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Lawrence Livermore National Laboratory
Livermore Site
Annual Storm Water Monitoring Report
for Waste Discharge Requirements 95-174

Annual Report
2007–2008

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**Lawrence Livermore National Laboratory
Livermore Site Annual Storm Water
Monitoring Report
for WDR 95-174**

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Acronyms and Definitions

ALPE	Arroyo Las Positas East (storm water influent sampling location)
ALPO	Arroyo Las Positas Outfall (storm water influent sampling location)
ASS2	Arroyo Seco South (storm water influent sampling location)
ASSE	Arroyo Seco Southeast (storm water influent sampling location in East Avenue drainage ditch)
ASW	Arroyo Seco West (storm water effluent sampling location)
AWQC	ambient water quality criteria
B	building
BMP	best management practice
Bq/L	becquerel/liter
CA	California
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
DI	deionized water
DOE	Department of Energy
DRB	Drainage Retention Basin
EPD	Environmental Protection Department
ERD	Environmental Restoration Department
FY	fiscal year (October through September)
GRNE	Greenville Road East (storm water influent sampling location)
RHWM	Radiological and Hazardous Waste Management
IH	industrial hygienist
LCW	low conductivity water
LLNL	Lawrence Livermore National Laboratory
LLNS	Lawrence Livermore National Security, LLC
LOEC	lowest observed effects concentration
MCL	maximum contaminant level
mg/L	milligrams per liter
MSDS	Material Safety Data Sheet
na	not analyzed
NIF	National Ignition Facility
NOEC	no observed effects concentration
NPDES	National Pollutant Discharge Elimination System
O & G	oil and grease
pCi	picocurie
PMCL	primary maximum contaminant level
QA/QC	quality assurance/quality control
RQ	reportable quantity
SC	specific conductance
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SI	system internationale
SM	standard method
SWAR	Storm Water Annual Report
SWPPP	Storm Water Pollution Prevention Plan
T	trailer
TDS	total dissolved solids
TF	treatment facility
TOC	total organic carbon
TSS	total suspended solids
U.S. EPA	United States Environmental Protection Agency
WDR	Waste Discharge Requirements
WGMD	Water Guidance and Monitoring Division
WPDC	West Perimeter Drainage Channel (storm water effluent sampling location)

EXECUTIVE SUMMARY

Results of the storm water quality monitoring program at Lawrence Livermore National Laboratory (LLNL) in Livermore, California are reported as required in the Waste Discharge Requirements (WDR) 95-174, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0030023. This report presents results for the 2007-2008 water year including: the Storm Water Pollution Prevention Plan (SWPPP) facility inspection results, wet and dry season observations, storm water discharge analytical data, and a summary interpretation of the data.

The facility inspection results indicated a few minor instances at the Livermore site in which best management practices (BMPs) listed in the SWPPP were not properly implemented, but corrective actions have either been made or are in progress. Other than minor debris accumulation (primarily leaves and sticks) at some sampling locations, storm water observations did not identify any pollutants. Although there are no numeric effluent limits placed on storm water discharges, data are compared with various criteria to determine if water quality remains similar to natural or upstream conditions, or that concentrations are below levels of concern. Acute and chronic fish toxicity testing indicated no toxicity in effluent storm water samples. Two chemical constituents of storm water samples, nitrate and diuron, were above LLNL site-specific threshold comparison criteria; however, all of the data exceeding LLNL thresholds during 2007-2008 are attributed to off-site activities upstream of the Laboratory. All monitoring results for radioactive parameters were less than comparison criteria and the drinking water maximum contaminant levels (MCLs). These results suggest that LLNL's current BMPs are effective and that operations at the LLNL Livermore site during 2007-2008 did not impact storm water quality.

1.0 Introduction

This report discusses the results of the 2007-2008 Livermore site storm water monitoring program. Storm water monitoring quality results for the LLNL Livermore site are summarized, fulfilling the annual reporting requirements of WDR 95-174, issued by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) on August 23, 1995, (hereafter referred to as “the Permit”). The Permit expired on August 23, 2000. LLNL submitted a Report of Waste Discharge (and an NPDES permit application) to renew the Permit on February 18, 2000, meeting the requirement to submit a renewal application 180 days in advance of permit expiration. SFBRWQCB staff confirmed the administrative continuance in November 2000 (Morse 2000).

The Livermore site is a 3.28-km² facility that is crossed by two intermittent streams, Arroyo Las Positas and Arroyo Seco. The average annual rainfall at the Livermore site is 35.6 cm; whereas the rainfall for the 2007-2008 reporting period was 24.15 cm. Monthly rainfall totals are presented in **Table 1**. LLNL monitors influent and effluent water quality as required by the Permit. The six perimeter storm water sampling locations are shown in **Figure 1**, along with three internal (on-site) monitoring locations around the drainage retention basin, renamed Lake Hausmann.

Table 1. Monthly rainfall totals (in cm) collected at the LLNL Livermore site meteorological station.

Date	Monthly Total (cm)
May 2007	0.23
June 2007	0.00
July 2007	0.08
August 2007	0.00
September 2007	0.41
October 2007	2.41
November 2007	1.50
December 2007	4.45
January 2008	11.20
February 2008	3.61
March 2008	0.23
April 2008	0.03
Water Year TOTAL	24.15

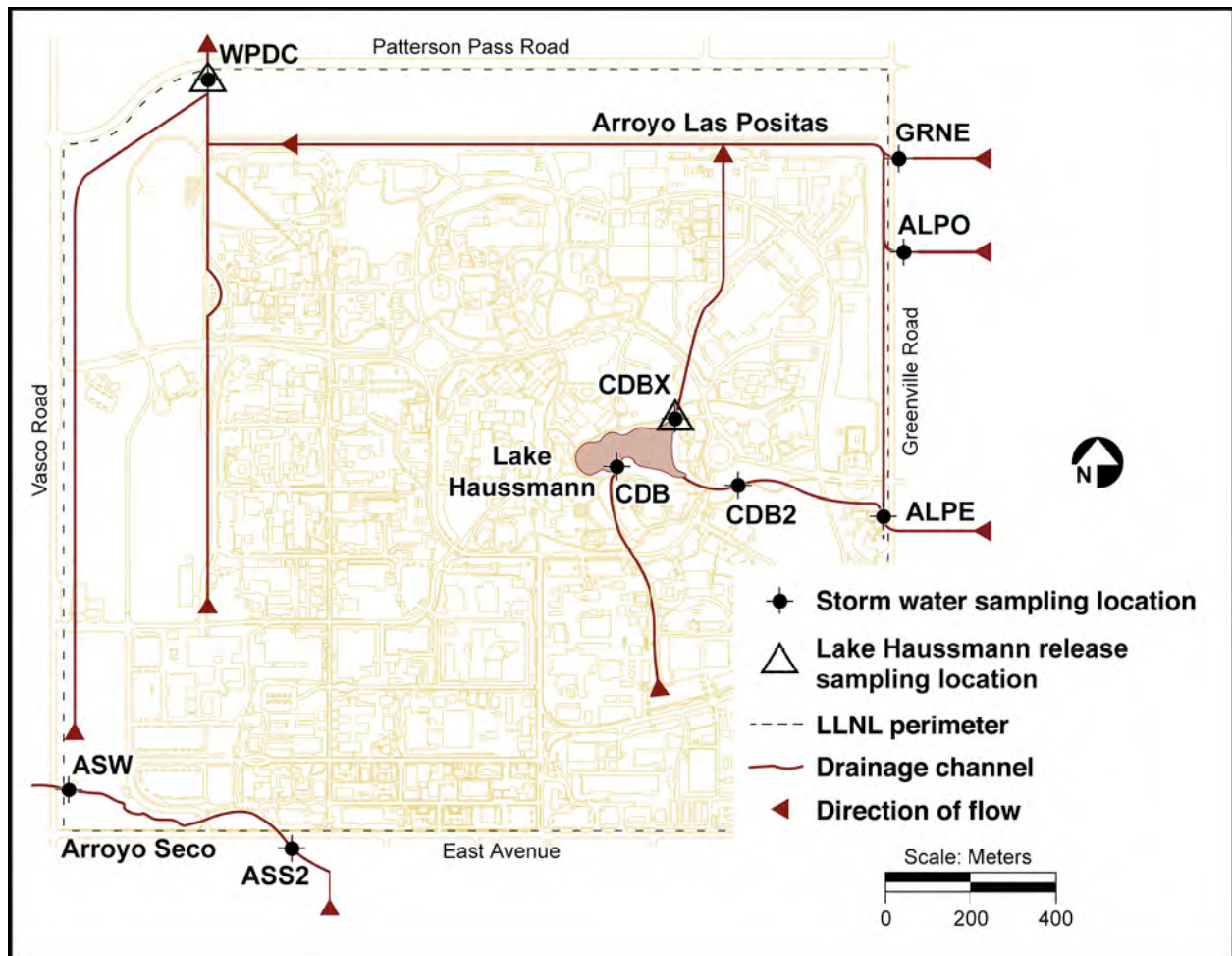


Figure 1. Routine storm water sampling and observation locations.

2.0 Nonstorm Water Discharges

The SFBRWQCB issued the Permit to LLNL, allowing storm water discharges associated with industrial activities and four categories of nonstorm water discharges, including mechanical equipment sources (e.g., air conditioners), building and grounds maintenance (e.g., landscape irrigation), fire suppression and safety systems (e.g., hydrant testing), and water systems (e.g., backflow preventors). In addition, the Permit allows LLNL to administratively control several building conduits that remain open because they are impractical to seal.

LLNL tracks authorized nonstorm water discharge sources through the Building Drain Management database and key plans, and an internal drain connection permitting process. As required by the Permit, Provision C.8, LLNL evaluates all new construction, remodeling, and equipment upgrades to determine if it is practical to eliminate permitted discharge sources. If it is practical to do so, the discharge is eliminated. Modifications that result in new connections to building conduits are added to the Building Drain Management database.

Authorized nonstorm water discharge sources and open building conduits are included in LLNL's Dry Season Observation Program. These observations help LLNL verify that the BMPs applied to these discharge sources continue to be properly implemented. Areas in the Dry Season Observation Program include secondary containment areas, loading and receiving areas, floor drains open to the storm drainage system, and automatic sump pumps. These locations and observation results are discussed in detail in this report in **Section 4.0**, Visual Observations. Nonroutine releases are summarized in **Appendix A, Table A-1**. This table includes unplanned releases reportable under the Permit, Provision C.1, and nonroutine releases allowed under the Permit but requiring prior notification under Provision C.7.

3.0 Annual Site Inspections

Each of the Directorates (LLNL's high level organizational unit) at LLNL conducts an annual inspection of its facilities to verify implementation of the SWPPP and ensure that measures to reduce pollutant loading to storm water runoff are adequately and properly implemented. The Associate Directors for each of the Directorates certify that their facilities comply with the provisions of the Permit and the SWPPP. Each Directorate documents and keeps on file the annual inspection results (as required by the Permit). These records include the dates, places, and times of the site inspections and the names of individuals performing the inspections. Because of the large number of facilities inspected (more than 500 buildings and trailers), the detailed inspection results are not included in this report, but the individual inspection records are available for submittal or review upon request. All inspections were completed; findings and deficiencies are summarized in **Appendix A, Table A-2**.

A few inspections noted inconsistent or incomplete implementation of BMPs in the annual SWPPP inspections. All of these issues have either been corrected or are in the process of being corrected as described in **Table A-2**. All other inspections indicated that the applicable BMPs were implemented correctly and adequately.

4.0 Visual Observations

Dry season observations were performed and are provided in **Appendix A, Table A-3**. The Permit requires that observations be conducted at least twice during the dry season (May through September). These observations occurred on June 27, and September 24, 2007, at storm water effluent sampling locations (**Figure 1**, ASW and WPDC), at storm water influent sampling locations (**Figure 1**, ASS2, ALPE, ALPO, and GRNE), at areas with a "high potential" of storm water pollution, and at nonstorm water discharge locations, to determine the presence of stains, sludges, odors, and other anomalous conditions. "High potential" areas include areas with automatic (e.g., sump pumps) or direct connections to the surface and areas where activities may result in accidental releases to the surface (e.g., loading/receiving areas and open rinse areas).

To determine the "high potential" areas, LLNL compiled and categorized potential storm water pollution areas, using information from the following sources:

- LLNL Livermore Site Annual Storm Water Monitoring Report (Brandstetter 1994).
- LLNL's Building Drain Management Database.
- LLNL's Report of Waste Discharges, March 1995 (Mathews and Welsh 1995).
- LLNL's Observation Records.

LLNL then conducted inspections, visual observations, and assessments of these potential areas for storm water pollution. Areas determined as "high potential" are included in the dry season observation program as follows:

- Arroyo Seco and Arroyo Las Positas (observations conducted at influent and effluent locations).
- Avenue K storm drain.
- Automatic sump pump area at Building 191.
- Loading/receiving areas in Buildings 194 and 341.
- Concrete wash area near Parking Lot F-2.
- Floor drain areas open to the environment in Buildings 111, 194, 391, and 551.

During this reporting period, the dry season observations did not identify any unusual discharges. Observed evidence of flow at some locations was from discharges of treated groundwater allowed under the *Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Record of Decision* (US Department of Energy 1992). All indications of nonstorm water flows were attributable to permitted discharges or natural sources.

Wet season observations are summarized in **Appendix A, Table A-4**. The Permit requires that wet season observations be conducted monthly during the wet season (October 2007 through April 2008) when significant storm events occur (a significant storm is defined as runoff lasting more than one hour). These observations are conducted at storm water influent and effluent sampling locations. Observations often indicated turbidity at both influent and effluent locations, but no unusual conditions or anomalies were observed. Storm event observations occurred in October and December 2007 and in January and February 2008. Observations were also conducted for the months of November 2007 and March and April 2008. However, due to storm events not occurring or occurring during non-work hours, these observations did not coincide with a significant storm event.

5.0 Storm Water Sampling and Analysis

The Permit requires collection of two samples each wet season at effluent locations ASW and WPDC, and at influent locations ALPE, ALPO, ASS2, and GRNE. Permit-driven storm water samples were collected on December 18, 2007 and January 4, 2008. An additional sample (for chronic fish toxicity testing) was collected at WPDC on February 21, 2008 because the contract laboratory failed to perform this test using the first storm sample (See Section 5.1). Samples were collected as soon as possible after runoff began (most within the first hour). Water quality data from these 2007-2008 storm water samples are presented in **Appendix A, Tables A-5 and A-6**. Quality assurance and quality control (QA/QC) checks are performed on all sampling and analysis from LLNL. All data analysis included standard QA/QC practices. LLNL reports on QA annually in the Site Annual Environmental Report (e.g., Mathews et al. 2007); this information is available upon request.

The Permit currently does not contain numeric limits for storm water effluent. Therefore, site-specific comparison criteria were developed from historical data to identify out-of-the ordinary data values (**Table 2**). These criteria are used to identify data values that require further investigation and explanation. In addition to the Livermore site-specific comparison criteria, storm water results are compared to other published values, including: United States Environmental Protection Agency (U.S.

EPA) benchmarks; *The Water Quality Control Plan, San Francisco Bay Basin (Region 2)* (Basin Plan) (SFBRWQCB 1995); US EPA and State MCLs and Ambient Water Quality Criteria (AWQC). Although these latter criteria were established for other regulatory programs, use of a broad range of criteria can help LLNL evaluate the quality of Livermore site storm water effluent and determine the adequacy of BMPs. If a measured concentration is found to be higher than the comparison criteria, but the value is the same or higher at the influent location, the source is assumed to be unrelated to Livermore site operations; therefore, further analysis is not warranted.

Table 2. Livermore site-specific threshold comparison criteria for storm water constituents of concern.

Parameter	Comparison criteria
Total suspended solids (TSS)	750 mg/L ^a
Chemical oxygen demand (COD)	200 mg/L ^a
pH	<6.0, >8.5 ^a
Nitrate (as NO ₃)	10 mg/L ^a
Ortho-phosphate	2.5 mg/L ^a
Beryllium	1.6 µg/L ^a
Chromium(VI)	15 µg/L ^a
Copper	36 µg/L ^a
Lead	15 µg/L ^b
Mercury	Above RL ^c
Zinc	350 µg/L ^a
Diuron	14 µg/L ^a
Oil and grease	9 mg/L ^a
Tritium	36 Bq/L ^a
Gross alpha	0.34 Bq/L ^a
Gross beta	0.48 Bq/L ^a

Note: The sources of values above these are examined to determine if any action is necessary.

a Site-specific value calculated from historical data and studies. These values are lower than the MCLs and EPA benchmarks except for zinc, TSS, and COD

b California and EPA drinking water action level

c RL = reporting limit = 0.0002 mg/L for mercury

5.1 Toxicity monitoring

As required by the Permit, grab samples were collected from the site storm water effluent location, WPDC, and analyzed for acute and chronic toxicity using fathead minnows (*Pimephales promelas*) as the test species. In the acute test, 96-hour survival is observed in undiluted storm water collected from location WPDC. The Permit states that an acceptable survival rate is 20 percent lower than a control sample. If the acute toxicity test is failed, the Permit requires LLNL to conduct toxicity testing during the next significant storm event. After failing two consecutive tests, LLNL must perform a toxicity reduction evaluation to identify the source of the toxicity.

The 96-hr acute toxicity test results, from the December 18, 2007 sample, showed no toxicity (100 percent survival, compared to 100 percent survival in the lab control

sample) in fathead minnow at the effluent location WPDC (**Table 3a**). The contract laboratory failed to conduct the 7-day chronic fish toxicity test using the December 18, 2007 sample, however LLNL was not informed of this omission until February 7, 2008. A sample for the chronic toxicity test was collected during the next significant storm event (February 21, 2008).

In the 7-day chronic fish toxicity test, storm water dilutions at 0 (Lab Control), 12.5, 25, 50, 75, and 100 percent (undiluted storm water at WPDC, collected on February 21, 2008) were used to determine a dose-response relationship, if any, for both survival and growth of the fathead minnow (**Table 3b**). This test is required only at effluent location WPDC and is not conducted with water from corresponding influent locations. The testing laboratory provides water for the control sample, which consists of EPA synthetic moderately-hard water. The significant reductions in survival at the 12.5%, 25%, and 50% sample treatments due to pathogen-related mortality (PRM) caused an abnormal concentration-response relationship. However, as there was no PRM evident in the 75% and 100% effluent treatments, the PRM did not affect the interpretation of the effluent test. From these data, no observed effect concentrations (NOECs) and lowest observed effect concentrations (LOECs) were calculated. The NOECs and LOECs for survival and growth were both 100 percent. The results demonstrate that there was no observed toxicity in LLNL storm water effluent.

Table 3a. Single point acute fish toxicity test results for December 18, 2007, at WPDC.

Location	Influent or Effluent	% Survival		
		Replicate A	Replicate B	Mean
Lab Control	EPA synthetic "moderately hard" water	100	100	100
WPDC	Site Effluent	100	100	100

Table 3b. Chronic fish toxicity test results for February 21, 2008, at WPDC.

Sample Concentration (%)	7-day survival Avg. (%)	7-day weight ^a Avg. (mg)
Lab Control	100	0.49
12.5 ^b	30	0.16
25 ^b	35	0.20
50 ^b	72.5	0.45
75	90	0.53
100	100	0.53

^a Weight of the fathead minnows at the end of the 7-day toxicity test.

^b Fish in the 12.5%, 25%, and 50% effluent treatments exhibited pathogen-related mortality (PRM).

Both fish toxicity samples (collected at effluent location WPDC on December 18, 2007 and February 21, 2008) were analyzed for dissolved oxygen (DO). Analytical results show DO concentrations of 10.2 mg/L and 10.6 mg/L in the first and second samples, respectively. LLNL inadvertently neglected to analyze for DO at the other perimeter storm water sampling locations; sampling plans for the upcoming 2008-2009

water year will be revised to include this parameter as an analyte at all perimeter sampling locations.

5.2 Nonradioactive parameters

Table 4 lists the constituents that exceeded the threshold comparison criteria in **Table 2** during storms sampled in 2007–2008 (full results are in **Appendix A, Tables A-5 and A-6**). Upstream activities near the Livermore site on the Arroyo Seco and Arroyo Las Positas include another scientific research institution, grape vineyards, an electrical transfer station, and cattle ranching that are potential sources for diuron and nitrate concentrations shown in **Table 4**.

Table 4. Constituents in storm water greater than the LLNL-specific threshold comparison criteria.

Constituent	Date (2007/2008)	Location	Influent or Effluent	Result	LLNL threshold Criteria
Diuron	12/18	WPDC	Effluent	23 µg/L	14 µg/L
Diuron	12/18	ALPO	Influent	130 µg/L	14 µg/L
Diuron	12/18	ALPE	Influent	51 µg/L	14 µg/L
Diuron	12/18	GRNE	Influent	19 µg/L	14 µg/L
Diuron	1/04	WPDC	Effluent	18 µg/L	14 µg/L
Diuron	1/04	ALPO	Influent	72 µg/L	14 µg/L
Diuron	1/04	ALPE	Influent	59 µg/L	14 µg/L
Nitrate (as NO ₃)	12/18	GRNE	Influent	35.0 mg/L	10 mg/L
Nitrate (as NO ₃)	12/18	ALPO	Influent	14.0 mg/L	10 mg/L
Nitrate (as NO ₃)	1/04	GRNE	Influent	20.0 mg/L	10 mg/L

Most of the diuron concentrations found to exceed the LLNL-specific comparison criteria of 14 µg/L occur at influent locations, thus originate off-site, and are unrelated to LLNL operations. Storm water samples collected from influent locations exhibited diuron concentrations that ranged from 19 µg/L to 130 µg/L and 59 µg/L to 72 µg/L during the first and second storms, respectively. These diuron concentrations at influent locations can explain the slightly elevated values (23 µg/L and 18 µg/L) at the effluent sampling location, WPDC. Diuron, used on site as a pre-emergent herbicide, is commonly applied at off-site locations upstream of the Livermore Site. Elevated diuron concentrations from upstream sampling locations have been observed every year for the last eight wet seasons and were first observed in 2001 (Campbell et al. 2004).

Nitrate concentrations above the comparison criteria of 10 mg/L were found in samples collected from GRNE and ALPO on December 18, 2007 and from GRNE on January 4, 2008 (**Table 4**). GRNE and ALPO are influent locations and therefore these elevated nitrate values are not related to LLNL activities.

As in past years, bromacil and glyphosate (both widely used herbicides) were detected in storm water samples. Concentrations of bromacil at influent locations ranged from 19 µg/L to 130 µg/L, while the maximum concentration reported in an effluent sample was 48 µg/L. Similarly, concentrations of glyphosate at influent locations ranged from 5.7 µg/L to 14 µg/L, while the maximum concentration reported in an effluent sample was 8.9 µg/L (See **Appendix A, Tables A-5 and A-6**). One

unusual compound, pentachlorophenol (PCP), was detected in storm water samples collected during the January 4, 2008 storm. Samples from ALPE, ASW, CDB, and CDBX all showed trace concentrations (2.2 $\mu\text{g}/\text{L}$ to 3.2 $\mu\text{g}/\text{L}$) of PCP, while samples from the December 18, 2007 storm showed no detections of PCP. Since 1987, most of the pentachlorophenol used in the U.S. has been restricted to the treatment (as a wood preservative) of utility poles and railroad ties. LLNL will continue to monitor for these compounds in future storm water samples.

5.3 Radioactive parameters

Environmental measurements are reported in *Système Internationale* (SI) units. The SI unit for radioactivity is the becquerel (Bq), equal to 1 nuclear disintegration per second. The more commonly used unit, picocurie (pCi), is equal to 1 nuclear disintegration per 27 seconds. Results for tritium, gross alpha, and gross beta activities from storm water samples collected during 2007-2008, included in **Appendix A, Tables A-5 and A-6**, were all less than their respective comparison criteria (**Table 2**).

LLNL began analyzing storm water for plutonium in runoff in 1998. Samples were analyzed from the Arroyo Seco and Arroyo Las Positas effluent locations (ASW and WPDC). The plutonium activities measured in samples from ASW and WPDC on December 18, 2007 and January 4, 2008 were below detection limit (0.0037 Bq/L, or 0.100 pCi/L). (See **Appendix A, Tables A-5 and A-6**)

6.0 Summary and Conclusions

The storm water monitoring program at LLNL goes beyond the requirements of the Permit by sampling at more locations and for more parameters than the Permit requires. This additional monitoring is called for under the environmental monitoring requirements of various DOE Orders. Furthermore, LLNL investigates water quality parameters that are found to be above historic levels as demonstrated by the site-specific comparison criteria in **Table 2**.

Storm water observations were performed monthly during the wet season and quarterly during the dry season, with no major deficiencies noted. Inspections of best management practices (BMPs) listed in the SWPPP revealed some areas for improvement, for which corrective actions have either been made or are in progress.

Two parameters (diuron and nitrate) were above the LLNL site-specific threshold comparison criteria (**Table 4**). Most of these elevated results were at influent locations. The analytical results exceeding LLNL's site-specific comparison criteria at an effluent sampling location clearly originated upstream and are unrelated to activities on the Livermore Site. The acute and the chronic fish toxicity tests showed no toxicity in LLNL storm water effluent. These results suggest that LLNL's current BMPs are effective and that operations at the LLNL Livermore site during 2007-2008 did not impact storm water quality.

7.0 References

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APPENDIX A TABLES

Table A-1. Summary of non-routine releases May 2007–April 2008.

Date of Incident	Location	Type of incident
5/25/07	National Ignition Facility (NIF)	<p>Hot water losses experienced by NIF began to surface in hot water valve boxes 10 ft east of B583 in a bundle of utilities serving the building. The total volume of water released was estimated to be approximately 5,000 gallons, however no water reached the surface. A nearby storm drain catch basin had evidence of standing water in the basin, but no water was moving through the basin and it was not hot. Water in the valve boxes was boiling.</p> <p>Boiler water at NIF is treated with sodium nitrite to a concentration of 1,000 parts per million. The CERCLA reportable quantity for pure sodium nitrite is 100 pounds. Therefore, the reportable quantity for sodium nitrite was not exceeded. The released water did not impact sensitive environmental areas (arroyo, surface water, storm water, wetland, or groundwater.)</p>
6/7/07	B329	<p>Water was released in the vicinity of B329 from a plasma cutting operation, a categorical wastewater process. The release resulted when a hose gasket connecting piping to a pump for a holding/water recycling tank for the plasma cutter came loose. The tank and pump are located outside the building. The water flow was stopped upon discovery and the piping connections were fixed shortly after the event. The water ran about 75-100 ft across the asphalt to a storm drain catch basin. About 55 gallons were pumped from the catch basin with a wet vac and some additional water was vacuumed from the asphalt. There was no evidence of any flow downstream of the catch basin. It is estimated that approximately 100 gallons of water was released. A majority of water that remained on the asphalt evaporated before the facility personnel could collect it with the wet vacuum.</p>
6/18/07	T6425	<p>A water leak was discovered in a landscaped area south of T-6425. The source of the water was a sprinkler valve that did not close properly. The volume of water was estimated to be 3,000 to 4,000 gallons.</p>
6/19/07	B591 Corp Yard	<p>Approximately 2 gallons of hydraulic oil was released from a broken hydraulic line on the outrigger of a crane in use in the yard. The released oil affected approximately 80 square feet of gravel/soil surface. Crane operators immediately placed absorbent granules on the affected surface and the area was cordoned off to prevent the spread of oil by pedestrian and vehicular traffic. A drip pan was placed under the leaking crane outrigger. No storm drain catch basins or swales were affected by the release and none of the released oil entered the sanitary sewer. The Arroyo Las Positas is located more than 200 ft from the release site and was unaffected by the released oil. The affected gravel and soil were stabilized and excavated the following morning and placed in drums for disposal.</p>
6/21/07	PTU-11	<p>A small leak was found coming from a cracked fitting on the north pipeline at PTU-11, near B511E. Fitting was replaced and ball valves were added to make future repairs easier and more effective. Estimate of about 2 gallons of well water was released to the ground.</p>

Date of Incident	Location	Type of incident
7/18/07	B-518 Yard	<p>LLNL received three open wooden pallets consisting of 32-liter steel nitric acid containers and 25-gallon blue poly caustic soda containers. It was noticed that at least one of the containers was leaking on one of the pallets that contained (16) 32-liter steel containers of 67% nitric acid. The wood pallet was wet in some locations and there was residual liquid around the container bungs. All the observed liquids on the containers and pallet were tested and indicated a pH of approximately 0.</p> <p>Only a few drops of nitric acid reached the asphalt beneath the metal shelving on which the pallet had been placed. No releases were observed or reported on the ground with the exception of the few drops directly beneath the pallet that were neutralized and absorbed.</p> <p>No released material reached the storm drain system nor unprotected ground. The release did not exceed the RQ for nitric acid.</p>
8/2/07	E-85 Station	<p>Following notification that a small amount of polyethylene glycol may have leaked from a secondary containment sump at the E85 fueling station, Paradiso Mechanical excavated the gravel around the sump to determine if there was a leak and facilitate possible repairs. On Monday, August 6, 2007, the fluid was confirmed to be half polyethylene glycol and half water with a trace amount of food grade dye. An estimate of one pint to one gallon had leaked into the pea gravel surrounding the secondary containment sump and E85 tanks. The discolored gravel was immediately removed for disposal.</p>
8/14/07	B-391	<p>Approximately one pint of hydraulic fluid leaked from heavy equipment onto asphalt outside B-391. The spill was cleaned up immediately with clay absorbent material.</p>
9/27/07	South of B-616	<p>While attempting to open a blocked sanitary sewer line from a man hole in the F-1 Parking Lot north of B-610, a pressurized water tool caused the release of approximately 30 gallons of water and sewage to the asphalt surface of the F-1 Parking Lot from sanitary sewer clean-out #02. No solids were present in the released sewage, no strong odors were present (sewage or solvent), and no unusual discoloration or oil sheens were observed. The released water and sewage flowed to the northwest from the clean-out and affected approximately 150 square feet of parking lot asphalt surface. None of the released water and sewage entered the storm drain, surface water, or soil. All of the released effluent was contained on the asphalt parking lot surface. No attempt was made to recover the effluent due to the rapid rate of evaporation. The parking lot surface was disinfected with bleach and disinfected materials from the blockage were identified for disposal in the municipal trash.</p>
9/28/07	TFE Southeast (MTU04)	<p>TFE Southeast spilled clean water due to a cracked fitting after the discharge pump. The water spilled onto asphalt and ended up in the same storm drain that it normally flows into.</p>

Date of Incident	Location	Type of incident
10/1/07	B-197	<p>Unfiltered recycled DI water leaked from an aboveground storage tank. The most likely contaminants were copper sulfate and sulfuric acid because they were the last appreciable chemicals entered the system (in May 2007). At the time of the release, pH paper was used to determine that the pH was 6. The quantity spilled was less than one gallon; the area affected was approximately 3 ft x 5 ft. The majority of the original quantity that had been released was recovered by using absorbent cloth on the concrete. The remainder on the concrete evaporated.</p> <p>The remaining content of the compromised tank was pumped out, initially into open top plastic containers and later transferred into 55-gallon drums. Pigs were also placed around the nearby storm drain as a precautionary measure.</p>
10/8/07	TFD East	<p>The PVC pipe riser, next to extraction well W-1307, broke and approx. 4 gallons of untreated groundwater spilled onto dirt before the interlock shut down the pump. The July 11, 2007 total VOC concentration for W-1307 was 13.4 ppb. This results in a release of approximately 0.2 mg, much below a reportable quantity. Courtesy notification was provided to RWQCB.</p>
10/11/07	B-162	<p>A leak was discovered in B-162 from an LCW line with a failed solenoid valve, which released approximately 5,000 gallons of LCW to the asphalt surface on the southwest side of the building. The released LCW flowed to the north and west, affecting approximately 5,500 square feet of asphalt road and corporation yard surfaces and approximately 700 square feet of soil on the adjacent road shoulders. The LCW did not come into contact with materials stored in the yard. No significant erosion of the affected soil areas was observed and no soil deposits were observed on the affected road surfaces. Two storm drain catch basins were affected, including the silt protected storm drain basin 160-933 at the north end of Parking Lot A-6 and the silt protected storm drain basin 160-921 located west of the B-161 Corp Yard. None of the released LCW was observed in the open storm drain swale west of basin 160-933 and standing water only was observed in the reed choked open storm drain swale north of West Gate Drive. None of the released LCW reached the Arroyo Las Positas. None of the released LCW was recovered and the small amount of LCW remaining in lower pooled areas was observed to be clear, clean, and free of sediment, discoloration, sheen, or odor. No reportable quantities were exceeded.</p>
10/26/07	DUS yard & B-411	<p>The hydraulic fluid reservoir of an outside vendor's vehicle overflowed in the DUS salvage yard. Some fluid was also tracked around B-411. The spill was detected in the DUS yard approx. 15 minutes after the truck pulled away and was cleaned up using absorbent material. The tracked material was also cleaned up with absorbent materials. All of the spilled hydraulic fluid (approx. one gallon) was recovered.</p>

Date of Incident	Location	Type of incident
11/01/07	B-391	<p>During repair of the fire sprinkler system (under the covered B-391 Programmatic Electrical Power Substation on the north side of the building) workers inadvertently struck a drain valve on an oil-filled transformer, releasing approximately ½ gallon of transformer oil to the concrete transformer pad and the gravel filled secondary containment of the substation. The transformer is labeled as a non-PCB transformer, tested to less than 50 ppm PCBs. The released oil affected approximately 50 square feet of concrete pad surface and less than one square foot of gravel surface immediately adjacent to the concrete pad. None of the released oil escaped the secondary containment system and no storm drain systems, sanitary sewer systems, surface waters, or soil were affected. The valve was repaired and the affected areas were cleaned up using absorbent materials. The oil contaminated absorbent materials, and affected gravel was containerized and taken to the PE WAA for management as hazardous waste.</p>
11/20/07	B-490	<p>Coolant (ethylene glycol) leaked from a diesel generator located on the north side of the B-490. The coolant leaked onto the floor of the generator enclosure, which is not liquid tight. Some of the coolant leaked out on to the concrete pad under the unit and the asphalt area around the unit. The area affected included 2 ft x 12 ft area on the concrete pad west side of the unit, 1 ft x 8 ft area on the concrete pad east side of the unit, and 6 ft x 12 ft area on the asphalt north side of the unit.</p> <p>Absorbent pads were used to pick up the coolant contained inside the diesel generator enclosure. Absorbent pads were used to clean up the coolant on the concrete pad. Dryorb was used to clean up the coolant on the asphalt area. Absorbent pads were placed around the generator enclosure to contain the small leaks and the area covered with plastic to prevent rain water from contacting the area.</p> <p>An estimated 5–10 gallons of coolant was leaked, none of the coolant reached soil or the storm drainage system.</p>
12/3/07	B-511	<p>A Plant Engineering truck parked at the Northeast corner of B-11 over the weekend leaked approx. 1 pint of hydraulic oil on the pavement. The oil was cleaned up with dryorb and the truck was relocated to fleet for repairs.</p>
12/13/07	B-325 Cooling Tower	<p>At 8 a.m. Dec. 13, the water shop staff discovered a broken 2-inch potable water line. The last time the line had been observed had been approx. 4 p.m. Dec. 12th. Worst case estimate of release is approx. 24,000 gallons, assuming the line broke at 4 p.m. and flowed for 20 hours at 20 gpm. Actual release is believed to be significantly less.</p> <p>The water flowed west from the building and then north through an open swale and into Arroyo Las Positas, where it commingled with other flows (treated ground water) and flowed off site. The flow in the swale was clear and there was no evidence of erosion in the swale of the arroyo. The city water did not make a noticeable difference in flow in the arroyo downstream of where it commingled with the normal flow.</p>

Date of Incident	Location	Type of incident
12/27/07	B-391	A minor release of hydraulic oil to concrete, sand, and gravel occurred in the floor of the B-391 service elevator pit currently under construction for upgrading of the elevator system. A small amount of hydraulic oil (less than one liter) had apparently been released from the hydraulic system to the floor of the pit and a thin oil film was observed on the elevator hydraulic sleeve when it was removed from beneath the pit floor for replacement. All of the oil released to the pit floor was removed using absorbent granules, collected in 55-gallon drum, and managed appropriately as hazardous waste. All of the potentially affected excavated material was collected and managed appropriately for disposal. No oil-contaminated materials remain in the pit or beneath the pit floor. No reportable quantities were exceeded and no injuries were reported. No surface water, storm drain, or groundwater was affected.
2/1/08	ERD Facility TFB	The TFB extraction well W-655 pump was unintentionally started while the air stripper was off. The water was pumped to the air stripper where it spilled onto the ground until the system was secured. Approx. 250 gallons of untreated ground water discharged to concrete, asphalt, and then soil. About 125 gallons of total volume infiltrated into the soil. Water did not reach the drainage ditch near TFB, water quantity is insufficient to recharge to ground water. Latest VOC analysis (10/17/07) resulted in 7.35 µg/L total VOCs. This indicates that 7 mg of VOCs could have been released.
2/1/08	TFE-SE	A pipe on the treated-water side of the TFE-SE broke. Clean treated ground water, approx. 150 gallons, was released. Approx. 15 gallons of clean water reached the storm drain. The facility was shut down to stop the leak.
2/8/08	North of T-5979	A leak in the Livermore Site demineralized water supply system was discovered in Vault Box VB-9-F8, located along North Outer Loop Road immediately north of T-5979. The released untreated demineralized water filled the vault box to overflowing causing a release to the adjacent soil and two storm drain basins along the south shoulder of North Outer Loop Road. It was determined that approximately 12,114 gallons of water had been released from the system. The vault box provided secondary containment for the release and captured approximately 7,121 gallons of the released water. The remaining 4,993 gallons were discharged to the adjacent soil and storm drain system. The water contained in the vault box (pH=6.0) was discharged to the sanitary sewer. All of the water released from the vault box was contained in the adjacent soil and storm drain system and none of the released water entered the Arroyo Las Positas or was released from the Site.
3/3/08	Parking lot north of the Uncle Credit Union (T-6425) and south of the LLNL Visitor's Center (B-651)	A private vehicle was observed leaking hydraulic fluid onto the asphalt surface of the parking lot. A spill area of approximately 1ft x 2 ft was observed and it was estimated that < 100 ml of fluid had been released. Absorbent material (drysorb) was placed on the asphalt in the area of the spill underneath the vehicle. Once the vehicle was moved, the used absorbent was collected and the spill area was cleaned.
3/17/08	E corner of B-681	Deionized water was released from a product tank outside the eastern corner of B-681 (across from B-691). A hose bib was discharging approximately 1 gallon/min of DI water to the concrete pad on which the tank was mounted. The water was flowing across the pad and into the gravel and dirt adjacent to the building. The discharge had been discovered on Sunday. It is estimated that the tank discharged for a maximum of 24 hours, which equates to a discharge of approximately 1,500 gallons.

Date of Incident	Location	Type of incident
4/15/08	B611 car wash	<p>The sump that drains to the sanitary sewer backed up and car wash water overflowed the berm, some liquid entered the storm drain. Immediate steps were taken to shut down the car wash and clear the flow path. Approximately an inch of water with slight oil sheen was in the sump. About two inches of the 2 ft x 2 ft catch basin perimeter was wetted, indicating the sump contained about a cubic foot of water; release estimate was less than 10 gallons to the catch basin. Storm drains and the aboveground swale downstream of Building 611 were checked; there was no evidence of flow beyond the catch basin at Building 611.</p>
4/16/08	A-6 parking lot	<p>Water from an unknown source leaked into a shallow trench (~2.5 ft deep) excavation at the NW corner of the A-6 parking lot. The rate of infiltration was estimated at approx. 2 gallons per hour. The water was checked for the presence of chlorine, none was detected. A soil berm was placed within the trench to localize and contain the released water. Approx. 10–15 gallons of water was pumped from the excavation and into the nearest storm drain located on 6th Street. During the evening of 4/16-4/17, approximately 5–10 gallons of additional water was pumped from the excavation and into the landscaping. As of 10am on 4/17/08, water flow entering the excavation had stopped and the source of the water was still not identified.</p>
4/15 & 4/17/08	B212	<p>On April 15, Tuesday, 2008, one small bead of mercury was discovered on the B212 concrete foundation. It was cleaned up and managed as hazardous waste.</p> <p>On April 17, 2008 at 10:00 am, additional mercury was discovered on the northwest side of building, between the building foundation and the sidewalk. The mercury appeared as extremely small specks that were barely visible. Reporting at this time was not warranted due to the small amount of mercury discovered.</p> <p>After ensuring all ES&H requirements were in place, removal and disposal efforts were prepared to resume. It was apparent after the first amount of soil removed that more mercury was present. Beads ranging in size from barely visible to up to 1 mm were clearly present, and that the 1 lb CERCLA Reportable Quantity was exceeded. Removal operations ceased, and the release area was covered with plastic and held in place with sediment control devices.</p> <p>After internal notifications and initial verbal notification to DOE were completed, the following off-site agencies were notified:</p> <ol style="list-style-type: none"> 1. National Response Center 2. Alameda County Environmental Health Department 3. San Francisco Bay Regional Water Quality Control Board 4. California Office of Emergency Services. <p>The Division that routinely works with the agencies listed above will handle follow-up written reports. In addition, the California Hazardous Waste Control Law, Hazardous Substances Account Act requires a written report in 30 days to the Department of Toxic Substances Control, Site Mitigation Branch.</p> <p>Additional, routine (non-emergency) clean up actions will be required to close out this incident.</p>
4/18/08	Between B581 & B681	<p>A tank identified as “DI skid north west of OAB” was being filled with DI water. The water did not shut off properly, resulting in approx. 200 gallons of DI water to overflow to the surrounding landscape. All DI water soaked into the ground, no water entered a storm drain.</p>

Date of Incident	Location	Type of incident
4/18/08	DUS Yard	Hydraulic fluid was spilled from a forklift in the DUS yard after the forklift had rolled over a piece of wood that flipped up and punctured the container of hydraulic oil. Two plastic pans were used to contain the majority of the leaking hydraulic oil, however approx. three gallons spilled onto the asphalt. The hydraulic oil from the plastic pans was transferred into an appropriate container.
4/22/08	B681 parking lot	Approx. 1 gallon of antifreeze leaked from a forklift in the parking lot north of B681. The release was cleaned up with dryorb, and none of the spill reached a storm drain.

Table A-2. Summary of best management practice inspections in potential pollutant source/industrial activity areas.

Directorate Responsible for Potential Pollutant Source/Industrial Activity	Deficiencies in BMPs or BMP Implementation and Additional/Revised BMPs or Corrective Actions.
1-Core Director's Office	No deficiencies were found.
2-Environment, Safety, Health, and Quality Directorate	<u>T3526, T3555</u> : Paved areas around trailers need regular sweeping.
3-Security Organization	No deficiencies were found.
4-Chemistry, Materials, Earth, and Life Sciences Directorate	<u>B190, B243, B281, B292, B366, B378</u> : Six discharge locations were identified for which a source needed to be determined. If the source is not a discharge called out in SWPPP, it will be removed or plumbed to sewer. <u>B281</u> : One discharge location has a broken gasket and is leaking; gasket will be repaired. <u>B190, B292, B373</u> : Various pieces of equipment stored outside these buildings should be disposed of or covered to avoid contact with rain. <u>B361/North Side</u> : Storm drain is blocked and needs to be cleared.
5-Computation Directorate	<u>B115, B453, T3724</u> : Storm drains blocked in multiple locations and will be cleared. <u>T4525</u> : Roots in sidewalk create a trip hazard and will be repaired.
6-Engineering Directorate	No deficiencies were found.
7-Physical Sciences Directorate	<u>B194</u> : Dryorb used to collect oil leaking from outside vacuum pump. Repair or remove pump and contaminated dryorb. <u>B161/Corp Yard, B423/B431 Area, B435</u> : Uncovered storage of materials could degrade storm water quality. Remove, relocate, or cover existing materials/items. <u>B176</u> : Several open topped 55-gallon drums are being stored. Remove, relocate, cover drums, or store upside down (if clean).
8-National Ignition Facility and Photon Science Directorate	No deficiencies were found.
9-Weapons and Complex Integration Directorate	<u>T5961/West Side</u> : Equipment stored outside this trailer will be relocated. <u>T5980/West Side</u> : Water releases from fire riser outside this trailer causing erosion and needs to be prevented. <u>B166</u> : Excess debris (leaves/pine needles) accumulated around this building will be removed as good housekeeping.
10-Global Security Directorate	No deficiencies were found.
11-Strategic Human Capital Management Directorate	No deficiencies were found.

Table A-2. Summary of best management practice inspections in potential pollutant source/industrial activity areas. (Cont.)

Directorate Responsible for Potential Pollutant Source/Industrial Activity	Deficiencies in BMPs or BMP Implementation and Additional/Revised BMPs or Corrective Actions.
12-Institutional Facilities Management Organization	No deficiencies were found.
13-Business Directorate	B671: Municipal trash dumpster lid broken. Replace/repair to prevent rain water from commingling with trash. <u>B671/South Side</u> : Storm drain in courtyard is blocked and needs to be cleared.
14-Facilities and Infrastructure Directorate	<u>B291, B519, Pipe Shop Transportainer Area</u> : Improve management of oil spills/leaks including collection and disposal of soiled drysorb, use of drip pans, and general housekeeping. <u>B219, B612</u> : Outdoor storage of drums/transformers, containing liquids, without secondary containment. Cover, provide secondary containment, or relocate these items. Storm drain catch basins should be protected. <u>B297, B519, B523, PE Labor Yard</u> : Saw cuttings, abrasive “blaster” grit, and paper mulch should be collected and appropriately managed. <u>B406, B438, TFC, TFE-E, TF5475-3</u> : Several good housekeeping observations need to be addressed including rain water accumulation in secondary containment vessels, outdoor storage of equipment in boxes that have deteriorated due to weather exposure, storage drum with a faded label, and accumulation of miscellaneous debris (paper, trash, leaves, and pine needles) around buildings and treatment facilities.

Table A-3. Record of dry season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGES OBSERVED	OBSERVATIONS	SOURCE OF DISCHARGE
L-WPDC-RO INSPECTOR(S) Karl Brunckhorst	6/27/07 10:33	DISCHARGE OBSERVED Non-storm water discharge found. INDICATIONS OF PRIOR DISCHARGE Evidence of prior non-storm water discharge found.	COMMENTS leaves sticks	Lake Hausmann & ERD's treatment facility "B" discharging. Permitted discharge.
L-GRNE-RO INSPECTOR(S) Karl Brunckhorst	6/27/07 10:37	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks plastic	
L-ALPO-RO INSPECTOR(S) Karl Brunckhorst	6/27/07 10:39	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks paper cans plastic	

Table A-3. Record of dry season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGES	OBSERVATIONS	SOURCE OF DISCHARGE
L-ALPE-RO INSPECTOR(S) Karl Brunckhorst	6/27/07 10:41	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks paper plastic	
L-ASS2-RO INSPECTOR(S) Karl Brunckhorst	6/27/07 10:47	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks	
B111 INSPECTOR(S) Karl Brunckhorst	6/27/07 10:54	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks	

Table A-3. Record of dry season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGES	OBSERVATIONS	SOURCE OF DISCHARGE
L-ASW-RO INSPECTOR(s) Karl Brunckhorst	6/27/07 11:00	DISCHARGE OBSERVED Non-storm water discharge found. INDICATIONS OF PRIOR DISCHARGE Evidence of prior non-storm water discharge found.	COMMENTS leaves sticks plastic	ERD's treatment facility "A" discharging. Permitted discharge.
B194 INSPECTOR(s) Karl Brunckhorst	6/27/07 11:04	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS None	
B391 INSPECTOR(s) Karl Brunckhorst	6/27/07 11:10	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks	

Table A-3. Record of dry season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGES OBSERVED	OBSERVATIONS	SOURCE OF DISCHARGE
LABOR ONLY CONCRETE WASH AREA NEAR PARKING LOT F-2 INSPECTOR(S) Karl Brunckhorst	6/27/07 11:21	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE Evidence of prior non-storm water discharge found.	COMMENTS leaves sticks	Evidence of rinse water inside containment area. Permitted discharge, no action taken.
B341 INSPECTOR(S) Karl Brunckhorst	6/27/07 13:52	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks paper	
B551W INSPECTOR(S) Karl Brunckhorst	6/27/07 14:02	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks	

Table A-3. Record of dry season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGES	OBSERVATIONS	SOURCE OF DISCHARGE
B191 HEAF INSPECTOR(S) Karl Brunckhorst	6/27/07 14:10	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS None	
AVE. "K" STORMLINE INSPECTOR(S) Karl Brunckhorst	6/27/07 14:20	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks paper plastic	
L-GRNE-RO INSPECTOR(S) Karl Brunckhorst	9/24/07 13:58	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks plastic	

Table A-3. Record of dry season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGES OBSERVED	OBSERVATIONS	SOURCE OF DISCHARGE
L-ALPE-RO INSPECTOR(S) Karl Brunckhorst	9/24/07 14:02	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks paper plastic	
L-ALPO-RO INSPECTOR(S) Karl Brunckhorst	9/24/07 14:04	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks paper plastic	
L-ASS2-RO INSPECTOR(S) Karl Brunckhorst	9/24/07 14:15	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks Ground disturbing activities occurring in arroyo at sampling location ASS2	

Table A-3. Record of dry season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGES OBSERVED	OBSERVATIONS	SOURCE OF DISCHARGE
B111 INSPECTOR(S) Karl Brunckhorst	9/24/07 14:24	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks	
L-ASW-RO INSPECTOR(S) Karl Brunckhorst	9/24/07 14:29	DISCHARGE OBSERVED Non-storm water discharge found. INDICATIONS OF PRIOR DISCHARGE Evidence of prior non-storm water discharge found.	COMMENTS leaves sticks	ERD's treatment facility "A" discharging. Permitted discharge.
L-WPDC-RO INSPECTOR(S) Karl Brunckhorst	9/24/07 14:36	DISCHARGE OBSERVED Non-storm water discharge found. INDICATIONS OF PRIOR DISCHARGE Evidence of prior non-storm water discharge found.	COMMENTS leaves sticks	Lake Haussmann & ERD's treatment facility "B" is discharging. Permitted discharge.

Table A-3. Record of dry season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGES OBSERVED	OBSERVATIONS	SOURCE OF DISCHARGE
LABOR ONLY CONCRETE WASH AREA NEAR PARKING LOT F-2 INSPECTOR(s) Karl Brunckhorst	9/24/07 14:41	No INDICATIONS OF PRIOR DISCHARGE Evidence of prior non- storm water discharge found.	COMMENTS None	Rinsing activities within wash area. Permitted discharge, no action taken.
B551W INSPECTOR(s) Karl Brunckhorst	9/24/07 14:47	No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks	
B341 INSPECTOR(s) Karl Brunckhorst	9/24/07 14:52	No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks	

Table A-3. Record of dry season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGES OBSERVED	OBSERVATIONS	SOURCE OF DISCHARGE
B391 INSPECTOR(S) Karl Brunckhorst	9/24/07 15:00	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks	
B194 INSPECTOR(S) Karl Brunckhorst	9/24/07 15:05	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS None	
B191 HEAF INSPECTOR(S) Karl Brunckhorst	9/24/07 15:12	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS None	

Table A-3. Record of dry season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGES OBSERVED	OBSERVATIONS	SOURCE OF DISCHARGE
AVE. "K" STORMLINE INSPECTOR(S) Karl Brunckhorst	9/24/07 15:19	DISCHARGE OBSERVED No INDICATIONS OF PRIOR DISCHARGE No	COMMENTS leaves sticks paper cans plastic	

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
GRNE INSPECTOR(S) Crystal Foster	10/12/07 14:52	FLOATING/SUSPENDED MATERIALS ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	sticks leaves Low Insignificant	
ALPO INSPECTOR(S) Crystal Foster	10/12/07 14:56	FLOATING/SUSPENDED MATERIALS ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks paper plastic No Runoff	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
ALPE INSPECTOR(S) Crystal Foster	10/12/07 15:01	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks Moderate Significant *	
ASS2 INSPECTOR(S) Crystal Foster	10/12/07 15:12	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks High Significant *	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR **DATE AND TIME** **DISCHARGE OBSERVATIONS** **DISCHARGE COMMENTS** **ADDITIONAL COMMENTS**

<p>L-ASW-RO</p> <p>INSPECTOR(S) Crystal Foster</p>	<p>10/12/07 15:22</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks plastic</p> <p>Moderate Significant *</p>	
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<p>L-WPDC-RO</p> <p>INSPECTOR(S) Crystal Foster</p>	<p>10/12/07 15:31</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks</p> <p>Low Significant *</p>	
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* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
L-CDB2-RO INSPECTOR(S) Crystal Foster	10/12/07 15:42	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks paper cans Moderate Insignificant	Standing water. Not flowing over cement berm
L-CDBX-RO INSPECTOR(S) Crystal Foster	10/12/07 15:46	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks Low Significant *	Lake Haussmann Discharging

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
L-CDB-RO INSPECTOR(S) Crystal Foster	10/12/07 15:51	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks Low Significant *	
WPDC INSPECTOR(S) Karl Brunckhorst	11/27/07 10:52	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	sticks paper leaves	Lake Haussmann and Treatment Facility "B" discharging

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR DATE AND TIME DISCHARGE OBSERVATIONS DISCHARGE COMMENTS ADDITIONAL COMMENTS

GRNE INSPECTOR(S) Karl Brunckhorst	11/27/07 10:55	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks plastic	
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ALPO INSPECTOR(S) Karl Brunckhorst	11/27/07 10:58	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks paper plastic	
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* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
ALPE INSPECTOR(S) Karl Brunckhorst	11/27/07 11:02	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks paper plastic	
ASS2 INSPECTOR(S) Karl Brunckhorst	11/27/07 11:08	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	FLOATING/SUSPENDED MATERIALS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
ASW INSPECTOR(S) Karl Brunckhorst	11/27/07 11:14		Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks	ERD's Treatment Facility "A" discharging
CDBX INSPECTOR(S) Karl Brunckhorst	11/27/07 11:18		Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks	Lake Haussmann discharging

* Significant runoff is defined as flow for more than 1 hour.

WGMD08:068:AGM:MDR:rttd

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
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CDB2 INSPECTOR(S) Karl Brunckhorst	11/27/07 11:20	FLOATING/SUSPENDED MATERIALS ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks	Standing water
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CDB INSPECTOR(S) Karl Brunckhorst	11/27/07 11:25	FLOATING/SUSPENDED MATERIALS ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks	
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* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION **DATE AND** **DISCHARGE**
AND INSPECTOR **TIME** **OBSERVATIONS**

ADDITIONAL COMMENTS

DISCHARGE COMMENTS

<p>ALPE</p> <p>INSPECTOR(S) Crystal Foster, Henry Jones</p>	<p>12/18/07 8:40</p>	<p>FLOATING/SUSPENDED MATERIALS No</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks</p> <p>Moderate Significant *</p>	
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<p>ASS2</p> <p>INSPECTOR(S) Karl Brunckhorst</p>	<p>12/18/07 8:40</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks</p> <p>Moderate Significant *</p>	
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* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
GRNE INSPECTOR(S) Crystal Foster, Henry Jones	12/18/07 8:55	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks Low Significant *	
CDB INSPECTOR(S) Bob Williams, Chris Campbell	12/18/07 9:00	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS Yes OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves Turbidity Medium-Light Significant *	Treatment flow ongoing

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR DATE AND TIME DISCHARGE OBSERVATIONS DISCHARGE COMMENTS ADDITIONAL COMMENTS

<p>ASW</p> <p>INSPECTOR(S) Karl Brunckhorst</p>	<p>12/18/07 9:05</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks paper</p> <p>Moderate Significant *</p>	
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<p>ALPO</p> <p>INSPECTOR(S) Crystal Foster, Henry Jones</p>	<p>12/18/07 9:10</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks</p> <p>Moderate Significant *</p>	
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* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
<p>CDB2</p> <p>INSPECTOR(S) Bob Williams, Chris Campbell</p>	<p>12/18/07 9:15</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks</p> <p>Pine needles</p> <p>Low</p> <p>Significant *</p>	
<p>CDBX</p> <p>INSPECTOR(S) Steve Hall, Gene Kumamoto</p>	<p>12/18/07 9:15</p>	<p>FLOATING/SUSPENDED MATERIALS No</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>Moderate</p> <p>Significant *</p>	<p>Lake Haussmann Discharging</p>

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
WPDC INSPECTOR(S) Karl Brunckhorst	12/18/07 9:40	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks paper Moderate Significant *	
CDB2 INSPECTOR(S) Chris Campbell, Henry Jones	1/4/08 9:17	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks Moderate Significant *	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
<p>ASS2</p> <p>INSPECTOR(S) Karl Brunckhorst</p>	<p>1/4/08 9:20</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks</p> <p>Moderate</p> <p>Significant *</p>	
<p>CDB</p> <p>INSPECTOR(S) Chris Campbell, Henry Jones</p>	<p>1/4/08 9:35</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks</p> <p>Moderate - High</p> <p>Significant *</p>	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
GRNE INSPECTOR(S) Crystal Foster, Gary Bear	1/4/08 9:35	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks plastic Moderate Significant *	
ASW INSPECTOR(S) Karl Brunckhorst, Jennifer Montgomery	1/4/08 9:40	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks Moderate Significant *	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR **DATE AND TIME** **DISCHARGE OBSERVATIONS** **DISCHARGE COMMENTS** **ADDITIONAL COMMENTS**

<p>CDBX</p> <p>INSPECTOR(S) Chris Campbell, Henry Jones</p>	<p>1/4/08 9:50</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks</p> <p>Moderate - High Significant *</p>	
<p>ALPO</p> <p>INSPECTOR(S) Crystal Foster, Gary Bear</p>	<p>1/4/08 9:55</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks</p> <p>Moderate Significant *</p>	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
ALPE INSPECTOR(S) Crystal Foster, Gary Bear	1/4/08 10:15	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks Moderate Significant *	
WPDC INSPECTOR(S) Karl Brunckhorst, Chris Campbell	1/4/08 10:30	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks Moderate Significant *	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
ALPE INSPECTOR(S) Karl Brunckhorst	2/21/08 13:15	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks paper plastic Low Significant *	
ALPO INSPECTOR(S) Karl Brunckhorst	2/21/08 13:20	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks paper plastic Low Significant *	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
GRNE INSPECTOR(S) Karl Brunckhorst	2/21/08 13:25	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	leaves sticks Low Significant *	
WPDC INSPECTOR(S) Karl Brunckhorst	2/21/08 13:35	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	Resample E1000TOX leaves sticks Moderate Significant *	

* Significant runoff is defined as flow for more than 1 hour.

WGMD08:068:AGM:MDR:rtd

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
ASS2 INSPECTOR(S) Karl Brunckhorst	2/21/08 13:55	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS NO OIL & GREASE NO TURBIDITY Yes RUNOFF Yes	leaves sticks Moderate Significant *	
ASW INSPECTOR(S) Karl Brunckhorst	2/21/08 14:00	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS NO OIL & GREASE NO TURBIDITY Yes RUNOFF Yes	leaves sticks plastic Low Significant *	

* Significant runoff is defined as flow for more than 1 hour.
 WGMD08:068:AGM:MDR.rtd

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
<p>CDB2</p> <p>INSPECTOR(S) Karl Brunckhorst</p>	<p>2/21/08 14:10</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks paper cans plastic</p> <p>Moderate Significant *</p>	
<p>CDBX</p> <p>INSPECTOR(S) Karl Brunckhorst</p>	<p>2/21/08 14:12</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF Yes</p>	<p>leaves sticks</p> <p>Low Significant *</p>	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	FLOATING/SUSPENDED MATERIALS	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
CDB INSPECTOR(S) Karl Brunckhorst	2/21/08 14:18	ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF Yes	Yes	leaves sticks Moderate Significant *	
ALPE INSPECTOR(S) Karl Brunckhorst	3/31/08 10:00	ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	No	leaves sticks paper plastic	

* Significant runoff is defined as flow for more than 1 hour.

WGMD08:068:AGM:MDR:rtf

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
ALPO INSPECTOR(S) Karl Brunckhorst	3/31/08 10:03	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks plastic	
GRNE INSPECTOR(S) Karl Brunckhorst	3/31/08 10:06	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks plastic	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
<p>ASS2</p> <p>INSPECTOR(S) Karl Brunckhorst</p>	<p>3/31/08 10:14</p>	<p>FLOATING/SUSPENDED MATERIALS No</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY No</p> <p>RUNOFF No</p>	<p>leaves sticks</p>	
<p>ASW</p> <p>INSPECTOR(S) Karl Brunckhorst</p>	<p>3/31/08 10:20</p>	<p>FLOATING/SUSPENDED MATERIALS Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY No</p> <p>RUNOFF No</p>	<p>leaves sticks</p>	<p>ERD's Treatment Facility "A" discharging</p>

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
WPDC INSPECTOR(s) Karl Brunckhorst	3/31/08 10:24	FLOATING/SUSPENDED MATERIALS ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF No	leaves sticks paper plastic Low	Lake Haussmann & treatment facility "B" discharging
CDBX INSPECTOR(s) Karl Brunckhorst	3/31/08 10:41	FLOATING/SUSPENDED MATERIALS ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY Yes RUNOFF No	leaves sticks Low	Lake Haussmann discharging

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
GRNE INSPECTOR(S) Karl Brunckhorst	4/30/08 10:47	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	Styrofoam leaves sticks plastic Styrofoam	
ALPO INSPECTOR(S) Karl Brunckhorst	4/30/08 10:49	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
ALPE INSPECTOR(S) Karl Brunckhorst	4/30/08 10:52	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks paper plastic	
ASS2 INSPECTOR(S) Karl Brunckhorst	4/30/08 10:57	FLOATING/SUSPENDED MATERIALS No ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
<p>CDBX</p> <p>INSPECTOR(S) Karl Brunckhorst</p>	<p>4/30/08 11:12</p>	<p>FLOATING/SUSPENDED MATERIALS</p> <p>Yes</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY Yes</p> <p>RUNOFF No</p>	<p>leaves sticks paper</p> <p>Low</p>	<p>Lake Haussmann discharging</p>
<p>CDB2</p> <p>INSPECTOR(S) Karl Brunckhorst</p>	<p>4/30/08 11:15</p>	<p>FLOATING/SUSPENDED MATERIALS</p> <p>No</p> <p>ODOR No</p> <p>DISCOLORATIONS No</p> <p>OIL & GREASE No</p> <p>TURBIDITY No</p> <p>RUNOFF No</p>	<p>leaves sticks plastic</p>	

* Significant runoff is defined as flow for more than 1 hour.

Table A-4. Record of wet season visual observations

DISCHARGE LOCATION AND INSPECTOR	DATE AND TIME	DISCHARGE OBSERVATIONS	DISCHARGE COMMENTS	ADDITIONAL COMMENTS
CDB INSPECTOR(S) Karl Brunckhorst	4/30/08 11:20	FLOATING/SUSPENDED MATERIALS Yes ODOR No DISCOLORATIONS No OIL & GREASE No TURBIDITY No RUNOFF No	leaves sticks	

* Significant runoff is defined as flow for more than 1 hour.

Table A-5. Storm water quality data for December 18, 2007.

Describe Discharge Location	Date/Time of Sample Collection	Time Discharge Started	Analytical Results for First Storm Event					
			BASIC PARAMETERS				OTHER PARAMETERS	
			pH	TSS	O&G	TOC	Aluminum	Arsenic
WPDC (ALP Effluent)	12/18/08	Ongoing						
	9:40 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	7.65	74	<5	8.2	1.9	<0.002
GRNE (ALP Influent)	12/18/08	Ongoing						
	8:55 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	7.37	37	<6.2	4.3	na	na
ALPO (ALP Influent)	12/18/08	Ongoing						
	9:10 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	8.01	210	<5	9.1	na	na
ALPE (ALP Influent)	12/18/08	Ongoing						
	8:40 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	7.25	66	<5	5.8	na	na
TEST REPORTING UNITS:			pH Units	mg/L	mg/L	mg/L	mg/L	mg/L
TEST METHOD USED:			SM-4500HB	SM-2540D	E1664HEM	SM-5310C	E200.7	E200.8
ANALYZED BY (SELF/LAB):			BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

ALP - Arroyo Las Positas

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-5. Storm water quality data for December 18, 2007.

Describe Discharge Location	Analytical Results for First Storm Event					
	OTHER PARAMETERS					
	Barium	Beryllium	Boron	Bromacil	Cadmium	Chemical Oxygen Demand
WPDC (ALP Effluent)	0.06	<0.0002	0.31	48	<0.001	43
GRNE (ALP Influent)	na	<0.0002	na	130	<0.0002	<25
ALPO (ALP Influent)	na	<0.0002	na	19	<0.0002	74
ALPE (Influent)	na	<0.0002	na	76	<0.0002	85
TEST REPORTING UNITS:	mg/L	mg/L	mg/L	µg/L	mg/L	mg O/ L
TEST METHOD USED:	E200.7	E210.2	E200.7	E525.2	E200.8	E410.4
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Note: concentrations in boldface print exceed LLNL's site-specific threshold criteria.

Table A-5. Storm water quality data for December 18, 2007.

Describe Discharge Location	Analytical Results for First Storm Event							
	OTHER PARAMETERS							
	Chromium	Copper	Diazinon	Diuron	Glyphosate	Hexavalent Chromium	Lead	Mercury
WPDC (ALP Effluent)	0.008	0.0081	<0.2	23	8.9	0.0047	0.0021	<0.0002
GRNE (ALP Influent)	na	0.004	<0.2	19	14	<0.002	<0.005	<0.0002
ALPO (ALP Influent)	na	0.017	<0.22	130	6.5	<0.002	0.0092	<0.0002
ALPE (ALP Influent)	na	0.012	<0.22	51	5.9	<0.002	0.0095	<0.0002
TEST REPORTING UNITS:	mg/L	mg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L
TEST METHOD USED:	E200.8	E200.8	E525.2	E632	E547	E218.6	E200.8	E245.1
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Note: concentrations in boldface print exceed LLNL's site-specific threshold criteria.

Table A-5. Storm water quality data for December 18, 2007.

Describe Discharge Location	Analytical Results for First Storm Event					
	OTHER PARAMETERS					
	Nickel	Nitrate (asNO ₃)	Ortho- Phosphate	Pentachlorophenol	Total Dissolved Solids	Zinc
WPDC (ALP Effluent)	0.0069	5.8	0.22	<1.1	200	0.11
GRNE (ALP Influent)	na	35	0.56	<1.1	160	0.077
ALPO (ALP Influent)	na	14	0.65	<1.1	550	0.04
ALPE (Influent)	na	5.6	0.44	<1.1	130	0.048
TEST REPORTING UNITS:	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L
TEST METHOD USED:	E200.8	E300.0	E365.1	E525.2	SM-2540C	E200.8
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Note: concentrations in boldface print exceed LLNL's site-specific threshold criteria.

Table A-5. Storm water quality data for December 18, 2007.

Describe Discharge Location	Analytical Results for First Storm Event			
	OTHER PARAMETERS			
	Gross alpha	Gross beta	Tritium	Plutonium 239+240
WPDC (ALP Effluent)	0.013±0.048	0.129±0.037	4.292±2.590	0.000±0.0005
GRNE (ALP Influent)	0.011±0.024	0.10±0.034	0.157±1.998	na
ALPO (ALP Influent)	0.071±0.10	0.316±0.074	0.000±1.887	na
ALPE (Influent)	0.047±0.029	0.156±0.052	0.381±1.924	na
TEST REPORTING UNITS:	Bq/L	Bq/L	Bq/L	Bq/L
TEST METHOD USED:	E900	E900	E906	AS:PUISO
ANALYZED BY (SELF/LAB):	Eberline	Eberline	Eberline	Eberline

Radioactivities are reported as the measured concentration and an uncertainty (s +/-2 counting error). If the concentration is less than or equal to the uncertainty, the result is considered to be a nondetection.

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-5. Storm water quality data for December 18, 2007.

Describe Discharge Location	DATE/TIME OF SAMPLE COLLECTION	TIME DISCHARGE STARTED	Analytical Results for First Storm Event			
			BASIC PARAMETERS			
			pH	TSS	O&G	TOC
ASW (Arroyo Seco Effluent)	9:05 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	Ongoing AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	7.17	11	<5	8.4
ASS2 (Arroyo Seco Influent)	12/18/08 8:40 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	Ongoing AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	7.18	5.8	<5	5.5
TEST REPORTING UNITS:			pH Units	mg/L	mg/L	mg/L
TEST METHOD USED:			SM-4500HB	SM-2540D	E1664HEM	SM-5310C
ANALYZED BY (SELF/LAB):			BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-5. Storm water quality data for December 18, 2007.

Describe Discharge Location	Analytical Results for First Storm Event			
	OTHER PARAMETERS			
	Beryllium	Bromacil	Cadmium	Chemical Oxygen Demand
ASW (Arroyo Seco Effluent)	<0.0002	<0.5	<0.0002	45
ASS2 (Arroyo Seco Influent)	<0.0002	<0.56	<0.0002	<25
TEST REPORTING UNITS:	mg/L	µg/L	mg/L	mg O/ L
TEST METHOD USED:	E210.2	E525.2	E213.2	E410.4
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-5. Storm water quality data for December 18, 2007.

Describe Discharge Location	Analytical Results for First Storm Event						
	OTHER PARAMETERS						
	Copper	Diazinon	Diuron	Glyphosate	Hexavalent Chromium	Lead	Mercury
ASW (Arroyo Seco Effluent)	0.0051	<0.2	3.1	<5	<0.002	<0.005	<0.0002
ASS2 (Arroyo Seco Influent)	0.0039	<0.22	1.5	12	<0.002	<0.005	<0.0002
TEST REPORTING UNITS:	mg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L
TEST METHOD USED:	E200.8	E525.2	E632	E547	E218.6	E200.8	E245.1
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-5. Storm water quality data for December 18, 2007.

Describe Discharge Location	Analytical Results for First Storm Event				
	OTHER PARAMETERS				
	Nitrate (asNO ₃)	Ortho- Phosphate	Pentachlorophenol	Total Dissolved Solids	Zinc
ASW (Arroyo Seco Effluent)	1.9	0.34	<1.1	56	0.068
ASS2 (Arroyo Seco Influent)	1.1	0.38	<1.1	31	0.12
TEST REPORTING UNITS:	mg/L	mg/L	µg/L	mg/L	mg/L
TEST METHOD USED:	E300.0	E365.1	E525.2	SM-2540C	E200.8
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-5. Storm water quality data for December 18, 2007.

Describe Discharge Location	Analytical Results for First Storm Event			
	OTHER PARAMETERS			
	Gross alpha	Gross beta	Tritium	Plutonium 239+240
ASW (Arroyo Seco Effluent)	0.011±0.016	0.078±0.028	0.688±1.961	-0.0007±0.0005
ASS2 (Arroyo Seco Influent)	-0.003±0.013	0.083±0.033	-0.234±1.961	na
TEST REPORTING UNITS:	Bq/L	Bq/L	Bq/L	Bq/L
TEST METHOD USED:	E900	E900	E906	AS:PUISO
ANALYZED BY (SELF/LAB):	Eberline	Eberline	Eberline	Eberline

Radioactivities are reported as the measured concentration and an uncertainty (s +/-2 counting error). If the concentration is less than or equal to the uncertainty, the result is considered to be a nondetection.

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-6. Storm water quality data for January 4, 2008.

Describe Discharge Location	Date/Time of Sample Collection	Time Discharge Started	Analytical Results for Second Storm Event					
			BASIC PARAMETERS				OTHER PARAMETERS	
			pH	TSS	O&G	TOC	Aluminum	Arsenic
WPDC (ALP Effluent)	1/4/08	Ongoing						
	10:30 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	7.42	160	<5	9.4	na	na
GRNE (ALP Influent)	1/4/08	Ongoing						
	9:35 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	7.2	130	<5	3.5	na	na
ALPO (ALP Influent)	1/4/08	Ongoing						
	9:55 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	8.12	250	<5	5.6	na	na
ALPE (ALP Influent)	1/4/08	Ongoing						
	10:15 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	8.02	370	<5	7.7	na	na
TEST REPORTING UNITS:			pH Units	mg/L	mg/L	mg/L	mg/L	mg/L
TEST METHOD USED:			SM-4500HB	SM-2540D	E1664HEM	SM-5310C	E200.7	E200.8
ANALYZED BY (SELF/LAB):			BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

ALP - Arroyo Las Positas

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-6. Storm water quality data for January 4, 2008.

Describe Discharge Location	Analytical Results for Second Storm Event					
	OTHER PARAMETERS					
	Barium	Beryllium	Boron	Bromacil	Cadmium	Chemical Oxygen Demand
WPDC (ALP Effluent)	na	<0.0002	na	<0.5	<0.0002	64
GRNE (ALP Influent)	na	<0.0002	na	110	<0.0002	<25
ALPO (ALP Influent)	na	0.00027	na	20	<0.0002	140
ALPE (Influent)	na	0.00028	na	21	<0.0002	75
TEST REPORTING UNITS:	mg/L	mg/L	mg/L	µg/L	mg/L	mg O/ L
TEST METHOD USED:	E200.7	E210.2	E200.7	E525.2	E200.8	E410.4
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Note: concentrations in boldface print exceed LLNL's site-specific threshold criteria.

Table A-6. Storm water quality data for January 4, 2008.

Describe Discharge Location	Analytical Results for Second Storm Event							
	OTHER PARAMETERS							
	Chromium	Copper	Diazinon	Diuron	Glyphosate	Hexavalent Chromium	Lead	Mercury
WPDC (ALP Effluent)	na	0.015	<0.2	18	6.1	<0.002	0.006	<0.0002
GRNE (ALP Influent)	na	0.0053	<0.2	12	17	<0.002	<0.005	<0.0002
ALPO (ALP Influent)	na	0.015	<0.2	72	6.4	<0.002	0.006	<0.0002
ALPE (ALP Influent)	na	0.023	<0.2	59	7.2	<0.002	0.011	<0.0002
TEST REPORTING UNITS:	mg/L	mg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L
TEST METHOD USED:	E200.8	E200.8	E525.2	E632	E547	E218.6	E200.8	E245.1
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Note: concentrations in boldface print exceed LLNL's site-specific threshold criteria.

Table A-6. Storm water quality data for January 4, 2008.

Describe Discharge Location	Analytical Results for Second Storm Event					
	OTHER PARAMETERS					
	Nickel	Nitrate (asNO ₃)	Ortho-Phosphate	Pentachlorophenol	Total Dissolved Solids	Zinc
WPDC (ALP Effluent)	na	3.6	<0.05	<1.1	120	0.15
GRNE (ALP Influent)	na	20	0.29	<1.1	100	0.11
ALPO (ALP Influent)	na	6.6	0.07	<1.1	460	0.038
ALPO (ALP Influent)	na	2.6	<0.05	3.2	300	0.09
TEST REPORTING UNITS:	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L
TEST METHOD USED:	E200.8	E300.0	E365.1	E525.2	SM-2540C	E200.8
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Note: concentrations in boldface print exceed LLNL's site-specific threshold criteria.

Table A-6. Storm water quality data for January 4, 2008.

Describe Discharge Location	Analytical Results for Second Storm Event			
	OTHER PARAMETERS			
	Gross alpha	Gross beta	Tritium	Plutonium 239+240
WPDC (ALP Effluent)	0.098±0.056	0.232±0.056	3.300±2.035	0.0003±0.001
GRNE (ALP Influent)	0.124±0.052	0.222±0.063	-1.025±1.924	na
ALPO (ALP Influent)	0.274±0.148	0.414±0.104	1.006±1.961	na
ALPE (Influent)	0.242±0.100	0.389±0.089	1.173±2.072	na
TEST REPORTING UNITS:	Bq/L	Bq/L	Bq/L	Bq/L
TEST METHOD USED:	E900	E900	E906	AS:PUISO
ANALYZED BY (SELF/LAB):	Eberline	Eberline	Eberline	Eberline

Radioactivities are reported as the measured concentration and an uncertainty (s +/-2 counting error). If the concentration is less than or equal to the uncertainty, the result is considered to be a nondetection.

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-6. Storm water quality data for January 4, 2008.

Describe Discharge Location	DATE/TIME OF SAMPLE COLLECTION	TIME DISCHARGE STARTED	Analytical Results for Second Storm Event			
			BASIC PARAMETERS			
			pH	TSS	O&G	TOC
ASW (Arroyo Seco Effluent)	1/4/08	Ongoing				
	9:40 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	7.52	72	<5	7.8
ASS2 (Arroyo Seco Influent)	1/4/08	Ongoing				
	9:20 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>	6.95	20	<5	6.4
TEST REPORTING UNITS:			pH Units	mg/L	mg/L	mg/L
TEST METHOD USED:			SM-4500HB	SM-2540D	E1664HEM	SM-5310C
ANALYZED BY (SELF/LAB):			BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-6. Storm water quality data for January 4, 2008.

Describe Discharge Location	Analytical Results for Second Storm Event			
	OTHER PARAMETERS			
	Beryllium	Bromacil	Cadmium	Chemical Oxygen Demand
ASW (Arroyo Seco Effluent)	<0.0002	<0.5	<0.0002	45
ASS2 (Arroyo Seco Influent)	<0.0002	<0.5	<0.0002	<25
TEST REPORTING UNITS:	mg/L	µg/L	mg/L	mg O/ L
TEST METHOD USED:	E210.2	E525.2	E213.2	E410.4
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

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TOC - Total Organic Carbon

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-6. Storm water quality data for January 4, 2008.

Describe Discharge Location	Analytical Results for Second Storm Event						
	OTHER PARAMETERS						
	Copper	Diazinon	Diuron	Glyphosate	Hexavalent Chromium	Lead	Mercury
ASW (Arroyo Seco Effluent)	0.011	<0.2	2.5	<5	<0.002	0.0055	<0.0002
ASS2 (Arroyo Seco Influent)	0.0066	<0.2	2	5.7	<0.002	<0.005	<0.0002
TEST REPORTING UNITS:	mg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L
TEST METHOD USED:	E200.8	E525.2	E632	E547	E218.6	E200.8	E245.1
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-6. Storm water quality data for January 4, 2008.

Describe Discharge Location	Analytical Results for Second Storm Event				
	OTHER PARAMETERS				
	Nitrate (asNO ₃)	Ortho- Phosphate	Pentachlorophenol	Total Dissolved Solids	Zinc
ASW (Arroyo Seco Effluent)	4.3	0.19	2.4	91	0.11
ASS2 (Arroyo Seco Influent)	1.3	0.17	<1.1	24	0.18
TEST REPORTING UNITS:	mg/L	mg/L	µg/L	mg/L	mg/L
TEST METHOD USED:	E300.0	E365.1	E525.2	SM-2540C	E200.8
ANALYZED BY (SELF/LAB):	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs

TSS - Total Suspended Solids

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TOC - Total Organic Carbon

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater

Table A-6. Storm water quality data for January 4, 2008.

Describe Discharge Location	Analytical Results for Second Storm Event			
	OTHER PARAMETERS			
	Gross alpha	Gross beta	Tritium	Plutonium 239+240
ASW (Arroyo Seco Effluent)	0.039±0.041	0.078±0.028	0.688±1.961	0.000±0.001
ASS2 (Arroyo Seco Influent)	-0.003±0.013	0.083±0.033	-0.234±1.961	na
TEST REPORTING UNITS:	Bq/L	Bq/L	Bq/L	Bq/L
TEST METHOD USED:	E900	E900	E906	AS:PUISO
ANALYZED BY (SELF/LAB):	Eberline	Eberline	Eberline	Eberline

Radioactivities are reported as the measured concentration and an uncertainty (s +/-2 counting error). If the concentration is less than or equal to the uncertainty, the result is considered to be a nondetection.

TSS - Total Suspended Solids

SC - Specific Conductance

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TOC - Total Organic Carbon

na - Not Analyzed

Test Method Used: E is EPA Method and SM is Standard methods for the examination of water and wastewater



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