Stormwater Annual Report 2011-2012

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Table of Contents

1.0 Introduction 1
1.1 Background 2
2.0 Site Compliance Evaluation 4
2.1 Personnel and Inspection Date 4
2.2 Review of Inspection Records 4
2.3 Stormwater Sampling 4
2.3.1 Sample Locations 5
2.3.2 Sample Collection and Analysis 5
2.3.2.1 Basic Analytical Parameters under the ASWMP (2009) 5
2.3.2.2 Sector Required Analyses under the ASWMP (2009) 5
2.4 Stormwater Sample Results 6
2.4.1 Monitored Location MP-1 (Blackberry Canyon Parking Lot) 6
2.4.2 Monitored Location MP-2 (Building 76, Vehicle Fueling Station) 7
2.4.3 Monitored Location MP-3 (Building 77-79, Metal Fabrication, Storage, and Scrap Recycling) 7
2.4.4 Monitored Location MP-4 (Building 85 Lower Yard, Hazardous Waste Handling Facility) 8
2.4.5 Monitored Location MP-5 (Building 85 Upper Yard, Hazardous Waste Handling Facility) 9
2.4.6 Monitored Location MP-6 (Bus Parking in front of Building 64) 9
2.5 Visual Observations of Non-Stormwater and Stormwater Discharges 10
2.5.1 Authorized Non-Stormwater Discharges 10
2.5.2 Unauthorized Non-Stormwater Discharges 10
2.5.3 Wet Season Stormwater Discharges 10
3.0 SWPPP Review and Revisions 12
3.1 Review and Effectiveness of Existing Best Management Practices 12
3.2 Additional and Planned BMPs 12
3.3 Revisions to Stormwater Pollution Prevention Plan 13
4.0 References 14

APPENDICES

A – "2011-2012 Annual Report"
B – "Technical Memorandum: Hazardous Waste Handling Facility Investigate Studies"
C – "Laboratory Data Certificates and Chain-of-Custody Forms (Storm 1)"
D – "Laboratory Data Certificates and Chain-of-Custody Forms (Storm 2)"
E – "Monthly and Quarterly Detailed Visual Observations Forms"

LIST OF TABLES

Table 2-1 Summary Stormwater Analysis at MP-1 6
Table 2-2 Summary Stormwater Analysis at MP-2 7
Table 2-3 Summary Stormwater Analysis at MP-3 7
Table 2-4 Summary Stormwater Analysis at MP-4 8
Table 2-5 Summary Stormwater Analysis at MP-5 9
Table 2-6 Summary Stormwater Analysis at MP-6 10

LIST OF FIGURES

Figure 1-1 Facility Location Map 1
Figure 1-2 Facility Plan and Alternative Stormwater Monitoring Locations 2

1.0
Introduction

This *Annual Report* has been prepared for the Lawrence Berkeley National Laboratory (LBNL) located at 1 Cyclotron Road in Berkeley, Alameda County, California ("the Facility;" Figure 1-1). The Annual Report was compiled pursuant to the requirements of the California State Water Resources Control Board Order No. 97-03-DWQ *National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit), Waste Discharge Requirements (WDRs) for the Discharge of Stormwater Associated with Industrial Activities Excluding Construction Activities* ("General Permit;" SWRCB, 1997).

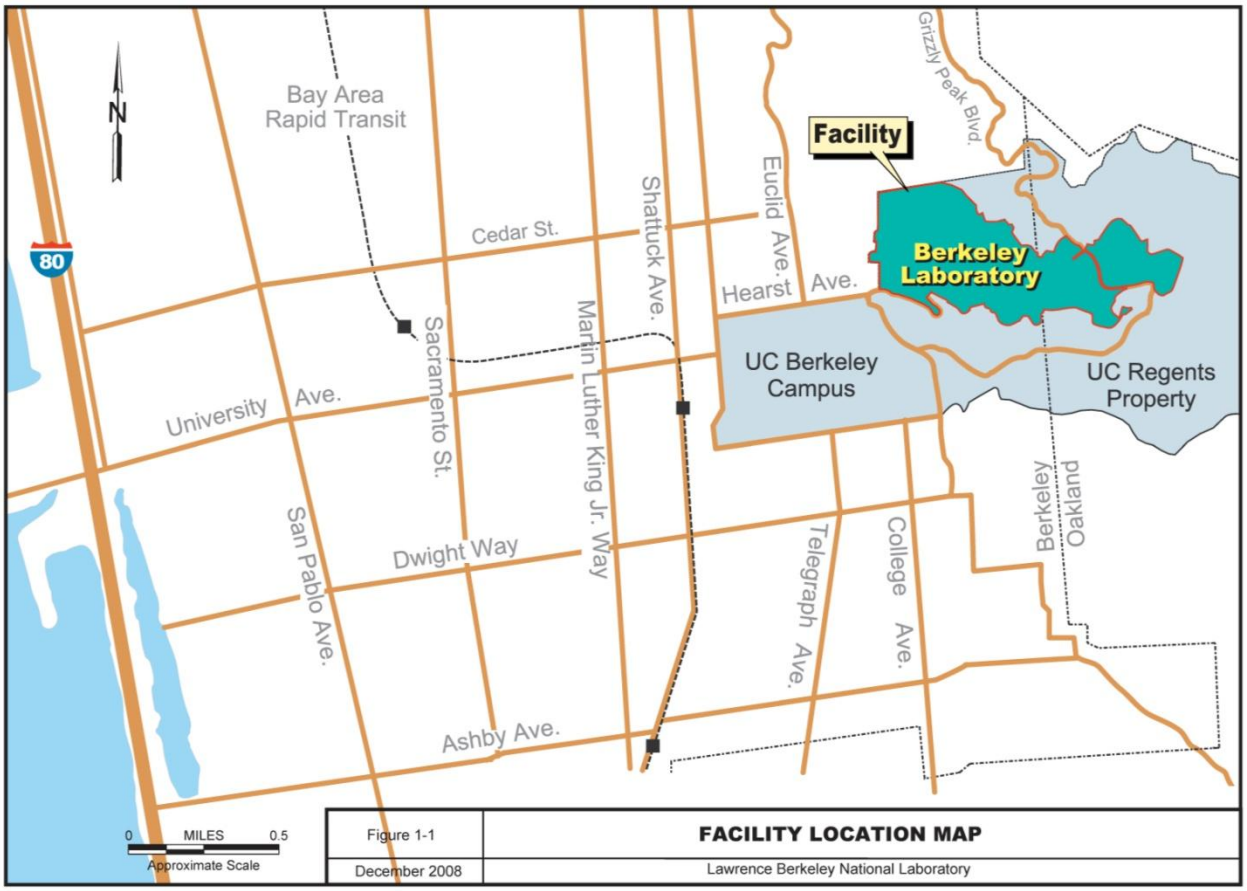

Figure 1-1 Facility Location Map

The Annual Report, in conjunction with the *Storm Water Pollution Prevention Plan* (SWPPP; Environmental Services Group (ESG), 2012) and the *Alternative Storm Water Monitoring Plan* (ASWMP; ESG, 2009) for the Facility, provides the basis for improved management of stormwater to reduce the potential for contaminants to be released to surface water. This report includes explanations, as

required, to the *2011-2012 Annual Report for Storm Water Discharges Associated with Industrial Activities* (Appendix A). A copy of this Annual Report will be kept at the Facility.

1.1 Background

LBNL is managed by the University of California for the United States Department of Energy and conducts basic and applied science research. Industrial operations conducted at LBNL to facilitate research include: transportation services; fabrication of metal and wood parts; scrap recycling; and hazardous waste storage and handling. The Facility occupies approximately 200 acres within the Cities of Berkeley and Oakland of Alameda County. Roughly one-half of the site is within Strawberry Canyon and has a south-facing orientation; the balance is within Blackberry Canyon and is oriented toward the west. Approximately 80 permanent buildings and approximately 100 trailers and temporary structures are located at the Facility. Approximately 110 acres of the Facility are undeveloped with vegetated steep slopes. The Facility layout is shown on Figure 1-2.

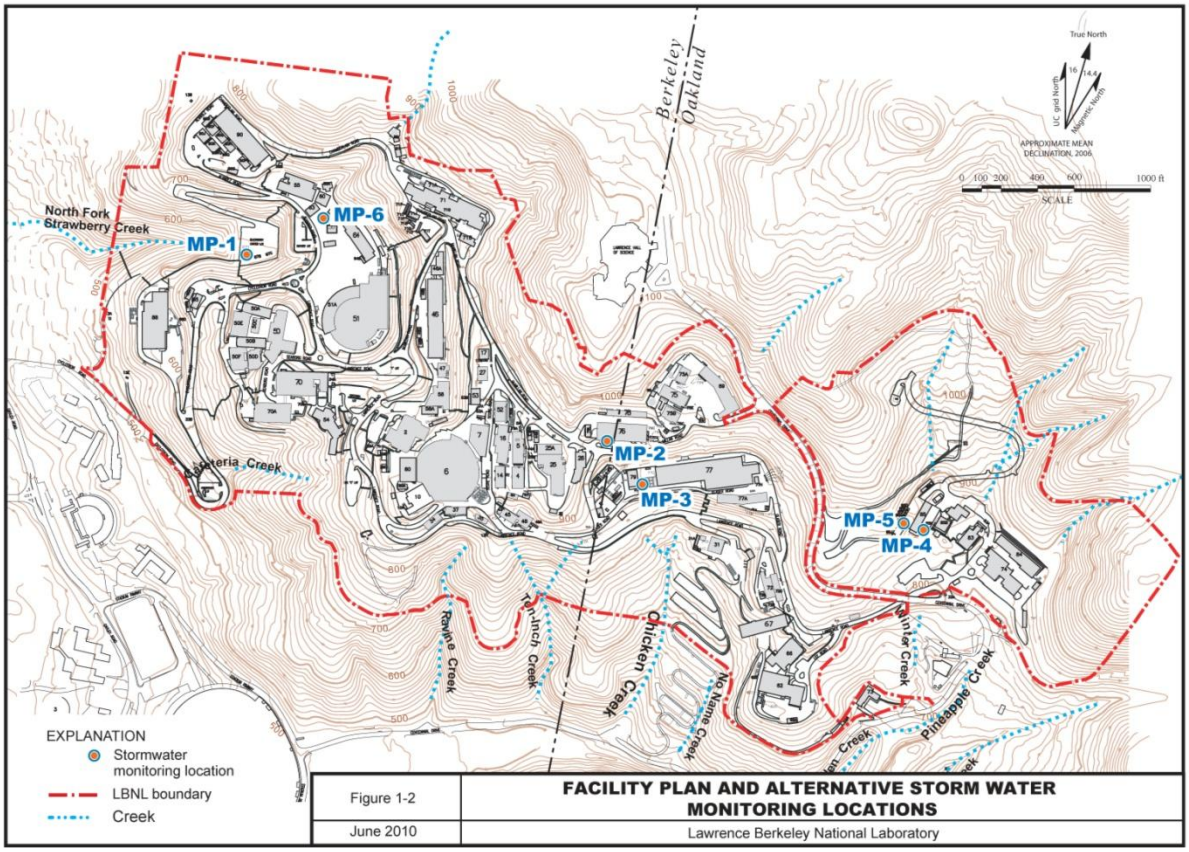

Figure 1-2 Facility Plan and Stormwater Monitoring Locations

The Facility is regulated by the General Permit based on its operations that fall within the following Standard Industrial Classification (SIC) numbers:

- 4173 – Terminal and Service Facilities for Motor Vehicle Passenger Transportation;
- 3499 – Fabricated Metal Products, Not Elsewhere Classified;

- 4953 – Hazardous Waste Treatment Storage or Disposal Facilities;
- 5093 – Scrap Recycling Facilities.

The Waste Discharge Identification number for the Facility is 2 01 I002421. The Facility's corporate ownership, street address and other industrial information appear on the Notice of Intent processed on April 1, 1992.

Historically the LBNL Stormwater Monitoring Plan has focused on larger drainage areas within the Facility, where the stormwater discharges have commingled with stormwater from areas with little or no industrial activity. In 2008, LBNL proposed to the RWQCB to modify the Stormwater monitoring program with a focus on the areas of industrial activity that are specifically regulated by the General Industrial Permit and have the most potential to contribute stormwater pollutants. Alternative stormwater monitoring locations were proposed and presented to the RWQCB in a review meeting in December 2008. These alternative monitoring points generated analytical data for pollutants closer to potential sources to allow improved evaluation of these specific potential source areas and assess additional Best Management Practices (BMPs) to control contributions of pollutants from potential source areas. The Alternative Storm Water Monitoring Plan (ASWMP) was implemented on February 1st, 2009 and was updated in September 2009.

The most recent SWPPP for the Facility was prepared in May 2012 (ESG, 2012); this revision incorporated additional BMPs based on the results of the first and second storm event in 2012, which was sampled on February 7, 2012 and March 13, 2012, respectively. The SWPPP identifies the BMPs that must be implemented to reduce stormwater pollution. The SWPPP also establishes an annual stormwater inspection program to identify areas associated with industrial activity that have a potential to contribute a stormwater discharge and to evaluate whether BMPs to reduce pollutant discharge have been properly implemented. LBNL has identified five regulated industrial areas where stormwater discharges come in contact with industrial activities:

1. Parking and storage at the Blackberry Parking Lot;
2. Fuel dispensing at the vehicle fuel station at Building 76;
3. Metal fabrication, storage, and scrap recycling at Building 77-79;
4. Hazardous waste treatment, storage, and disposal at Building 85, the Hazardous Waste Handling Facility (HWHF); and
5. Bus parking in front of Building 64.

In accordance with the General Permit requirements, an Annual Comprehensive Site Compliance Evaluation (ACSCE) was conducted for the 2011-2012 wet-weather season. The findings of the ACSCE have been used to identify whether additional BMPs are needed to address potential sources of pollution to stormwater. The SWPPP was modified based on the analytical results from the first and second storm event at the alternative monitoring locations.

2.0
Site Compliance Evaluation

The ACSCE conducted at the Facility included a review of visual observations, inspection records, and stormwater analytical results. Visual observations were conducted of potential pollutant sources for evidence of, or the potential for, pollutants entering the storm drainage system. Inspections have been conducted since obtaining coverage under the General Permit in April 1992.

2.1 Personnel and Inspection Date

Dr. Tim Bauters, P.E., Senior Engineer at Golder Associates Inc. and Mr. John Jelinsky, Quality Coordinator for the Environmental Services Group of the Environment, Health and Safety division at LBNL, conducted the field inspection for the ACSCE on May 23, 2011. The ACSCE included an inspection of the Facility for potential pollutant sources and areas of industrial activities. The areas inspected included undeveloped vegetated areas, authorized non-stormwater discharge areas, industrial activity areas, and downstream monitoring locations as depicted on Figure 1-2.

2.2 Review of Inspection Records

The completed inspection forms required for the *Annual Report Forms for Storm Water Discharges Associated with Industrial Activity* (Appendix A) were reviewed and the results are summarized under the relevant sections below. The following forms were prepared and reviewed for this report:

- Form 1: Sampling and Analysis Results;
- Form 2: Quarterly Visual Observations of Authorized Non-Storm Water Discharges;
- Form 3: Quarterly Visual Observations of Unauthorized Non-Storm Water Discharges;
- Form 4: Monthly Visual Observations of Storm Water Discharges; and
- Form 5: Annual Comprehensive Site Compliance Evaluation.

2.3 Stormwater Sampling

Samples were collected from two rainfall events resulting in stormwater discharges during the 2010-2011 wet-weather season: February 7, 2012 and March 13, 2012. All stormwater samples were collected under the following conditions:

1. Runoff occurred during normal business operating hours;
2. The sample was collected within the first hour of discharge from the Facility; and
3. Rainfall had not been reported at the Facility within three working days prior to the sampling event.

2.3.1 Sample Locations

For the February 7, 2012 and March 13 sampling event, the stormwater discharge locations were sampled in accordance with the Facility's ASWMP (2009). Figure 1-2 shows the five monitored industrial areas as follows:

1. Blackberry Parking Lot (parking and storage industrial area, MP-1)
2. Building 76, Vehicle Fueling Station (fuel dispensing industrial area, MP-2)
3. Building 77-79, Metal Fabrication, Storage and Scrap Recycling (metal fabrication and scrap recycling industrial area, MP-3)
4. Building 85, Hazardous Waste Handling Facility (HWHF) (hazardous waste treatment, storage, and disposal industrial area, MP-4 (lower yard) and MP-5 (upper yard))
5. Building 64, Bus Parking Lot (MP-6)

2.3.2 Sample Collection and Analysis

Surface water samples were collected and placed into analytical laboratory prepared sample containers following ESG Standard Operating Procedures (SOPs) 263 (ESG, 2012) and 252 (ESG, 2010) for all the rainfall sampling events. Analytical laboratories used by LBNL include: Eberline Services of Richmond, California; GEL Laboratories of Charleston, South Carolina; Paragon Analytics of Fort Collins, Colorado; BC Laboratories, Inc. of Bakersfield, California; and Curtis & Tompkins (C&T) Analytical Laboratory of Berkeley, California.

2.3.2.1 Basic Analytical Parameters under the ASWMP (2009)

All the stormwater samples were analyzed for the standard stormwater parameters as stipulated in the General Permit (Item 5.c.i.) and included:

- Total Suspended Solids (TSS) by United States Environmental Protection Agency (USEPA) Method SM-2540D2;
- pH by testing with a calibrated, temperature-compensating pH tester;
- Specific conductance using USEPA Method SM-2510B or 120.1; and,
- Total oil and grease using USEPA Method 1664 (HEM-SGT).

2.3.2.2 Sector Required Analyses under the ASWMP (2009)

Certain stormwater samples were also analyzed for additional parameters as stipulated in the General Permit (Item 5.c.iii and listed in Table D). These additional parameters are summarized below:

Based on SIC 3499 – Fabricated Metal Products, the samples from Building 77 metal fabrication area were also analyzed for the following sector parameters:

- Nitrite and nitrate (as nitrogen) using USEPA Method 300.0 or 353.2; and,
- Total aluminum, total iron and total zinc using USEPA 200.7 or 200.8.

Based on SIC 5093 – Scrap Recycling Facility, the samples from Building 79 scrap recycling area were also analyzed for the following sector parameters:

- Chemical Oxygen Demand (COD) using USEPA 410.4;
- Total aluminum, total copper, total iron, total lead, and total zinc using USEPA 200.7 or 200.8.

Based on SIC 4953 – Hazardous Waste Treatment Storage or Disposal Facilities, the samples from the Building 85, hazardous waste handing area were also analyzed for the following sector parameters:

- Ammonia as nitrogen using SM-4500 or USEPA 350.1;
- Total magnesium using USEPA 200.7;
- Chemical Oxygen Demand (COD) using USEPA 410.4;
- Total arsenic using USEPA 200.7 or 200.8;
- Total cadmium using USEPA 200.7 or 200.8;
- Total cyanide using USEPA 335.4;
- Total lead using USEPA 200.7 or 200.8;
- Total mercury using USEPA 245.1;
- Total selenium using USEPA 200.7 or 200.8; and,
- Total silver using USEPA 200.7 or 200.8.

2.4 Stormwater Sample Results

Results of the laboratory analyses were compared to the applicable parameter benchmark values established by the USEPA (USEPA, 2000). A comparison of the reported general and sector required analytical data with the USEPA benchmarks is presented below per monitored location. Laboratory analytical data and chain-of-custody forms are provided in Appendix C and Appendix D, respectively for both stormwater sampling events performed in accordance with ASWMP (2009).

2.4.1 Monitored Location MP-1 (Blackberry Canyon Parking Lot)

Laboratory analysis results for the February 7, 2012 (first sampling event) and March 13, 2012 (second sampling event) of the stormwater samples are displayed in Table 2-1:

Table 2-1 Summary Stormwater Analysis at MP-1

Constituent	Units	Benchmark (USEPA MSGP)	First Event February 7, 2012	Second Event March 13, 2012
Basic Analyses				
Ph	S.U.	6.00-9.00	6.94	8.03
TSS	mg/L	100	14	62
Specific Conductance	µmhos/cm	NA	23	27
Oil and Grease	mg/L	15	<4.80	<4.75

Notes: USEPA MSGP: United States Environmental Protection Agency Multi-Sector General Permit for Industrial Activities
S.U.: Standard Units
µmhos/cm: Micromhos per centimeter

Mg/l: Milligrams per liter
NA: Not Available

All stormwater samples collected at the Blackberry Canyon parking location during the first and second sampling events were below their respective USEPA benchmarks.

2.4.2 Monitored Location MP-2 (Building 76, Vehicle Fueling Station)

Laboratory analysis results for the February 7, 2012 (first sampling event) and March 13, 2012 (second sampling event) of the stormwater samples are displayed in Table 2-2:

Table 2-2 Summary Stormwater Analysis at MP-2

Constituent	Units	Benchmark (USEPA MSGP)	First Event February 7, 2012	Second Event March 13, 2012
Basic Analyses				
Ph	S.U.	6.00-9.00	6.57	7.76
TSS	mg/L	100	12	57
Specific Conductance	µmhos/cm	NA	100	62
Oil and Grease	mg/L	15	<4.85	<4.75

Notes: USEPA MSGP: United States Environmental Protection Agency Multi-Sector General Permit for Industrial Activities
S.U.: Standard Units
µmhos/cm: Micromhos per centimeter
mg/l: Milligrams per liter
NA: Not Available

All stormwater samples collected at the Vehicle fueling location during the first and second sampling events were below their respective USEPA benchmarks.

2.4.3 Monitored Location MP-3 (Building 77-79, Metal Fabrication, Storage, and Scrap Recycling)

Laboratory analysis results for the February 7, 2012 (first sampling event) and March 13, 2012 (second sampling event) of the stormwater samples are displayed in Table 2-3:

Table 2-3 Summary Stormwater Analysis at MP-3

Constituent	Units	Benchmark (USEPA MSGP)	First Event February 7, 2012	Second Event March 13, 2012
Basic Analyses				
Ph	S.U.	6.00-9.00	6.86	7.78
TSS	mg/L	100	6	90
Specific Conductance	µmhos/cm	NA	49	26
Oil and Grease	mg/L	15	<4.75	<4.75
Sector Required Analyses (SIC 3499 & SIC 5093)				
Nitrate + Nitrite as Nitrogen	mg/L	0.68	0.21	0.11
COD	mgO/L	120	28	140
Total Aluminum	mg/L	0.75	0.14	0.5
Total Copper	mg/L	0.0636	0.018	0.043
Total Iron	mg/L	1.0	0.23	0.85
Total Lead	mg/L	0.0816	<0.0050	0.024
Total Zinc	mg/L	0.117	0.13	0.4

Notes: USEPA MSGP: United States Environmental Protection Agency Multi-Sector General Permit for Industrial Activities
S.U.: Standard Units
µmhos/cm: Micromhos per centimeter
mg/l: Milligrams per liter
COD: Chemical Oxygen Demand
mgO/l: Milligrams of oxygen per liter
NA: Not Available

All stormwater samples collected at the Metal fabrication, storage and scrap recycling location during the first and second sampling events were below their respective USEPA benchmarks; except for COD during the second sampling event and total zinc during the first and second sampling event.

2.4.4 Monitored Location MP-4 (Building 85 Lower Yard, Hazardous Waste Handling Facility)

Laboratory analysis results for the February 7, 2012 (first sampling event) and March 13, 2012 (second sampling event) of the stormwater samples are displayed in Table 2-4:

Table 2-4 Summary Stormwater Analysis at MP-4

Constituent	Units	Benchmark (USEPA MSGP)	First Event February 7, 2012	Second Event March 13, 2012
Basic Analyses				
Ph	S.U.	6.00-9.00	7.14	7.63
TSS	mg/L	100	<5	27
Specific Conductance	µmhos/cm	NA	45	76
Oil and Grease	mg/L	15	<4.7	<4.75
Sector Required Analyses (SIC 4953)				
Ammonia as Nitrogen	mg/L	19	0.27	0.16
COD	mgO/L	120	<10	19
Total Arsenic	mg/L	0.17	<0.050	<0.050
Total Cadmium	mg/L	0.0159	<0.010	<0.010
Total Cyanide	mg/L	0.0636	<0.02	0.08
Total Lead	mg/L	0.0816	<0.050	<0.050
Total Magnesium	mg/L	0.0636	0.36	1.1
Total Mercury	mg/L	0.0024	<0.00020	<0.00020
Total Selenium	mg/L	0.2385	<0.050	<0.050
Total Silver	mg/L	0.117	<0.010	<0.010

Notes: USEPA MSGP: United States Environmental Protection Agency Multi-Sector General Permit for Industrial Activities
S.U.: Standard Units
µmhos/cm: Micromhos per centimeter
Mg/l: Milligrams per liter
COD: Chemical Oxygen Demand
mgO/l: Milligrams of oxygen per liter
NA: Not Available

All stormwater samples collected at the Building 85 Lower Yard, Hazardous Waste Handling Facility Location during the first and second sampling events were below their respective USEPA benchmarks; except for total magnesium during the first and second sampling events and cyanide during the second sampling event. Appendix B includes a Technical Memorandum regarding the occurrence of magnesium unrelated to industrial activity and a proposed alternative site-specific benchmark. A follow up

investigative sampling event was performed on April 13, 2012 to assess if Cyanide was still detected in the stormwater run-off from the lower yard. Cyanide was not detected above the reporting limit of 0.01 mg/l during the April 13, 2012 stormwater re-sampling event (more in section 3.2).

2.4.5 Monitored Location MP-5 (Building 85 Upper Yard, Hazardous Waste Handling Facility)

Laboratory analysis results for the February 7, 2012 (first sampling event) and March 13, 2012 (second sampling event) of the stormwater samples is displayed in Table 2-5:

Table 2-5 Summary Stormwater Analysis at MP-5

Constituent	Units	Benchmark (USEPA MSGP)	First Event February 7, 2012	Second Event March 13, 2012
Basic Analyses				
Ph	S.U.	6.00-9.00	7.35	7.55
TSS	mg/L	100	<5	4
Specific Conductance	µmhos/cm	NA	11	6.9
Oil and Grease	mg/L	15	<4.7	<4.75
Sector Required Analyses (SIC 4953)				
Ammonia as Nitrogen	mg/L	19	0.23	0.13
COD	mgO/L	120	<10	11
Total Arsenic	mg/L	0.17	<0.050	<0.050
Total Cadmium	mg/L	0.0159	<0.010	<0.010
Total Cyanide	mg/L	0.0636	<0.01	0.03
Total Lead	mg/L	0.0816	<0.050	<0.050
Total Magnesium	mg/L	0.0636	0.14	0.13
Total Mercury	mg/L	0.0024	<0.00020	<0.00020
Total Selenium	mg/L	0.2385	<0.050	<0.050
Total Silver	mg/L	0.117	<0.010	<0.010

Notes: USEPA MSGP: United States Environmental Protection Agency Multi-Sector General Permit for Industrial Activities
S.U.: Standard Units
µmhos/cm: Micromhos per centimeter
Mg/l: Milligrams per liter
COD: Chemical Oxygen Demand
mgO/l: Milligrams of oxygen per liter
NA: Not Available

All stormwater samples collected at the Building 85 Upper Yard, Hazardous Waste Handling Facility Location during the first and second sampling events were below their respective USEPA benchmarks; except for total magnesium during the first and second sampling events. Appendix B includes a Technical Memorandum regarding the occurrence of magnesium unrelated to industrial activity and a proposed alternative site specific benchmark.

2.4.6 Monitored Location MP-6 (Bus Parking in front of Building 64)

Laboratory analysis results for the February 7, 2012 (first sampling event) and March 13, 2012 (second sampling event) of the stormwater samples is displayed in Table 2-6:

Table 2-6 Summary Stormwater Analysis at MP-6

Constituent	Units	Benchmark (USEPA MSGP)	First Event February 7, 2012	Second Event March 13, 2012
Basic Analyses				
Ph	S.U.	6.00-9.00	6.91	7.78
TSS	mg/L	100	19	13
Specific Conductance	µmhos/cm	NA	68	39
Oil and Grease	mg/L	15	<4.7	6.04

Notes: USEPA MSGP: United States Environmental Protection Agency Multi-Sector General Permit for Industrial Activities
S.U.: Standard Units
µmhos/cm: Micromhos per centimeter
Mg/l: Milligrams per liter
NA: Not Available

All stormwater samples collected at the Bus Parking Location during the first and second sampling events were below their respective USEPA benchmarks.

2.5 Visual Observations of Non-Stormwater and Stormwater Discharges

2.5.1 Authorized Non-Stormwater Discharges

Quarterly visual observations of authorized non-stormwater discharges were conducted during the 2011-2012 dry-weather season at the following discharges: groundwater discharge from hydraugers and retaining wall weep holes; and condensate discharge from air conditioning units. Visual observations did not reveal odor, cloudiness or turbidity, discoloring, staining, or floating objects or oil sheen in the discharges from the hydraugers or weep holes. No discharge, or evidence of discharge, was visible from fire hydrant flushing or landscape watering. A summary of the authorized non-stormwater quarterly visual observations is included in Appendix A, Form 2. The detailed inspection forms are provided in Appendix E.

2.5.2 Unauthorized Non-Stormwater Discharges

Quarterly visual observations were conducted on August 12, 2011, November 17, 2011, February 22, 2012 and May 9, 2012 on potentially unauthorized non-stormwater discharges during the quarterly inspections. No unauthorized non-stormwater discharges or evidence of unauthorized discharges were observed.

A summary of the unauthorized non-stormwater quarterly visual observations is presented in Appendix A, Form 3. The detailed inspection forms are provided in Appendix E.

2.5.3 Wet Season Stormwater Discharges

Monthly visual observations were conducted during the 2011-2012 wet weather season between October 2010 and May 2011. (Appendix A, Form 4). The detailed inspection forms are provided in Appendix E.

The monthly observations during the wet season 2011-2012 did reveal some brown color, turbidity, and some floatables, and some sheen at certain locations at the stormwater discharges from: North Fork Strawberry Creek, Chicken Creek, East Canyon Outfall, Winter Creek and Pineapple Creek effluent and influent location as well as some selected industrial areas. The foam suds were likely naturally formed from the fatty acids from decomposing plant and animals (dead organic material) that act as a surface tension reducing agent. The turbidity was probably caused by remobilization within the creek and the floatables are due to intense stormwater run-off.

The monthly observations during October, November, January, March, and April indicated that a slight oil-sheen was witnessed at the Blackberry Parking Lot, Building 76 fueling station monitoring location, and Bus Parking Location in front of Building 64. The Building 76 fueling station monitoring location had an oil sheen during October 2011, November 2011, January, March, and April 2012 observations. At the Blackberry parking and bus parking locations an oil sheen has been observed during every month except for the months of December 2011, January, February, March, and May for the Blackberry parking lot. At Building 64, an oil sheen was observed also every month, except for the months of December 2011, February, April, and May. The sheen is attributable to dripping oil/ gasoline out of personal vehicles. At all those locations oil absorbent pads have been installed in the drain inlets; in addition, frequent replacement of the pads was implemented to address the witnessed oil sheen. It should be observed that during the 2011-12 wet season stormwater monitoring events all the oil and grease data was below the stormwater benchmark of 15 mg/L.

The monthly observations during March 2011 have shown moderate levels of turbidity in the stormwater discharges at all the industrial monitoring locations except for Building 85. The moderate turbidity was attributed to the intensity of this storm event after a few weeks of dry weather. Turbidity and cloudiness was also witnessed at Building 77-79, Metal Fabrication, Storage, and Scrap Recycling, during the first 2 months of the wet season. More frequent sweeping of the yard and strategic removal of debris accumulated on the filters were implemented shortly after these observations.

3.0
SWPPP Review and Revisions

3.1 Review and Effectiveness of Existing Best Management Practices

The following BMP discussion will focus on the industrial storm water sampling points and specifically on the monitoring results from the samples collected at these industrial locations on February 7, 2012 and on March 13, 2012.

Based on the 2011-2012 Facility inspections and monitoring events, the latest implemented BMPs appear adequate to control industrial discharges with the exception of the following parameters that exceeded benchmark values during the February 7, 2012 monitoring event:

- At the Building 77/79 Metal Fabrication and Scrap Recycling Yard, the measured level of zinc was 0.13 mg/l, exceeding the benchmark goals of 0.117 mg/l for zinc.
- Magnesium at Building 85, Lower and Upper Yard, HWHF was measured at a level exceeding the benchmark goal of 0.0636 mg/L; however, a study had determined the source of the magnesium to be the magnesium found naturally in the soil surrounding both yards. This investigative study was documented in a Technical Memorandum that is included in Appendix B.

A second storm event was sampled on March 13, 2011, with the following parameters that exceeded the benchmark values:

- At the Building 77/79 Metal Fabrication and Scrap Recycling Yard, the measured level of Chemical Oxygen Demand (COD) was 140 milligrams per liter (mg/l) and the level for zinc was 0.4 mg/l, exceeding the benchmark goals of 120 mg/l for COD and 0.117 mg/l for zinc.
- At the Building 85 Hazardous Waste Handling Facility's Lower Yard, cyanide was detected at 0.08 mg/l, exceeding the benchmark goal of 0.06 mg/l. An investigative study will be performed to determine the source of cyanide.
- The benchmark goal for magnesium was also exceeded at the Building 85 Hazardous Waste Handling Facility Lower and Upper Yards; however, a study had determined the source of the magnesium to be the magnesium found naturally in the soil surrounding both yards. This investigative study was documented in a Technical Memorandum that is included in Appendix B.

3.2 Additional and Planned BMPs

Additional BMPs that will be implemented based on the monthly visual observation during the wet season stormwater discharges are listed in the appropriate forms provided in Appendix A. Additional and Planned BMPs based on the February 7 and March 13, 2012 storm events are as follows:

- At the Building 77/79 Metal Fabrication and Scrap Recycling Yard, the measured level for zinc was 0.13 mg/L and 0.4 mg/l, for the first and second storm event respectively, exceeding the benchmark goals of 0.117 mg/l for zinc. As a result, the surface cleaning frequency of the work areas will be increased to

minimize the accumulation of zinc on the yard. Specifically, it was determined following the 2012 monitoring that pressure washing the Building 77/79 yard will be performed on a monthly basis (prior to the rainy season at the end of August, once during September, October, November, December, January, February, March, and April). Prior investigative studies have been performed to determine the source of zinc and it was determined that the solid forklift tires contain significant amounts of zinc.

- At the Building 77/79 Metal Fabrication and Scrap Recycling Yard, the measured level of Chemical Oxygen Demand (COD) was 140 milligrams per liter (mg/l) during the March 13, 2012 Stormwater sampling event which exceeded the benchmark goals of 120 mg/l. The stormwater runoff was re-sampled on April 13, 2012 to determine if COD was still present in stormwater runoff at the Building 77-79 Metal Fabrication and Scrap Recycling Yard. The measured level of COD was 23 milligrams per liter (mg/l) during the April 13, 2012 re- sampling event, which is well below the benchmark goal of 120 mg/l. Even though the re-sampling event results were below the benchmark, the surface cleaning frequency will be increased to minimize the future increased COD levels. Specifically, it was determined that pressure washing the yard should be performed on a monthly basis (prior to the rainy season at the end of August, once during September, October, November, December, January, February, March, and April).
- At the Building 85 Hazardous Waste Handling Facility's Lower Yard, cyanide was detected at 0.08 mg/l, exceeding the benchmark goal of 0.06 mg/l during the March 13, 2012 Stormwater sampling event. The Lower Yard area is under seismic retrofit construction and no hazardous waste loading or unloading activities took place for several months prior to the rain event; however, an accidental release of fire retardant occurred in the building on March 1, 2012. The fire retardant powder was analyzed to determine if there are trace amounts of cyanide in the material; however, the analytical results show that no cyanide was detected in the fire retardant. In addition, stormwater runoff was re-sampled on April 13, 2012 to determine if cyanide is still present from the Building 85 Hazardous Waste Handling Facility's Lower Yard. Cyanide was not detected above the reporting limit of 0.01 mg/l during the April 13, 2012 stormwater re-sampling event. Cyanide will continue to be monitored during future stormwater sampling events as identified in our *Alternative Stormwater Monitoring Plan*.

3.3 Revisions to Stormwater Pollution Prevention Plan

The identified new BMPs will be implemented by September 30, 2012, subject to Regional Board approval. A revised SWPPP will be implemented within 90 days in accordance with the General Permit requirements.

4.0
References

Environmental Services Group, Lawrence Berkeley National Laboratory, Berkeley, California, *Storm Water Monitoring Program*, November 2005 (ESG, 2005).

Environmental Services Group, Lawrence Berkeley National Laboratory, Berkeley, California, *Alternative Storm Water Monitoring Program*, September 2009 (ESG, 2009).

Environmental Services Group, Environmental, Health and Safety Division, Ernest Orlando Lawrence Berkeley National Laboratory, *Storm Water Pollution Prevention Plan, Revision 11*, May 2012 (ESG, 2012).

Environmental Services Group, Environmental, Health and Safety Division, *Data Quality Objectives and Assessment, Procedure 252*, April 15, 2010 (ESG, 2010).

Environmental Services Group, Environmental, Health and Safety Division, *Surface Water Sampling Procedure, Procedure 263*, June 10, 2012 (ESG, 2012).

State Water Resources Control Board (State Water Board), *Water Quality Order No. 97-03-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit), Waste Discharge Requirements (WDRs) For Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*, Adopted 1997 (SWRCB, 1997).

United States Environmental Protection Agency (USEPA), *Final Modification of the National Pollutant Discharge Elimination Systems (NDPES) Storm Water Multi-Sector General Permit for Industrial Activities; Termination of the EPA NPDES Storm Water Baseline Industrial General Permit, Washington D.C Federal Register*, September 30, 1998 (USEPA, 1998).

Appendix A

2011-2012 Annual Report

To Interested Parties:

2011-2012 ANNUAL REPORT ANNUAL REPORT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES

Storm Water Multi-Application Reporting and Tracking System (SMARTS) allows an individual discharger to file and submit their Annual Report electronically to the Regional Water Board. Currently SMARTS is not a mandatory reporting method, but we encourage all dischargers to register and use SMARTS.

To register to use SMARTS please visit: https://smarts.waterboards.ca.gov and download the SMARTS LRP registration form and instructions. Please fill out the form and mail it back to: SMARTS Registration, P.O. Box 1977, Sacramento, CA 95812. Once a complete registration form is received, a login name and password will be emailed to you.

For SMARTS registration questions or information please contact the SMARTS help center at 1-866-563-3107 or by email at smarts@waterboards.ca.gov.

To receive email updates on Storm Water Industrial permitting issues, please sign up at http://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml The Storm Water program currently maintains five email lists:

- Storm Water Database Issues
- Storm Water Construction Permitting Issues
- Storm Water Industrial Permitting Issues
- Storm Water Municipal Permitting Issues
- Sustainable Development

For all other permitting questions please contact the Storm Water Section at 1-866-563-3107 or by email at stormwater@waterboards.ca.gov.

Sincerely,

Storm Water Section

State of California
STATE WATER RESOURCES CONTROL BOARD

2011-2012

ANNUAL REPORT

FOR
STORM WATER DISCHARGES ASSOCIATED
WITH INDUSTRIAL ACTIVITIES

Reporting Period July 1, 2011 through June 30, 2012

An annual report is required to be submitted to your local Regional Water Quality Control Board (Regional Board) by July 1 of each year. This document must be certified and signed, under penalty of perjury, by the appropriate official of your company. Many of the Annual Report questions require an explanation. Please provide explanations on a separate sheet as an attachment. **Retain a copy of the completed Annual Report for your records.**

Please circle or highlight any information contained in Items A, B, and C below that is new or revised so we can update our records. Please remember that a Notice of Termination and new Notice of Intent are required whenever a facility operation is relocated or changes ownership.

If you have any questions, please contact your Regional Board Industrial Storm Water Permit Contact. The names, telephone numbers and e-mail addresses of the Regional Board contacts, as well as the Regional Board office addresses can be found at http://www.waterboards.ca.gov/stormwtr/contact.html. To find your Regional Board information, match the first digit of your WDID number with the corresponding number that appears in parenthesis on the first line of each Regional Board office.

GENERAL INFORMATION:

Facility WDID No: **2 01I002421**

A. Facility Information:

Facility Business Name: **Lawrence Berkeley National Laboratory** **Contact Person:** **Tim Bauters**

Physical Address: **1 Cyclotron Road** **e-mail:** **Twbauters@lbl.gov**

City: **Berkeley** State: **California** Zip: **94720** Phone: **(510) 486-5381**

Standard Industrial Classification (SIC) Code(s): **3499, 4173, 4953, 5093**

B. Facility Operator Information:

Operator Name: **Lawrence Berkeley National Laboratory** **Contact Person:** **Tim Bauters**

Mailing Address: **1 Cyclotron Road, MS85B0198** **e-mail:** **Twbauters@lbl.gov**

City: **Berkeley** State: **California** Zip: **94720** Phone: **(510) 486-5381**

C. Facility Billing Information:

Operator Name: **Lawrence Berkeley National Laboratory** **Contact Person:** **Ron Pauer**

Mailing Address: **1 Cyclotron Road, MS85B0198** **e-mail:** **Ropauer@lbl.gov**

City: **Berkeley** State: **California** Zip: **94720** Phone: **(510) 486-7614**

2011-2012

ANNUAL REPORT

SPECIFIC INFORMATION

MONITORING AND REPORTING PROGRAM

D. SAMPLING AND ANALYSIS EXEMPTIONS AND REDUCTIONS

1. For the reporting period, was your facility exempt from collecting and analyzing samples from **two** storm events in accordance with sections B.12 or 15 of the General Permit?

   ☐ **YES** Go to Item D.2 ☒ **NO** Go to Section E

2. Indicate the reason your facility is exempt from collecting and analyzing samples from **two** storm events. Attach a copy of the first page of the appropriate certification if you check boxes ii, iii, iv, or v.

   i. ☐ Participating in an Approved Group Monitoring Plan **Group Name:**_____

   m_____

   ii. ☐ Submitted **No Exposure Certification (NEC)** Date Submitted**:** _____/_____/_____

   Re-evaluation Date**:** ___/___/_____

   Does facility continue to satisfy NEC conditions? ☐ YES ☐ NO

   iii. ☐ Submitted **Sampling Reduction Certification (SRC)** Date Submitted**:** _____/_____/_____

   Re-evaluation Date**:** ___/___/_____

   Does facility continue to satisfy SRC conditions? ☐ YES ☐ NO

   iv. ☐ Received Regional Board Certification Certification Date**:** _____/_____/_____

   v. ☐ Received Local Agency Certification Certification Date**:** _____/_____/_____

3. If you checked boxes i or iii above, were you scheduled to sample **one** storm event during the reporting year?

   ☐ **YES** Go to Section E ☐ **NO** Go to Section F

4. If you checked boxes ii, iv, or v, go to Section F.

E. SAMPLING AND ANALYSIS RESULTS

1. How many storm events did you sample? _2___

   If less than 2, **attach explanation** (if you checked item D.2.i or iii. above, only attach explanation if you answer "0").

2. Did you collect storm water samples from the first storm of the wet season that produced a discharge during scheduled facility operating hours? (Section B.5 of the General Permit)

   ☐ **YES** ☒ **NO** **attach explanation** **(Please note that if you do not sample the first storm event, you are still required to sample 2 storm events)**

3. How many storm water discharge locations are at your facility? _6 monitored industry specific sampling locations_

4. For each storm event sampled, did you collect and analyze a sample from each of the facility's' storm water discharge locations? ☒ YES, go to Item E.6 ☐ NO

5. Was sample collection or analysis reduced in accordance with Section B.7.d of the General Permit? ☐ YES ☒ NO, **attach explanation**

   If "YES", **attach documentation** supporting your determination that two or more drainage areas are substantially identical.

   Date facility's drainage areas were last evaluated 5/23/2012

6. Were all samples collected during the first hour of discharge? ☒ YES ☐ NO, **attach explanation**

7. Was all storm water sampling preceded by three (3) working days without a storm water discharge? ☒ YES ☐ NO, **attach explanation**

8. Were there any discharges of storm water that had been temporarily stored or contained? (such as from a pond) ☒ YES ☐ NO, go to Item E.10

9. Did you collect and analyze samples of temporarily stored or contained storm water discharges from two storm events? (or one storm event if you checked item D.2.i or iii. above) ☒ YES ☐ NO, **attach explanation**

10. Section B.5. of the General Permit requires you to analyze storm water samples for pH, Total Suspended Solids (TSS), Specific Conductance (SC), Total Organic Carbon (TOC) or Oil and Grease (O&G), other pollutants likely to be present in storm water discharges in significant quantities, and analytical parameters listed in Table D of the General Permit.

    a. Does Table D contain any additional parameters related to your facility's SIC code(s)? ☒ YES ☐ NO, Go to Item E.11

    b. Did you analyze all storm water samples for the applicable parameters listed in Table D? ☒ YES ☐ NO

    c. If you did not analyze all storm water samples for the applicable Table D parameters, check one of the following reasons:

    _____ In prior sampling years, the parameter(s) have not been detected in significant quantities from two consecutive sampling events. **Attach explanation**

    _____ The parameter(s) is not likely to be present in storm water discharges and authorized non-storm water discharges in significant quantities based upon the facility operator's evaluation. **Attach explanation**

    _____ Other. **Attach explanation**

11. For each storm event sampled, attach a copy of the laboratory analytical reports and report the sampling and analysis results using **Form 1** or its equivalent. The following must be provided for each sample collected:

- Date and time of sample collection
- Name and title of sampler
- Parameters tested
- Name of analytical testing laboratory
- Discharge location identification
- Testing results
- Test methods used
- Test detection limits
- Date of testing
- Copies of the laboratory analytical results

F. QUARTERLY VISUAL OBSERVATIONS

1. **Authorized Non-Storm Water Discharges**

Section B.3.b of the General Permit requires quarterly visual observations of all authorized non-storm water discharges and their sources.

a. Do authorized non-storm water discharges occur at your facility?

☒ **YES** ☐ **NO** Go to Item F.2

b. Indicate whether you visually observed all authorized non-storm water discharges and their sources during the quarters when they were discharged. **Attach an explanation for any "NO" answers**. Indicate "N/A" for quarters without any authorized non-storm water discharges.

July-September	☐ **YES**	☒ **NO**	☐ **N/A**	October-December	☐ **YES**	☒ **NO**	☐ **N/A**
January-March	☐ **YES**	☒ **NO**	☐ **N/A**	April-June	☐ **YES**	☒ **NO**	☐ **N/A**

c. Use **Form 2** to report quarterly visual observations of authorized non-storm water discharges or provide the following information:

i. name of each authorized non-storm water discharge
ii. date and time of observation
iii. source and location of each authorized non-storm water discharge
iv. characteristics of the discharge at its source and impacted drainage area/discharge location
v. name, title, and signature of observer
vi. **any** new or revised BMPs necessary to reduce or prevent pollutants in authorized non-storm water discharges. Provide new or revised BMP implementation date.

2. **Unauthorized Non-Storm Water Discharges**

Section B.3.a of the General Permit requires quarterly visual observations of all drainage areas to detect the presence of unauthorized non-storm water discharges and their sources.

a. Indicate whether you visually observed all drainage areas to detect the presence of unauthorized non- storm water discharges and their sources. **Attach an explanation for any "NO" answers**.

July-September	☒ **YES**	☐ **NO**	October-December	☒ **YES**	☐ **NO**
January-March	☒ **YES**	☐ **NO**	April-June	☒ **YES**	☐ **NO**

b. Based upon the quarterly visual observations, were any unauthorized non-storm water discharges detected?

☐ **YES** ☒ **NO** Go to Item F.2.d

c. Have each of the unauthorized non-storm water discharges been eliminated or permitted?

☐ **YES** ☐ **NO** **Attach explanation**

d. Use **Form 3** to report quarterly unauthorized non-storm water discharge visual observations or provide the following information:

i. name of each unauthorized non-storm water discharge
ii. date and time of observation
iii. source and location of each unauthorized non-storm water discharge
iv. characteristics of the discharge at its source and impacted drainage area/discharge location
v. name, title, and signature of observer
vi. **any** corrective actions necessary to eliminate the source of each unauthorized non-storm water discharge and to clean impacted drainage areas. Provide date unauthorized non-storm water discharge(s) was eliminated or scheduled to be eliminated.

G. MONTHLY WET SEASON VISUAL OBSERVATIONS

Section B.4.a of the General Permit requires you to conduct monthly visual observations of storm water discharges at all storm water discharge locations during the wet season. These observations shall occur during the first hour of discharge or, in the case of temporarily stored or contained storm water, at the time of discharge.

1. Indicate below whether monthly visual observations of storm water discharges occurred at all discharge locations. **Attach an explanation for any "NO" answers**. Include in this explanation whether any eligible storm events occurred during scheduled facility operating hours that did not result in a storm water discharge, and provide the date, time, name and title of the person who observed that there was no storm water discharge.

	YES	NO		YES	NO
October	☒	☐	February	☒	☐
November	☒	☐	March	☒	☐
December	☒	☐	April	☒	☐
January	☒	☐	May	☒	☐

2. Report monthly wet season visual observations using **Form 4** or provide the following information:

   a. date, time, and location of observation
   b. name and title of observer
   c. characteristics of the discharge (i.e., odor, color, etc.) and source of any pollutants observed
   d. **any** new or revised BMPs necessary to reduce or prevent pollutants in storm water discharges. Provide new or revised BMP implementation date.

ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION (ACSCE)

H. ACSCE CHECKLIST

Section A.9 of the General Permit requires the facility operator to conduct one ACSCE in each reporting period (July 1-June 30). Evaluations must be conducted within 8-16 months of each other. The SWPPP and monitoring program shall be revised and implemented, as necessary, within 90 days of the evaluation. The checklist below includes the minimum steps necessary to complete a ACSCE. Indicate whether you have performed each step below. **Attach an explanation for any "NO" answers.**

1. Have you inspected all potential pollutant sources and industrial activities areas? ☒ YES ☐ NO
   The following areas should be inspected:

   - areas where spills and leaks have occurred during the last year
   - outdoor wash and rinse areas
   - process/manufacturing areas
   - loading, unloading, and transfer areas
   - waste storage/disposal areas
   - dust/particulate generating areas
   - erosion areas
   - building repair, remodeling, and construction
   - material storage areas
   - vehicle/equipment storage areas
   - truck parking and access areas
   - rooftop equipment areas
   - vehicle fueling/maintenance areas
   - non-storm water discharge generating areas

2. Have you reviewed your SWPPP to assure that its BMPs address existing potential pollutant sources and industrial activities areas? ☒ YES ☐ NO

3. Have you inspected the entire facility to verify that the SWPPP's site map is up-to-date? The following site map items should be verified: ☒ YES ☐ NO

   - facility boundaries
   - outline of all storm water drainage areas
   - areas impacted by run-on
   - storm water discharges locations
   - storm water collection and conveyance system
   - structural control measures such as catch basins, berms, containment areas, oil/water separators, etc.

4. Have you reviewed all General Permit compliance records generated since the last annual evaluation? ☒ YES ☐ NO

   The following records should be reviewed:

   - quarterly authorized non-storm water discharge visual observations
   - monthly storm water discharge visual observation
   - records of spills/leaks and associated clean-up/response activities
   - quarterly unauthorized non-storm water discharge visual observations
   - Sampling and Analysis records
   - preventative maintenance inspection and maintenance records

5. Have you reviewed the major elements of the SWPPP to assure compliance with the General Permit? ☒ YES ☐ NO

   The following SWPPP items should be reviewed:

   - pollution prevention team
   - list of significant materials
   - description of potential pollutant sources
   - assessment of potential pollutant sources
   - identification and description of the BMPs to be implemented for each potential pollutant source

6. Have you reviewed your SWPPP to assure that a) the BMPs are adequate in reducing or preventing pollutants in storm water discharges and authorized non-storm water discharges, and b) the BMPs are being implemented? ☒ YES ☐ NO

   The following BMP categories should be reviewed:

   - good housekeeping practices
   - spill response
   - employee training
   - erosion control
   - quality assurance
   - preventative maintenance
   - material handling and storage practices
   - waste handling/storage
   - structural BMPs

7. Has all material handling equipment and equipment needed to implement the SWPPP been inspected? ☒ YES ☐ NO

I. ACSCE EVALUATION REPORT

The facility operator is required to provide an evaluation report that includes:

- identification of personnel performing the evaluation
- the date(s) of the evaluation
- necessary SWPPP revisions
- schedule for implementing SWPPP revisions
- any incidents of non-compliance and the corrective actions taken

Use **Form 5** to report the results of your evaluation or develop an equivalent form.

J. ACSCE CERTIFICATION

The facility operator is required to certify compliance with the Industrial Activities Storm Water General Permit. To certify compliance, both the SWPPP and Monitoring Program must be up to date and be fully implemented.

Based upon your ACSCE, do you certify compliance with the Industrial Activities Storm Water General Permit? ☒ YES ☐ NO

If you answered "NO" **attach an explanation** to the ACSCE Evaluation Report why you are not in compliance with the Industrial Activities Storm Water General Permit.

2011-2012
ANNUAL REPORT

ATTACHMENT SUMMARY

Answer the questions below to help you determine what should be attached to this annual report. Answer NA (Not Applicable) to questions 2-4 if you are not required to provide those attachments.

1.	Have you attached Forms 1,2,3,4, and 5 or their equivalent?	☒ YES (Mandatory)		
2.	If you conducted sampling and analysis, have you attached the laboratory analytical reports?	☒ YES	☐ NO	☐ NA
3.	If you checked box II, III, IV, or V in item D.2 of this Annual Report, have you attached the first page of the appropriate certifications?	☐ YES	☐ NO	☒ NA
4.	Have you attached an explanation for each "NO" answer in items E.1, E.2, E.5-E.7, E.9, E.10.c, F.1.b, F.2.a, F.2.c, G.1, H.1-H.7, or J?	☒ YES	☐ NO	☐ NA

ANNUAL REPORT CERTIFICATION

I am duly authorized to sign reports required by the INDUSTRIAL ACTIVITIES STORM WATER GENERAL PERMIT (see Standard Provision C.9) and I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name: DOUGLAS M. FLEMING

Signature: _____ Date: 06-14-12

Title: DIVISION DIRECTOR EHS

DESCRIPTION OF BASIC ANALYTICAL PARAMETERS

The Industrial Activities Storm Water General Permit (General Permit) requires you to analyze storm water samples for at least four parameters. These are pH, Total Suspended Solids (TSS), Specific Conductance (SC),and Total Organic Carbon (TOC). Oil and Grease (O&G) may be substituted for TOC. In addition, you must monitor for any other pollutants which you believe to be present in your storm water discharge as a result of industrial activity and analytical parameters listed in Table D of the General Permit. There are no numeric limitations for the parameters you test for.

The four parameters which the General Permit requires to be tested are considered *indicator* parameters. In other words, regardless of what type of facility you operate, these parameters are nonspecific and general enough to usually provide some indication whether pollutants are present in your storm water discharge. The following briefly explains what each of these parameters mean:

pH is a numeric measure of the hydrogen-ion concentration. The neutral, or acceptable, range is within 6.5 to 8.5. At values less than 6.5, the water is considered acidic; above 8.5 it is considered alkaline or basic. An example of an acidic substance is vinegar, and a alkaline or basic substance is liquid antacid. Pure rainfall tends to have a pH of a little less than 7. There may be sources of materials or industrial activities which could increase or decrease the pH of your storm water discharge. If the pH levels of your storm water discharge are high or low, you should conduct a thorough evaluation of all potential pollutant sources at your site.

Total Suspended Solids (TSS) is a measure of the undissolved solids that are present in your storm water discharge. Sources of TSS include sediment from erosion of exposed land, and dirt from impervious (i.e. paved) areas. Sediment by itself can be very toxic to aquatic life because it covers feeding and breeding grounds, and can smother organisms living on the bottom of a water body. Toxic chemicals and other pollutants also adhere to sediment particles. This provides a medium by which toxic or other pollutants end up in our water ways and ultimately in human and aquatic life. TSS levels vary in runoff from undisturbed land. It has been shown that TSS levels increase significantly due to land development.

Specific Conductance (SC) is a numerical expression of the ability of the water to carry an electric current. SC can be used to assess the degree of mineralization, salinity, or estimate the total dissolved solids concentration of a water sample. Because of air pollution, most rain water has a SC a little above zero. A high SC could affect the usability of waters for drinking, irrigation, and other commercial or industrial use.

Total Organic Carbon (TOC) is a measure of the total organic matter present in water. (All organic matter contains carbon) This test is sensitive and able to detect small concentrations of organic matter. Organic matter is naturally occurring in animals, plants, and man. Organic matter may also be man made (so called synthetic organics). Synthetic organics include pesticides, fuels, solvents, and paints. Natural organic matter utilizes the oxygen in a receiving water to biodegrade. Too much organic matter could place a significant oxygen demand on the water, and possibly impact its quality. Synthetic organics either do not biodegrade or biodegrade very slowly. Synthetic organics are a source of toxic chemicals that can have adverse affects at very low concentrations. Some of these chemicals bioaccumulate in aquatic life. If your levels of TOC are high, you should evaluate all sources of natural or synthetic organics you may use at your site.

Oil and Grease (O&G) is a measure of the amount of oil and grease present in your storm water discharge. At very low concentrations, O&G can cause a sheen (that floating "rainbow") on the surface of water (1 qt. of oil can pollute 250,000 gallons of water). O&G can adversely affect aquatic life and create unsightly floating material and film on water, thus making it undrinkable. Sources of O&G include maintenance shops, vehicles, machines and roadways.

If you have any questions regarding whether or not your constituent concentrations are too high, please contact your local Regional Board office. The United States Environmental Protection Agency (USEPA) has published stormwater discharge benchmarks for a number of parameters. These benchmarks may be helpful when evaluating whether additional BMPs are appropriate. These benchmarks can be accessed at our website at http://www.waterboards.ca.gov. It is contained in the Sampling and Analysis Reduction Certification.

See Storm Water Contacts at

http://www.waterboards.ca.gov/water_issues/programs/stormwater/contact.shtml

2011- 2012

ANNUAL REPORT
FORM 1-SAMPLING & ANALYSIS RESULTS
FIRST STORM EVENT (Alternative Storm Water Monitoring Program)

- If analytical results are less than the detection limit (or non detectable), show the value as less than the numerical value of the detection limit (example: <.05)
- If you did not analyze for a required parameter, do not report "0". Instead, leave the appropriate box blank
- When analysis is done using portable analysis (such as portable pH meters, SC meters, etc.), indicate "PA" in the appropriate test method used box.
- Make additional copies of this form as necessary.

NAME OF PERSON COLLECTING SAMPLE(S): Tim Bauters **TITLE:** Program Manager **SIGNATURE:** _____

DESCRIBE DISCHARGE LOCATION	DATE / TIME OF SAMPLE LOCATION	TIME DISCHARGE STARTED	BASIC PARAMETERS pH	TSS	SC	O&G	Nitrate+ Nitrite (as N)	Al Fe Zn	Cu	Pb	COD	As Cd Cn	Mg Hg Se Ag	NH_3 (as N)
MP-1	02/07/2012 06:05 ☒ AM ☐ PM	02/07/2012 05:50 ☒ AM ☐ PM	6.94	14	23	ND	NR	NR	NR	NR	NR	NR	NR	NR
MP-2	02/07/2012 06:40 ☒ AM ☐ PM	02/07/2012 05:50 ☒ AM ☐ PM	6.57	12	100	ND	NR	NR	NR	NR	NR	NR	NR	NR
MP-3	02/07/2012 06:12 ☒ AM ☐ PM	02/07/2012 05:50 ☒ AM ☐ PM	6.86	6	49	ND	0.21	0.14 0.23 0.13	0.018	ND	28	NR	NR	NR
MP-4	02/07/2012 07:15 ☒ AM ☐ PM	02/07/2012 05:50 ☒ AM ☐ PM	7.14	ND	45	ND	NR	NR	NR	ND	ND	ND ND ND	0.36 ND ND ND	0.27
MP-5	02/07/2012 07:05 ☒ AM ☐ PM	02/07/2012 05:50 ☒ AM ☐ PM	7.35	ND	11	ND	NR	NR	NR	ND	ND	ND ND ND	0.14 ND ND ND	0.23
MP-6	02/07/2012 05:57 ☒ AM ☐ PM	02/07/2012 05:50 ☒ AM ☐ PM	6.91	19	68	ND	NR	NR	NR	NR	NR	NR	NR	NR
TEST REPORTING UNITS:			pH Units	mg/L	µmhos/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg O/L	mg/L	mg/L	mg/L
TEST METHOD DETECTION LIMIT:			0.01	1.0	1.0	5.0	0.1	0.05-0.01	0.005	0.001	10	0.005-0.05	0.0002-0.001	0.1
TEST METHOD USED:			SM 4500 HB	SM 2540D	USEPA 120.1 or SM 2510B	USEPA 1664	USEPA 300.0 or 353.2	USEPA 200.7	USEPA 200.7	USEPA 200.7	USEPA 410.4	USEPA 200.7 335.4	USEPA 245.1 200.7	USEPA 353.2
ANALYZED BY (SELF/LAB):			SELF	LAB	LAB	LAB	LAB	LAB	LAB	LAB	LAB	LAB	LAB	LAB

Notes: TSS = Total Suspended Solids; SC = Specific Conductance; O&G = Oil & Grease; ND = Not Detected; N = Nitrogen; NR = Not Required; Al = Aluminum; Fe = Iron; Zn = Zinc; Cu= copper; Pb = Lead; COD = Chemical Oxygen Demand; As = Arsenic; Cd = Cadmium; Cn= Cyanide; Mg = Magnesium; Hg = Mercury; Se= Selenium; Ag = Silver; NH_3 = Ammonia.

2011- 2012

ANNUAL REPORT
FORM 1-SAMPLING & ANALYSIS RESULTS
SECOND STORM EVENT (Alternative Storm Water Monitoring Program)

- If analytical results are less than the detection limit (or non detectable), show the value as less than the numerical value of the detection limit (example: <.05)
- If you did not analyze for a required parameter, do not report "0". Instead, leave the appropriate box blank
- When analysis is done using portable analysis (such as portable pH meters, SC meters, etc.), indicate "PA" in the appropriate test method used box.
- Make additional copies of this form as necessary.

NAME OF PERSON COLLECTING SAMPLE(S): John Jelinski **TITLE:** Quality Coordinator **SIGNATURE:** _____

DESCRIBE DISCHARGE LOCATION	DATE / TIME OF SAMPLE LOCATION	TIME DISCHARGE STARTED	BASIC PARAMETERS pH	TSS	SC	O&G	Nitrate+ Nitrite (as N)	Al Fe Zn	Cu	Pb	COD	As Cd Cn	Mg Hg Se Ag	NH_3 (as N)
MP-1	03/13/2012 08:40 ☒ AM ☐ PM	03/13/2012 08:15 ☒ AM ☐ PM	8.03	62	27	ND	NR	NR	NR	NR	NR	NR	NR	NR
MP-2	03/13/2012 08:55 ☒ AM ☐ PM	03/13/2012 08:15 ☒ AM ☐ PM	7.65	57	62	ND	NR	NR	NR	NR	NR	NR	NR	NR
MP-3	03/13/2012 09:00 ☒ AM ☐ PM	03/13/2012 08:15 ☒ AM ☐ PM	7.78	90	26	ND	0.11	0.5 0.85 0.4	0.043	0.024	140	NR	NR	NR
MP-4	03/13/2012 09:05 ☒ AM ☐ PM	03/13/2012 08:15 ☒ AM ☐ PM	7.63	27	76	ND	NR	NR	NR	ND	19	ND ND 0.08	1.1 ND ND ND	0.16
MP-5	03/13/2012 09:15 ☒ AM ☐ PM	03/13/2012 08:15 ☒ AM ☐ PM	7.55	4	6.9	ND	NR	NR	NR	ND	11	ND ND 0.03	0.13 ND ND ND	0.13
MP-6	03/13/2012 08:45 ☒ AM ☐ PM	03/13/2012 08:15 ☒ AM ☐ PM	7.78	13	39	6.04	NR	NR	NR	NR	NR	NR	NR	NR
TEST REPORTING UNITS:			pH Units	mg/L	µmhos/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg O/L	mg/L	mg/L	mg/L
TEST METHOD DETECTION LIMIT:			0.01	1.0	1.0	5.0	0.1	0.05-0.01	0.005	0.001	10	0.005-0.05	0.0002-0.001	0.1
TEST METHOD USED:			SM 4500 HB	SM 2540D	USEPA 120.1 or SM 2510B	USEPA 1664	USEPA 300.0 or 353.2	USEPA 200.7	USEPA 200.7	USEPA 200.7	USEPA 410.4	USEPA 200.7 335.4	USEPA 245.1 200.7	USEPA 353.2
ANALYZED BY (SELF/LAB):			SELF	LAB	LAB	LAB	LAB	LAB	LAB	LAB	LAB	LAB	LAB	LAB

Notes: TSS = Total Suspended Solids; SC = Specific Conductance; O&G = Oil & Grease; ND = Not Detected; N = Nitrogen; NR = Not Required; Al = Aluminum; Fe = Iron; Zn = Zinc; Cu= copper; Pb = Lead; COD = Chemical Oxygen Demand; As = Arsenic; Cd = Cadmium; Cn= Cyanide; Mg = Magnesium; Hg = Mercury; Se= Selenium; Ag = Silver; NH_3 = Ammonia.

2011- 2012

ANNUAL REPORT

SIDE A

FORM 2-QUARTERLY VISUAL OBSERVATIONS OF AUTHORIZED NON-STORM WATER DISCHARGES (NSWDs)

* Quarterly dry weather visual observations are required of each authorized NSWD.
- Observe each authorized NSWD source, impacted drainage area, and discharge location.
- Authorized NSWDs must meet the conditions provided in Section D (pages 5-6), of the General Permit.
- Make additional copies of this form as necessary.

QUARTER: **JULY - SEPTEMBER** DATE: August 12, 2011	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE ANY AUTHORIZED NSWD'S DISCHARGED DURING THIS QUARTER?** The SWPPP includes a number of possible authorized NSWDs. Several were observed at this time	☒ YES ☐ NO	If **YES**, Complete the reverse side of this form
QUARTER: **OCTOBER - DECEMBER** DATE: November 17, 2011	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE ANY AUTHORIZED NSWD'S DISCHARGED DURING THIS QUARTER?** The SWPPP includes a number of possible authorized NSWDs. Several were observed at this time	☒ YES ☐ NO	If **YES**, Complete the reverse side of this form
QUARTER: **JANUARY - MARCH** DATE: February 22, 2012	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE ANY AUTHORIZED NSWD'S DISCHARGED DURING THIS QUARTER?** The SWPPP includes a number of possible authorized NSWDs. Several were observed at this time	☒ YES ☐ NO	If **YES**, Complete the reverse side of this form
QUARTER: **APRIL - JUNE** DATE: May 09, 2012	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE ANY AUTHORIZED NSWD'S DISCHARGED DURING THIS QUARTER?** The SWPPP includes a number of possible authorized NSWDs, Several were observed at this time	☒ YES ☐ NO	If **YES**, Complete the reverse side of this form

2011- 2012

ANNUAL REPORT

SIDE B

FORM 2-QUARTERLY VISUAL OBSERVATIONS OF AUTHORIZED NON-STORM WATER DISCHARGES (NSWDs)

DATE /TIME OF OBSERVATION	SOURCE AND LOCATION OF AUTHORIZED NSWD EXAMPLE: AC Condensate	NAME OF AUTHORIZED NSWD EXAMPLE: Groundwater	DESCRIBE AUTHORIZED NSWD CHARACTERISTICS Indicate whether unauthorized NSWD is clear, cloudy, discolored, causing stains; contains floating objects or an oil sheen, has odors, etc.		DESCRIBE ANY REVISED OR NEW BMPs AND PROVIDE THEIR IMPLEMENTATION DATE
			AT THE NSWD SOURCE	AT THE NSWD AREA & DISCHARGE LOCATION	
08/12/2011 11:15 to ☒ AM 13:50 ☒ PM	Hydrauger discharge Hillside seepage Creek Flow Fire suppression system	Groundwater Groundwater Groundwater Fire Suppression Runoff	Clear, no staining, no floating objects, no oil sheen, no odor	Clear, no staining, no floating objects, no oil sheen, no odor	N/A
11/17/2011 12:50 to ☐ AM 14:00 ☒ PM	Hydrauger discharge Hillside seepage Creek flow	Groundwater Groundwater Groundwater	Clear, no staining, no floating objects, no oil sheen, no odor	Clear, no staining, no floating objects, no oil sheen, no odor	N/A
02/22/2012 13:00 to ☐ AM 14:00 ☒ PM	Hydrauger discharge Hillside seepage Creek Flow	Groundwater Groundwater Groundwater	Clear, no staining, no floating objects, no oil sheen, no odor	Clear, no staining, no floating objects, no oil sheen, no odor	N/A
05/09/2012 13:10 to ☒ AM 14:00 ☐ PM	Hydrauger discharge Hillside seepage Creek flow	Groundwater Groundwater Groundwater	Clear, no staining, no floating objects, no oil sheen, no odor	Clear, no staining, no floating objects, no oil sheen, no odor	N/A
☐ AM ☐ PM					

2011- 2012

ANNUAL REPORT
FORM 3-QUARTERLY VISUAL OBSERVATIONS OF UNAUTHORIZED NON-STORM WATER DISCHARGES (NSWDs)

- Unauthorized NSWDs are discharges (such as wash or rinse waters) that do not meet the conditions provided in Section D (pages 5-6) of the General Permit.
- Quarterly visual observations are required to observe current and detect prior unauthorized NSWDs.
- Quarterly visual observations are required during dry weather and at all facility drainage areas.
- Each unauthorized NSWD source, impacted drainage area, and discharge location must be identified and observed.
- Unauthorized NSWDs that can not be eliminated within 90 days of observation must be reported to the Regional Board in accordance with Section A.10.e of the General Permit.
- Make additional copies of this form as necessary.

QUARTER: **JULY - SEPTEMBER** Date/Time of Observations 08/12/2011 11:15 ☒ AM 13:50 ☒ PM	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE UNAUTHORIZED NSWD'S OBSERVED?** ☐ YES ☒ NO WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWD'S? ☐ YES ☒ NO	If **YES** to either question, complete the reverse side of this form
QUARTER: **OCTOBER -DECEMBER** Date/Time of Observations 11/17/2011 12:50 ☐ AM 14:00 ☒ PM	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE UNAUTHORIZED NSWD'S OBSERVED?** ☐ YES ☒ NO WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWD'S? ☐ YES ☒ NO	If **YES** to either question, complete the reverse side of this form
QUARTER: **JANUARY - MARCH** Date/Time of Observations 02/22/2012 13:00 ☐ AM 14:00 ☒ PM	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE UNAUTHORIZED NSWD'S OBSERVED?** ☐ YES ☒ NO WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWD'S? ☐ YES ☒ NO	If **YES** to either question, complete the reverse side of this form
QUARTER: **APRIL - JUNE** Date/Time of Observations 05/09/2012 13:10 ☐ AM 14:00 ☒ PM	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE UNAUTHORIZED NSWD'S OBSERVED?** ☐ YES ☒ NO WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWD'S? ☐ YES ☒ NO	If **YES** to either question, complete the reverse side of this form

2011- 2012

ANNUAL REPORT
FORM 3 QUARTERLY VISUAL OBSERVATIONS OF UNAUTHORIZED NON-STORM WATER DISCHARGES (NSWDs)

OBSERVATION DATE (FROM REVERSE SIDE)	**SOURCE AND LOCATION OF UNAUTHORIZED NSWD** EXAMPLE: Sewer discharge	**NAME OF UNAUTHORIZED NSWD** EXAMPLE: Sewer line Break	**DESCRIBE UNAUTHORIZED NSWD CHARACTERISTICS** Indicate whether unauthorized NSWD is clear, cloudy, discolored, causing stains; contains floating objects or an oil sheen, has odors, etc.		**ACTIONS TO ELIMINATE UNAUTHORIZED NSWD AND TO CLEAN IMPACTED DRAINAGE AREAS. PROVIDE UNAUTHORIZED NSWD ELIMINATION DATE.**
			AT THE UNAUTHORIZED NSED SOURCE	**AT THE UNAUTHORIZED NSWD AREA & DISCHARGE LOCATION**	
☐ AM ☐ PM					
☐ AM ☐ PM					
☐ AM ☐ PM					
☐ AM ☐ PM					

2011- 2012

ANNUAL REPORT

FORM 4-MONTHLY VISUAL OBSERVATIONS OF STORM WATER DISCHARGES

SIDE A

- Storm water discharge visual observations are required for at least one storm event per month between October 1 and May 31.
- Visual observations must be conducted during the first hour of discharge at all discharge locations.
- Discharges of temporarily stored or contained storm water must be observed at the time of discharge.
- Indicate "None" in the first column of this form if you did not conduct a monthly visual observation.
- Make additional copies of this form as necessary.
- Until a monthly visual observation is made, record any eligible storm events that do not result in a storm water discharge and note the date, time, name, and title of who observed there was no storm water discharge.

OBSERVATION DATE: October 03, 2011	Drainage Location Description	**North Fork Strawberry Creek Drainage Area**	**Chicken Creek Drainage Area**	**Winter & Pineapple Creek Drainage Areas**	**Storm Water Sampling Sites (MP1-MP6)**
Observer Name: John Jelinski	Observation Time	10/03/2011 ☐ AM 1605-1655 ☒ PM	10/03/2011 ☐ AM 1605-1655 ☒ PM	10/03/2011 ☐ AM 1605-1655 ☒ PM	10/03/2011 ☐ AM 1605-1655 ☒ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	10/03/2011 ☐ AM After 0900 ☒ PM	10/03/2011 ☐ AM After 0900 ☒ PM	10/03/2011 ☐ AM After 0900 ☒ PM	10/03/2011 ☐ AM After 0900 ☒ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☒ **YES** ☐ NO	☒ **YES** ☐ NO	☒ **YES** ☐ NO	☒ **YES** ☐ NO
OBSERVATION DATE: November 03, 2011	Drainage Location Description	**North Fork Strawberry Creek Drainage Area**	**Chicken Creek Drainage Area**	**Winter & Pineapple Creek Drainage Areas**	**Storm Water Sampling Sites (MP1-MP6)**
Observer Name: John Jelinski	Observation Time	11/03/2011 ☐ AM 1455-1540 ☒ PM	11/03/2011 ☐ AM 1455-1540 ☒ PM	11/03/2011 ☐ AM 1455-1540 ☒ PM	11/03/2011 ☐ AM 1455-1540 ☒ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	11/03/2011 ☐ AM 1430 ☒ PM	11/03/2011 ☐ AM 1430 ☒ PM	11/03/2011 ☐ AM 1430 ☒ PM	11/03/2011 ☐ AM 1430 ☒ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☒ **YES** ☐ NO	☒ **YES** ☐ NO	☒ **YES** ☐ NO	☒ **YES** ☐ NO
OBSERVATION DATE: December 15, 2011	Drainage Location Description	**North Fork Strawberry Creek Drainage Area**	**Chicken Creek Drainage Area**	**Winter & Pineapple Creek Drainage Areas**	**Storm Water Sampling Sites (MP1-MP6)**
Observer Name: John Jelinski	Observation Time	12/15/2011 ☒ AM 0900-0940 ☐ PM	12/15/2011 ☒ AM 0900-0940 ☐ PM	12/15/2011 ☒ AM 0900-0940 ☐ PM	12/15/2011 ☒ AM 0900-0940 ☐ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	12/15/2011 ☐ AM No Discharge ☐ PM	12/15/2011 ☐ AM No Discharge ☐ PM	12/15/2011 ☐ AM No Discharge ☐ PM	12/15/2011 ☐ AM No Discharge ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ **YES** ☒ NO
OBSERVATION DATE: January 20, 2012	Drainage Location Description	**North Fork Strawberry Creek Drainage Area**	**Chicken Creek Drainage Area**	**Winter & Pineapple Creek Drainage Areas**	**Storm Water Sampling Sites (MP1-MP6)**
Observer Name: John Jelinski	Observation Time	01/20/2012 ☒ AM 0700-0750 ☐ PM	01/20/2012 ☒ AM 0700-0750 ☐ PM	01/20/2012 ☒ AM 0700-0750 ☐ PM	01/20/2012 ☒ AM 0700-0750 ☐ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	01/20/2012 ☒ AM 0000-0600 ☐ PM	01/20/2012 ☒ AM 0000-0600 ☐ PM	01/20/2012 ☒ AM 0000-0600 ☐ PM	01/20/2012 ☒ AM 0000-0600 ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☒ **YES** ☐ NO

2011- 2012

ANNUAL REPORT

SIDE B

FORM 4-MONTHLY VISUAL OBSERVATIONS OF STORM WATER DISCHARGES

DATE/TIME OF OBSERVATION (From Reverse Side)	**DRAINAGE AREA DESCRIPTION** EXAMPLE: Discharge from material storage Area #2	**DESCRIBE STORM WATER DISCHARGE CHARACTERISTICS** Indicate whether storm water discharge is clear, cloudy, or discolored; causing staining; containing floating objects or an oil sheen, has odors, etc.	**IDENTIFY AND DESCRIBE SOURCE(S) OF POLLUTANTS** EXAMPLE: Oil sheen caused by oil dripped by trucks in vehicle maintenance area.	**DESCRIBE ANY REVISED OR NEW BMPs AND THEIR DATE OF IMPLEMENTATION**
10/03/2011 16:05 ☐ AM 16:55 ☒ PM	1 – All Areas 2 – MP1, MP2 & MP6 3 – NF Strawberry Creek, Winter Creek, MP2 & MP3	1 – Turbidity observed 2 – Sheen observed 3 – Color observed	1 – Turbidity caused by hillside runoff/ debris from paved areas 2 – Oil sheen from paved areas, probably caused by small oil drips from parked cars or trucks 3 – Color caused by first flush runoff and debris from parking lots and roads	N/A
11/03/2011 14:55 ☐ AM 15:40 ☒ PM	1 – All Areas 2 – MP1, MP2, MP3, MP6 3 – NF Strawberry Creek, Chicken Creek & MP2	1 – Turbidity & color observed 2 – Sheen observed 3 – Floatables observed	1 – Turbidity & color caused by hillside runoff/ debris from paved areas 2 – Oil sheen from paved areas, probably caused by small oil drips from parked cars or trucks 3 – Floatables observed in Creek probably due to hillside debris, the floatables at MP2 probably due to runoff by-passing the filters	N/A
01/20/2012 07:00 ☒ AM 07:50 ☐ PM	1 – MP3 2 – MP2 & MP6	1 – Light brown color observed 2 – Oil sheen observed	1 – Light Brown colored runoff from paved areas, probably caused by small oil drips from cars or trucks 2 – Oil sheen from paved areas, probably caused by small oil drips from parked cars or trucks	N/A
☐ AM ☐ PM				

2011- 2012

ANNUAL REPORT

FORM 4-MONTHLY VISUAL OBSERVATIONS OF STORM WATER DISCHARGES (Continued)

SIDE A

- Storm water discharge visual observations are required for at least one storm event per month between October 1 and May 31.
- Visual observations must be conducted during the first hour of discharge at all discharge locations.
- Discharges of temporarily stored or contained storm water must be observed at the time of discharge.
- Indicate "None" in the first column of this form if you did not conduct a monthly visual observation.
- Make additional copies of this form as necessary.
- Until a monthly visual observation is made, record any eligible storm events that do not result in a storm water discharge and note the date, time, name, and title of who observed there was no storm water discharge.

OBSERVATION DATE: February 07, 2012	Drainage Location Description	**North Fork Strawberry Creek Drainage Area**	**Chicken Creek Drainage Area**	**Winter & Pineapple Creek Drainage Areas**	**Storm Water Sampling Sites (MP1-MP6)**
Observer Name: Tim Bauters	Observation Time	02/07/2012 0600-0950 ☒ AM ☐ PM	02/07/2012 0600-0950 ☒ AM ☐ PM	02/07/2012 0600-0950 ☒ AM ☐ PM	02/07/2012 0600-0950 ☒ AM ☐ PM
Title: Program Manager	Time Storm Event and/or Discharge Began	02/07/2012 0550 ☒ AM ☐ PM	02/07/2012 0550 ☒ AM ☐ PM	02/07/2012 0550 ☒ AM ☐ PM	02/07/2012 0550 ☒ AM ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☒ YES ☐ NO	☒ YES ☐ NO	☐ YES ☒ NO	☒ YES ☐ NO
OBSERVATION DATE: March 13, 2012	Drainage Location Description	**North Fork Strawberry Creek Drainage Area**	**Chicken Creek Drainage Area**	**Winter & Pineapple Creek Drainage Areas**	**Storm Water Sampling Sites (MP1-MP6)**
Observer Name: John Jelinski	Observation Time	03/13/2012 0840-0915 ☒ AM ☐ PM	03/13/2012 0840-0915 ☒ AM ☐ PM	03/13/2012 0840-0915 ☒ AM ☐ PM	03/13/2012 0840-0915 ☒ AM ☐ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	03/13/2012 0815 ☒ AM ☐ PM	03/13/2012 0815 ☒ AM ☐ PM	03/13/2012 0815 ☒ AM ☐ PM	03/13/2012 0815 ☒ AM ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☒ YES ☐ NO	☒ YES ☐ NO	☒ YES ☐ NO	☒ YES ☐ NO
OBSERVATION DATE: April 12, 2012	Drainage Location Description	**North Fork Strawberry Creek Drainage Area**	**Chicken Creek Drainage Area**	**Winter & Pineapple Creek Drainage Areas**	**Storm Water Sampling Sites (MP1-MP6)**
Observer Name: John Jelinski	Observation Time	04/12/2012 0830-0905 ☒ AM ☐ PM	04/12/2012 0830-0905 ☒ AM ☐ PM	04/12/2012 0830-0905 ☒ AM ☐ PM	04/12/2012 0830-0905 ☒ AM ☐ PM
Title: Quality coordinator	Time Storm Event and/or Discharge Began	04/12/2012 0230-0330 ☒ AM ☐ PM	04/12/2012 0230-0330 ☒ AM ☐ PM	04/12/2012 0230-0330 ☒ AM ☐ PM	04/12/2012 0230-0330 ☒ AM ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☒ YES ☐ NO
OBSERVATION DATE: May 03, 2012	Drainage Location Description	**North Fork Strawberry Creek Drainage Area**	**Chicken Creek Drainage Area**	**Winter & Pineapple Creek Drainage Areas**	**Storm Water Sampling Sites (MP1-MP6)**
Observer Name: John Jelinski	Observation Time	05/03/2012 1420-1500 ☐ AM ☒ PM	05/03/2012 1420-1500 ☐ AM ☒ PM	05/03/2012 1420-1500 ☐ AM ☒ PM	05/03/2012 1420-1500 ☐ AM ☒ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	05/03/2012 1415 ☐ AM ☒ PM	05/03/2012 1415 ☐ AM ☒ PM	05/03/2012 1415 ☐ AM ☒ PM	05/03/2012 1415 ☐ AM ☒ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO

2011- 2012

ANNUAL REPORT

SIDE B

FORM 4-MONTHLY VISUAL OBSERVATIONS OF STORM WATER DISCHARGES

DATE/TIME OF OBSERVATION (From Reverse Side)	**DRAINAGE AREA DESCRIPTION** EXAMPLE: Discharge from material storage Area #2	**DESCRIBE STORM WATER DISCHARGE CHARACTERISTICS** Indicate whether storm water discharge is clear, cloudy, or discolored; causing staining; containing floating objects or an oil sheen, has odors, etc.	**IDENTIFY AND DESCRIBE SOURCE(S) OF POLLUTANTS** EXAMPLE: Oil sheen caused by oil dripped by trucks in vehicle maintenance area.	**DESCRIBE ANY REVISED OR NEW BMPs AND THEIR DATE OF IMPLEMENTATION**
02/07/2012 06:00 ☒ AM 09:50 ☐ PM	NF Strawberry Creek, Chicken Creek, MP2 & MP6	Floatables observed	Hillside runoff and accumulated windblown debris in parking lot areas	N/A
03/13/2012 08:40 ☒ AM 09:15 ☐ PM	1 – All Areas 2 – MP2, MP3, & MP6 3 – MP2 & MP3 4 – MP3	1 – Turbidity observed 2 – Sheen observed 3 – Dark color observed 4 – Floatables observed	1 – Turbidity caused by intensity of this rain event 2 – Oil sheen from paved areas, probably caused by small oil drips from parked cars or trucks 3 – Dark colored runoff from paved areas, probably caused by small oil drips from parked cars or trucks 4 – Floatables observed at MP3 probably due to runoff by-passing the trench filter unit given the intensity of the rain event	N/A
04/12/2012 08:30 ☒ AM 09:05 ☐ PM	1 – MP1, MP2, & MP3 2 – MP2	1 – Sheen observed 2 – Dark color observed and Floatables observed)	1 – Oil sheen from paved areas, probably caused by small oil drips from cars or trucks 2 – Dark colored runoff from oil water separator, probably caused by small oil drips from fueling activities 2 – Floatables observed at MP2 probably due to runoff by-passing the filters	Frequency of oil water separator will be increased if judged that more frequent cleanout is necessary. Implement before the 2012-13 wet season.
05/03/2012 ☐ AM ☐ PM	N/A	N/A	N/A	N/A

2011- 2012

ANNUAL REPORT
FORM 5-ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY BMP STATUS

EVALUATION DATE: 05/23/2012 **INSPECTOR NAME:** John Jelinski **TITLE:** Quality Coordinator **SIGNATURE:** _____

EVALUATION DATE: 05/23/2012 **INSPECTOR NAME:** Tim Bauters **TITLE:** Program Manager **SIGNATURE:** _____

Potential Pollutant Source/Industrial Activity Area	BMP Implementation If YES to either question, complete the next two columns of this form.					Describe deficiencies in BMPs or BMP implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
Loading & Unloading Areas							
Industrial Activity Areas (B76, B77, B79, B85-HWHF)	Have Any BMPs not been Fully Implemented?	☒	Yes	☐	No	Housekeeping issues at B77-79 yard including presence of metal on the yard. Filter media change-outs deficient at B76 for MP2	Building manager notified on 05/23/2012. Filter media will be replaced more often in the upcoming 2012-13 wet season if deemed necessary at B76 for MP2.
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Non-Industrial Activity Areas (B69, Site-wide)	Have Any BMPs not been Fully Implemented?	☒	Yes	☐	No	Site wide there are several cardboard, paper & trash bins with open or damaged lids	Building Manager and/or custodians notified on either 05/23/2012 or 05/29/2012
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Waste Accumulation Areas (Site-wide)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Fixed Treatment Units (B70A, B77)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Material & Storage Use Areas							
Industrial Activity Areas (B76, B77, B79, B85-HWHF)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Non-Industrial Activity Areas (B69, Site-wide)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
WAA & DSA's (Site-wide)	Have Any BMPs not been Fully Implemented?	☒	Yes	☐	No	Housekeeping issues at drum storage area behind B75A. Labels on some drums are not readable	EH&S lead, David Baskin was notified on 05/29/2012 that all drums should have readable labels
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Secondary Containment (Site-wide)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	Several 2nd containment areas had effluent release valves that were unlocked and in the open position	EH&S lead, Robert Fox was notified on 05/23/2012 to assure SPCC BMPs are fully implemented
	Are Additional/revised BMPs Necessary?	☒	Yes	☐	No		
Above Ground Storage Tanks (B25, B70A, B77)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Metal & Trash Bins (Site-wide)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Outdoor Equipment-GWTS, generators, Cooling Towers	Have Any BMPs not been Fully Implemented?	☒	Yes	☐	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		

2011- 2012

ANNUAL REPORT
FORM 5-ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY BMP STATUS

EVALUATION DATE: 05/23/2012 **INSPECTOR NAME:** John Jelinski **TITLE:** Quality Coordinator **SIGNATURE:** _____

EVALUATION DATE: 05/23/2012 **INSPECTOR NAME:** Tim Bauters **TITLE:** Program Manager **SIGNATURE:** _____

Potential Pollutant Source/Industrial Activity Area	BMP Implementation If YES to either question, complete the next two columns of this form.					Describe deficiencies in BMPs or BMP implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
Vehicle Washing & Parking Areas							
Fueling Station/Motor-pool (B76)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Fire Station (B48)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Parking Areas (Site-wide)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Construction & Maintenance Areas							
B31 Staging Areas	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
B48 Fire Station Demolition	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
B71 Staging Area	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Erosion Control Measures (Site Wide)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		

2011- 2012

ANNUAL REPORT
FORM 5-ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY BMP STATUS

EVALUATION DATE: 05/23/2012 **INSPECTOR NAME:** John Jelinski **TITLE:** Quality Coordinator **SIGNATURE:** _____

EVALUATION DATE: 05/23/2012 **INSPECTOR NAME:** Tim Bauters **TITLE:** Program Manager **SIGNATURE:** _____

Potential Pollutant Source/Industrial Activity Area	BMP Implementation If YES to either question, complete the next two columns of this form.					Describe deficiencies in BMPs or BMP implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
Spills & Leaks							
B88 Fire Hydrant Rupture (08/19/2011)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	Water line was shut-off within 1 hr.	Training of PMT personnel to place de-chlorination tablets at the spill location & all storm drain inlets if at all possible in future domestic line breaks
	Are Additional/revised BMPs Necessary?	☒	Yes	☐	No		
B50 Potable Water spill (08/25/2011)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	De-chlorination tablets placed at spill location & all storm drain inlets	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
B26 Potable Water Spill (09/22/2011)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	De-chlorination tablets placed at spill location. Water fixed within 30 minutes	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
B36 Potable Water spill (09/29/2011)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	De-chlorination tablets placed at spill location & all storm drain inlets	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
B69 Fire Suppression Relief Valve Spill (09/29/2011)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	De-chlorination tablets placed at spill location & all storm drain inlets	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
B67 cooling tower spill (01/31/2012)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	New Facilities procedures implemented in the first weeks of February 2012
	Are Additional/revised BMPs Necessary?	☒	Yes	☐	No		
B90 Sanitary Sewer Overflow (02/03/2012)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	De-chlorination tablets placed at spill location & all storm drain inlets	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
	Have Any BMPs not been Fully Implemented?	☐	Yes	☐	No		
	Are Additional/revised BMPs Necessary?	☐	Yes	☐	No		
	Have Any BMPs not been Fully Implemented?	☐	Yes	☐	No		
	Are Additional/revised BMPs Necessary?	☐	Yes	☐	No		

2011-2012 Annual Report
Storm Water Discharges Associated With Industrial Activities
Lawrence Berkeley National Laboratory
Facility WDID No. 2 01I002421

EXPLANATIONS TO SPECIFIC 2011-2012 ANNUAL REPORT QUESTIONS

E.2
There was one storm event on November 11, 2011 that produced discharge; however, the storm event had a total precipitation of less than 0.250 inches and discharge volumes at one or more of the monitoring locations were too low to collect adequate sample volumes.

E.5
Sample collection and analysis was not reduced in accordance with Section B.7.d of the general Permit. On February 1st, 2009 the Regional Water Quality Control Board (RWQCB) approved LBNL's Alternative Stormwater Monitoring Plan (ASWMP).

F.1.b
Only the authorized discharges that were occurring during the quarterly observation period were inspected. It is possible that authorized non-storm water discharges may occur at other times when no quarterly observations are taking place.

G.1
For October, December, January, April and May, there were no storm events that met the criteria of the NPDES stormwater industrial permit; however, monthly observations were conducted during the best available storm event for each of those months.

Appendix B

Technical Memorandum: Hazardous Waste Handling Facility Investigate Studies

Environment, Safety, and Health Division
Environmental Services Group

Technical Memorandum

Date: 4/30/2010

To: San Francisco Regional Water Control Board

From: Tim Bauters, Stormwater Program Manager

Subject: Technical Memorandum Lawrence Berkeley National Laboratory Hazardous Waste Handling Facility Investigative Studies

Introduction

In 2009, Lawrence Berkeley National Laboratory (LBNL) implemented an *Alternative Stormwater Monitoring Plan* ("ASWMP"). The ASWMP fulfills the monitoring requirements and monitoring program objectives of California State Water Resources Control Board (SWRCB) Order No. 97-03-DWQ *National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit)*, *Waste Discharge Requirements* (WDRs) *for the Discharge of StormWater Associated with Industrial Activities Excluding Construction Activities* ("General Permit").

The ASWMP was prepared to provide a more industrial activity-specific indicator of pollutant contributions from regulated industrial activities at LBNL and thus a more reliable basis for evaluating the performance and effectiveness of Best Management Practices (BMPs) as described in the *Stormwater Pollution Prevention Plan* for the Facility (SWPPP; ESG, 2009). The specific industrial sites targeted in the ASWMP are shown on the following Figure 1 and include:

1. Storage at the Blackberry Canyon parking lot (stormwater sample location MP-1);
2. Fueling area at Building 76 (stormwater sample location MP-2);
3. Metal fabrication, storage, and recycling at Building 77 and 79 (stormwater sample location MP-3);
4. Hazardous waste storage and handling at Building 85 (stormwater sample locations MP-4 and MP-5); and,
5. Bus transportation and parking in front of Building 64 (stormwater sample location MP-6).

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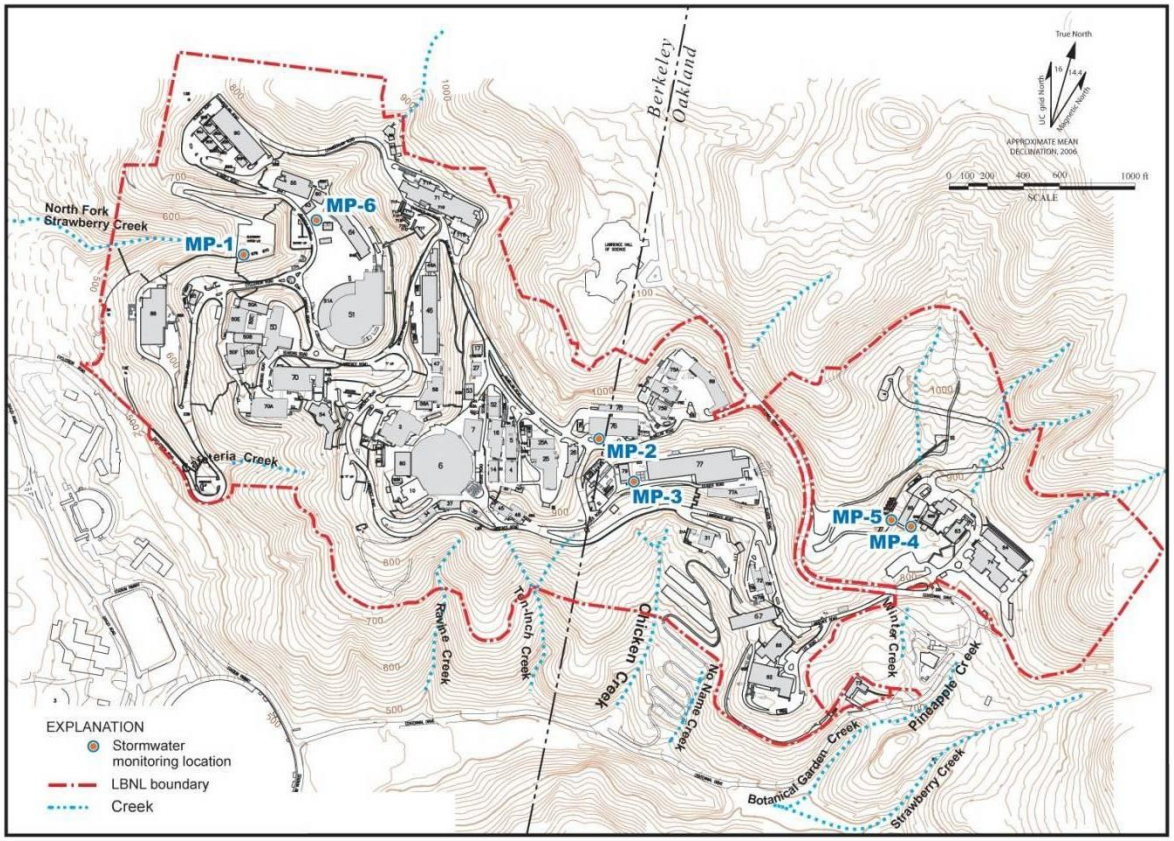

Figure 1. LBNL Facility Plan with Buildings, Topography, and Stormwater Monitoring Locations

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During the 2009/2010 storm season, stormwater samples MP-4 and MP-5 collected at the hazardous waste storage and handling area (Building 85 or B85) exceeded the bench mark values included in the ASWMP for chemical oxygen demand (COD) and Magnesium (Mg). In response, LBNL conducted an investigative study to identify the potential sources of these constituents in the B85 upper and lower yard. The 2009/2010 stormwater sample results are summarized in Table 1 along with the ASWMP benchmarks for these constituents. A schematic overview for the B85 area is shown on Figure 2.

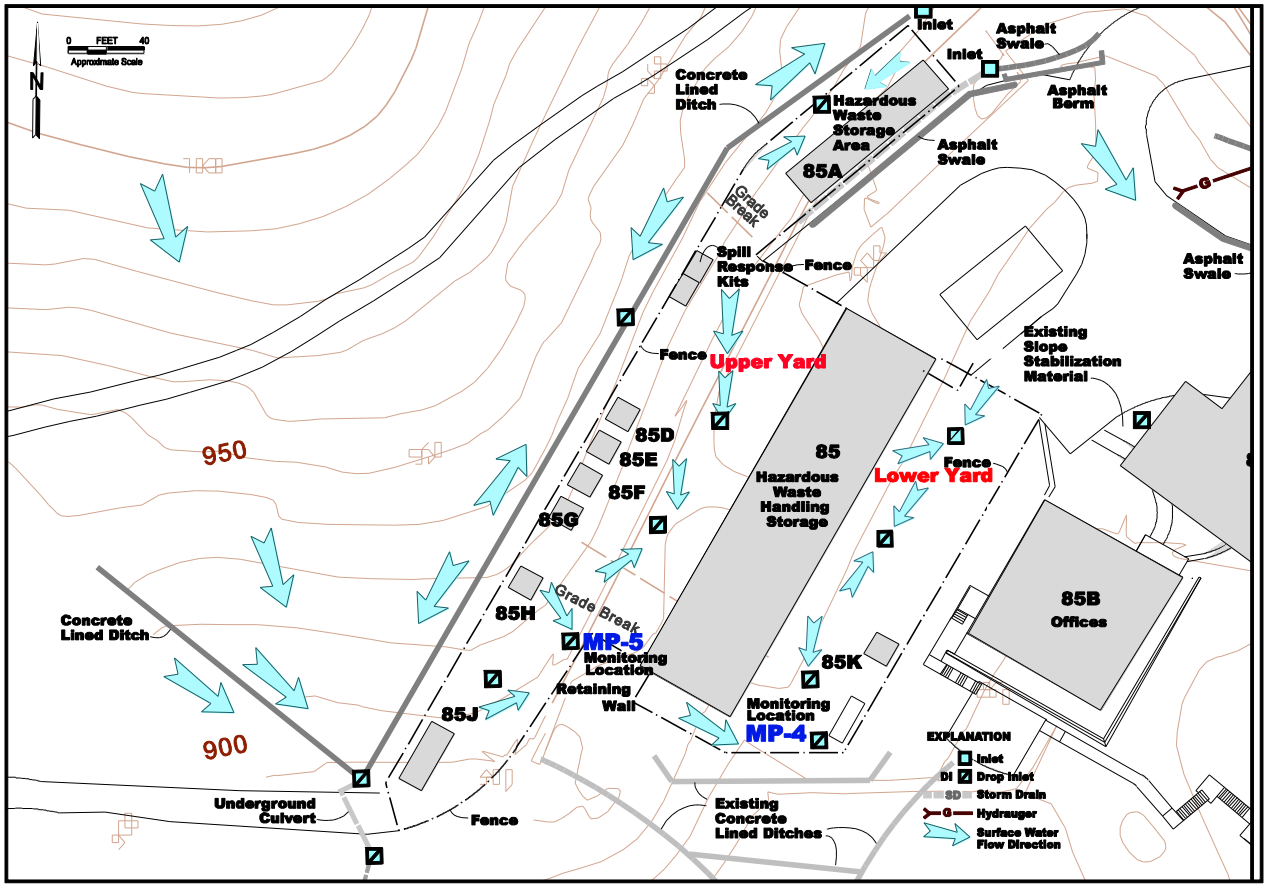

Figure 2. Schematic Overview of the Hazardous Waste Handling Facility, Building 85

The investigative studies are described in the following sections and the results are then compared and evaluated to generate proposed new benchmarks for these constituents.

Investigative Studies

In August through October 2009, LBNL performed three investigative studies to identify potential sources of COD and Mg at B85. The investigative studies targeted three potential sources of COD and Mg; 1) coated concrete surfaces, 2) the underground drainage system and 3) atmospheric deposition. The following sections include descriptions of the procedures used in performing the studies, the results of the studies, and conclusions based on the study results.

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Concrete Surface and Underground Drainage System Investigation

LBNL performed this study on August 5, 2009. The B85 area is shown on Figure 2. LBNL selected the lower yard for this study since there is less motor vehicle traffic compared to the upper yard (safety concerns) and the stormwater monitoring in the upper and lower yards yielded similar results (Table 1).

In addition to the coated concrete surfaces and the underground drainage system, stormwater run-on and spills from the hazardous waste storage and handling activities conducted at B85 are also potential stormwater pollutant sources. LBNL eliminated these two potential sources from consideration for the following reasons:

- LBNL did not consider stormwater run-on as a potential source during this investigation because the potential for stormwater run-on to be the source was previously eliminated from consideration. Between the February 6 and May 1, 2009 stormwater sampling events LBNL eliminated stormwater run-on at B85 through the implementation of BMPs. As shown in Table 1, by comparison, the COD and Mg concentrations actually increased during the May 2009 stormwater monitoring event indicating that stormwater run-on was not the source of COD or Mg at B85.
- LBNL did not consider accidental spills as a potential pollutant source since the hazardous waste handling facility at B85 keeps very detailed records of any potential spills, and no spills were recorded during the entire time period of this investigation.

Therefore, during this investigation, LBNL specifically targeted the coated concrete surface of the B85 yards and the underground drainage system beneath the B85 yards. The procedures employed by LBNL during this study include: target constituents, quality assurance, target locations, water used during the tests, and procedural details.

Procedures

The first study included using deionized (DI) water as a surrogate for rainwater to assess which portion of the drainage system might be contributing COD or Mg to the stormwater. LBNL acquired the DI from Curtis & Tompkins Laboratories of Berkeley, California (C&T).

LBNL performed the following activities and sample collection:

- LBNL sampled with a pre-cleaned bailer the accumulated waters in the MP-4 drain inlet sump before the study. The sump is an approximately 5-foot deep concrete structure measuring about 3 feet wide and 6 ft long. The sump contained about 6 inches of standing water with no visible sediments. Using these dimensions, LBNL estimates approximately 67 gallons of water was present in the sump prior to the study. This sample is referred to as “Sump Before Study”.
- LBNL poured approximately 5 gallons of DI water into the easternmost drain inlet of the lower yard (Figure 2). LBNL contained the water within the next drain inlet by temporarily plugging the downstream pipe using an acid-washed, modified 5 gallon bucket and collected a sample of this retained water using a pre-cleaned, acid-washed scoop. This sample is referred to as “Drain Pipe”.
- LBNL poured approximately 5 gallons of DI water onto the surface of the concrete yard allowing the DI water to travel over the concrete coating. LBNL then collected a sample of this water at the entrance of the middle yard drain inlet (Figure 2) using a pre-cleaned, acid-washed scoop. This sample is referred to as “Concrete Surface”.
- LBNL sampled the accumulated waters in the MP-4 drain inlet sump at the end of the study that included the water initially present plus approximately 10 gallons of DI water that LBNL added to the drainage system during the study. This sample is referred to as “Sump After Study”.

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LBNL submitted the water samples to C&T for the following analyses:

- COD by United States Environmental Agency (USEPA) Method 410.4; and,
- Mg by USEPA Method 200.7;

LBNL collected an equipment blank to assure the pre-cleaned, acid-washed sampling equipment was not contributing COD or Mg to the samples.

Results and Discussion

Analytical results from the samples collected during this study are summarized in Table 2. The Drain Pipe sample contained 220 mg/ L of COD and 2.6 mg/L of Mg. The Concrete Surface sample contained 290 mg/L COD and 2.6 mg/L Mg. During this study, COD and Mg were detected in the Concrete Surface and Drain Pipe samples at similar concentrations to what were detected as what we had measured during the prior stormwater sampling event on May 1 2009 (250 mg/ L COD and 2.2 mg/L Mg, (Table 1)). It should be noted that the equipment method blank for this investigative study was non-detect for Mg (<0.05 mg/L).

The MP-4 Sump Before Study sample contained 54 mg/L COD and 2.3 mg/L Mg. After the study, the Sump After Study sample contained a slightly higher concentration of COD consistent with what would be expected but Mg decreased. We are uncertain as to why the Mg concentration decreased.

These results indicate that the concrete surface and the drain pipe could be potential sources of the COD and Mg; however, it is also possible that COD and Mg accumulating on the concrete surface end up in the subsurface drainage system. In addition, since the Drain Pipe and Concrete Surface samples collected during the study contained concentrations of COD and Mg similar to the storm water samples collected during storm water sampling, it appears that the deionized (DI) water was an effective surrogate for rainwater.

If the concrete surface sample did not contain COD or Mg that would indicate that the drain pipe was the source. The similarities between the concrete surface, drain pipe, and May 1, 2009 stormwater samples indicates that the COD and Mg in the drain pipe could likely be from water contacting the concrete surface and flowing into the drain pipe. These results created the aerial deposition hypothesis, in summary the hypothesis assumes that COD and Mg are potentially "aerially" deposited via soil or dust particles deposited over surfaces at the facility. Hence aerial deposition on a variety of surfaces and locations were evaluated as described in the following sections.

Assessing Aerial Deposition Investigative studies

LBNL conducted two more investigative studies to assess whether or not the COD and Mg are aerially deposited on the coated concrete surface at B85. Given that the aerial deposition of those constituents should show similar COD and magnesium levels at non-industrial areas at the facility; another location beyond the B85 yards was also selected to verify the aerial deposition hypothesis. The soils in the Eastern portions of LBNL have Mg concentrations ranging from 7,400 to 12,000 mg/kg based on the last 5 years of annual soil data (available upon request).

The lower yard of B85 was again selected for the Aerial Deposition investigative study and the asphalt pad near the upper water tower was selected as a non-industrial location. The rationale for the other location or control location was to verify the aerial deposition hypothesis. In other words, if the COD and Mg are potentially aerially deposited at the facility, it should be deposited everywhere.

The asphalt pad near the upper water tower has similar topography (nearby steep hillsides) to the B85 lower

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yard and can be easily blocked from traffic that could potentially disturb the ongoing study. Unfortunately, at the upper water reservoir, the asphalt pad could cause interference, thus a brand new sheet of 15' x 25' plastic (held down with traffic cones, see photo 1 below) was deployed and left exposed for a time period of about 14 day (dust/ soil aerial deposition period). Information and analytical data gathered at the upper water tower could be used to support the aerial deposition hypothesis for those 2 constituents at the facility.

Procedures

The September Aerial Deposition study used again deionized (DI) water as a surrogate for rainwater to assess if surface/dust particles might be contributing COD or Mg to the stormwater. LBNL acquired the DI from C&T.

LBNL performed the following activities and sample collection methods:

- LBNL poured approximately 5 gallons of DI water onto the surface of the concrete yard allowing the DI water to travel over the concrete coating. LBNL then collected a sample of this water at the entrance of the eastern most yard drain inlet (Figure 2) using a pre-cleaned, acid-washed scoop. This sample is referred to as "Before Cleaning Concrete Surface".
- Next step was to clean the tested area above; in addition 2 ft surrounding each side was cleaned as well with DI water and a "clean" scrub brush to remove potential surface contamination. Once the surface was deemed "clean" (by visual observation of the rinse waters), the area was rinsed with DI water again, scrubbed some more, rinsed again and again for a total of 3 rinses. During the last rinse, rinse waters were collected to check for any remaining COD and Mg. This sample is referred to as "After Cleaning Concrete Surface".
- At the upper water tower, 14 days prior to sample collection a brand new sheet of 15' x 25' plastic held down with traffic cones was deployed and left exposed for a time period of about 14 days. LBNL poured approximately 5 gallons of DI water onto the surface of the plastic sheet allowing the DI water to travel over the plastic sheet. LBNL then collected a sample of this water by lifting the plastic sheet off the ground and collecting rinse waters using a pre-cleaned, acid-washed scoop. This sample is referred to as "Plastic Sheet at Upper Water Tower".

LBNL submitted the water samples to C&T for the same above referenced analyses.

LBNL collected an equipment blank to assure the pre-cleaned, acid-washed sampling equipment was not contributing COD or Mg to the samples.

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Photo 1. Deployed plastic at the upper water tower

The Repeat Aerial Deposition study (October) was very similar in procedural setup to the September Aerial Deposition study. The Repeat Aerial Deposition study differs in the following aspects:

- It was cut one day short because of an anticipated rain event on October 13, 2009. The dust/ soil aerial deposition period was 13 days instead of 14 days.
- Another area at the B85 lower yard was selected to prevent interference caused by the previous investigative studies.
- The plastic used at the upper tower area was replaced with a brand new piece of plastic for this Repeat Aerial Deposition study.

Discussion of the Aerial Deposition Investigative Study Results:

Analytical results from samples collected are summarized in Table 2. For the aerial deposition investigative study, the "before cleaning concrete surface" sample collected before cleaning contained 150 mg/L COD and 2.9 mg/L Mg. The "After Cleaning Concrete Surface" sample did not contain detectable COD or Mg. During the Repeat Aerial Deposition Study (October), the concrete surface sample contained 45 mg/L COD and 1.6 mg/L Mg. Again the "After Cleaning Concrete Surface" rinse water sample did not contain any detectable COD or Mg (<25 mg/L COD and <0.05 mg/L Mg).

The plastic liner results for COD at the upper water tower were 230 mg/L during the Aerial Deposition Investigative Study and a non-detect value (a value less than the laboratory reporting limit or method detection

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limit) in the Repeat Aerial Deposition Study. For Magnesium at the upper water tower we achieved 2.1 mg/L and 0.46 mg/L, respectively for the Aerial Deposition Study in September and the Repeat Aerial Deposition Study in October. It should be noted that results during the Aerial Deposition Study in September study were very similar to the values that were monitored on the surface at the B85 yards during the last stormwater monitoring performed on May 1, 2009 (Table 1).

For the Repeat Aerial Deposition Study in October it is noted that aerial deposits on the concrete surface and plastic liner were less than that during the prior investigative studies as shown in the results. It should be noted that a different drain inlet was selected during the October Repeat Aerial Deposition investigative study than the one selected during the September study to exclude any prior cleaning history; thus by the best of our knowledge that area did not receive any washing or cleaning in between the 2 studies. Given that a brand new plastic was put out each time at the upper water tower for the Aerial Deposition Studies, and we measured reductions in concentration there as well; lesser aerial deposition during that time period could be possible. Specifically COD in the Before Cleaning Concrete Surface sample resulted in 45 mg/L which is significantly less than in prior studies, and could potentially explain why COD was not detected on top of the plastic surface (<25 mg/L, see Table 2) .

It should also be noted that all equipment method blanks were non-detect for Mg (<0.05 mg/L) for all three of the investigative studies.

Upper Confidence Limit Calculation

Table 3 presents the results from the B85 surface samples before any cleaning took place, the single-sided 95% upper confidence limit (95% UCL) was determined per Student T-test for those three samples, analysis was completed for COD and Mg.

- COD concentrations ranged from 45 to 290 mg/L, with an average of 161.7 mg/L and a calculated 95% UCL of **415 mg/L**.
- Mg concentrations ranged from 1.6 to 2.9 mg/L, with an average of 2.4 mg/L and a calculated 95% UCL of **3.8 mg/L**.

All COD and Mg concentrations measured during stormwater monitoring were below the calculated 95% UCL concentrations for the respective constituents as determined during the above described investigative studies. The UCL concentrations of 415 mg/L and 3.8 mg/L for COD and Mg; respectively, will be the UCL of the baseline or background concentrations for those constituents for future stormwater monitoring at the B85 yards.

Conclusion

A series of investigative studies were completed at the Building 85, Hazardous Waste Handling Facility (HWHF), outdoor yards to identify key sources of elevated COD and Mg, measured during the bi-annual stormwater monitoring events. Setup of the three investigative studies and their analytical results are described in detail in this Technical Memorandum.

Based on the results achieved in the August investigative study, a hypothesis was created in which we assumed that COD and Mg are "aerially" deposited with small soil particles over surfaces at the facility. To test this hypothesis, scrubbing/cleaning of the B85 surface yard and another location was added to the investigative study setup. The selection of another location was also added to the study in order to understand further if non-

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industrial areas at the facility also showed similar COD and Mg concentrations as what was witnessed at the B85 yards.

Results from the September investigative study did support an aerial deposition hypothesis for those 2 analytes at the facility. To verify this hypothesis, the September investigative study was repeated in October, with similar results but with lower concentrations in general.

Finally upper level confidence limits (UCL) were calculated from the sampling results for COD and Mg from the surface collections using statistical calculations (Student's t-test as shown in Table 3). The resulting UCLs will serve as the baseline or background concentration levels for future stormwater monitoring. In other words, if during future stormwater monitoring sampling those Upper Confidence Limits were exceeded, additional investigative studies will be performed; thus the UCL basically serves as a proposed new benchmark for that stormwater sampling location and those constituents.

Tables

Table 1: Summary of the B85 Stormwater Monitoring Data
Table 2: Summary of the B85 Investigative Studies
Table 3: Student's T-Test Calculation

References

U.S. EPA. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, third edition.

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Table 1

Summary of the B85 Stormwater Monitoring Data

Constituent	Units	Lab Primary/QAQC	Reporting Limit	Benchmark (2000 MSGP)	MP4 (B85 Lower Yard)			MP5 (B85 Upper Yard)		
					1st Storm	2nd Storm	3rd storm	1st Storm	2nd Storm	3rd Storm
					2/6/2009	5/1/2009	10/13/2009	2/6/2009	5/1/2009	10/13/2009
pH	pH	in house	0.01	6.00-9.00	7.75	6.74	8.65	7.63	6.89	9.39
Conductivity	umhos/cm	BC/C-T	1	NA	23	131	13.5	31.2	88.3	14.6
TSS	mg/l	BC/C-T	1	100	3	70	14	30	54	45
Oil & Grease	mg/l	BC/C-T	5	15	ND	ND	ND	ND	ND	ND
Ammonia (NH3)	mg/l	BC/C-T	0.05	19.00	0.13	1.6	ND	0.11	1.3	0.13
COD	mg/l	BC/C-T	25	120	ND	**250**	25	ND	**190**	46
Arsenic	mg/l	BC/C-T	0.05	0.1685	ND	ND	ND	ND	ND	ND
Cadmium	mg/l	BC/C-T	0.01	0.0159	ND	ND	ND	ND	ND	ND
Cyanide	mg/l	BC/C-T	0.005	0.0636	ND	ND	ND	ND	ND	ND
Lead	mg/l	BC/C-T	0.05	0.0816	ND	ND	0.0032	ND	ND	0.0077
Magnesium	mg/l	BC/C-T	0.05	0.0636	**0.084**	**2.2**	**0.21**	**0.25**	**1.9**	**0.49**
Mercury	mg/l	BC/C-T	0.0002	0.0024	ND	ND	ND	ND	ND	ND
Selenium	mg/l	BC/C-T	0.10	0.2385	ND	ND	ND	ND	ND	ND
Silver	mg/l	BC/C-T	0.01	0.0318	ND	ND	ND	ND	ND	ND

Notes:

Results shown in red exceed benchmark values

MSGP — Multi-sector General Permit, United States Environmental Protection Agency (USEPA), Final Modification of the National Pollutant Discharge Elimination Systems (NDPES) Storm Water Multi-Sector General Permit for Industrial Activities; Termination of the EPA NPDES Storm Water Baseline Industrial General Permit, Washington D.C Federal Register, September 30, 1998 (USEPA, 1998).

umhos/cm — micro mhos per centimeter

mg/l — milligrams per liter

NA — not available

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Table 2

Summary of the B85 Investigative Studies

Constituent	Units	Lab Primary/QAQC	Reporting Limit	Benchmark (2000 MSGP)	Concrete Surface and Underground Drainage System Investigation (August 2009)[1]				Aerial Deposition Investigative Study (September 2009)[2]			Repeat Aerial Deposition Investigative Study (October 2009)[3]		
					Sump Before Study	Drain Pipe	Concrete Surface	Sump After Study	Before Cleaning Concrete Surface	After Cleaning Concrete Surface	Plastic Sheet at Upper Water Tower	Before Cleaning Concrete Surface	After Cleaning Concrete Surface	Plastic Sheet at Upper Water Tower
					August 5 2009				September 8 2009			October 12 2009		
COD	mg/l	BC/C-T	25	120	54	**220**	**290**	76	**150**	**ND**	**230**	**45**	**ND**	**ND**
Magnesium	mg/l	BC/C-T	0.05	0.0636	**2.3**	**2.6**	**2.6**	**2.1**	**2.9**	**ND**	**2.1**	**1.6**	**ND**	**0.46**

Notes:

1 For the Concrete Surface and Underground Drainage System Investigation in August 2009 we poured laboratory DI water onto the yard to mimic rainwater at strategic locations on the yard.

2 For the Aerial Deposition investigative study, we used the same concept as in August study but focused specifically on the surfaces. Cleaning of the coated concrete yard was done with Laboratory DI water. Plastic was put out on August 24 and left exposed at the upper water tower for about 14 days.

3 For the Repeat Aerial Deposition Investigative study in October we used the same concept as in September. Plastic was put out on September 30 and left exposed at the upper water tower for about 13 days.

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Table 3

Student's T-test Calculation

Constituent	Units	Lab Primary/QAQC	Concrete Surface and Underground Drainage System Investigation (August 2009)	Aerial Deposition Investigative Study (September 2009)	Aerial Deposition Investigative Study (October 2009)	Upper 95% Confidence Limit Calculation [1]		
			Concrete Surface	Before Cleaning Concrete Surface	Before Cleaning Concrete Surface			
			August 5 2009	September 8 2009	October 12 2009	Average	Standard Deviation	UCL
COD	mg/l	BC/C-T	290	150	45	161.7	122.9	**415**
Magnesium	mg/l	BC/C-T	2.6	2.9	1.6	2.4	0.7	**3.8**

Note

1. Upper 95% Confidence Limit (UCL) as determined in U.S. EPA. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, third edition

Appendix C

Laboratory Data Certificates and Chain-of-Custody Forms
(Storm 1)

ESG Sample Collection Form

U.C. Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley CA 94720

Surface Water Monitoring
ASWMP Sampling
Collection: 7314

Sample Data

Sample ID	Location	SampleType	QC Type	Coll Type	Lab/Analysis	Date/time	Container(s)	Presv	Amount	Sample Notes
66842	**MP1**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	2/7/2012 6:05:00 AM	1-1 Liter PE	None	1 L	
66843	**MP1**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	2/7/2012 6:05:00 AM	1-1 Liter AG	HCL	1 L	
66844	**MP1**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	2/7/2012 6:05:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab
66845	**MP2**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	2/7/2012 6:40:00 AM	1-1 Liter PE	None	1 L	
66846	**MP2**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	2/7/2012 6:40:00 AM	1-1 Liter AG	HCL	1 L	
66847	**MP2**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	2/7/2012 6:40:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab
66848	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D, NO3+NO2(asN):MULT	2/7/2012 6:12:00 AM	1-1 Liter PE	None	1 L	Used the fabricated disk, scooped water and divided it half into C&T and Half into BC collection bottles
66849	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	2/7/2012 6:12:00 AM	1-1 Liter AG	HCL	1 L	
66850	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E410.4	2/7/2012 6:12:00 AM	1-500 ml PE	H2SO4	0.5 L	
66851	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP STORMMET-ASWMP-77	2/7/2012 6:12:00 AM	1-500 ml PE	HNO3	0.5 L	

Sample Data

Sample ID	Location	SampleType	QC Type	Coll Type	Lab/Analysis	Date/time	Container(s)	Presv	Amount	Sample Notes
66852	**MP3**	Aqueous	Sample	Grab	pH-aq:SM4500H+B	2/7/2012 6:12:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab
		Sample Collected: **Yes**								
66853	**MP3**	Aqueous	Dup	Grab	BCLABS-BAK E120.1, TSS:SM2540D	2/7/2012 6:12:00 AM	1-1 Liter PE	None	1 L	
		Sample Collected: **Yes**								
66854	**MP3**	Aqueous	Dup	Grab	BCLABS-BAK E1664	2/7/2012 6:12:00 AM	1-1 Liter AG	HCL	1 L	
		Sample Collected: **Yes**								
66855	**MP3**	Aqueous	Dup	Grab	BCLABS-BAK E410.4, NO3+NO2(asN):MULT	2/7/2012 6:12:00 AM	1-500 ml PE	H2SO4	0.5 L	
		Sample Collected: **Yes**								
66856	**MP3**	Aqueous	Dup	Grab	BCLABS-BAK STORMMET-ASWMP-77	2/7/2012 6:12:00 AM	1-500 ml PE	HNO3	0.5 L	
		Sample Collected: **Yes**								
66857	**MP3**	Aqueous	Dup	Grab	pH-aq:SM4500H+B	2/7/2012 6:12:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab
		Sample Collected: **Yes**								
66858	**MP4**	Aqueous	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	2/7/2012 7:15:00 AM	1-1 Liter PE	None	1 L	
		Sample Collected: **Yes**								
66859	**MP4**	Aqueous	Sample	Grab	CURTISTOMP E1664	2/7/2012 7:15:00 AM	1-1 Liter AG	HCL	1 L	
		Sample Collected: **Yes**								
66860	**MP4**	Aqueous	Sample	Grab	CURTISTOMP E410.4, Ammonia(asN):MULT	2/7/2012 7:15:00 AM	1-500 ml PE	H2SO4	0.5 L	
		Sample Collected: **Yes**								
66861	**MP4**	Aqueous	Sample	Grab	CURTISTOMP STORMMET-ASWMP-85	2/7/2012 7:15:00 AM	2-500 ml PE	HNO3 or NaOH	1 L	
		Sample Collected: **Yes**								
66862	**MP4**	Aqueous	Sample	Grab	pH-aq:SM4500H+B	2/7/2012 7:15:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab
		Sample Collected: **Yes**								
66863	**MP5**	Aqueous	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	2/7/2012 7:05:00 AM	1-1 Liter PE	None	1 L	
		Sample Collected: **Yes**								

Sample Data

Sample ID	Location	SampleType	QC Type	Coll Type	Lab/Analysis	Date/time	Container(s)	Presv	Amount	Sample Notes
66864	**MP5**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	2/7/2012 7:05:00 AM	1-1 Liter AG	HCL	1 L	
66865	**MP5**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E410.4, Ammonia(asN):MULT	2/7/2012 7:05:00 AM	1-500 ml PE	H2SO4	0.5 L	
66866	**MP5**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP STORMMET-ASWMP-85	2/7/2012 7:05:00 AM	2-500 ml PE	HNO3 or NaOH	1 L	
66867	**MP5**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	2/7/2012 7:05:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab
66868	**MP6**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	2/7/2012 5:57:00 AM	1-1 Liter PE	None	1 L	
66869	**MP6**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	2/7/2012 5:57:00 AM	1-1 Liter AG	HCL	1 L	
66870	**MP6**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	2/7/2012 5:57:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab
66871	**TRAVEL BLANK**	Aqueous Sample Collected: **Yes**	Blank	Grab	CURTISTOMP STORMMET-ASWMP-77	2/7/2012 7:35:00 AM	1-500 ml PE	HNO3	0.5 L	Equipment blank with C&T standard DI water
66872	**TRAVEL BLANK**	Aqueous Sample Collected: **Yes**	Blank	Grab	BCLABS-BAK STORMMET-ASWMP-77	2/7/2012 7:35:00 AM	1-500 ml PE	HNO3	0.5 L	Equipment blank with BC standard DI water

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 234245
ANALYTICAL REPORT

Lawrence Berkeley National Lab	Project : STANDARD
1 Cyclotron Road	Location : Surface Water Monitoring Program-ASWM
Berkeley, CA 94720	Level : II

Sample ID	Lab ID
66842	234245-001
66843	234245-002
66845	234245-003
66846	234245-004
66848	234245-005
66849	234245-006
66850	234245-007
66851	234245-008
66858	234245-009
66859	234245-010
66860	234245-011
66861	234245-012
66863	234245-013
66864	234245-014
66865	234245-015
66866	234245-016
66868	234245-017
66869	234245-018
66871	234245-019

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 02/17/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**234245**
Client:	**Lawrence Berkeley National Lab**
Location:	**Surface Water Monitoring Program-ASWM**
Request Date:	**02/07/12**
Samples Received:	**02/07/12**

This data package contains sample and QC results for nineteen water samples, requested for the above referenced project on 02/07/12. The samples were received cold and intact. All holding times and calibration criteria were met.

Metals (EPA 200.8 and EPA 245.1):
No analytical problems were encountered.

Ion Chromatography (EPA 300.0 and EPA 300.0):
No analytical problems were encountered.

Conductivity (SM2510B):
No analytical problems were encountered.

Total Cyanide (SM4500CN-E):
No analytical problems were encountered.

Ammonia Nitrogen (SM4500NH3-D):
No analytical problems were encountered.

Total Oil & Grease (HEM) (EPA 1664A):
Matrix spikes were not performed for this analysis due to insufficient sample volume. No analytical problems were encountered.

Total Suspended Solids (TSS) (SM2540D):
High RPD was observed for total suspended solids in the BS/BSD for batch 183703. High RPD was observed for total suspended solids in the MS/MSD of 66842 (lab # 234245-001). No other analytical problems were encountered.

Chemical Oxygen Demand (SM5220D):
No analytical problems were encountered.

234245

U.C. Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley CA 94720

LBNL ENVIRONMENTAL SERVICES GROUP
Chain of Custody

Send final reports to: Suying Xu, Mailstop 85B0198
For questions contact John Jelinski, e-mail: JAJelinski@lbl.gov
Phone: 510-486-7616 Fax: 510-486-7034

Purpose: Surface Water Monitoring Program - ASWMP Sampling

COC No.: 07395

Release Number / Document Control No.: ESG-07395

Collection(s): 7314

	Sample Location	Date & Time Sampled	Reference Date/time*	Collection Method	Sample Type	Container Volume & Code**	#	Preservative	Analysis Code	Field Sample ID***	Notes to Lab
1	66842	2/7/2012 6:05	2/7/2012 6:05	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2012 6:05	2/7/2012 6:05	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
2	66843	2/7/2012 6:05	2/7/2012 6:05	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
3	66845	2/7/2012 6:40	2/7/2012 6:40	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2012 6:40	2/7/2012 6:40	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
4	66846	2/7/2012 6:40	2/7/2012 6:40	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
5	66848	2/7/2012 6:12	2/7/2012 6:12	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2012 6:12	2/7/2012 6:12	Grab	Aqueous	1 Liter PE	1	None	NO3+NO2(asN):MULT		
		2/7/2012 6:12	2/7/2012 6:12	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
6	66849	2/7/2012 6:12	2/7/2012 6:12	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
7	66850	2/7/2012 6:12	2/7/2012 6:12	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
8	66851	2/7/2012 6:12	2/7/2012 6:12	Grab	Aqueous	500 ml PE	1	HNO3	STORMMET-ASWMP-77		

Total No. of Containers: 21
Shipping Document ID: hand carry
Turnaround Time****: 20 days
Lab Name: CURTISTOMP
Sampled by: Tim BAUTERS

Special Instructions/Comments:
One blue ice

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [signature] Time: 11:05 AM	Signature: Time:	Signature: Time:
Printed Name: Tim BAUTERS Date: 02/07/12	Printed Name: Date:	Printed Name: Date:
Company: LBNL	Company:	Company:

Received By	Received By	Received By
Signature: [signature] Time: 11:05 A	Signature: Time:	Signature: Time:
Printed Name: Ti Bobier Date: 2/7/12	Printed Name: Date:	Printed Name: Date:
Company: CETI	Company:	Company:

*REFERENCE DATE/TIME: Use this value for decay calculations in radiological analyses when applicable **Container Codes: AG = amber glass CG = clear glass PE = polyethylene VV = VOA vial
*** Field Sample ID: If present, use this information as the sample identifier in hard-copy reports (please include Sample Location information in the notes). If blank, and in electronic deliverable files, use Sample Location as the identifier. ****Listed turnaround time is for reporting and is in work days, as defined in the Joint LBNL/LLNL Analytical Services blanket order.

234245

U.C. Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley CA 94720

LBNL ENVIRONMENTAL SERVICES GROUP
Chain of Custody

Send final reports to: Suying Xu, Mailstop 85B0198
For questions contact John Jelinski, e-mail: JAJelinski@lbl.gov
Phone: 510-486-7616 Fax: 510-486-7034

Purpose: Surface Water Monitoring Program - ASWMP Sampling

COC No.: 07395

Release Number / Document Control No.: ESG-07395

Collection(s): 7314

	Sample Location	Date & Time Sampled	Reference Date/time*	Collection Method	Sample Type	Container Volume & Code**	#	Preservative	Analysis Code	Field Sample ID***	Notes to Lab
9	66858	2/7/2012 7:15	2/7/2012 7:15	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2012 7:15	2/7/2012 7:15	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
10	66859	2/7/2012 7:15	2/7/2012 7:15	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
11	66860	2/7/2012 7:15	2/7/2012 7:15	Grab	Aqueous	500 ml PE	1	H2SO4	Ammonia(asN):MULT		
		2/7/2012 7:15	2/7/2012 7:15	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
12	66861	2/7/2012 7:15	2/7/2012 7:15	Grab	Aqueous	500 ml PE	2	HNO3 or NaOH	STORMMET-ASWMP-85		
13	66863	2/7/2012 7:05	2/7/2012 7:05	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2012 7:05	2/7/2012 7:05	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
14	66864	2/7/2012 7:05	2/7/2012 7:05	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
15	66865	2/7/2012 7:05	2/7/2012 7:05	Grab	Aqueous	500 ml PE	1	H2SO4	Ammonia(asN):MULT		
		2/7/2012 7:05	2/7/2012 7:05	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
16	66866	2/7/2012 7:05	2/7/2012 7:05	Grab	Aqueous	500 ml PE	2	HNO3 or NaOH	STORMMET-ASWMP-85		

Total No. of Containers: 21
Shipping Document ID: hand carry
Turnaround Time****: 20 days
Lab Name: CURTISTOMP
Sampled by: Tim BAUERS

Special Instructions/Comments:
on line

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [signature] Time: 11:05AM	Signature: Time:	Signature: Time:
Printed Name: Tim BAUERS Date: 02/07/12	Printed Name: Date:	Printed Name: Date:
Company: LBNL	Company:	Company:

Received By	Received By	Received By
Signature: [signature] Time: 11:05	Signature: Time:	Signature: Time:
Printed Name: T. Bob Date: 2/7/12	Printed Name: Date:	Printed Name: Date:
Company: CET	Company:	Company:

*REFERENCE DATE/TIME: Use this value for decay calculations in radiological analyses when applicable **Container Codes: AG = amber glass CG = clear glass PE = polyethylene VV = VOA vial
*** Field Sample ID: If present, use this information as the sample identifier in hard-copy reports (please include Sample Location information in the notes). If blank, and in electronic deliverable files, use Sample Location as the identifier. ****Listed turnaround time is for reporting and is in work days, as defined in the Joint LBNL/LLNL Analytical Services blanket order.

234248

U.C. Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley CA 94720

LBNL ENVIRONMENTAL SERVICES GROUP
Chain of Custody

Send final reports to: Suying Xu, Mailstop 85B0198
For questions contact John Jelinski, e-mail: JAJelinski@lbl.gov
Phone: 510-486-7616 Fax: 510-486-7034

Purpose: Surface Water Monitoring Program - ASWMP Sampling

COC No.: 07395 Page 3 of 3
Release Number / Document Control No.: ESG-07395
Collection(s): 7314

	Sample Location	Date & Time Sampled	Reference Date/time*	Collection Method	Sample Type	Container Volume & Code**	#	Preservative	Analysis Code	Field Sample ID***	Notes to Lab
17	66868	2/7/2012 5:57	2/7/2012 5:57	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2012 5:57	2/7/2012 5:57	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
18	66869	2/7/2012 5:57	2/7/2012 5:57	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
19	66871	2/7/2012 7:35	2/7/2012 7:35	Grab	Aqueous	500 ml PE	1	HNO3	STORMMET-ASWMP-77		

Total No. of Containers: 21
Shipping Document ID: hand carry
Turnaround Time****: 20 days
Lab Name: CURTISTOMP
Sampled by: Tim Bauters

Special Instructions/Comments:
On blue ic

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [signature] Time: 11:05 AM	Signature / Time	Signature / Time
Printed Name: Tim Bauters Date: 02/07/12	Printed Name / Date	Printed Name / Date
Company: LBNL	Company	Company

Received By	Received By	Received By
Signature: [signature] Time: 11:05	Signature / Time	Signature / Time
Printed Name: Tracy Bob Date: 2:07	Printed Name / Date	Printed Name / Date
Company: CET	Company	Company

*REFERENCE DATE/TIME: Use this value for decay calculations in radiological analyses when applicable **Container Codes: AG = amber glass CG = clear glass PE = polyethylene VV = VOA vial
*** Field Sample ID: If present, use this information as the sample identifier in hard-copy reports (please include Sample Location information in the notes). If blank, and in electronic deliverable files, use Sample Location as the identifier. ****Listed turnaround time is for reporting and is in work days, as defined in the Joint LBNL/LLNL Analytical Services blanket order.

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 234245 Date Received 2/7/12 Number of coolers 2
Client LBNL Project Surface Water Monitoring Program

Date Opened 2/7/12 By (print) C. Morrow (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) _____ YES (NO)
   Shipping info _____

2A. Were custody seals present? .... ☒ YES (circle) on cooler on samples ☒ NO CPM
   How many 2 Name TB Date 2/7/12
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~ CPM
3. Were custody papers dry and intact when received? _____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ YES NO
6. Indicate the packing in cooler: (if other, describe) _____

   ☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

   Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) _____

   ☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

   ☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES (NO)
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ YES NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ YES NO
12. Are sample labels present, in good condition and complete? _____ YES NO
13. Do the sample labels agree with custody papers? _____ YES NO
14. Was sufficient amount of sample sent for tests requested? _____ YES NO
15. Are the samples appropriately preserved? _____ YES NO N/A
16. Did you check preservatives for all bottles for each sample? _____ YES NO N/A
17. Did you document your preservative check? _____ YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____

Rev 10, 11/11

Curtis & Tompkins Sample Preservation for 234245

Sample	pH: <2	>12	Other
-001a	[ ]	[ ]	_____
-002a	[ ]	[ ]	_____
-003a	[ ]	[ ]	_____
-004a	[ ]	[ ]	_____
-005a	[ ]	[ ]	_____
-006a	[ ]	[ ]	_____
-007a	[X]	[ ]	_____
-008a	[X]	[ ]	_____
-009a	[ ]	[ ]	_____
-010a	[ ]	[ ]	_____
-011a	[X]	[ ]	_____
-012a	[X]	[ ]	_____
b	[ ]	[X]	_____
-013a	[ ]	[ ]	_____
-014a	[ ]	[ ]	_____
-015a	[X]	[ ]	_____
-016a	[X]	[ ]	_____
b	[ ]	[X]	_____
-017a	[ ]	[ ]	_____
-018a	[ ]	[ ]	_____
-019a	[X]	[ ]	_____

Analyst: CPM
Date: 2/7/12

Page 1 of 1

Curtis & Tompkins, Ltd.

Metals Analytical Report

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.8
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring Program-ASWM		
COC #:	07395	Batch#:	183606
Requested:	STORMMET-ASWMP-77	Instrument:	MET26
Matrix:	Water	Chemist:	AH
Units:	mg/L	Received:	02/07/12
Diln Fac:	5.000	Prepared:	02/08/12 18:20

Field ID:	66851	Sampled:	02/07/12 06:12
Type:	SAMPLE	Analyzed:	02/15/12 20:17
Lab ID:	234245-008		

Analyte	Code	Result	RL
Aluminum	0313	0.14	0.050
Copper	2800	0.018	0.0050
Iron	5350	0.23	0.050
Lead	5450	ND	0.0050
Zinc	9050	0.13	0.050

Field ID:	66871	Sampled:	02/07/12 07:35
Type:	SAMPLE	Analyzed:	02/15/12 20:38
Lab ID:	234245-019		

Analyte	Code	Result	RL
Aluminum	0313	ND	0.050
Copper	2800	ND	0.0050
Iron	5350	ND	0.050
Lead	5450	ND	0.0050
Zinc	9050	ND	0.050

Type:	BLANK	Analyzed:	02/15/12 20:09
Lab ID:	QC628014		

Analyte	Code	Result	RL
Aluminum	0313	ND	0.050
Copper	2800	ND	0.0050
Iron	5350	ND	0.050
Lead	5450	ND	0.0050
Zinc	9050	ND	0.050

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Metals Analytical Report

Lab #:	234245	Location:	Surface Water Monitoring Program-ASWM
Client:	Lawrence Berkeley National Lab	Cert #:	01107CA
Project#:	STANDARD		
COC #:	07395	Units:	mg/L
Requested:	STORMMET-ASWMP-85	Received:	02/07/12
Matrix:	Water		

Field ID:	66861	Lab ID:	234245-012
Type:	SAMPLE	Sampled:	02/07/12 07:15

Analyte	Code	Result	RL	Diln Fac	Batch#	Instrument	Chemist	Prepared	Analyzed	Prep	Analysis
Arsenic	0450	ND	0.050	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:30	EPA 200.8	EPA 200.8
Cadmium	1650	ND	0.010	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:30	EPA 200.8	EPA 200.8
Lead	5450	ND	0.050	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:30	EPA 200.8	EPA 200.8
Magnesium	5500	0.36	0.050	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:30	EPA 200.8	EPA 200.8
Mercury	5600	ND	0.00020	1.000	183694	MET34	NT	02/13/12 06:55	02/13/12 13:00	METHOD	EPA 245.1
Selenium	7600	ND	0.050	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:30	EPA 200.8	EPA 200.8
Silver	7800	ND	0.010	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:30	EPA 200.8	EPA 200.8

Field ID:	66866	Lab ID:	234245-016
Type:	SAMPLE	Sampled:	02/07/12 07:05

Analyte	Code	Result	RL	Diln Fac	Batch#	Instrument	Chemist	Prepared	Analyzed	Prep	Analysis
Arsenic	0450	ND	0.050	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:34	EPA 200.8	EPA 200.8
Cadmium	1650	ND	0.010	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:34	EPA 200.8	EPA 200.8
Lead	5450	ND	0.050	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:34	EPA 200.8	EPA 200.8
Magnesium	5500	0.14	0.050	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:34	EPA 200.8	EPA 200.8
Mercury	5600	ND	0.00020	1.000	183694	MET34	NT	02/13/12 06:55	02/13/12 13:02	METHOD	EPA 245.1
Selenium	7600	ND	0.050	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:34	EPA 200.8	EPA 200.8
Silver	7800	ND	0.010	5.000	183606	MET26	AH	02/08/12 18:20	02/15/12 20:34	EPA 200.8	EPA 200.8

Type:	BLANK	Chemist:	AH
Lab ID:	QC628014	Prepared:	02/08/12 18:20
Diln Fac:	5.000	Analyzed:	02/15/12 20:09
Batch#:	183606	Prep:	EPA 200.8
Instrument:	MET26	Analysis:	EPA 200.8

Analyte	Code	Result	RL
Arsenic	0450	ND	0.050
Cadmium	1650	ND	0.010
Lead	5450	ND	0.0050
Magnesium	5500	ND	0.050
Selenium	7600	ND	0.050
Silver	7800	ND	0.010

Code:	5600	Chemist:	NT
Type:	BLANK	Prepared:	02/13/12 06:55
Lab ID:	QC628383	Analyzed:	02/13/12 12:18
Diln Fac:	1.000	Prep:	METHOD
Batch#:	183694	Analysis:	EPA 245.1
Instrument:	MET34		

Analyte	Result	RL
Mercury	ND	0.00020

ND= Not Detected
RL= Reporting Limit

15.2

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.8
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring Program-ASWM		
Requested:	STORMMET-ASWMP-77	Batch#:	183606
Type:	LCS	Instrument:	MET26
Lab ID:	QC628015	Chemist:	AH
Matrix:	Water	Prepared:	02/08/12 18:20
Units:	mg/L	Analyzed:	02/15/12 20:13
Diln Fac:	5.000		

Analyte	Code	Spiked	Result	%REC	Limits
Aluminum	0313	10.00	8.455	85	66-125
Copper	2800	0.1000	0.09195	92	71-120
Iron	5350	10.00	9.145	91	62-136
Lead	5450	0.1000	0.09235	92	75-120
Zinc	9050	0.1000	0.09100	91	70-125

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.8
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring Program-ASWM		
Requested:	STORMMET-ASWMP-85	Batch#:	183606
Type:	LCS	Instrument:	MET26
Lab ID:	QC628015	Chemist:	AH
Matrix:	Water	Prepared:	02/08/12 18:20
Units:	mg/L	Analyzed:	02/15/12 20:13
Diln Fac:	5.000		

Analyte	Code	Spiked	Result	%REC	Limits
Arsenic	0450	0.1000	0.08975	90	77-120
Cadmium	1650	0.1000	0.09130	91	76-120
Lead	5450	0.1000	0.09235	92	75-120
Magnesium	5500	10.00	8.510	85	66-126
Selenium	7600	0.1000	0.09045	90	74-122
Silver	7800	0.1000	0.08795	88	76-120

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.8
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring Program-ASWM		
Requested:	STORMMET-ASWMP-77	Batch#:	183606
Field ID:	66851	Instrument:	MET26
MSS Lab ID:	234245-008	Chemist:	AH
Matrix:	Water	Sampled:	02/07/12 06:12
Units:	mg/L	Received:	02/07/12
Diln Fac:	5.000	Prepared:	02/08/12 18:20

Type: MS Analyzed: 02/15/12 20:21
Lab ID: QC628016

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits
Aluminum	0313	0.1366	10.00	8.185	80	62-121
Copper	2800	0.01790	0.1000	0.1050	87	62-120
Iron	5350	0.2328	10.00	9.305	91	56-131
Lead	5450	0.003146	0.1000	0.09205	89	68-120
Zinc	9050	0.1295	0.1000	0.2349	105	57-120

Type: MSD Analyzed: 02/15/12 20:25
Lab ID: QC628017

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	0313	10.00	8.035	79	62-121	2	20
Copper	2800	0.1000	0.1004	83	62-120	4	38
Iron	5350	10.00	8.970	87	56-131	4	32
Lead	5450	0.1000	0.08960	86	68-120	3	20
Zinc	9050	0.1000	0.2272	98	57-120	3	40

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.8
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring Program-ASWM		
Requested:	STORMMET-ASWMP-85	Batch#:	183606
Field ID:	66851	Instrument:	MET26
MSS Lab ID:	234245-008	Chemist:	AH
Matrix:	Water	Sampled:	02/07/12 06:12
Units:	mg/L	Received:	02/07/12
Diln Fac:	5.000	Prepared:	02/08/12 18:20

Type: MS Analyzed: 02/15/12 20:21
Lab ID: QC628016

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits
Arsenic	0450	0.0004420	0.1000	0.08785	87	71-120
Cadmium	1650	0.0006425	0.1000	0.08870	88	70-120
Lead	5450	0.003146	0.1000	0.09205	89	68-120
Magnesium	5500	0.3465	10.00	8.610	83	49-129
Selenium	7600	0.0002865	0.1000	0.09335	93	63-120
Silver	7800	<0.00005422	0.1000	0.08685	87	62-120

Type: MSD Analyzed: 02/15/12 20:25
Lab ID: QC628017

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim
Arsenic	0450	0.1000	0.08475	84	71-120	4	37
Cadmium	1650	0.1000	0.08515	85	70-120	4	28
Lead	5450	0.1000	0.08960	86	68-120	3	20
Magnesium	5500	10.00	8.215	79	49-129	5	40
Selenium	7600	0.1000	0.08650	86	63-120	8	32
Silver	7800	0.1000	0.08340	83	62-120	4	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 245.1
Location:	Surface Water Monitoring Program-ASWM		

Analyte:	Mercury	Diln Fac:	1.000
Code:	5600	Batch#:	183694
Requested:	STORMMET-ASWMP-85	Instrument:	MET34
Type:	LCS	Chemist:	NT
Lab ID:	QC628384	Prepared:	02/13/12 06:55
Matrix:	Water	Analyzed:	02/13/12 12:19
Units:	mg/L		

Spiked	Result	%REC	Limits
0.002500	0.002562	102	79-120

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 245.1
Location:	Surface Water Monitoring Program-ASWM		

Analyte:	Mercury	Diln Fac:	1.000
Code:	5600	Batch#:	183694
Requested:	STORMMET-ASWMP-85	Instrument:	MET34
Field ID:	ZZZZZZZZZZ	Chemist:	NT
MSS Lab ID:	234314-002	Sampled:	02/09/12 12:21
Matrix:	Water	Received:	02/09/12
Units:	mg/L	Prepared:	02/13/12 06:55

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
MS	QC628385	<0.00002014	0.002500	0.002713	109	59-123			02/13/12 12:23
MSD	QC628386		0.002500	0.002659	106	59-123	2	51	02/13/12 12:25

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Nitrate/Nitrite Nitrogen

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	Surface Water Monitoring Program-ASWM		
Code:	5950	Diln Fac:	1.000
COC #:	07395	Batch#:	183552
Requested:	NO3+NO2(asN):MULT	Instrument:	IC03
Field ID:	66848	Chemist:	JLC
Matrix:	Water	Sampled:	02/07/12 06:12
Units:	mg/L	Received:	02/07/12

Type: SAMPLE Analyzed: 02/07/12 13:05
Lab ID: 234245-005

Analyte	Result	RL
Nitrogen, Nitrate/Nitrite	0.21	0.10

Type: BLANK Analyzed: 02/07/12 12:30
Lab ID: QC627799

Analyte	Result	RL
Nitrogen, Nitrate/Nitrite	ND	0.10

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Nitrate/Nitrite Nitrogen

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	Surface Water Monitoring Program-ASWM		
Requested:	NO3+NO2(asN):MULT	Diln Fac:	1.000
Type:	LCS	Batch#:	183552
Lab ID:	QC627800	Instrument:	IC03
Matrix:	Water	Chemist:	JLC
Units:	mg/L	Analyzed:	02/07/12 12:48

Analyte	Code	Spiked	Result	%REC	Limits
Nitrogen, Nitrite	5960	1.000	0.9894	99	80-120
Nitrogen, Nitrate	5945	1.000	0.9825	98	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

Nitrate/Nitrite Nitrogen

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	Surface Water Monitoring Program-ASWM		
Requested:	NO3+NO2(asN):MULT	Batch#:	183552
Field ID:	66848	Instrument:	IC03
MSS Lab ID:	234245-005	Chemist:	LW
Matrix:	Water	Sampled:	02/07/12 06:12
Units:	mg/L	Received:	02/07/12
Diln Fac:	1.020		

Type: MS Analyzed: 02/07/12 13:35
Lab ID: QC627801

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits
Nitrogen, Nitrite	5960	<0.01287	0.5100	0.5501	108	80-123
Nitrogen, Nitrate	5945	0.2130	0.5100	0.7323	102	80-120

Type: MSD Analyzed: 02/07/12 13:53
Lab ID: QC627802

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim
Nitrogen, Nitrite	5960	0.5100	0.5347	105	80-123	3	24
Nitrogen, Nitrate	5945	0.5100	0.7220	100	80-120	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Oil & Grease (HEM)

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 1664A
Location:	Surface Water Monitoring Program-ASWM		
Analyte:	Oil & Grease (HEM)	Batch#:	183639
Code:	6325	Instrument:	H3000
COC #:	07395	Chemist:	VQ
Requested:	E1664	Received:	02/07/12
Matrix:	Water	Analyzed:	02/09/12 00:00
Units:	mg/L		

Field ID	Type	Lab ID	Result	RL	Diln Fac	Sampled
66843	SAMPLE	234245-002	ND	4.80	0.9600	02/07/12 06:05
66846	SAMPLE	234245-004	ND	4.85	0.9700	02/07/12 06:40
66849	SAMPLE	234245-006	ND	4.75	0.9500	02/07/12 06:12
66859	SAMPLE	234245-010	ND	4.70	0.9400	02/07/12 07:15
66864	SAMPLE	234245-014	ND	4.70	0.9400	02/07/12 07:05
66869	SAMPLE	234245-018	ND	4.70	0.9400	02/07/12 05:57
	BLANK	QC628145	ND	5.00	1.000	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Oil & Grease (HEM)

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 1664A
Location:	Surface Water Monitoring Program-ASWM		
Analyte:	Oil & Grease (HEM)	Diln Fac:	1.000
Code:	6325	Batch#:	183639
Requested:	E1664	Instrument:	H3000
Matrix:	Water	Chemist:	VQ
Units:	mg/L	Analyzed:	02/09/12 00:00

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC628146	40.00	35.20	88	78-114		
BSD	QC628147	40.00	36.20	91	78-114	3	18

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Ammonia Nitrogen

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	SM4500NH3-B
Project#:	STANDARD	Analysis:	SM4500NH3-D
Location:	Surface Water Monitoring Program-ASWM		
Analyte:	Ammonia-N	Diln Fac:	1.000
Code:	0325	Batch#:	183706
COC #:	07395	Instrument:	OR_NH3
Requested:	Ammonia(asN):MULT	Chemist:	VQ
Matrix:	Water	Received:	02/07/12
Units:	mg/L	Analyzed:	02/13/12 11:00

Field ID	Type	Lab ID	Result	RL	Sampled
66860	SAMPLE	234245-011	0.27	0.10	02/07/12 07:15
66865	SAMPLE	234245-015	0.23	0.10	02/07/12 07:05
	BLANK	QC628435	ND	0.10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Ammonia Nitrogen

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	SM4500NH3-B
Project#:	STANDARD	Analysis:	SM4500NH3-D
Location:	Surface Water Monitoring Program-ASWM		
Analyte:	Ammonia-N	Diln Fac:	1.000
Code:	0325	Batch#:	183706
Requested:	Ammonia(asN):MULT	Instrument:	OR_NH3
Field ID:	66860	Chemist:	VQ
MSS Lab ID:	234245-011	Sampled:	02/07/12 07:15
Matrix:	Water	Received:	02/07/12
Units:	mg/L	Analyzed:	02/13/12 11:00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
LCS	QC628436		5.000	4.900	98	74-120		
MS	QC628437	0.2700	5.000	4.900	93	62-120		
MSD	QC628438		5.000	4.800	91	62-120	2	27

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Chemical Oxygen Demand

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM5220D
Location:	Surface Water Monitoring Program-ASWM		
Analyte:	Chemical Oxygen Demand	Batch#:	183599
Code:	1875	Instrument:	DR2800
COC #:	07395	Chemist:	VQ
Requested:	E410.4	Received:	02/07/12
Matrix:	Water	Prepared:	02/08/12 12:24
Units:	mg/L	Analyzed:	02/08/12 14:24
Diln Fac:	1.000		

Field ID	Type	Lab ID	Result	RL	Sampled
66850	SAMPLE	234245-007	28	10	02/07/12 06:12
66860	SAMPLE	234245-011	ND	10	02/07/12 07:15
66865	SAMPLE	234245-015	ND	10	02/07/12 07:05
	BLANK	QC627982	ND	10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Chemical Oxygen Demand

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM5220D
Location:	Surface Water Monitoring Program-ASWM		
Analyte:	Chemical Oxygen Demand	Batch#:	183599
Code:	1875	Instrument:	DR2800
Requested:	E410.4	Chemist:	VQ
Field ID:	66850	Sampled:	02/07/12 06:12
MSS Lab ID:	234245-007	Received:	02/07/12
Matrix:	Water	Prepared:	02/08/12 12:24
Units:	mg/L	Analyzed:	02/08/12 14:24

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
LCS	QC627983		75.00	72.42	97	90-110			1.000
MS	QC627984	28.29	300.0	319.8	97	57-129			2.000
MSD	QC627985		300.0	323.2	98	57-129	1	20	2.000

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Cyanide

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM4500CN-E
Location:	Surface Water Monitoring Program-ASWM		
Analyte:	Cyanide	Batch#:	183729
Code:	2850	Instrument:	LAMBDA
COC #:	07395	Chemist:	DM
Requested:	STORMMET-ASWMP-85	Received:	02/07/12
Matrix:	Water	Prepared:	02/14/12 08:30
Units:	mg/L	Analyzed:	02/14/12 11:09
Diln Fac:	1.000		

Field ID	Type	Lab ID	Result	RL	Sampled
66861	SAMPLE	234245-012	0.02	0.01	02/07/12 07:15
66866	SAMPLE	234245-016	ND	0.01	02/07/12 07:05
	BLANK	QC628509	ND	0.01	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Cyanide

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM4500CN-E
Location:	Surface Water Monitoring Program-ASWM		

Analyte:	Cyanide	Batch#:	183729
Code:	2850	Instrument:	LAMBDA
Requested:	STORMMET-ASWMP-85	Chemist:	DM
Field ID:	66866	Sampled:	02/07/12 07:05
MSS Lab ID:	234245-016	Received:	02/07/12
Matrix:	Water	Prepared:	02/14/12 08:30
Units:	mg/L	Analyzed:	02/14/12 11:09
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC628510	<0.01000	0.2000	0.2091	105	74-120		
MSD	QC628511		0.2000	0.2022	101	74-120	3	20
LCS	QC628512		0.2000	0.1810	91	80-120		

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Conductivity

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2510B
Location:	Surface Water Monitoring Program-ASWM		
Analyte:	Specific Conductance	Diln Fac:	1.000
Code:	8000	Batch#:	183625
COC #:	07395	Instrument:	VWR_EC
Requested:	E120.1	Chemist:	KR
Matrix:	Water	Received:	02/07/12
Units:	umhos/cm	Analyzed:	02/09/12 13:20

Field ID	Type	Lab ID	Result	RL	Sampled
66842	SAMPLE	234245-001	23	1.0	02/07/12 06:05
66845	SAMPLE	234245-003	100	1.0	02/07/12 06:40
66848	SAMPLE	234245-005	49	1.0	02/07/12 06:12
66858	SAMPLE	234245-009	45	1.0	02/07/12 07:15
66863	SAMPLE	234245-013	11	1.0	02/07/12 07:05
66868	SAMPLE	234245-017	68	1.0	02/07/12 05:57
	BLANK	QC628096	ND	10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Conductivity

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2510B
Location:	Surface Water Monitoring Program-ASWM		
Analyte:	Specific Conductance	Diln Fac:	1.000
Code:	8000	Batch#:	183625
Requested:	E120.1	Instrument:	VWR_EC
Field ID:	66842	Chemist:	KR
MSS Lab ID:	234245-001	Sampled:	02/07/12 06:05
Matrix:	Water	Received:	02/07/12
Units:	umhos/cm	Analyzed:	02/09/12 13:20

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
LCS	QC628097		1,000	979.0		98	90-110		
SDUP	QC628098	23.40		22.60	10.00			3	20

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Suspended Solids (TSS)

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2540D
Location:	Surface Water Monitoring Program-ASWM		
Analyte:	Total Suspended Solids	Batch#:	183703
Code:	7450	Instrument:	SCALE
COC #:	07395	Chemist:	KR
Requested:	TSS:SM2540D	Received:	02/07/12
Matrix:	Water	Prepared:	02/13/12 11:40
Units:	mg/L	Analyzed:	02/14/12 10:32
Diln Fac:	1.000		

Field ID	Type	Lab ID	Result	RL	Sampled
66842	SAMPLE	234245-001	14	5	02/07/12 06:05
66845	SAMPLE	234245-003	12	5	02/07/12 06:40
66848	SAMPLE	234245-005	6	5	02/07/12 06:12
66858	SAMPLE	234245-009	ND	5	02/07/12 07:15
66863	SAMPLE	234245-013	ND	5	02/07/12 07:05
66868	SAMPLE	234245-017	19	5	02/07/12 05:57
	BLANK	QC628424	ND	5	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Suspended Solids (TSS)

Lab #:	234245	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2540D
Location:	Surface Water Monitoring Program-ASWM		

Analyte:	Total Suspended Solids	Batch#:	183703
Code:	7450	Instrument:	SCALE
Requested:	TSS:SM2540D	Chemist:	KR
Field ID:	66842	Sampled:	02/07/12 06:05
MSS Lab ID:	234245-001	Received:	02/07/12
Matrix:	Water	Prepared:	02/13/12 11:40
Units:	mg/L	Analyzed:	02/14/12 10:32
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC628425		50.00	46.00	92	80-120		
BSD	QC628426		50.00	50.00	100	80-120	8 *	5
MS	QC628427	14.00	50.00	65.00	102	61-138		
MSD	QC628428		50.00	61.00	94	61-138	6 *	5

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

pH Calibration & Measurement Worksheet

Analytical Method:	Standard Method 4500H+B	Analysis Date:	February 7, 2012
Instrument ID:	EXTECH Serial # 78528	Time of Analysis:	7:45 - 8:30
Analyst:	Tim Bauters	Analysis Units:	Standard Units

Program Name: Surface Water Monitoring - ASWMP #1

Collection # 7314

Calibration Standard Measurement and Analysis Results

Standard	Manufacturer	Lot #	Exp. Date	Value (as found)	Calibration Value	Value (as left)	+/- 0.5 pH units	Pass/Fail
4.00 pH	Oakton	OO3	12/01/12	3.89	4.00	4.00	0.00	PASS
7.00 pH	Oakton	OU1-1	06/01/12	6.83	7.00	6.99	0.01	PASS
10.00 pH	Oakton	OO1	12/01/12	10.06	10.00	10.00	0.00	PASS

Measurement Results

Sample ID	Location	Sample Date	Result (pH)	Comments
66844	MP1	February 7, 2012	6.94	
66847	MP2	February 7, 2012	6.57	Remeasured as a internal duplicate
66852	MP3	February 7, 2012	6.86	
66862	MP4	February 7, 2012	7.14	
66867	MP5	February 7, 2012	7.35	
66857	MP3 DUP	February 7, 2012	6.88	
66870	MP6	February 7, 2012	6.91	
DUP-pH020712	duplicate of 66847	February 7, 2012	6.60	
LSC-pH020712	NA	February 7, 2012	6.88	Oakton 7.0 pH Standard exp June 1, 2012

Quality Assurance Quality Control Analysis Results

QAQC	Sample Result / ID		Duplicate Result / ID		RPD	Pass/Fail	Comments
Internal Dup QAQC	6.57	66847	6.60	DUP-pH020712	0.00	PASS	
Field Dup QAQC	6.86	66852	6.88	66857	0.00	PASS	

QAQC	Spike Amount	Spike Sample Result / ID		RPD	% Recovery	Pass/Fail	Comments
LCS	7.00	6.88	LSC-pH020712	0.02	101.7%	PASS	

LCS Manufacture:	Oakton	LCS Lot #	OU1-1	Exp. Date	June 1, 2012

Notes:

RPD = (Sample Result -Dup Result)/ (Mean of Result Pair). RPD (intra-laboratory) must be less than 0.3 to pass QAQC criteria

± 0.5 pH units = Calibration Value - Value (as left). The "as left" pH value must be within 0.5 pH units of the Calibration Value in order to pass.

% Recovery = (Spike Result / Result)*100. % Recovery must be between 90 to 110 % to pass QAQC criteria

2/10/2012

X

John Jelinski
QAQC Reviewer
Signed by: John A. Jelinski

2/10/2012

X

Tim Bauters
Analyst

Appendix D

Laboratory Data Certificates and Chain-of-Custody Forms
(Storm 2)

ESG Sample Collection Form

U.C. Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley CA 94720

Surface Water Monitoring
ASWMP Sampling
Collection: 7341

Sample Data

Sample ID	Location	SampleType	QC Type	Coll Type	Lab/Analysis	Date/time	Container(s)	Presv	Amount	Sample Notes
67329	**MP1**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	3/13/2012 8:40:00 AM	1-1 Liter PE	None	1 L	
67330	**MP1**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	3/13/2012 8:40:00 AM	1-1 Liter AG	HCL	1 L	
67331	**MP1**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	3/13/2012 8:40:00 AM	1-250 ml PE	None	0.25 L	"In House" pH = 8.03. Discharge flowing over filter
67332	**MP2**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	3/13/2012 8:55:00 AM	1-1 Liter PE	None	1 L	
67333	**MP2**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	3/13/2012 8:55:00 AM	1-1 Liter AG	HCL	1 L	
67334	**MP2**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	3/13/2012 8:55:00 AM	1-250 ml PE	None	0.25 L	"In House" pH = 7.65. Discharge overflowing from 1st catch basin
67335	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D, NO3+NO2(asN):MULT	3/13/2012 9:00:00 AM	1-1 Liter PE	None	1 L	
67336	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	3/13/2012 9:00:00 AM	1-1 Liter AG	HCL	1 L	
67337	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E410.4	3/13/2012 9:00:00 AM	1-500 ml PE	H2SO4	0.5 L	
67338	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP STORMMET-ASWMP-77	3/13/2012 9:00:00 AM	1-500 ml PE	HNO3	0.5 L	

Sample Data

Sample ID	Location	SampleType	QC Type	Coll Type	Lab/Analysis	Date/time	Container(s)	Presv	Amount	Sample Notes
67339	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	3/13/2012 9:00:00 AM	1-250 ml PE	None	0.25 L	"In House" pH = 7.78. Dicharge flowing over filter fabric
67344	**MP3**	Aqueous Sample Collected: **No**	Dup	Grab	pH-aq:SM4500H+B		1-250 ml PE	None	0.25 L	Sample not required
67345	**MP4**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	3/13/2012 9:05:00 AM	1-1 Liter PE	None	1 L	
67346	**MP4**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	3/13/2012 9:05:00 AM	1-1 Liter AG	HCL	1 L	
67347	**MP4**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E410.4, Ammonia(asN):MULT	3/13/2012 9:05:00 AM	1-500 ml PE	H2SO4	0.5 L	
67348	**MP4**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP STORMMET-ASWMP-85	3/13/2012 9:05:00 AM	2-500 ml PE	HNO3 or NaOH	1 L	
67349	**MP4**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	3/13/2012 9:05:00 AM	1-250 ml PE	None	0.25 L	"In House" pH = 7.63. Note: catch basin full upon arrival-includes discharge from entire storm event up to 09:05.
67350	**MP5**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	3/13/2012 9:15:00 AM	1-1 Liter PE	None	1 L	
67351	**MP5**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	3/13/2012 9:15:00 AM	1-1 Liter AG	HCL	1 L	
67352	**MP5**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E410.4, Ammonia(asN):MULT	3/13/2012 9:15:00 AM	1-500 ml PE	H2SO4	0.5 L	
67353	**MP5**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP STORMMET-ASWMP-85	3/13/2012 9:15:00 AM	2-500 ml PE	HNO3 or NaOH	1 L	

Sample Data

Sample ID	Location	SampleType	QC Type	Coll Type	Lab/Analysis	Date/time	Container(s)	Presv	Amount	Sample Notes
67354	**MP5**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	3/13/2012 9:15:00 AM	1-250 ml PE	None	0.25 L	"In House" pH = 7.55. Note: catch basin open upon arrival-closed at 09:05 & includes discharge from 09:05 to 09:45
67355	**MP6**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	3/13/2012 8:45:00 AM	1-1 Liter PE	None	1 L	
67356	**MP6**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	3/13/2012 8:45:00 AM	1-1 Liter AG	HCL	1 L	
67357	**MP6**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	3/13/2012 8:45:00 AM	1-250 ml PE	None	0.25 L	"In House" pH = 7.78.

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 234913
ANALYTICAL REPORT

Lawrence Berkeley National Lab	Project : STANDARD
1 Cyclotron Road	Location : SurfaceWater Monitoring Program-ASWMP
Berkeley, CA 94720	Level : II

Sample ID	Lab ID
67329	234913-001
67330	234913-002
67332	234913-003
67333	234913-004
67335	234913-005
67336	234913-006
67337	234913-007
67338	234913-008
67345	234913-009
67346	234913-010
67347	234913-011
67348	234913-012
67350	234913-013
67351	234913-014
67352	234913-015
67353	234913-016
67355	234913-017
67356	234913-018

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 03/27/2012
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**234913**
Client:	**Lawrence Berkeley National Lab**
Location:	**SurfaceWater Monitoring Program-ASWMP**
Request Date:	**03/13/12**
Samples Received:	**03/13/12**

This data package contains sample and QC results for eighteen water samples, requested for the above referenced project on 03/13/12. The samples were received cold and intact. All holding times and calibration criteria were met.

Metals (EPA 6010B, EPA 200.8, and EPA 245.1):
Low recovery was observed for zinc in the MS of 67320 (lab # 234911-002); the LCS was within limits, and the associated RPD was within limits. No other analytical problems were encountered.

Ion Chromatography (EPA 300.0 and EPA 300.0):
No analytical problems were encountered.

Conductivity (SM2510B):
No analytical problems were encountered.

Total Cyanide (SM4500CN-E):
Low recovery was observed for cyanide in the MSD of 67348 (lab # 234913-012); the LCS was within limits. No other analytical problems were encountered.

Ammonia Nitrogen (SM4500NH3-D):
No analytical problems were encountered.

Total Oil & Grease (HEM) (EPA 1664A):
Matrix spikes were not performed for this analysis due to insufficient sample volume. No analytical problems were encountered.

Total Suspended Solids (TSS) (SM2540D):
High RPD was observed for total suspended solids in the BS/BSD for batch 184732. No other analytical problems were encountered.

Chemical Oxygen Demand (SM5220D):
No analytical problems were encountered.

234913

U.C. Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley CA 94720

LBNL ENVIRONMENTAL SERVICES GROUP
Chain of Custody

Send final reports to: Suying Xu, Mailstop 85B0198
For questions contact John Jelinski, e-mail: JAJelinski@lbl.gov
Phone: 510-486-7616 Fax: 510-486-7034

COC No.: 07447
Release Number / Document Control No.: ESG-07447
Collection(s): 7341

Purpose: Surface Water Monitoring Program - ASWMP Sampling

	Sample Location	Date & Time Sampled	Reference Date/time*	Collection Method	Sample Type	Container Volume & Code**	#	Preservative	Analysis Code	Field Sample ID***	Notes to Lab
1	67329	3/13/2012 8:40	3/13/2012 8:40	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		3/13/2012 8:40	3/13/2012 8:40	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
2	67330	3/13/2012 8:40	3/13/2012 8:40	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
3	67332	3/13/2012 8:55	3/13/2012 8:55	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		3/13/2012 8:55	3/13/2012 8:55	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
4	67333	3/13/2012 8:55	3/13/2012 8:55	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
5	67335	3/13/2012 9:00	3/13/2012 9:00	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		3/13/2012 9:00	3/13/2012 9:00	Grab	Aqueous	1 Liter PE	1	None	NO3+NO2(asN):MULT		
		3/13/2012 9:00	3/13/2012 9:00	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
6	67336	3/13/2012 9:00	3/13/2012 9:00	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
7	67337	3/13/2012 9:00	3/13/2012 9:00	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
8	67338	3/13/2012 9:00	3/13/2012 9:00	Grab	Aqueous	500 ml PE	1	HNO3	STORMMET-ASWMP-77		

Total No. of Containers: 20
Shipping Document ID: ESG drop
Turnaround Time**:** 20 days
Lab Name: CURTISTOMP
Sampled by:

Special Instructions/Comments:

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [signature] Time: 1410	Signature: Time:	Signature: Time:
Printed Name: JJelinski Date: 3/13/12	Printed Name: Date:	Printed Name: Date:
Company: LBNL	Company:	Company:

Received By	Received By	Received By
Signature: Pat Hanly Time: 1410	Signature: Time:	Signature: Time:
Printed Name: Pat Gonzalez Date: 3/13/12	Printed Name: Date:	Printed Name: Date:
Company: CAT	Company:	Company:

*REFERENCE DATE/TIME: Use this value for decay calculations in radiological analyses when applicable **Container Codes: AG = amber glass CG = clear glass PE = polyethylene VV = VOA vial

*** Field Sample ID: If present, use this information as the sample identifier in hard-copy reports (please include Sample Location information in the notes). If blank, and in electronic deliverable files, use Sample Location as the identifier. ****Listed turnaround time is for reporting and is in work days, as defined in the Joint LBNL/LLNL Analytical Services blanket order.

234913

U.C. Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley CA 94720

LBNL ENVIRONMENTAL SERVICES GROUP
Chain of Custody

Send final reports to: Suying Xu, Mailstop 85B0198
For questions contact John Jelinski, e-mail: JAJelinski@lbl.gov
Phone: 510-486-7616 Fax: 510-486-7034

Purpose: Surface Water Monitoring Program - ASWMP Sampling

COC No.: 07447
Release Number / Document Control No.: ESG-07447
Collection(s): 7341

	Sample Location	Date & Time Sampled	Reference Date/Time*	Collection Method	Sample Type	Container Volume & Code**	#	Preservative	Analysis Code	Field Sample ID***	Notes to Lab
9	67345	3/13/2012 9:05	3/13/2012 9:05	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		3/13/2012 9:05	3/13/2012 9:05	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
10	67346	3/13/2012 9:05	3/13/2012 9:05	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
11	67347	3/13/2012 9:05	3/13/2012 9:05	Grab	Aqueous	500 ml PE	1	H2SO4	Ammonia(asN):MULT		
		3/13/2012 9:05	3/13/2012 9:05	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
12	67348	3/13/2012 9:05	3/13/2012 9:05	Grab	Aqueous	500 ml PE	2	HNO3 or NaOH	STORMMET-ASWMP-85		
13	67350	3/13/2012 9:15	3/13/2012 9:15	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		3/13/2012 9:15	3/13/2012 9:15	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
14	67351	3/13/2012 9:15	3/13/2012 9:15	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
15	67352	3/13/2012 9:15	3/13/2012 9:15	Grab	Aqueous	500 ml PE	1	H2SO4	Ammonia(asN):MULT		
		3/13/2012 9:15	3/13/2012 9:15	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
16	67353	3/13/2012 9:15	3/13/2012 9:15	Grab	Aqueous	500 ml PE	2	HNO3 or NaOH	STORMMET-ASWMP-85		

Total No. of Containers: 20
Shipping Document ID: ESG drop
Turnaround Time****: 20 days
Lab Name: CURTISTOMP
Sampled by:
Special Instructions/Comments:

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [signature] Time: 1410	Signature: Time:	Signature: Time:
Printed Name: JJelinski Date: 3/13/12	Printed Name: Date:	Printed Name: Date:
Company: LBNL	Company:	Company:

Received By	Received By	Received By
Signature: [signature] Time: 1410	Signature: Time:	Signature: Time:
Printed Name: Pat Gonzalez Date: 3/13/12	Printed Name: Date:	Printed Name: Date:
Company: C&T	Company:	Company:

*REFERENCE DATE/TIME: Use this value for decay calculations in radiological analyses when applicable **Container Codes: AG = amber glass CG = clear glass PE = polyethylene VV = VOA vial
*** Field Sample ID: If present, use this information as the sample identifier in hard-copy reports (please include Sample Location information in the notes). If blank, and in electronic deliverable files, use Sample Location as the identifier. ****Listed turnaround time is for reporting and is in work days, as defined in the Joint LBNL/LLNL Analytical Services blanket order.

23498

U.C. Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley CA 94720

LBNL ENVIRONMENTAL SERVICES GROUP
Chain of Custody

Send final reports to: Suying Xu, Mailstop 85B0198
For questions contact John Jelinski, e-mail: JAJelinski@lbl.gov
Phone: 510-486-7616 Fax: 510-486-7034

Purpose: Surface Water Monitoring Program - ASWMP Sampling

COC No.: 07447

Release Number / Document Control No.: ESG-07447
Collection(s): 7341

	Sample Location	Date & Time Sampled	Reference Date/Time*	Collection Method	Sample Type	Container Volume & Code**	#	Preservative	Analysis Code	Field Sample ID***	Name of Lab
17	67355	3/13/2012 8:45	3/13/2012 8:45	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		3/13/2012 8:45	3/13/2012 8:45	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
18	67356	3/13/2012 8:45	3/13/2012 8:45	Grab	Aqueous	1 Liter AG	1	HCL	E1664		

Total No. of Containers: 20
Shipping Document ID: ESG drop
Turnaround Time****: 20 days
Lab Name: CURTISTOMP
Sampled by:

Special Instructions/Comments:

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [signature] Time: 1410	Signature / Time	Signature / Time
Printed Name: Jelinski Date: 3/13/12	Printed Name / Date	Printed Name / Date
Company: CBNL	Company	Company

Received By	Received By	Received By
Signature: Pat Gonzalez Time: 1410	Signature / Time	Signature / Time
Printed Name: Pat Gonzalez Date: 3/13/12	Printed Name / Date	Printed Name / Date
Company: C&T	Company	Company

*REFERENCE DATE/TIME: Use this value for decay calculations in radiological analyses when applicable **Container Codes: AG = amber glass CG = clear glass PE = polyethylene VV = VOA vial
*** Field Sample ID: If present, use this information as the sample identifier in hard-copy reports (please include Sample Location information in the notes). If blank, and in electronic deliverable files, use Sample Location as the identifier. ****Listed turnaround time is for reporting and is in work days, as defined in the Joint LBNL/LLNL Analytical Services blanket order.

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 234913 Date Received 3/13/12 Number of coolers 2
Client LBNL Project Surface Water Monitoring Program

Date Opened 3/13/12 By (print) C. Morrow (sign) [illegible]
Date Logged in ↓ By (print) ↓ (sign)

1. Did cooler come with a shipping slip (airbill, etc) ____ YES NO
   Shipping info ____

2A. Were custody seals present? .... ☒ YES (circle) on cooler on samples ☐ NO
   How many 20 Name Signature Date 3/13/12
2B. Were custody seals intact upon arrival? ____ YES NO N/A
3. Were custody papers dry and intact when received? ____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ YES NO
6. Indicate the packing in cooler: (if other, describe) ____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☐ Wet ☒ Blue/Gel ☐ None Temp(°C) 2.0

☒ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ____ YES NO
   If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ YES NO
10. Are there any missing / extra samples? ____ YES NO
11. Are samples in the appropriate containers for indicated tests? ____ YES NO
12. Are sample labels present, in good condition and complete? ____ YES NO
13. Do the sample labels agree with custody papers? ____ YES NO
14. Was sufficient amount of sample sent for tests requested? ____ YES NO
15. Are the samples appropriately preserved? ____ YES NO N/A
16. Did you check preservatives for all bottles for each sample? ____ YES NO N/A
17. Did you document your preservative check? ____ YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? ____ YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? ____ YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? ____ YES NO N/A
21. Was the client contacted concerning this sample delivery? ____ YES NO
   If YES, Who was called? ____ By ____ Date: ____

COMMENTS

Rev 10, 11/11

Curtis & Tompkins Sample Preservation for 234913

Sample	pH: <2	>12	Other
-001a	[ ]	[ ]	_____
-002a	[ ]	[ ]	_____
-003a	[ ]	[ ]	_____
-004a	[ ]	[ ]	_____
-005a	[ ]	[ ]	_____
-006a	[ ]	[ ]	_____
-007a	[X]	[ ]	_____
-008a	[X]	[ ]	_____
-009a	[ ]	[ ]	_____
-010a	[ ]	[ ]	_____
-011a	[X]	[ ]	_____
-012a	[X]	[ ]	_____
b	[ ]	[X]	_____
-013a	CRM [X]	[ ]	_____
-014a	[ ]	[ ]	_____
-015a	[X]	[ ]	_____
-016a	[X]	[ ]	_____
b	[ ]	[X]	_____
-017a	[ ]	[ ]	_____
-018a	[ ]	[ ]	_____

Analyst: CRM
Date: 3/13/12

Page 1 of 1

Curtis & Tompkins, Ltd.

Metals Analytical Report

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.7
Project#:	STANDARD	Analysis:	EPA 6010B
Location:	SurfaceWater Monitoring Program-ASWMP		
COC #:	07447	Batch#:	184613
Requested:	STORMMET-ASWMP-77	Instrument:	MET08
Field ID:	67338	Chemist:	NT
Matrix:	Water	Sampled:	03/13/12 09:00
Units:	mg/L	Received:	03/13/12
Diln Fac:	1.000	Prepared:	03/14/12 17:50

Type: SAMPLE Analyzed: 03/15/12 12:12
Lab ID: 234913-008

Analyte	Code	Result	RL
Aluminum	0313	0.50	0.10
Copper	2800	0.043	0.0050
Iron	5350	0.85	0.10
Lead	5450	0.024	0.0050
Zinc	9050	0.40	0.050

Type: BLANK Lab ID: QC631988

Analyte	Code	Result	RL	Analyzed
Aluminum	0313	ND	0.10	03/19/12 13:56
Copper	2800	ND	0.0050	03/15/12 11:38
Iron	5350	ND	0.10	03/15/12 11:38
Lead	5450	ND	0.0050	03/15/12 11:38
Zinc	9050	ND	0.050	03/15/12 11:38

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Metals Analytical Report

Lab #:	234913	Location:	SurfaceWater Monitoring Program-ASWMP
Client:	Lawrence Berkeley National Lab	Cert #:	01107CA
Project#:	STANDARD		
COC #:	07447	Units:	mg/L
Requested:	STORMMET-ASWMP-85	Received:	03/13/12
Matrix:	Water		

Field ID:	67348	Lab ID:	234913-012
Type:	SAMPLE	Sampled:	03/13/12 09:05

Analyte	Code	Result	RL	Diln Fac	Batch#	Instrument	Chemist	Prepared	Analyzed	Prep	Analysis
Arsenic	0450	ND	0.050	1.000	184613	MET08	NT	03/14/12 17:50	03/15/12 12:17	EPA 200.7	EPA 6010B
Cadmium	1650	ND	0.010	1.000	184613	MET08	NT	03/14/12 17:50	03/15/12 12:17	EPA 200.7	EPA 6010B
Lead	5450	ND	0.050	1.000	184613	MET08	NT	03/14/12 17:50	03/15/12 12:17	EPA 200.7	EPA 6010B
Magnesium	5500	1.1	0.050	5.000	184613	MET06	NT	03/14/12 17:50	03/20/12 17:49	EPA 200.7	EPA 200.8
Mercury	5600	ND	0.00020	1.000	184768	MET14	CRT	03/20/12 10:40	03/20/12 14:27	METHOD	EPA 245.1
Selenium	7600	ND	0.050	1.000	184613	MET08	NT	03/14/12 17:50	03/15/12 12:17	EPA 200.7	EPA 6010B
Silver	7800	ND	0.010	1.000	184613	MET08	NT	03/14/12 17:50	03/15/12 12:17	EPA 200.7	EPA 6010B

Field ID:	67353	Lab ID:	234913-016
Type:	SAMPLE	Sampled:	03/13/12 09:15

Analyte	Code	Result	RL	Diln Fac	Batch#	Instrument	Chemist	Prepared	Analyzed	Prep	Analysis
Arsenic	0450	ND	0.050	1.000	184613	MET08	NT	03/14/12 17:50	03/15/12 12:23	EPA 200.7	EPA 6010B
Cadmium	1650	ND	0.010	1.000	184613	MET08	NT	03/14/12 17:50	03/15/12 12:23	EPA 200.7	EPA 6010B
Lead	5450	ND	0.050	1.000	184613	MET08	NT	03/14/12 17:50	03/15/12 12:23	EPA 200.7	EPA 6010B
Magnesium	5500	0.13	0.050	5.000	184613	MET06	NT	03/14/12 17:50	03/20/12 18:00	EPA 200.7	EPA 200.8
Mercury	5600	ND	0.00020	1.000	184768	MET14	CRT	03/20/12 10:40	03/20/12 14:33	METHOD	EPA 245.1
Selenium	7600	ND	0.050	1.000	184613	MET08	NT	03/14/12 17:50	03/15/12 12:23	EPA 200.7	EPA 6010B
Silver	7800	ND	0.010	1.000	184613	MET08	NT	03/14/12 17:50	03/15/12 12:23	EPA 200.7	EPA 6010B

Type:	BLANK	Chemist:	NT
Lab ID:	QC631988	Prepared:	03/14/12 17:50
Batch#:	184613	Prep:	EPA 200.7

Analyte	Code	Result	RL	Diln Fac	Instrument	Analyzed	Analysis
Arsenic	0450	ND	0.050	1.000	MET08	03/15/12 11:38	EPA 6010B
Cadmium	1650	ND	0.010	1.000	MET08	03/15/12 11:38	EPA 6010B
Lead	5450	ND	0.0050	1.000	MET08	03/15/12 11:38	EPA 6010B
Magnesium	5500	ND	0.050	5.000	MET06	03/20/12 16:54	EPA 200.8
Selenium	7600	ND	0.050	1.000	MET08	03/15/12 11:38	EPA 6010B
Silver	7800	ND	0.010	1.000	MET08	03/15/12 11:38	EPA 6010B

Code:	5600	Chemist:	CRT
Type:	BLANK	Prepared:	03/20/12 10:40
Lab ID:	QC632588	Analyzed:	03/20/12 14:22
Diln Fac:	1.000	Prep:	METHOD
Batch#:	184768	Analysis:	EPA 245.1
Instrument:	MET14		

Analyte	Result	RL
Mercury	ND	0.00020

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.7
Project#:	STANDARD	Analysis:	EPA 6010B
Location:	SurfaceWater Monitoring Program-ASWMP		
Requested:	STORMMET-ASWMP-77	Batch#:	184613
Type:	LCS	Instrument:	MET08
Lab ID:	QC631989	Chemist:	NT
Matrix:	Water	Prepared:	03/14/12 17:50
Units:	mg/L	Analyzed:	03/15/12 11:44
Diln Fac:	1.000		

Analyte	Code	Spiked	Result	%REC	Limits
Aluminum	0313	2.000	1.618	81	73-120
Copper	2800	0.2500	0.2143	86	78-120
Iron	5350	1.000	0.9266	93	75-122
Lead	5450	0.1000	0.08221	82	78-120
Zinc	9050	0.5000	0.4536	91	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234913	Location:	SurfaceWater Monitoring Program-ASWMP
Client:	Lawrence Berkeley National Lab	Cert #:	01107CA
Project#:	STANDARD	Prep:	EPA 200.7
Requested:	STORMMET-ASWMP-85	Units:	mg/L
Type:	LCS	Batch#:	184613
Lab ID:	QC631989	Chemist:	NT
Matrix:	Water	Prepared:	03/14/12 17:50

Analyte	Code	Spiked	Result	%REC	Limits	Diln Fac	Instrument	Analyzed	Analysis
Arsenic	0450	0.1000	0.1021	102	80-130	1.000	MET08	03/15/12 11:44	EPA 6010B
Cadmium	1650	0.05000	0.04489	90	80-120	1.000	MET08	03/15/12 11:44	EPA 6010B
Lead	5450	0.1000	0.08221	82	78-120	1.000	MET08	03/15/12 11:44	EPA 6010B
Magnesium	5500	20.00	17.12	86	66-126	5.000	MET06	03/20/12 17:05	EPA 200.8
Selenium	7600	0.1000	0.08835	88	78-122	1.000	MET09	03/19/12 10:46	EPA 6010B
Silver	7800	0.05000	0.04609	92	79-120	1.000	MET08	03/15/12 11:44	EPA 6010B

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.7
Project#:	STANDARD	Analysis:	EPA 6010B
Location:	SurfaceWater Monitoring Program-ASWMP		
Requested:	STORMMET-ASWMP-77	Batch#:	184613
Field ID:	67320	Instrument:	MET08
MSS Lab ID:	234911-002	Chemist:	NT
Matrix:	Water	Sampled:	03/13/12 11:05
Units:	mg/L	Received:	03/13/12
Diln Fac:	1.000	Prepared:	03/14/12 17:50

Type: MS Analyzed: 03/15/12 11:55
Lab ID: QC631990

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits
Aluminum	0313	0.07828	2.000	1.613	77	63-120
Copper	2800	0.08529	0.2500	0.3022	87	70-122
Iron	5350	0.3041	1.000	1.018	71	64-126
Lead	5450	0.002760	0.1000	0.09210	89	62-120
Zinc	9050	0.4151	0.5000	0.7503	67 *	75-124

Type: MSD Analyzed: 03/15/12 12:00
Lab ID: QC631991

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	0313	2.000	1.637	78	63-120	1	25
Copper	2800	0.2500	0.3102	90	70-122	3	25
Iron	5350	1.000	1.055	75	64-126	4	28
Lead	5450	0.1000	0.08653	84	62-120	6	29
Zinc	9050	0.5000	0.8281	83	75-124	10	25

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234913	Location:	SurfaceWater Monitoring Program-ASWMP
Client:	Lawrence Berkeley National Lab	Cert #:	01107CA
Project#:	STANDARD	Prep:	EPA 200.7
Requested:	STORMMET-ASWMP-85	Batch#:	184613
Field ID:	67320	Chemist:	NT
MSS Lab ID:	234911-002	Sampled:	03/13/12 11:05
Matrix:	Water	Received:	03/13/12
Units:	mg/L	Prepared:	03/14/12 17:50

Type: MS Lab ID: QC631990

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits	Diln Fac	Instrument	Analyzed	Analysis
Arsenic	0450	0.004386	0.1000	0.09577	91	70-136	1.000	MET09	03/19/12 10:56	EPA 6010B
Cadmium	1650	<0.0004753	0.05000	0.04471	89	76-120	1.000	MET08	03/15/12 11:55	EPA 6010B
Lead	5450	0.002760	0.1000	0.09210	89	62-120	1.000	MET08	03/15/12 11:55	EPA 6010B
Magnesium	5500	5.015	20.00	20.06	75	49-129	5.000	MET06	03/20/12 17:27	EPA 200.8
Selenium	7600	<0.003309	0.1000	0.08653	87	63-131	1.000	MET09	03/19/12 10:56	EPA 6010B
Silver	7800	<0.001331	0.05000	0.04583	92	61-124	1.000	MET08	03/15/12 11:55	EPA 6010B

Type: MSD Lab ID: QC631991

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac	Instrument	Analyzed	Analysis
Arsenic	0450	0.1000	0.09541	91	70-136	0	31	1.000	MET09	03/19/12 11:01	EPA 6010B
Cadmium	1650	0.05000	0.04423	88	76-120	1	20	1.000	MET08	03/15/12 12:00	EPA 6010B
Lead	5450	0.1000	0.08653	84	62-120	6	29	1.000	MET08	03/15/12 12:00	EPA 6010B
Magnesium	5500	20.00	19.57	73	49-129	2	40	5.000	MET06	03/20/12 17:38	EPA 200.8
Selenium	7600	0.1000	0.09088	91	63-131	5	33	1.000	MET09	03/19/12 11:01	EPA 6010B
Silver	7800	0.05000	0.04634	93	61-124	1	28	1.000	MET08	03/15/12 12:00	EPA 6010B

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 245.1
Location:	SurfaceWater Monitoring Program-ASWMP		

Analyte:	Mercury	Diln Fac:	1.000
Code:	5600	Batch#:	184768
Requested:	STORMMET-ASWMP-85	Instrument:	MET14
Type:	LCS	Chemist:	CRT
Lab ID:	QC632589	Prepared:	03/20/12 10:40
Matrix:	Water	Analyzed:	03/20/12 14:24
Units:	mg/L		

Spiked	Result	%REC	Limits
0.002500	0.002510	100	79-120

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 245.1
Location:	SurfaceWater Monitoring Program-ASWMP		

Analyte:	Mercury	Diln Fac:	1.000
Code:	5600	Batch#:	184768
Requested:	STORMMET-ASWMP-85	Instrument:	MET14
Field ID:	67348	Chemist:	CRT
MSS Lab ID:	234913-012	Sampled:	03/13/12 09:05
Matrix:	Water	Received:	03/13/12
Units:	mg/L	Prepared:	03/20/12 10:40

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
MS	QC632591	<0.00003605	0.002500	0.002490	100	59-123			03/20/12 14:29
MSD	QC632592		0.002500	0.002560	102	59-123	3	51	03/20/12 14:31

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Nitrate/Nitrite Nitrogen

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	SurfaceWater Monitoring Program-ASWMP		
Code:	5950	Diln Fac:	1.000
COC #:	07447	Batch#:	184561
Requested:	NO3+NO2(asN):MULT	Instrument:	IC03
Field ID:	67335	Chemist:	JLC
Matrix:	Water	Sampled:	03/13/12 09:00
Units:	mg/L	Received:	03/13/12

Type: SAMPLE Analyzed: 03/13/12 14:24
Lab ID: 234913-005

Analyte	Result	RL
Nitrogen, Nitrate/Nitrite	0.11	0.10

Type: BLANK Analyzed: 03/13/12 11:21
Lab ID: QC631780

Analyte	Result	RL
Nitrogen, Nitrate/Nitrite	ND	0.10

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Nitrate/Nitrite Nitrogen

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	SurfaceWater Monitoring Program-ASWMP		
Requested:	NO3+NO2(asN):MULT	Diln Fac:	1.000
Type:	LCS	Batch#:	184561
Lab ID:	QC631781	Instrument:	IC03
Matrix:	Water	Chemist:	JLC
Units:	mg/L	Analyzed:	03/13/12 11:38

Analyte	Code	Spiked	Result	%REC	Limits
Nitrogen, Nitrite	5960	1.000	0.9631	96	80-120
Nitrogen, Nitrate	5945	1.000	1.078	108	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

Nitrate/Nitrite Nitrogen

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	SurfaceWater Monitoring Program-ASWMP		
Requested:	NO3+NO2(asN):MULT	Batch#:	184561
Field ID:	67335	Instrument:	IC03
MSS Lab ID:	234913-005	Chemist:	JLC
Matrix:	Water	Sampled:	03/13/12 09:00
Units:	mg/L	Received:	03/13/12
Diln Fac:	1.020		

Type: MS Analyzed: 03/13/12 14:45
Lab ID: QC631782

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits
Nitrogen, Nitrite	5960	<0.01287	0.5100	0.5741	113	80-123
Nitrogen, Nitrate	5945	0.1079	0.5100	0.6586	108	80-120

Type: MSD Analyzed: 03/13/12 15:02
Lab ID: QC631783

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim
Nitrogen, Nitrite	5960	0.5100	0.5591	110	80-123	3	24
Nitrogen, Nitrate	5945	0.5100	0.6949	115	80-120	5	20

RPD= Relative Percent Difference

Total Oil & Grease (HEM)

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 1664A
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Oil & Grease (HEM)	Units:	mg/L
Code:	6325	Batch#:	184804
COC #:	07447	Instrument:	H3000
Requested:	E1664	Chemist:	VQ
Matrix:	Water	Received:	03/13/12

Field ID	Type	Lab ID	Result	RL	Diln Fac	Sampled	Prepared	Analyzed
67330	SAMPLE	234913-002	ND	4.75	0.9500	03/13/12 08:40	03/21/12 11:00	03/21/12 11:30
67333	SAMPLE	234913-004	ND	4.75	0.9500	03/13/12 08:55	03/21/12 11:00	03/21/12 11:30
67336	SAMPLE	234913-006	ND	4.75	0.9500	03/13/12 09:00	03/21/12 11:00	03/21/12 11:30
67346	SAMPLE	234913-010	ND	4.75	0.9500	03/13/12 09:05	03/21/12 11:00	03/21/12 11:30
67351	SAMPLE	234913-014	ND	4.75	0.9500	03/13/12 09:15	03/21/12 11:00	03/21/12 11:30
67356	SAMPLE	234913-018	6.04	4.70	0.9400	03/13/12 08:45	03/21/12 11:00	03/21/12 11:30
	BLANK	QC632735	ND	5.00	1.000		03/21/12 00:00	03/21/12 00:00

ND= Not Detected
RL= Reporting Limit

25.0

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Batch QC Report

Total Oil & Grease (HEM)

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 1664A
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Oil & Grease (HEM)	Diln Fac:	1.000
Code:	6325	Batch#:	184804
Requested:	E1664	Instrument:	H3000
Matrix:	Water	Chemist:	VQ
Units:	mg/L	Analyzed:	03/21/12 00:00

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC632736	40.00	37.30	93	78-114		
BSD	QC632737	40.00	37.10	93	78-114	1	18

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Ammonia Nitrogen

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	SM4500NH3-B
Project#:	STANDARD	Analysis:	SM4500NH3-D
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Ammonia-N	Diln Fac:	1.000
Code:	0325	Batch#:	184822
COC #:	07447	Instrument:	OR_NH3
Requested:	Ammonia(asN):MULT	Chemist:	VQ
Matrix:	Water	Received:	03/13/12
Units:	mg/L	Analyzed:	03/21/12 16:40

Field ID	Type	Lab ID	Result	RL	Sampled
67347	SAMPLE	234913-011	0.16	0.10	03/13/12 09:05
67352	SAMPLE	234913-015	0.13	0.10	03/13/12 09:15
	BLANK	QC632816	ND	0.10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Ammonia Nitrogen

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	SM4500NH3-B
Project#:	STANDARD	Analysis:	SM4500NH3-D
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Ammonia-N	Diln Fac:	1.000
Code:	0325	Batch#:	184822
Requested:	Ammonia(asN):MULT	Instrument:	OR_NH3
Field ID:	67347	Chemist:	VQ
MSS Lab ID:	234913-011	Sampled:	03/13/12 09:05
Matrix:	Water	Received:	03/13/12
Units:	mg/L	Analyzed:	03/21/12 16:40

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
LCS	QC632817		5.000	4.500	90	74-120		
MS	QC632818	0.1600	5.000	4.800	93	62-120		
MSD	QC632819		5.000	4.900	95	62-120	2	27

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Chemical Oxygen Demand

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM5220D
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Chemical Oxygen Demand	Batch#:	184772
Code:	1875	Instrument:	DR2800
COC #:	07447	Chemist:	VQ
Requested:	E410.4	Received:	03/13/12
Matrix:	Water	Prepared:	03/20/12 14:00
Units:	mg/L	Analyzed:	03/20/12 16:00
Diln Fac:	1.000		

Field ID	Type	Lab ID	Result	RL	Sampled
67337	SAMPLE	234913-007	140	10	03/13/12 09:00
67347	SAMPLE	234913-011	19	10	03/13/12 09:05
67352	SAMPLE	234913-015	11	10	03/13/12 09:15
	BLANK	QC632611	ND	10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Chemical Oxygen Demand

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM5220D
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Chemical Oxygen Demand	Batch#:	184772
Code:	1875	Instrument:	DR2800
Requested:	E410.4	Chemist:	VQ
Field ID:	67352	Sampled:	03/13/12 09:15
MSS Lab ID:	234913-015	Received:	03/13/12
Matrix:	Water	Prepared:	03/20/12 14:00
Units:	mg/L	Analyzed:	03/20/12 16:00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
LCS	QC632612		75.00	78.78	105	90-110			1.000
MS	QC632613	11.43	300.0	337.0	109	57-129			2.000
MSD	QC632614		300.0	306.4	98	57-129	10	20	2.000

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Cyanide

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM4500CN-E
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Cyanide	Diln Fac:	1.000
Code:	2850	Batch#:	184921
COC #:	07447	Instrument:	LAMBDA
Requested:	STORMMET-ASWMP-85	Chemist:	HDD
Matrix:	Water	Received:	03/13/12
Units:	mg/L	Analyzed:	03/26/12 00:00

Field ID	Type	Lab ID	Result	RL	Sampled
67348	SAMPLE	234913-012	0.08	0.02	03/13/12 09:05
67353	SAMPLE	234913-016	0.03	0.02	03/13/12 09:15
	BLANK	QC633221	ND	0.02	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Cyanide

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM4500CN-E
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Cyanide	Diln Fac:	1.000
Code:	2850	Batch#:	184921
Requested:	STORMMET-ASWMP-85	Instrument:	LAMBDA
Field ID:	67348	Chemist:	HDD
MSS Lab ID:	234913-012	Sampled:	03/13/12 09:05
Matrix:	Water	Received:	03/13/12
Units:	mg/L	Analyzed:	03/26/12 00:00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
LCS	QC633222		0.2000	0.1770	89	80-120		
MS	QC633223	0.07590	0.2000	0.2312	78	74-120		
MSD	QC633224		0.2000	0.1886	56 *	74-120	20	20

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Conductivity

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2510B
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Specific Conductance	Diln Fac:	1.000
Code:	8000	Batch#:	184766
COC #:	07447	Instrument:	VWR_EC
Requested:	E120.1	Chemist:	KR
Matrix:	Water	Received:	03/13/12
Units:	umhos/cm	Analyzed:	03/20/12 12:40

Field ID	Type	Lab ID	Result	RL	Sampled
67329	SAMPLE	234913-001	27	1.0	03/13/12 08:40
67332	SAMPLE	234913-003	62	1.0	03/13/12 08:55
67335	SAMPLE	234913-005	26	1.0	03/13/12 09:00
67345	SAMPLE	234913-009	76	1.0	03/13/12 09:05
67350	SAMPLE	234913-013	6.9	1.0	03/13/12 09:15
67355	SAMPLE	234913-017	39	1.0	03/13/12 08:45
	BLANK	QC632581	ND	1.0	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Conductivity

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2510B
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Specific Conductance	Diln Fac:	1.000
Code:	8000	Batch#:	184766
Requested:	E120.1	Instrument:	VWR_EC
Field ID:	ZZZZZZZZZZ	Chemist:	KR
MSS Lab ID:	234977-001	Sampled:	03/13/12 13:00
Matrix:	Water	Received:	03/14/12
Units:	umhos/cm	Analyzed:	03/20/12 12:40

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
LCS	QC632582		1,000	985.0		99	90-110		
SDUP	QC632583	816.0		833.0	1.000			2	20

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Suspended Solids (TSS)

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2540D
Location:	SurfaceWater Monitoring Program-ASWMP		
Analyte:	Total Suspended Solids	Batch#:	184732
Code:	7450	Instrument:	SCALE
COC #:	07447	Chemist:	KR
Requested:	TSS:SM2540D	Received:	03/13/12
Matrix:	Water	Prepared:	03/19/12 17:05
Units:	mg/L	Analyzed:	03/20/12 10:20

Field ID	Type	Lab ID	Result	RL	Diln Fac	Sampled
67329	SAMPLE	234913-001	62	1	0.2000	03/13/12 08:40
67332	SAMPLE	234913-003	57	1	0.2000	03/13/12 08:55
67335	SAMPLE	234913-005	90	1	0.2000	03/13/12 09:00
67345	SAMPLE	234913-009	27	1	0.2000	03/13/12 09:05
67350	SAMPLE	234913-013	4	1	0.2000	03/13/12 09:15
67355	SAMPLE	234913-017	13	1	0.2000	03/13/12 08:45
	BLANK	QC632459	ND	1	1.000	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Suspended Solids (TSS)

Lab #:	234913	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2540D
Location:	SurfaceWater Monitoring Program-ASWMP		

Analyte:	Total Suspended Solids	Batch#:	184732
Code:	7450	Instrument:	SCALE
Requested:	TSS:SM2540D	Chemist:	KR
Field ID:	ZZZZZZZZZZ	Sampled:	03/14/12
MSS Lab ID:	234957-005	Received:	03/14/12
Matrix:	Water	Prepared:	03/19/12 17:05
Units:	mg/L	Analyzed:	03/20/12 10:20
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC632460		50.00	48.00	96	80-120		
BSD	QC632461		50.00	53.00	106	80-120	10 *	5
MS	QC632462	34.00	50.00	82.00	96	61-138		
MSD	QC632463		50.00	79.00	90	61-138	4	5

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

pH Calibration & Measurement Worksheet

Analytical Method:	Standard Method 4500H+B	Analysis Date:	March 13, 2012
Instrument ID:	EXTECH Serial # 78528	Time of Analysis:	09:45 - 10:15
Analyst:	John Jelinski	Analysis Units:	Standard Units

Program Name: Surface Water Monitoring - ASWMP #2

Collection # 7341

Calibration Standard Measurement and Analysis Results

Standard	Manufacturer	Lot #	Exp. Date	Value (as found)	Calibration Value	Value (as left)	+/- 0.5 pH units	Pass/Fail
4.00 pH	Oakton	3	12/31/12	4.05	4.00	4.00	0.00	PASS
7.00 pH	Oakton	PR1	09/30/13	7.04	7.00	7.00	0.00	PASS
10.00 pH	Oakton	1	12/31/12	9.86	10.00	10.00	0.00	PASS

Measurement Results

Sample ID	Location	Sample Date	Result (pH)	Comments
67331	MP1	March 13, 2012 (8:40)	8.03	
67334	MP2	March 13, 2012 (8:55)	7.65	
67339	MP3	March 13, 2012 (9:00)	7.78	
67349	MP4	March 13, 2012 (9:05)	7.63	
67354	MP5	March 13, 2012 (9:15)	7.55	
67357	MP6	March 13, 2012 (8:45)	7.78	
DUP-pH031312	MP3 (Duplicate)	March 13, 2012 (9:00)	7.75	
LSC-pH031312	LCS	March 13, 2012 (10:15)	6.98	

Quality Assurance Quality Control Analysis Results

QAQC	Sample Result / ID		Duplicate Result / ID		RPD	Pass/Fail	Comments
Internal Dup QAQC	7.78	67339	7.75	DUP-pH031312	0.00	PASS	
Field Dup QAQC	NA	NA	NA	NA	NA	NA	

QAQC	Spike Amount	Spike Sample Result / ID		RPD	% Recovery	Pass/Fail	Comments
LCS	7.00	6.98	LSC-pH031312	0.00	100.3%	PASS	

LCS Manufacture: oakton LCS Lot # OU-1 Exp. Date June 30, 2012

Notes:

RPD = (Sample Result -Dup Result)/ (Mean of Result Pair). RPD (intra-laboratory) must be less than 0.3 to pass QAQC criteria

± 0.5 pH units = Calibration Value - Value (as left). The "as left" pH value must be within 0.5 pH units of the Calibration Value in order to pass.

% Recovery = (Spike Result / Result)*100. % Recovery must be between 90 to 110 % to pass QAQC criteria

X

John Jelinski
QAQC Reviewer

X

John Jelinski
Analyst

Appendix E

Monthly and Quarterly Detailed Visual Observation Forms

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **Tim Bauters**
Observation Month: **October 3, 2011**

Monthly Visual Observations of Storm Water Discharges (SWD) - Monthly Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	Specific Visual Observations (enter Yes or No for each; use notes to explain)								Comments
			Runoff	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
October 3, 2011 **16:40**	**N.F. Strawberry Crk Drainage Area**	Cloudy, raining. BMP's in good condition	**Yes**	**Yes**	**No**	**No**	**No**	**NA**	**Yes**	**NA**	Slight amount of run-off with lots of dead organic matter/foam (DOM) present
October 3, 2011 **16:30**	**Chicken Crk Drainage Area**	Cloudy, raining. BMP's in good condition	**Yes**	**No**	**No**	**No**	**No**	**NA**	**Yes**	**NA**	Slight amount of run-off
October 3, 2011 **16:05**	**Winter & Pineapple Crk Discharge Areas**	Cloudy, raining. BMP's in good condition	**Yes**	**No**	**No**	**No**	**No**	**NA**	**No**	**NA**	low flow. No DOM present, run-off was clear
October 3, 2011 **16:20**	**Winter & Pineapple Crk Influent Areas**	Cloudy, raining. BMP's in good condition	**Yes**	**Yes**	**No**	**No**	**No**	**NA**	**Yes**	**NA**	Trickle flow. No DOM present, however, run-on was cloudy
October 3, 2011 **16:40**	**MP 1 Sampling Sites**	Cloudy, raining. BMP's in ok condition. Storm drain filter was in good condition	**Yes**	**No**	**No**	**No**	**Yes**	**NA**	**No**	**NA**	Trickle flow observed
October 3, 2011 **16:55**	**MP 2 Sampling Sites**	Cloudy, raining. BMP's in ok condition. Storm drain filter was recently replaced however a oil sheen was witnessed	**Yes**	**Yes**	**No**	**No**	**Yes**	**NA**	**No**	**NA**	Trickle flow. Post filter run-off was cloudy with oil sheen
October 3, 2011 **16:00**	**MP 3 Sampling Sites**	Cloudy, raining. BMP's in OK condition. All metal recycling bins were closed. Storm drain filters had noticeable debris, but post filter OK	**Yes**	**Yes**	**No**	**No**	**No**	**NA**	**Yes**	**NA**	Trickle flow observed
October 3, 2011 **16:20**	**MP 4 Sampling Sites**	Cloudy, raining. BMP's in good condition	**Yes**	**No**	**No**	**No**	**No**	**NA**	**No**	**NA**	Trickle flow observed
October 3, 2011 **16:20**	**MP 5 Sampling Sites**	Cloudy, raining. BMP's in good condition	**Yes**	**No**	**No**	**No**	**No**	**NA**	**No**	**NA**	Trickle flow observed
October 3, 2011 **16:35**	**MP 6 Sampling Sites**	Cloudy, raining. BMP's in good condition	**Yes**	**No**	**No**	**No**	**Yes**	**NA**	**No**	**NA**	Trickle flow observed

* = Little but not significant amount observed

Approximate Start of Rain Event	**October 03, 2011 1:30 PM**
Approximate Start of Significant Discharge	**None until quite later in the evening**

Additional Comments

Not a permit applicable storm event as significant discharge was NOT observed site wide during normal business hours

10/17/2011

X

Tim Bauters
LBNL Stormwater Program Manager

2/21/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John A. Jelinski

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Observation Month: **November 3, 2011**

Monthly Visual Observations of Storm Water Discharges (SWD) - Monthly Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	Specific Visual Observations (enter Yes or No for each; use notes to explain)								Comments
			Runoff	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
November 3, 2011 **15:40**	**N.F. Strawberry Crk Drainage Area**	Cloudy, raining. BMP's in good condition	**Yes**	**Yes**	**Yes**	**No**	**No**	**NA**	**Yes**	**NA**	Moderate run-off with lots of dead organic matter/foam (DOM) present
November 3, 2011 **15:30**	**Chicken Crk Drainage Area**	Cloudy, raining. BMP's in good condition	**Yes**	**Yes**	**Yes**	**No**	**No**	**NA**	**Yes**	**NA**	Moderate run-off with lots of dead organic matter/foam (DOM) present
November 3, 2011 **15:05**	**Winter & Pineapple Crk Discharge Areas**	Cloudy, raining. BMP's in good condition	**Yes**	**No**	**No**	**No**	**No**	**NA**	**No**	**NA**	low flow. No DOM present, run-off was clear
November 3, 2011 **15:15**	**Winter & Pineapple Crk Influent Areas**	Cloudy, raining. BMP's in good condition	**Yes**	**Yes**	**No**	**No**	**No**	**NA**	**Yes**	**NA**	Trickle flow. No DOM present, however, run-on was cloudy
November 3, 2011 **15:40**	**MP 1 Sampling Sites**	Cloudy, raining. BMP's in ok condition. Storm drain filter was at capacity with dirt & debris	**Yes**	**No**	**No**	**No**	**Yes**	**NA**	**No**	**NA**	Trickle flow observed
November 3, 2011 **14:55**	**MP 2 Sampling Sites**	Cloudy, raining. BMP's in ok condition. Storm drain filter was at capacity with dirt , oil sheen & debris	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**NA**	**No**	**NA**	Trickle flow. Post filter run-off was cloudy with oil sheen
November 3, 2011 **15:00**	**MP 3 Sampling Sites**	Cloudy, raining. BMP's in poor condition. All metal recycling bins were found open. Storm drain filters had noticeable debris	**Yes**	**Yes**	**No**	**No**	**Yes**	**NA**	**Yes**	**NA**	Low to moderate flow. Post filter run-off was cloudy with some sediment & oil sheen
November 3, 2011 **15:20**	**MP 4 Sampling Sites**	Cloudy, raining. BMP's in good condition	**Yes**	**No**	**No**	**No**	**No**	**NA**	**No**	**NA**	Low flow observed
November 3, 2011 **15:20**	**MP 5 Sampling Sites**	Cloudy, raining. BMP's in good condition	**Yes**	**No**	**No**	**No**	**No**	**NA**	**No**	**NA**	Low flow observed
November 3, 2011 **15:35**	**MP 6 Sampling Sites**	Cloudy, raining. BMP's in good condition	**Yes**	**No**	**No**	**No**	**Yes**	**NA**	**No**	**NA**	Trickle flow observed

* = Little but not significant amount observed

Approximate Start of Rain Event	**November 03, 2011 1:00 PM**
Approximate Start of Significant Discharge	**November 03, 2011 2:30 PM**

Additional Comments

Permit applicable storm event as significant discharge was observed site wide during normal business hours

11/4/2011

X

Tim Bauters
LBNL Stormwater Program Manager

11/4/2011

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John A. Jelinski

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Observation Month: **December 15, 2011**

Monthly Visual Observations of Storm Water Discharges (SWD) - Monthly Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	Specific Visual Observations (enter Yes or No for each; use notes to explain)								Comments
			Runoff	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
December 15, 2011 09:40	N.F. Strawberry Crk Drainage Area	Scattered clouds sunshine. BMP's in good shape	Yes	No	No	No	No	No	No	NA	Little to moderate flow observed.
December 15, 2011 09:20	Chicken Crk Drainage Area	Scattered clouds sunshine. BMP's in good shape	Yes	No	No	No	No	No	No	NA	Little to moderate flow observed.
December 15, 2011 09:25	Winter & Pineapple Crk Disharge Areas	Scattered clouds sunshine. BMP's in good shape	Yes	No	No	No	No	No	No	NA	Trickle flow observed.
December 15, 2011 09:30	Winter & Pineapple Crk Influent Areas	Scattered clouds sunshine. BMP's in good shape	Yes	No	No	No	No	No	No	NA	Trickle flow observed.
December 15, 2011 09:40	MP 1 Sampling Sites	Scattered clouds sunshine. BMP's in good shape	No	No	No	No	No	No	No	NA	
December 15, 2011 09:00	MP 2 Sampling Sites	Scattered clouds sunshine. BMP's in good shape	No	No	No	No	No	No	No	NA	
December 15, 2011 09:15	MP 3 Sampling Sites	Scattered clouds sunshine. BMP's in good shape	No	No	No	No	No	No	No	NA	
December 15, 2011 09:30	MP 4 Sampling Sites	Scattered clouds sunshine. BMP's in good shape	No	No	No	No	No	No	No	NA	Construction activities in lower yard. Approx 2/3rd of yard has been excavated. BMP's look good
December 15, 2011 09:30	MP 5 Sampling Sites	Scattered clouds sunshine. BMP's in good shape	No	No	No	No	No	No	No	NA	
December 15, 2011 09:35	MP 6 Sampling Sites	Scattered clouds sunshine. BMP's in good shape	No	No	No	No	No	No	No	NA	

* = Little but not significant amount observed

Approximate Start of Rain Event	December 15, 2011 4:00 AM
Approximate Start of Significant Discharge	No Significant Discharge

12/16/2011

X

Tim Bauters
LBNL Stormwater Program Manager

12/16/2011

X

ohn Jelinski
BNL Stormwater Inspection Technician
gned by: John Jelinski

Additional Comments

This storm event did not meet the NPDES Industrial Permit criteria as an applicable storm event, however, there have been no other storm events in I

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Observation Month: **January 20, 2012**

Monthly Visual Observations of Storm Water Discharges (SWD) - Monthly Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	Specific Visual Observations (enter Yes or No for each; use notes to explain)								Comments
			Runoff	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
January 20, 2012 07:00	N.F. Strawberry Crk Drainage Area	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Low to moderate flow observed in creek
January 20, 2012 07:25	Chicken Crk Drainage Area	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Low to moderate flow observed in creek
January 20, 2012 07:30	Winter & Pineapple Crk Disharge Areas	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Trickle flow observed @ East Canyon Outfall
January 20, 2012 07:50	Winter & Pineapple Crk Influent Areas	Cloudy, Raining. BMP's in good shape.	No	No	No	No	No	No	No	NA	No flow observed @ Winter creek influent area
January 20, 2012 07:00	MP 1 Sampling Sites	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Low flow observed entering storm drain inlet
January 20, 2012 07:15	MP 2 Sampling Sites	Cloudy, Raining. BMP's in ok shape. Fair amount of debri in filter fabric @ B76	Yes	No	No	No	Yes	No	No	NA	Low flow observed entering storm drain inlet. Small but noticable amount of sheen present on discharge
January 20, 2012 07:20	MP 3 Sampling Sites	Cloudy, Raining. BMP's in good shape.	Yes	Yes	No	No	No	No	No	NA	Low flow observed entering storm drain inlet. Discharge slightly dark in color - no turbidity was observed
January 20, 2012 07:35	MP 4 Sampling Sites	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Low flow observed entering storm drain inlet
January 20, 2012 07:40	MP 5 Sampling Sites	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Low flow observed entering storm drain inlet
January 20, 2012 07:10	MP 6 Sampling Sites	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	Yes	No	No	NA	Low flow observed entering storm drain inlet. Small but noticable amount of sheen present on discharge

* = Little but not significant amount observed

Approximate Start of Rain Event	January 19, 2012 3:00 PM
Approximate Start of Significant Discharge	January 19-20, 2012 between 9pm & 6am

1/23/2012

X

Tim Bauters
LBNL Stormwater Program Manager

1/23/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

This storm event did not meet the NPDES Industrial Permit criteria as an applicable storm event, however, this was the only storm event in January, 2012 so an observation was made

Note that significant discharge for this storm event occurred during non business hours, sometime between 9pm on 01/19/2012 & 6am on 01/20/2012. Observations were conducted between 7am & 8am on 01/20/2012

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **Tim Bauters**
Observation Month: **February 7, 2012**

Monthly Visual Observations of Storm Water Discharges (SWD) - Monthly Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	Specific Visual Observations (enter Yes or No for each; use notes to explain)								Comments
			Runoff	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
February 7, 2012 09:15	N.F. Strawberry Crk Drainage Area	Cloudy, Raining. BMP's in good shape.	Yes	No	Yes	No	No	No	No	NA	Moderate flow observed in creek, yellow pollen floating in the creek
February 7, 2012 09:25	Chicken Crk Drainage Area	Cloudy, Raining. BMP's in good shape.	Yes	No	Yes	No	No	No	No	NA	Moderate flow observed in creek, yellow pollen floating in the creek
February 7, 2012 09:30	Winter & Pineapple Crk Disharge Areas	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Low flow observed @ East Canyon Outfall
February 7, 2012 09:50	Winter & Pineapple Crk Influent Areas	Cloudy, Raining. BMP's in good shape.	No	No	No	No	No	No	No	NA	Low flow observed @ Winter creek influent area
February 7, 2012 06:05	MP 1 Sampling Sites	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Significant flow observed entering storm drain inlet
February 7, 2012 06:40	MP 2 Sampling Sites	Cloudy, Raining. BMP's in poor shape. Debris was blocking filter fabric @ B76	Yes	No	Yes	No	No	No	No	NA	Moderate flow observed entering storm drain inlet. Yellow pollen visible in the discharge!
February 7, 2012 06:12	MP 3 Sampling Sites	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Moderate flow observed entering storm drain inlet.
February 7, 2012 07:15	MP 4 Sampling Sites	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Moderate flow observed entering storm drain inlet
February 7, 2012 07:05	MP 5 Sampling Sites	Cloudy, Raining. BMP's in good shape.	Yes	No	No	No	No	No	No	NA	Moderate flow observed entering storm drain inlet
February 7, 2012 05:57	MP 6 Sampling Sites	Cloudy, Raining. BMP's in good shape.	Yes	No	Yes	No	No	No	No	NA	Significant flow observed entering storm drain inlet. Yellow pollen visible in the discharge!

* = Little but not significant amount observed

Approximate Start of Rain Event	February 06, 2012 11:45 PM
Approximate Start of Significant Discharge	February 07, 2012; witnessed around 5.50 am

2/27/2012

X

Tim Bauters
LBNL Stormwater Program Manager

2/22/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John jelinski**
Observation Month: **March 13, 2012**

Monthly Visual Observations of Storm Water Discharges (SWD) - Monthly Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	Specific Visual Observations (enter Yes or No for each; use notes to explain)								Comments
			Runoff	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
March 13, 2012 08:40	N.F. Strawberry Crk Drainage Area	Heavy rain, storm conditions	Yes	No	No	No	No	NA	Yes	NA	Moderate to heavy flow, small amount of turbidity and white foam (DOM) observed
March 13, 2012 09:00	Chicken Crk Drainage Area	Heavy rain, storm conditions	Yes	No	No	No	No	NA	Yes	NA	Moderate to heavy flow, small amount of turbidity and white foam (DOM) observed
March 13, 2012 09:10	Winter & Pineapple Crk Disharge Areas	Heavy rain, storm conditions	Yes	No	No	No	No	NA	Yes	NA	Moderate flow, small amount of turbidity observed
March 13, 2012 09:15	Winter & Pineapple Crk Influent Areas	Heavy rain, storm conditions	Yes	No	No	No	No	NA	Yes	NA	Moderate flow, small amount of turbidity observed
March 13, 2012 08:40	MP 1 Sampling Sites	Heavy rain, storm conditions. BMP's in OK condition. Discharge was flowing over (not thru) filter fabric	Yes	No	No	No	No	NA	Yes	NA	Moderate flow, small amount of turbidity observed
March 13, 2012 08:55	MP 2 Sampling Sites	Heavy rain, storm conditions. 1st catch basin was completely full & overflowing-filters were completely saturated. Housekeeping poor	Yes	Yes	No	No	Yes	NA	Yes	NA	Moderate flow, turbidity & sheen observed. Discharge in both catch basins were dark in color
March 13, 2012 09:00	MP 3 Sampling Sites	Heavy rain, storm conditions. Catch basin was completely full & overflowing-filters were completely saturated. Housekeeping poor	Yes	Yes	Yes	No	Yes	NA	Yes	NA	Moderate flow, floatables, turbidity & sheen observed. Discharge was dark in color
March 13, 2012 09:05	MP 4 Sampling Sites	Heavy rain, storm conditions. BMP's in good condition	Yes	No	No	No	No	NA	No	NA	Moderate flow
March 13, 2012 09:05	MP 5 Sampling Sites	Heavy rain, storm conditions. BMP's in good condition	Yes	No	No	No	No	NA	No	NA	Moderate flow
March 13, 2012 08:45	MP 6 Sampling Sites	Heavy rain, storm conditions	Yes	No	No	No	Yes	NA	Yes	NA	Moderate flow, small amount of turbidity & sheen observed

* = Little but not significant amount observed

Approximate Start of Rain Event	March 13, 2012 7:00 AM
Approximate Start of Significant Discharge	March 13, 2012 8:15 AM

3/16/2012

X

Tim Bauters
LBNL Stormwater Program Manager

3/13/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

Qualifies as permit applicable storm event

Note: At MP2 (B76 Motorpool) filters were completely saturated and overflowing. Significant sheen and a dark color were observed in the catch basin

Note: At MP3 (B77-79 metal yard) a large pool of stormwater had accumulated around the storm drain. The filters were completely saturated & no discharge was moving thru them. Discharge was dark in color with the presence of an oil sheen

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Observation Month: **April 12, 2012**

Monthly Visual Observations of Storm Water Discharges (SWD) - Monthly Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	Specific Visual Observations (enter Yes or No for each; use notes to explain)								Comments
			Runoff	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
April 12, 2012 **08:50**	**N.F. Strawberry Crk Drainage Area**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO**	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	Moderate flow observed
April 12, 2012 **08:45**	**Chicken Crk Drainage Area**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO***	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	Moderate flow observed. Run-off had a very light grayish color to it
April 12, 2012 **08:30**	**Winter & Pineapple Crk Disharge Areas**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO**	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	Low flow observed
April 12, 2012 **08:40**	**Winter & Pineapple Crk Influent Areas**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO**	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	Low flow observed
April 12, 2012 **08:50**	**MP 1 Sampling Sites**	Cloudy with intermittent rain. BMP's in Poor condition.	**Yes**	**NO**	**NO**	**NO**	**YES**	**NA**	**NO**	**NA**	Filter bag was completely loaded & run-off was flowing over (not thru) filter.
April 12, 2012 **09:00**	**MP 2 Sampling Sites**	Cloudy with intermittent rain. BMP's in Poor condition.	**Yes**	**YES**	**YES**	**NO**	**YES**	**NA**	**NO**	**NA**	Both seperator drainage basins were very dark in color with a blackish sludge present
April 12, 2012 **09:05**	**MP 3 Sampling Sites**	Cloudy with intermittent rain. BMP's in Poor condition.	**Yes**	**NO**	**NO**	**NO**	**YES**	**NA**	**NO**	**NA**	Filter bag was completely loaded & run-off was flowing over (not thru) filter. See notes below.
April 12, 2012 **08:35**	**MP 4 Sampling Sites**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO**	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	
April 12, 2012 **08:35**	**MP 5 Sampling Sites**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO**	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	
April 12, 2012 **08:55**	**MP 6 Sampling Sites**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO**	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	

* = Little but not significant amount observed

Approximate Start of Rain Event	**April 12, 2012 2:30 AM**
Approximate Start of Significant Discharge	**April 12, 2012 2:30-3:30 AM**

4/13/2012

X

Tim Bauters
LBNL Stormwater Program Manager

4/12/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

This storm event did not meet the NPDES Industrial Permit criteria as an applicable storm event, however, no permit applicable storm events occurred in April, 2012.

At MP3, large metal bin was open, road & parking areas were dirty, & there were a number of salvaged material (chairs, boards, etc) exposed in the yard. In addition, run-off was flowing over the filter directly into the storm drain. This site is in the same or worse condition than observed on the last inspection on 03/13/2012.

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Observation Month: **May 3, 2012**

Monthly Visual Observations of Storm Water Discharges (SWD) - Monthly Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	Specific Visual Observations (enter Yes or No for each; use notes to explain)								Comments
			Runoff	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
May 3, 2012 **15:00**	**N.F. Strawberry Crk Drainage Area**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO**	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	Low flow observed
May 3, 2012 **14:45**	**Chicken Crk Drainage Area**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO**	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	Low flow observed
May 3, 2012 **14:40**	**Winter & Pineapple Crk Disharge Areas**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO**	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	Trickle flow observed
May 3, 2012 **14:35**	**Winter & Pineapple Crk Influent Areas**	Cloudy with intermittent rain. BMP's in Good condition.	**Yes**	**NO**	**NO**	**NO**	**NO**	**NA**	**NO**	**NA**	Trickle flow observed
May 3, 2012 **15:00**	**MP 1 Sampling Sites**	Cloudy with intermittent rain. BMP's in OK condition.	**NO**	**NA**	**NA**	**NA**	**NA**	**NO**	**NA**	**NA**	Filter bag was full of debri, however, no flow observed at this site. East storm drain in good shape.
May 3, 2012 **14:20**	**MP 2 Sampling Sites**	Cloudy with intermittent rain. BMP's in poor to average condition.	**NO**	**NA**	**NA**	**NA**	**NA**	**NO**	**NA**	**NA**	Fair amount of debris on both filters, however, no flow observed entering storm drain.
May 3, 2012 **14:25**	**MP 3 Sampling Sites**	Cloudy with intermittent rain. BMP's in OK condition. Large white metal bin partially open	**NO**	**NA**	**NA**	**NA**	**NA**	**NO**	**NA**	**NA**	New filter fabric installed in trench and overall storm drain looks good. Lots of exposed salvage material.
May 3, 2012 **14:30**	**MP 4 Sampling Sites**	Cloudy with intermittent rain. BMP's in Good condition.	**NO**	**NA**	**NA**	**NA**	**NA**	**NO**	**NA**	**NA**	
May 3, 2012 **14:50**	**MP 5 Sampling Sites**	Cloudy with intermittent rain. BMP's in Good condition.	**NO**	**NA**	**NA**	**NA**	**NA**	**NO**	**NA**	**NA**	
May 3, 2012 **14:55**	**MP 6 Sampling Sites**	Cloudy with intermittent rain. BMP's in Good condition.	**NO**	**NA**	**NA**	**NA**	**NA**	**NO**	**NA**	**NA**	

* = Little but not significant amount observed

Approximate Start of Rain Event	**May 03, 2012 2:15 PM**
Approximate Start of Significant Discharge	**NA**

5/4/2012

X

Tim Bauters
LBNL Stormwater Program Manager

5/3/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

This storm event did not meet the NPDES Industrial Permit criteria as an applicable storm event, however, no permit applicable storm events occurred in May, 2012.

At MP3, Site looks much better than at previous inspections. Trench & storm drain looked good, however, there is still lots of exposed metal salvage in the yard and 1 large metal bin was partially open.

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Quarterly Period: **July - September 2011**

Quarterly Visual Observations of *AUTHORIZED* Non-Storm Water Discharges (NSWD) - Detailed Form

Date (See general form for time)	Name of Authorized NSWD (see note below table)	Source and Location Of Authorized NSWD (use extra rows if necessary)		Specific Visual Observations (enter Y or N for each; use notes to explain)							Notes, Including Corrective actions Taken
				Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
August 12, 2011 11:15-13:15	Hydraugers Hillside Seepage	Groundwater Buildings 31 37 55 64 74 77	Source	N	N	N	N	N	N		NA
			Area	N	N	N	N	N	N		
August 12, 2011 11:15-13:15	Creek Flow	Groundwater NF Strawberry, Chicken, Winters Crks	Source	N	N	N	N	N	N		NA
			Area	N	N	N	N	N	N		
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Additional Comments

08/15/2011

X

Tim Bauters
LBNL Stormwater Program Manager

08/12/2011

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Currently *Authorized NSWDs* : Atmospheric condensates, fire hydrant and sprinkler flushing, fire suppression runoff, groundwater reaching the surface, landscape watering, low conductivity cooling water, safety shower/eyewash testing and operation, utility vault pump-outs, and water line breaks.

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Quarterly Period: **October - December 2011**

Quarterly Visual Observations of *AUTHORIZED* Non-Storm Water Discharges (NSWD) - Detailed Form

Date (See general form for time)	Name of Authorized NSWD (see note below table)	Source and Location Of Authorized NSWD (use extra rows if necessary)		Specific Visual Observations (enter Y or N for each; use notes to explain)							Notes, Including Corrective actions Taken
				Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
November 17, 2011 12:50-14:00	Hydraugers Hillside Seepage	Groundwater Buildings 31 37 46 55 64 74 77	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
November 17, 2011 12:50-14:00	Creek Flow	Groundwater NF Strawberry, Chicken, Winters Crks	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
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Additional Comments

12/16/2011

X

Tim Bauters
LBNL Stormwater Program Manager

11/17/2011

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Currently *Authorized NSWDs* : Atmospheric condensates, fire hydrant and sprinkler flushing, fire suppression runoff, groundwater reaching the surface, landscape watering, low conductivity cooling water, safety shower/eyewash testing and operation, utility vault pump-outs, and water line breaks.

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Quarterly Period: **January - March 2012**

Quarterly Visual Observations of *AUTHORIZED* Non-Storm Water Discharges (NSWD) - Detailed Form

Date (See general form for time)	Name of Authorized NSWD (see note below table)	Source and Location Of Authorized NSWD (use extra rows if necessary)		Specific Visual Observations (enter Y or N for each; use notes to explain)							Notes, Including Corrective actions Taken
				Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
February 22, 2012 13:00 - 14:00	Hydraugers Hillside Seepage	Groundwater Buildings 31 37 46 55 64 74 77	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
February 22, 2012 13:00 - 14:00	Creek Flow	Groundwater NF Strawberry, Chicken, Winters Crks	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
			Source								
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Additional Comments

2/27/2012

X

Tim Bauters
LBNL Stormwater Program Manager

2/22/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Currently *Authorized NSWDs* : Atmospheric condensates, fire hydrant and sprinkler flushing, fire suppression runoff, groundwater reaching the surface, landscape watering, low conductivity cooling water, safety shower/eyewash testing and operation, utility vault pump-outs, and water line breaks.

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Quarterly Period: **April - June 2012**

Quarterly Visual Observations of *AUTHORIZED* Non-Storm Water Discharges (NSWD) - Detailed Form

Date (See general form for time)	Name of Authorized NSWD (see note below table)	Source and Location Of Authorized NSWD (use extra rows if necessary)		Specific Visual Observations (enter Y or N for each; use notes to explain)							Notes, Including Corrective actions Taken
				Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	
May 9, 2012	Hydraugers	Groundwater	Source	N	N	N	N	N	N	NA	NA
13:10 - 14:00	Hillside Seepage	Buildings 31 37 46 55 64 74 77	Area	N	N	N	N	N	N	NA	
May 9, 2012	Creek Flow	Groundwater	Source	N	N	N	N	N	N	NA	NA
13:10 - 14:00		NF Strawberry, Chicken, Winters Crks	Area	N	N	N	N	N	N	NA	
			Source								
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Additional Comments

5/9/2012

X

Tim Bauters
LBNL Stormwater Program Manager

5/9/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Currently *Authorized NSWDs* : Atmospheric condensates, fire hydrant and sprinkler flushing, fire suppression runoff, groundwater reaching the surface, landscape watering, low conductivity cooling water, safety shower/eyewash testing and operation, utility vault pump-outs, and water line breaks.

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Quarterly Period: **July - September 2011**

Quarterly Visual Observations of *UNAUTHORIZED* Non-Storm Water Discharges (NSWD) - Detailed Form

Date (See general form for time)	Name of Unauthorized NSWD (see note below table)	Source and Location Of Unauthorized NSWD (use extra rows if necessary)	Specific Visual Observations (enter Y or N for each; use notes to explain)	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	Notes, Including Corrective actions Taken
August 12, 2011 11:15 - 13:50	No Unauthorized discharges observed	NA	Source	NA	NA	NA	NA	NA	NA	NA	NA
			Area	NA	NA	NA	NA	NA	NA	NA	
			Source								
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Additional Comments

08/15/2011

X

Tim Bauters
LBNL Stormwater Program Manager

08/12/2011

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Examples of *Unauthorized NSWDs*: Cooling tower spray, sanitary sewer breaks, vehicle washing, and small maintenance and repair work cleanup.

Lawrence Berkeley National Laboratory
Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**
Quarterly Period: **October - December 2011**

Quarterly Visual Observations of *UNAUTHORIZED* Non-Storm Water Discharges (NSWD) - Detailed Form

Date (See general form for time)	Name of Unauthorized NSWD (see note below table)	Source and Location Of Unauthorized NSWD (use extra rows if necessary)	Specific Visual Observations (enter Y or N for each; use notes to explain)	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	Notes, Including Corrective actions Taken
November 17, 2011 12:50 - 14:00	No Unauthorized discharges observed	NA	Source	NA	NA	NA	NA	NA	NA	NA	NA
			Area	NA	NA	NA	NA	NA	NA	NA	
			Source								
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Additional Comments

12/16/2011

X

Tim Bauters
LBNL Stormwater Program Manager

11/17/2011

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Examples of *Unauthorized NSWDs*: Cooling tower spray, sanitary sewer breaks, vehicle washing, and small maintenance and repair work cleanup.

Lawrence Berkeley National Laboratory
Environmental Services Group*, *Storm Water Monitoring Program

Observer: **John Jelinski**
Quarterly Period: **January - March 2012**

Quarterly Visual Observations of *UNAUTHORIZED* Non-Storm Water Discharges (NSWD) - Detailed Form

Date (See general form for time)	Name of Unauthorized NSWD (see note below table)	Source and Location Of Unauthorized NSWD (use extra rows if necessary)	Specific Visual Observations (enter Y or N for each; use notes to explain)	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	Notes, Including Corrective actions Taken
February 22, 2012 13:00 - 14:00	No Unauthorized discharges observed	NA	Source	NA	NA	NA	NA	NA	NA	NA	NA
			Area	NA	NA	NA	NA	NA	NA	NA	
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No UNAUTHORIZED NSWDs were observed

Additional Comments

2/27/2012

X

Tim Bauters
LBNL Stormwater Program Manager

2/22/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Examples of *Unauthorized NSWDs*: Cooling tower spray, sanitary sewer breaks, vehicle washing, and small maintenance and repair work cleanup.

Lawrence Berkeley National Laboratory
Environmental Services Group*, *Storm Water Monitoring Program

Observer: **John Jelinski**
Quarterly Period: **April - June 2012**

Quarterly Visual Observations of *UNAUTHORIZED* Non-Storm Water Discharges (NSWD) - Detailed Form

Date (See general form for time)	Name of Unauthorized NSWD (see note below table)	Source and Location Of Unauthorized NSWD (use extra rows if necessary)	Specific Visual Observations (enter Y or N for each; use notes to explain)	Color	Floatables	Odor	Sheen	Stain	Turbidity	Other	Notes, Including Corrective actions Taken
May 9, 2012 13:10 - 14:00	No Unauthorized discharges observed	NA	Source	NA	NA	NA	NA	NA	NA	NA	NA
			Area	NA	NA	NA	NA	NA	NA	NA	
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No UNAUTHORIZED NSWDs were observed

Additional Comments

5/9/2012

X

Tim Bauters
LBNL Stormwater Program Manager

5/9/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Examples of *Unauthorized NSWDs*: Cooling tower spray, sanitary sewer breaks, vehicle washing, and small maintenance and repair work cleanup.