORTED: 05/08/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133497

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

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CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 3	435.0	96.000	5	· · · ·	Project L	ocation:	Emeryn	1/e , C/		Date: S /	5/98	Serial N	lo.:
Project Name:	Sher	Win -	Williams	7	Field Log		,					─ Nº	2387
Sampler (Signa	ture): کے	/ inco	Clos						ANALYSI	ES .		Sample	rs: 2 × C-
	•		SAMPLES	:			///		7 7		-/-/	<i></i>	
SAMPLE NO.	DATE	ТІМЕ	LAB SAMPLE NO.	NO. OF CON- TAINERS	SAMPLE TYPE	74'	urit		//	HOLD	RUSH	REMAR	iks
PD-RD-0505	45/98	15.00		1	wwer	X							
PD-MP-E-0505	5/5/98	15.05		<u> </u>						1	70	lay TAT	<u> </u>
PD-MP-W-OSI	5/5/94	7-570	•	 	У	8						J	
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(Signature)	2 m	2	6-	DATI		TIME	RECEIV (Sign		105	2 dois		3/6/91	TIME 9:00
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RELINQUISHED B (Signature)	Y:			DATE	E	TIME .	RECEIV (Signa			* · · · · · · · · · · · · · · · · · · ·		DATE	TIME
METHOD OF SHIP	MENT:			DATE	=	TIME	LAB CO	MMENTS:			<u> </u>		
Sample Collector		1900 Pow	FRICKE•RECON rell Street, 12th e, California 946 -4500	Floor			Analyti	cal Labora	tory: Cur.	1is 6 i	Tomphins	<u> </u>	

Shipping Copy (White)

Lab Copy (Yellow)

File Copy (Pink)

Field Copy (Goldenrod)

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Showin-well

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login	#. 133497 Data Received:	7	
Client	#: 133447 Date Received: Number of Coolers:		
	11. ojeci. 21. ojeci. 20. ojeci.		
4 .	Preliminary Examination Phase		,
	Preliminary Examination Phase Date Opened: 5 6 By (print): Junilium (sign)	<u> </u>	
	Did cooler come with a shipping slip (airbill, etc.)?	VEC	(NIA)
	If YES, enter carrier name and airbill number:	1150	ANG
	If YES, enter carrier name and airbill number: Were custody seals on outside of cooler?	YES	10
	How many and where? Seal date: Seal name:	ILO	_
	were custody seals unbroken and intact at the date and time of arrival?	YES	NO
	Were custody papers dry and intact when received?	(YES	NO
	were custody papers filled out properly (ink, signed, etc.)?	7₹FS	NO
	Did you sign the custody papers in the appropriate place?	WE'S	NO
	Was project identifiable from custody papers?	VES.	NO
	If YES, enter project name at the top of this form.	(2.290	110
	If required, was sufficient ice used?	VFS	NO
	Type of ice: Year Temperature: 6000	(190	110
	Login Phase Date Logged In: 56 By (print): J. with (sign) J. With (sign) Describe type of packing in cooler: Did all hottles arrive unbackers?		,
	Date Logged In: 56 By (print): I will be (sign)	مه	
	Describe type of packing in cooler:	~_	
	Did all bottles affive disploken/	∕YFS	NO
	Were labels in good condition and complete (ID, date, time, signature, etc.)?	YES	NO
	Did bottle labels agree with custody papers?	VFS	NO
	were appropriate containers used for the tests indicated?	. YES	NO
	Were correct preservatives added to samples?	V ES	NO
	Was sufficient amount of sample sent for tests indicated?	YES	NO
	Were bubbles absent in VOA samples? If NO, list sample Ids below	YES	NOV
	Was the client contacted concerning this sample delivery?	YES	NO
	If YES, give details below.		
	Who was called? By whom? Date	: :	
dditio	nal Comments:		
		-	
			-
name:	F.\qc\forms\cooler.wpd Re	v. 1 4/95	

An Access KLP



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

2323 Fifth Street, Berkeley, CA 9471O, Phone (510) 486-0900

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

71725

Reviewed by:

Reviewed by:

This package may be reproduced only in its entirety.



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 PD-MP-W-0512	133592-001			ND 8.5	5.0 5.0	1	40830 40830	EPA 6010A EPA 6010A	05/14/98 05/14/98

ND = Not detected at or above reporting limit

Curtis & Tompkins, Ltd.

DATE REPORTED: 05/14/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133592

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 Detec	ted at or a	above 1	report	ing 1:	imit	



CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133592

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	B0-120	3	35	40830	EPA 6010A	05/14/98

Curtis & Tompkins, Ltd. DATE REPORTED: 05/14/98

CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133592

BATCH QC REPORT SAMPLE DUPLICATE

Compound	Sample	Sample Result	Duplicate Result	Units			QC Batch	Method	Analysis Date
Arsenic	133592-001	<5.000	<5.000	ug/L	NC	20	40830	EPA 6010A	05/14/98
	İ		NC = Not Cal	culable	3			!	<u>-l</u> i



CLIENT: Levine-Fricke-Recon

JOB NUMBER: 133592

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

Project Location: Emery ville Date: 05/17/48 CA Serial No.: Project No.: 3435.00.006 Nº 1285 Project Name: Shewin - Williams Field Logbook No.: Samplers: 1 X G **ANALYSES** Sampler (Signature): SAMPLES RUSH HOLD NO. OF LAB SAMPLE REMARKS SAMPLE NO. DATE TIME CON-SAMPLE NO. **TAINERS** TYPE DD-MP-E-018 S/12/W 5:35 wAu × PD-MP-W-0510 3/12/96 5:30 X Peruts trazio (rold feir LVCax RECEIVED BY: DATE TIME TIME RELINQUISHED BY: (Signature) (Signature) TIME RECEIVED BY: DATE DATE TIME RELINQUISHED BY: (Signature) (Signature) DATE TIME RECEIVED BY: DATE TIME RELINQUISHED BY: (Signature) (Signature) DATE TIME LAB COMMENTS: METHOD OF SHIPMENT: Analytical Laboratory: LEVINE•FRICKE•RECON Sample Collector: 1900 Powell Street, 12th Floor irtis and Tompkins Emeryville, California 94608-1827 (510) 652-4500

Shipping Copy (White)

Lab Copy (Yellow)

132792

File Copy (Pink)

Field Copy (Goldenrod)

COC.COR 101596RYL

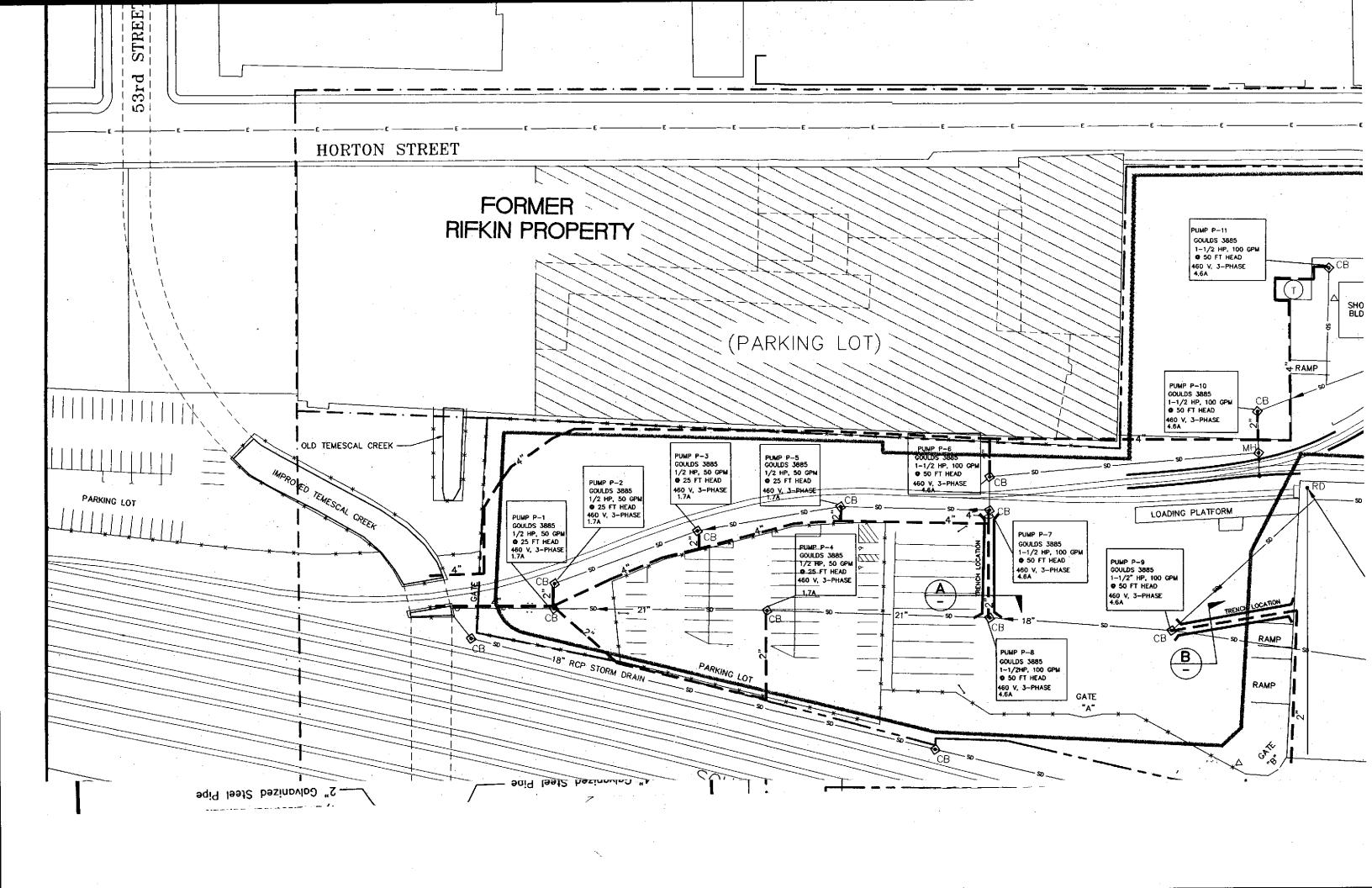
Show will

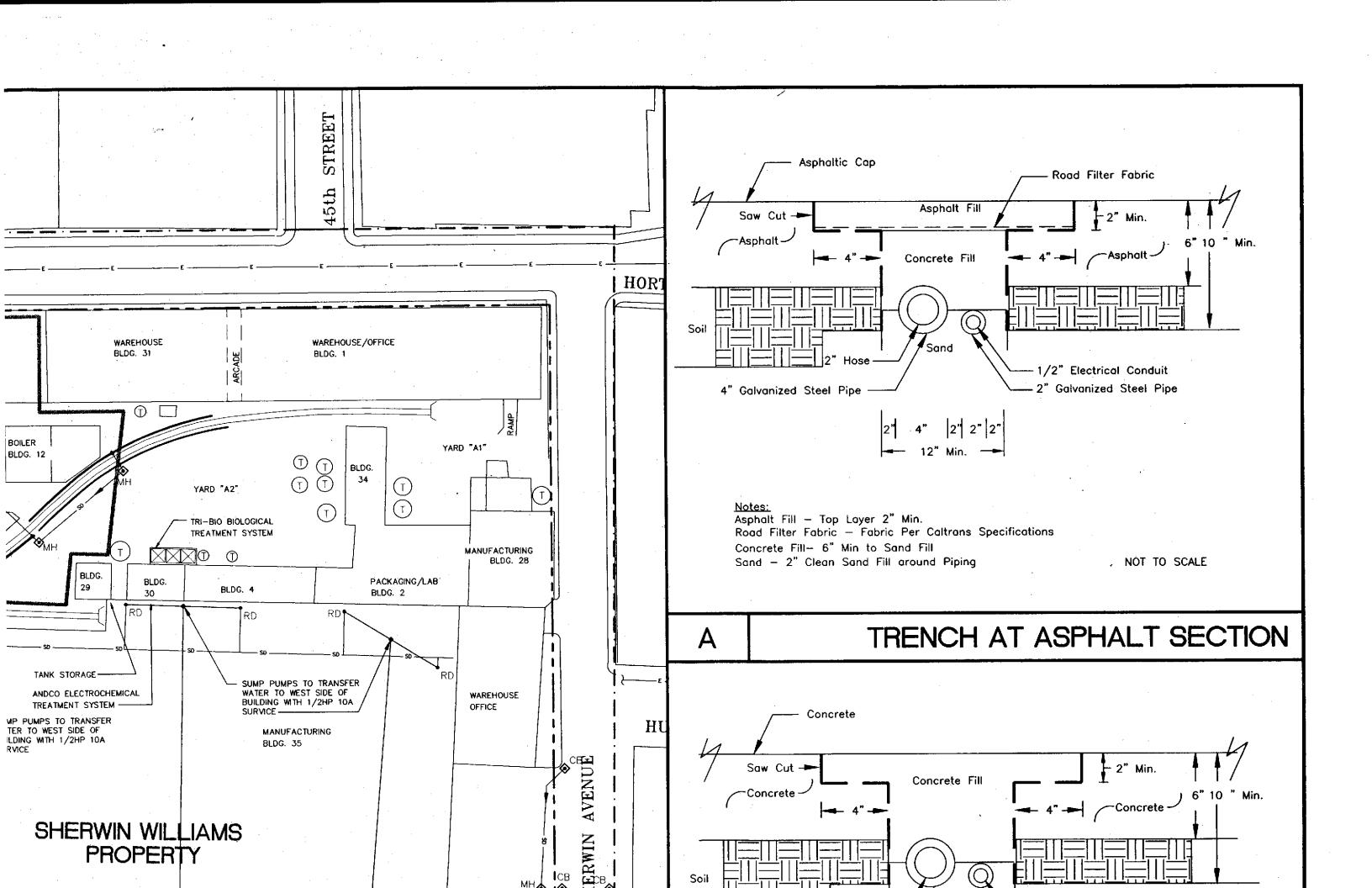
COOLER RECEIPT CHECKLIST

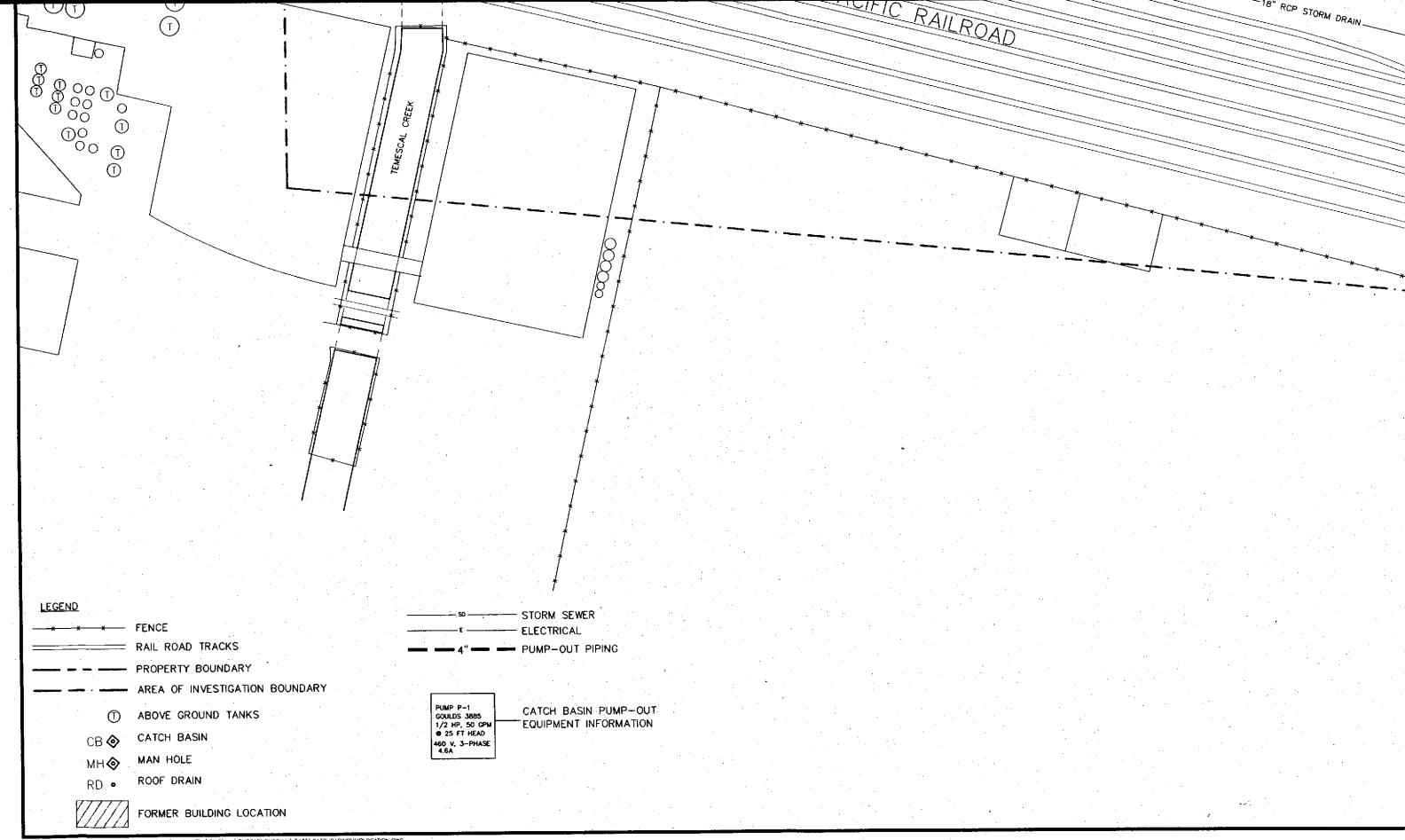
	Project:Project:		
A .	Preliminary Examination Phase Date Opened: 512 By (print): (sign)	ر. دی: جمایده درماند. 	v este pilote e Šp. 15 Šp. 15
1.	Did cooler come with a shinning slin (sighill see)?	YES	70 0
•	If YES, enter carrier name and airbill number:		
2.	Were custody seals on outside of cooler?	YES	NO
	Were custody seals on outside of cooler? How many and where? Seal date: Seal name:		
3.	Were custody seals unbroken and intact at the date and time of arrival?	YES	NO J
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?	TES	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?	(Y)2S	NO
	Type of ice: Swe Temperature: 5.0°C		
В.	Login Phase	,	
	Date Logged In: 5/13 By (print): Julium (sign)	ــــــــــــــــــــــــــــــــــــــ	t
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.)	, And	NO
4.	Did bottle labels agree with custody papers?	WEO.	NO
5.	Were appropriate containers used for the tests indicated?	WES	NO
5.	Were correct preservatives added to samples?	VES.	NO
7.	Was sufficient amount of sample sent for tests indicated?	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	NO
3.	Were bubbles absent in VOA samples? If NO, list sample Ids below	VES	NO 31
9.	Was the client contacted concerning this sample delivery?	VES	NO ~
	If YES, give details below.	125	110
	Who was called? By whom? Da	te:	
Additi	onal Comments:		

Appendix B

Multipoint System Design Drawings







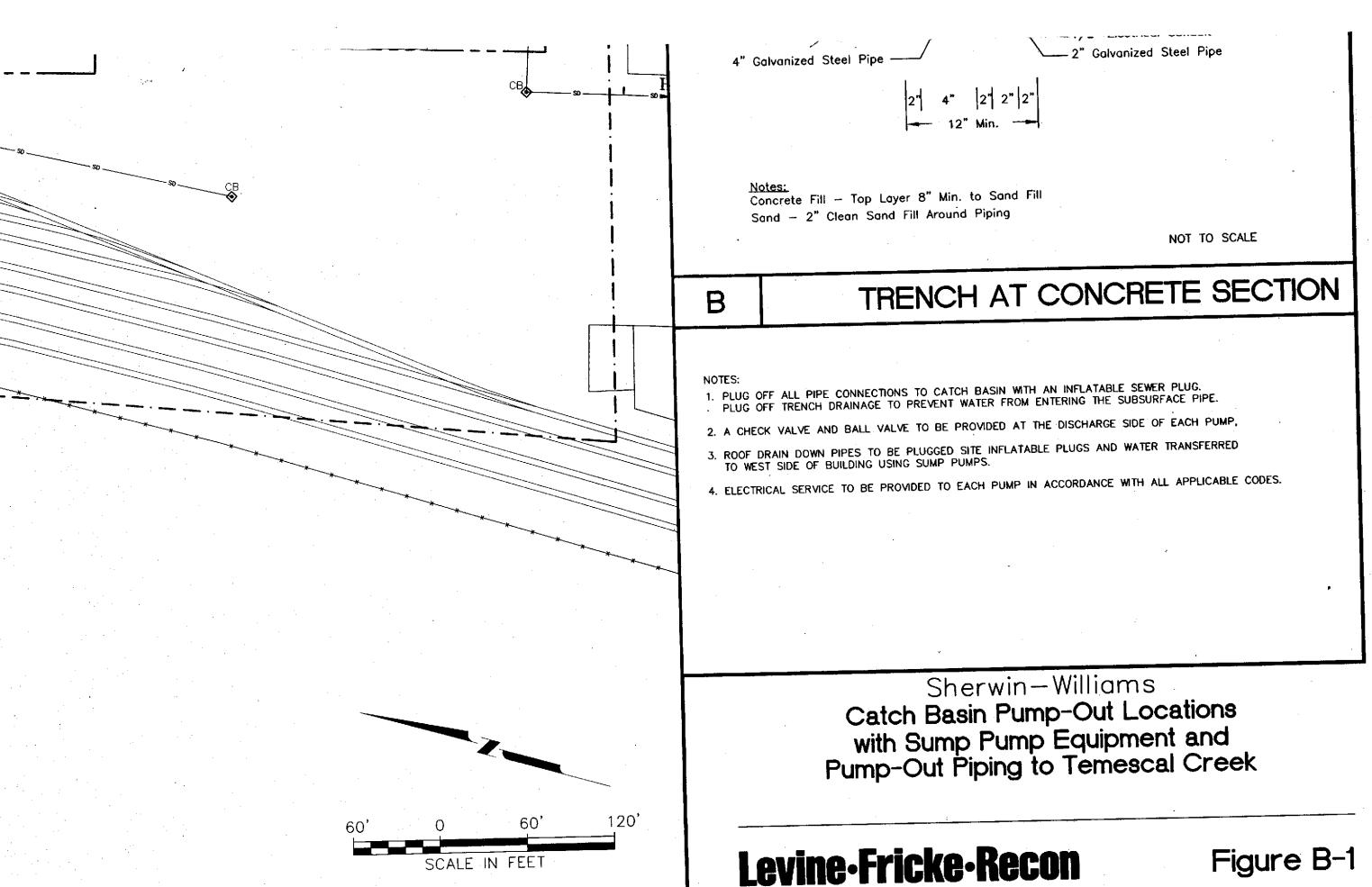


Figure B-1

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