BERKELEY LAB

Environment / Health / Safety / Security
DIVISION
Environmental Services

CALIFORNIA REGIONAL WATER
JUN 26 2013
QUALITY CONTROL BOARD

Via email and Certified Mail
Receipt No. 7012 1010 0000 9090 1186

Reference No.: ES-13-104

June 26, 2013

San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: Cecil Felix

Subject: Lawrence Berkeley National Laboratory Stormwater Annual Report for 2012-2013, Waste Discharge Identification Number 2 01I002421

Mr. Felix,

In accordance with the California Industrial General Permit for Stormwater Discharges, the Lawrence Berkeley National Laboratory's Stormwater Annual Report for 2012-2013 is enclosed. Included in this report are all required forms and supporting documentation. The report is also available for review online at: http://www.lbl.gov/ehs/esg/Reports/tableforreports.shtml.

If you have any questions, please contact Tim Bauters at (510) 486-5831 or me at (510) 486-7614.

Sincerely,

Ron Pauer
Environmental Manager

enclosure:
Stormwater Annual Report for 2012-2013

cc via email w/enclosure:
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Ernest Orlando Lawrence Berkeley National Laboratory
One Cyclotron Road | Berkeley, California 94720 | Mail Stop 75R0123 | Tel: 510.486.7614 | Fax: 510.486.6939
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Stormwater Annual Report for 2012-2013

Prepared by:
Lawrence Berkeley National Laboratory
Environmental Services Group
WDID 2 01 I002421

June 2013

Ernest Orlando Lawrence Berkeley National Laboratory
Berkeley, CA 94720

This work was supported by the Director, Office of Science, U.S. Department of Energy under Contract No. DE- AC02-05CH11231.

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1
Introduction

This *Annual Report* has been prepared for the Lawrence Berkeley National Laboratory (Berkeley Lab or LBNL) located at 1 Cyclotron Road in Berkeley, Alameda County, California (Figure 1-1). The Annual Report was compiled pursuant to the requirements of the California State Water Resources Control Board Industrial General Permit (IGP, Order No. 97-03-DWQ) [1].

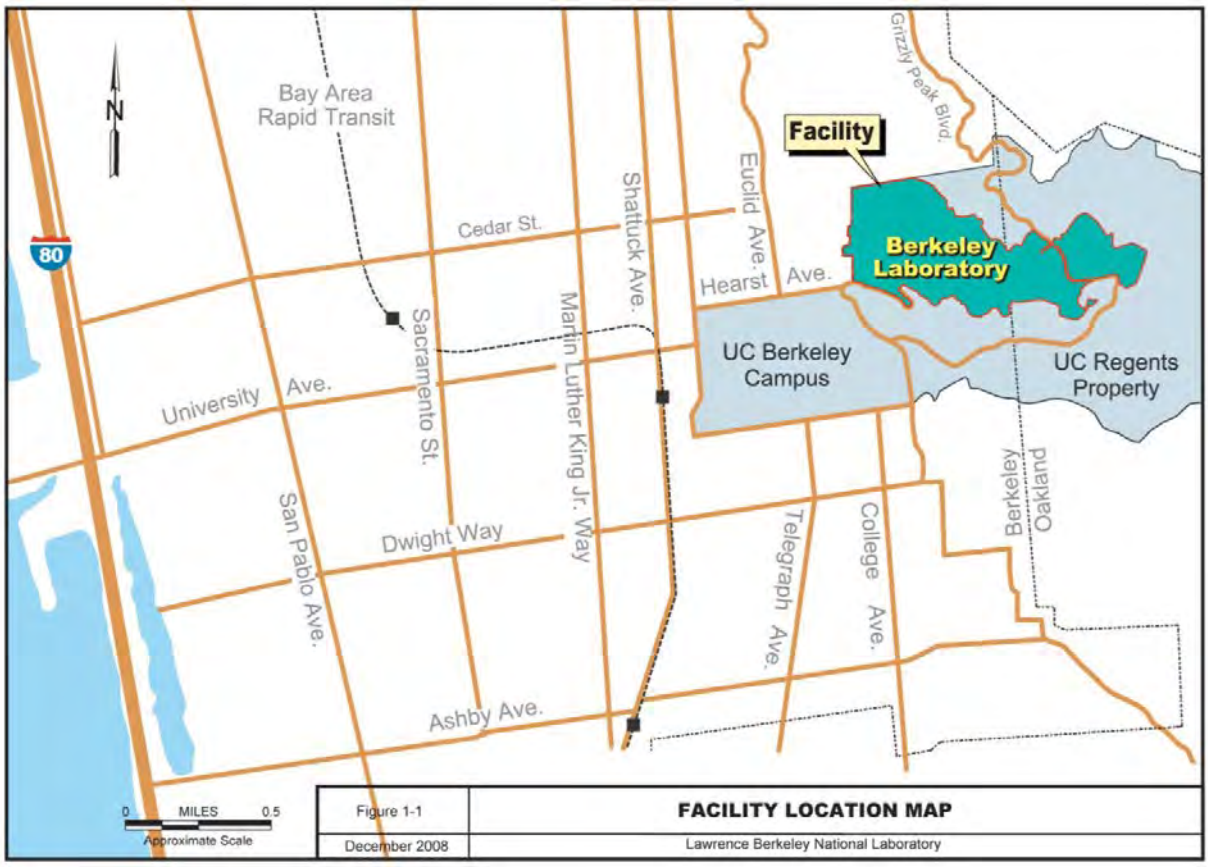

Figure 1-1 Facility Location Map

The Annual Report, in conjunction with LBNL's *Stormwater Pollution Prevention Plan (SWPPP)* [2] and the *Alternative Stormwater Monitoring Plan (ASWMP)* [3], provides the basis for improved management of stormwater to reduce the potential for release of harmful contaminants to surface water. This report includes supporting information, as required, to the *2012-2013 Annual Report for Storm Water Discharges Associated with Industrial Activities* (Appendix A). In addition, per the Industrial General Permit (IGP) , a copy of this Annual Report will be maintained at the facility.

2
Background

Berkeley Lab is a member of the national laboratory system supported by the U.S. Department of Energy through its Office of Science. It is managed by the University of California (UC) and conducts unclassified research across a wide range of scientific disciplines. The facility occupies approximately 200 acres within the Cities of Berkeley and Oakland, both of which are located in 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. About 110 acres are undeveloped with vegetated steep slopes. A facility map with major buildings and surrounding creeks is shown on Figure 2-1.

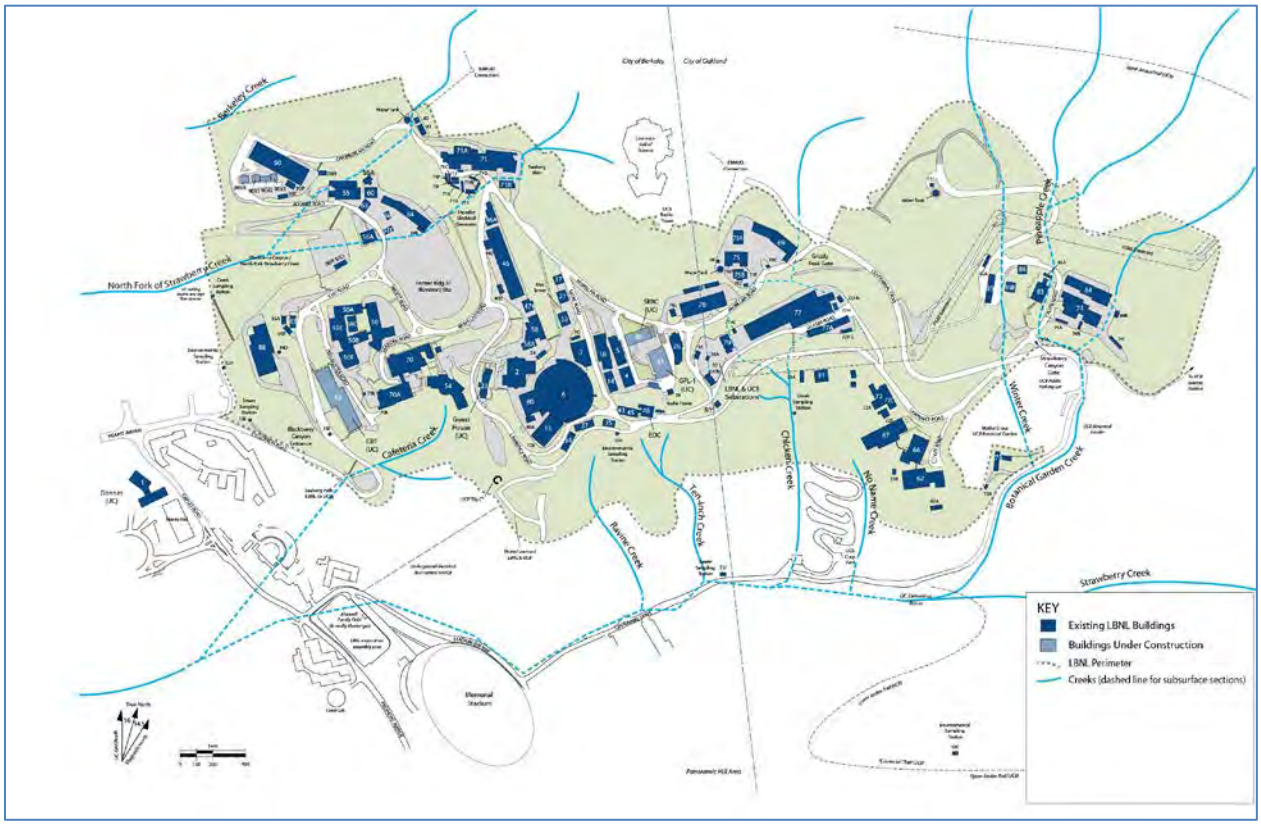

Figure 2-1 Facility Map

LBNL's stormwater discharges are regulated by the IGP based on operations that fall within the following Standard Industrial Classification (SIC) codes:

- 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

A Notice of Intent for coverage under the Industrial General Permit was submitted to the San Francisco Bay Regional Water Quality Control Board (RWQCB) on April 1, 1992. The Waste Discharge Identification number issued by RWQCB for the facility is 2 01 I002421.

Historically the LBNL Stormwater Monitoring Plan [4] focused on larger drainage areas within the site where stormwater discharges have commingled with stormwater from areas with little or no industrial activity. In 2008, LBNL proposed modifying the Stormwater Monitoring Plan so that the focus would be on areas of industrial activity that are specifically regulated by the Industrial General Permit, as these have the most potential to contribute stormwater pollutants. Alternative stormwater monitoring locations were proposed and presented to the RWQCB in December 2008. The alternative monitoring locations provided discharge data for pollutants closer to potential sources. This allowed for improved evaluation of the specific potential source areas and assessment of additional Best Management Practices (BMPs) to control contributions of pollutants from potential source areas. An Alternative Stormwater Monitoring Plan (ASWMP) was developed and implemented in February 2009 and updated again in September 2009.

LBNL has identified five permit-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 Building 76 Vehicle Fueling Station
3. Metal fabrication, storage, and scrap recycling area between Buildings 77 and 79
4. Hazardous waste treatment, storage, and disposal at the Building 85 Hazardous Waste Handling Facility
5. Bus parking in front of Building 64

A SWPPP has been developed and maintained for the site. It identifies the BMPs that must be implemented to reduce stormwater pollution. It also establishes an annual stormwater inspection program to evaluate areas associated with industrial activity that have a potential to contribute a stormwater discharge, and the effectiveness of the BMPs to reduce pollutant discharges. The most recent SWPPP was prepared in February 2013, and it incorporated additional BMPs based on results of storm event sampling performed on November 8, 2012. The SWPPP will be revised by September 30, 2013 in order to incorporate new BMPs resulting from sampling information related to a February 7, 2013 storm event.

3
Storm Event Sampling and Analysis

3.1 General Sampling Information

As required by the IGP and LBNL's ASWMP, samples from two rainfall events that resulted in stormwater discharges were collected during the 2012-2013 wet-weather season; the first sampling took place on November 8, 2012 and the second on February 7, 2013. All stormwater samples were collected under the following Industrial General Permit-required conditions:

- Runoff occurred during normal business operating hours;
- The sample was collected within the first hour of discharge from the site; and
- Rainfall had not been measured at the facility within three working days prior to the sampling event.

For both sampling events, the stormwater discharge locations were sampled in accordance with the LBNL's ASWMP. Figure 3-1 shows the six monitored industrial areas as follows:

1. MP-1: Blackberry Parking Lot
2. MP-2: Building 76 Vehicle Fueling Station
3. MP-3: Building 77/79 Metal Fabrication, Storage and Scrap Recycling Area
4. MP-4: Building 85 Hazardous Waste Handling Facility, Upper Yard
5. MP-5: Building 85 Hazardous Waste Handling Facility, Lower Yard
6. MP-6: Building 64 Bus Parking Lot

For all rainfall sampling events, surface water samples were collected and placed into sample containers prepared by the analytical laboratory following ESG standard operating procedures: *Surface Water Monitoring Procedure*, Procedure 263 [5] and *Data Quality Objectives and Assessment,* Procedure 252 [6]. Analytical laboratories contracted by LBNL for stormwater monitoring are Curtis & Tompkins (C&T) Analytical Laboratory of Berkeley, California and BC Laboratories, Inc. of Bakersfield, California.

All stormwater samples were analyzed for the standard analytical parameters as stipulated in the Industrial General Permit and included:

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

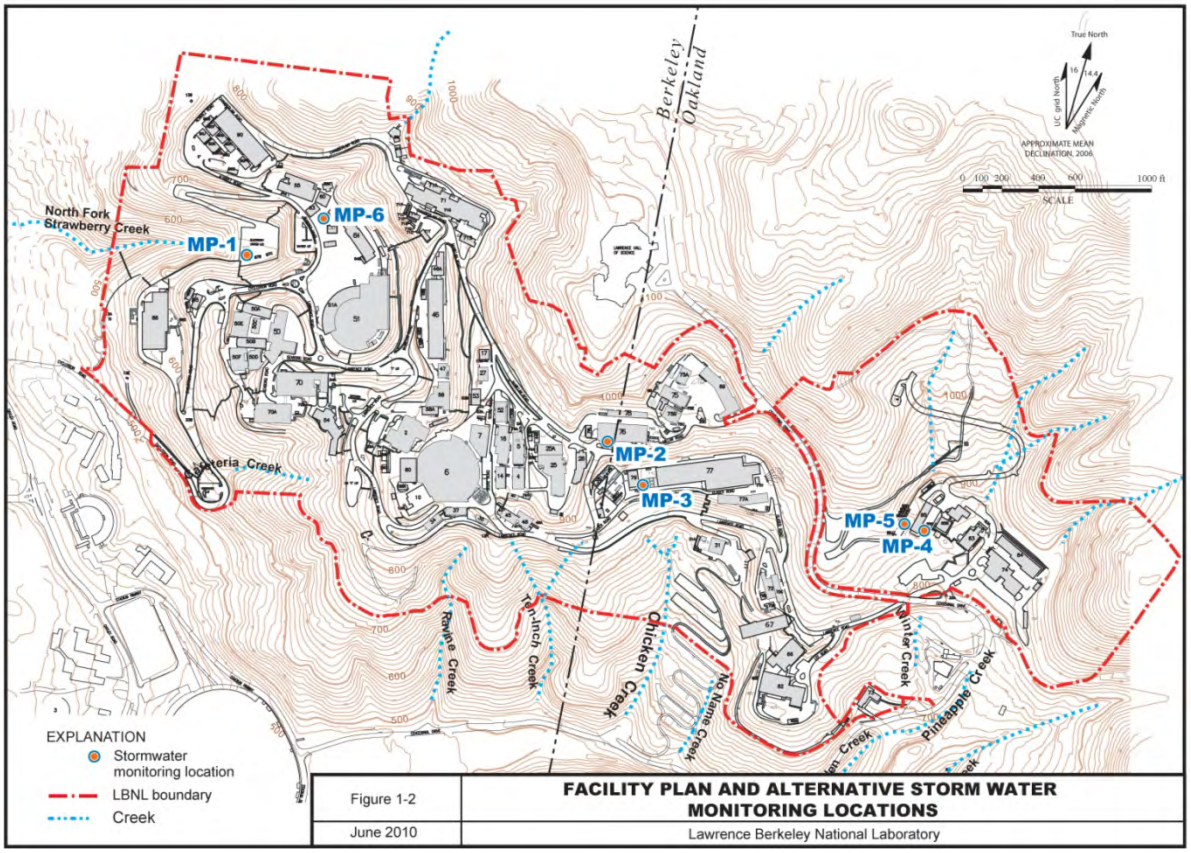

Figure 3-1 Monitoring Locations

Based on SIC 3499 – Fabricated Metal Products and on SIC 5093 – Scrap Recycling Facility, samples from the Building 77/79 metal fabrication, storage and scrap recycling area were also analyzed for the following sector parameters:

- Nitrite and nitrate (as nitrogen) using USEPA Method 300.0 or 353.2
- Total aluminum, total iron and total zinc using USEPA 200.7 or 200.8
- 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, samples from the Building 85 Hazardous Waste Handling Facility 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
- Total silver using USEPA 200.7 or 200.8

The complete set of sample analytical results is found in Attachment A, Form 1. Results were compared to the applicable parameter benchmark values established by the USEPA [7].

3.2 November 8, 2012 Storm Event

Stormwater samples were collected during a rain event on November 8, 2012 in accordance with the California Water Board's IGP and LBNL's ASWMP. The sampling results showed that LBNL's stormwater BMPs provide adequate control for stormwater discharges at all designated industrial locations with the exception of the Blackberry Parking Lot and the Building 77/79 Metal Fabrication, Storage and Scrap Recycling Area.

At the Blackberry Parking Lot the measured level of Total Suspended Solids (TSS) was 180 milligrams per liter (mg/l), exceeding the TSS benchmark goal of 100 mg/l. It was determined that a storm drain inlet had become plugged during this rain event, causing excessive surface water runoff from the hillside to flow onto the parking lot. While the asphalt berm surrounding the parking lot and storm drain filter where functional, the additional erosion from the hillside was not retained by the BMPs. To prevent this occurrence in the future, the cleaning frequency of the adjacent storm drain inlets was increased.

At the Building 77/79 Metal Fabrication, Storage and Scrap Recycling Yard, the pH was measured at 9.43 pH units, exceeding the benchmark goal of a maximum of 9.0. Also, the levels for copper and for zinc were 0.1 mg/l and 0.26 mg/l, respectively; exceeding the benchmark goals of 0.0636 mg/l for copper and 0.117 mg/l for zinc. An additional surface water sampling was performed at this location during a subsequent storm event on November 16, 2012 for pH with results of 7.70 and 7.68, which are within the acceptable range. The elevated pH results that were seen during the November 8, 2012 event may have been related to concrete pumping activities at Building 77, which occurred several days prior to the rain event. In addition, a previous investigation had determined that the solid forklift tires contain significant amounts of zinc and these may be the source of zinc found in the stormwater. In order to minimize the accumulation of both zinc and copper, the surface cleaning frequency of the work areas was increased.

In addition, the benchmark goal for magnesium at the Building 85 Hazardous Waste Handling Facility's Lower and Upper Yards was exceeded; however, a source study in 2009 had determined that the elevated level of magnesium is from aerial deposition of naturally occurring magnesium in the soil surrounding both yards and not from waste management activities at the facility.

Appendix B contains the November 8, 2012 storm event sampling letter report including the following documents:

- Curtis and Tompkins Analytical Laboratories Report
- LBNL Sample Collection Form

- pH Calibration and Measurement Worksheet
- Turbidity Calibration and Measurement Worksheet

The Technical Memorandum on the Hazardous Waste Handling Facility Investigative Studies was submitted to the RWQCB with the 2009/10 Annual Stormwater Report and is included as Appendix D of this report.

The Stormwater Pollution Prevention Plan was revised in February 2013 to incorporate improvements in BMPs and implemented within 90 days in accordance with the Industrial General Permit requirements. This revision includes changes in BMPs as a result of the information from the November 8, 2012 rain events. It is understood that any revisions to an existing BMP may require modification by Regional Water Quality Control Board.

3.3 February 7, 2013 Storm Event

Stormwater samples were collected on February 7, 2013 in accordance with the California Water Board's IGP and the LBNL ASWMP. The sampling results determined that LBNL's stormwater BMPs provide adequate control for stormwater discharges at all designated industrial locations except at the Building 76 Vehicle Fueling Station, the Building 77/79 Metal Fabrication, Storage and Scrap Recycling Area, and the Building 85 Hazardous Waste Handling Facility's Lower Yard.

At the Building 76 Vehicle Fueling Station the measured level of Oil and Grease (O&G) was 29.1 milligrams per liter (mg/l) in the sample collected on February 7, exceeding the O&G benchmark goal of 15 mg/l. In order to improve O&G controls, two new BMPs have been identified: 1) the frequency of the oil and water separator inspections will be increased to weekly, and 2) the absorbent pad in the oil and water separator will be replaced on a monthly basis or more frequently if significant contamination is seen on the pad during the weekly inspection. These two provisions will be added to the Vehicle Fueling Station's maintenance procedure, which is included in Appendix E of the SWPPP. On March 20, 2013 a second sample was collected during a subsequent rain event and no O&G was detected.

At the Building 77/79 Metal Fabrication, Storage and Scrap Recycling Area the levels for nitrite and nitrate (as nitrogen), copper, iron, and zinc were 0.99 mg/l, 0.08 mg/l, 1.40 mg/l and 0.75 mg/l, respectively, which exceeds the benchmark goals of 0.068 mg/l for nitrite and nitrate, 0.0636 mg/l for copper, 1.0 mg/l for iron and 0.117 mg/l for zinc. The discharge sample was obtained at a location immediately downstream of a particulate filtering system, a BMP located within the 50-foot stormwater collection trench. The BMP will be modified by adding peat and zeolite adsorbent media to the particulate filtering system within the collection trench.

At the Building 85 Hazardous Waste Handling Facility's Lower Yard the measured pH was 10.49, exceeding the benchmark goal of 9. An investigation found a small amount of concrete rubble in the Lower Yard's storm drain system that was related to a recent construction activity. After the concrete rubble was cleaned out of the storm drain system, another sample was collected during a subsequent

rain event on March 20, 2013 and the pH was measured at 7.48. Because construction activities have been completed at the Lower Yard, no additional BMPs are warranted.

In addition, the benchmark goal for magnesium at the Building 85 Hazardous Waste Handling Facility's Lower and Upper Yards was exceeded; however, a source study in 2009 had determined that the elevated level of magnesium is due to aerial deposition of naturally occurring magnesium in the soil surrounding both yards and not from waste management activities at the facility. As a result, no additional BMPs are warranted. The The Technical Memorandum on the Hazardous Waste Handling Facility Investigative Studies was submitted to the RWQCB with the 2009/2010 Annual Stormwater Report and is included as Appendix D of this report.

Appendix C contains the February 7, 2013 storm event sampling letter report including the following documents:

1. Sampling Results for February 7, 2013 Rain Event:
    a. LBNL Sample Collection Form
    b. Curtis & Tompkins Analytical Report
    c. LBNL pH Calibration & Measurement Worksheet
    d. LBNL Turbidity Calibration & Measurement Worksheet
2. Follow-up Sampling Results for March 20, 2013 Rain Event:
    a. LBNL Sample Collection Form
    b. Curtis & Tompkins Analytical Report
    c. LBNL pH Calibration & Measurement Worksheet

The Stormwater Pollution Prevention Plan will be revised by September 30, 2013 to reflect any changes in BMPs, and implemented within 90 days in accordance with the Industrial General Permit requirements. This revision will include changes in BMPs as a result of the information from the February 7, 2013 rain event. It is understood that any revisions to an existing BMPs may require approval by the RWQCB.

4

Visual Observations of Non-Stormwater and Stormwater Discharges

4.1 Observations of Authorized Non-Stormwater Discharges

Quarterly visual observations conducted during the 2012-2013 season included the following authorized non-stormwater discharges:

- Groundwater discharges from hydraugers
- Retaining wall weep holes
- Discharges of condensate from air conditioning units

Visual observations revealed no odor, cloudiness or turbidity, discoloring, staining, floating objects, or oil sheen in these discharges.

During the 2012-2013 season visual observations of the following discharges were also performed:

- On November 29, 2012 a water supply line break near Building 82 was discovered and the leak was stopped by closing valves within 30 minutes of discovery. The water line was repaired and returned to operation on December 7, 2012. Visual observations revealed no odor, cloudiness or turbidity, discoloring, staining, floating objects, or oil sheen in these discharges.
- On December 12, 2012 the Building 75 water tower overflowed due to a malfunctioning overflow shutoff switch. Anti-chloramine tablets were placed as a preventative measure and will remain in place until the overflow shutoff switch is replaced. This discharge was a recurrence of the unauthorized discharge (described in the next section) occurring November 12, 2012, when no anti-chloramine tablets were in place. Visual observations revealed no odor, cloudiness or turbidity, discoloring, staining, floating objects, or oil sheen in these discharges.
- On January 15, 2013 a break in the Building 15 sprinkler system resulted in discharges to the storm drain system. The break was repaired within 1.5 hours. Visual observations revealed no odor, cloudiness or turbidity, discoloring, staining, floating objects, or oil sheen in these discharges.

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.

4.2 Observations of Unauthorized Non-Stormwater Discharges

Quarterly visual observations were conducted on potentially unauthorized non-stormwater discharges on:

- August 23, 2012
- November 27, 2012
- February 14, 2013
- May 2, 2013

No indications of prior unauthorized non-stormwater discharges or evidence of unauthorized discharges were observed during the 2012-2013 wet season. However, additional visual observations were performed on the following un-authorized non-stormwater discharges:

- On October 11, 2012 on the Building 51 parking lot domestic water was used to fill 55-gallon barrels to hold down temporary tent structures. One of the water lines was damaged as the barrels were being filled, which resulted in a direct discharge into the storm drain system for more than 30 minutes. In addition, as tents were re-positioned, water barrels were emptied onto the parking lot, resulting in a direct discharge into the storm drain system. To ameliorate the impact of further discharges, the tent supplier was instructed to:
    - Add anti-chloramines tablets to the water barrels near the storm drain inlet
    - Limit the amount of water used to the amount required to hold down the tents
    - Clean trash from any area that drains into the storm drain so that trash will not be transported to the drain when the barrels are emptied
    - Release water from the barrels at a manageable rate
- On November 12, 2012 the Building 75 water tower was overflowing due to a malfunctioning overflow shutoff switch. Anti-chloramine tablets had not been placed near the storm drain discharge location, but were immediately placed upon discovery of the discharge. Visual observations revealed no odor, cloudiness or turbidity, discoloring, staining, floating objects, or oil sheen in the discharge.
- On November 29, 2012 a Sanitary Sewer Overflow (SSO) occurred near the Building 70 loading dock. Color, odor, and turbidity were observed near the source of the discharge, but no floatables nor oil sheen were present at the time of discharge. This SSO was a reportable spill and was reported to the California Emergency Management Agency (CalEMA), RWQCB, and City of Berkeley. The RWQCB requested at letter report, which was submitted on December 14, 2012. A copy of the report is provided in Appendix F.

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

4.3 Monthly Wet Season Observations

Monthly visual observations were conducted during the 2012-2013 wet weather season between October 2012 and May 2013. The monthly observations did reveal some areas of dark brown color, turbidity, floatables, and/or sheen at the stormwater discharges from the North Fork of Strawberry Creek, Chicken Creek, East Canyon Outfall, Winter Creek and Pineapple Creek effluent and influent location as well as certain selected industrial areas.

Turbidity was probably caused by remobilization due to high flow rates within the creek, and the floatables are due to intense stormwater run-off from impervious surfaces such as roads and parking lots. Foam was also visible, and was most likely the result of decomposing plants and animals releasing fatty acids, which act as a surface tension reducing agent.

The monthly observations from November 2012 through April 2013 indicated oil sheen in the following locations:

- At the Blackberry Parking Lot an oil sheen was observed during the months of December 2012 and January, March, and April of 2013.
- An oil sheen was present at the Building 76 Vehicle Fueling Station during monthly observations from November 2012 through April 2013.
- At the Building 64 Bus Parking Area an oil sheen was observed for the monthly inspections from December 2012 through March 2013. The sheen is attributable to dripping oil/ gasoline from personal vehicles.

All these locations are now equipped with oil absorbent pads in the storm drain inlets. This BMP appears to be effective, since the 2012-13 wet season stormwater monitoring events show that all the Oil and Grease data was below the stormwater benchmark of 15 mg/l with the exception of the B76 Vehicle Fueling Station location during the second sampled storm event.

Monthly observations during November 2012 indicate that odor was present in the stormwater discharges at the Building 76 Vehicle Fueling Station. The odor was attributed to maintenance work that was being performed on the fuel pumps. Turbidity and cloudiness was also observed at the Blackberry Parking Lot during the first 2 months of the wet season. This was attributed to the landslide that occurred on the northeast corner of the parking lot that caused mud and debris to slide onto the parking lot. Impact to the storm drain system was minimized, as most of the accumulated mud and debris was removed within a few hours after discovery and strategic removal of accumulated sediment in the filters was carried out shortly after the landslide.

A summary of the wet weather monthly visual observations is presented in Appendix A, Form 4. The detailed inspection forms are provided in Appendix E.

5

Annual Comprehensive Site Compliance Evaluation

A field inspection was conducted for the Annual Comprehensive Site Compliance Evaluation (ACSCE) on May 2, 2013. The ACSCE included an inspection of the entire site 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 3.1. In addition, the ACSCE review included a review of visual observations and inspection records as well as stormwater analytical results. The completed inspection forms required for the *Annual Report* are found in Form 5 of Appendix A.

6 References

[1] California State Water Resources Control Board, "National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 State General Permit for Stormwater Discharges Associated with Industrial Activities," Water Quality Order 97-03-DWQ, April 1997.

[2] Lawrence Berkeley National Laboratory, "Stormwater Pollution Prevention Plan," Revision 12, Environmental Services Group, February 2013.

[3] Lawrence Berkeley National Laboratory, "Alternative Stormwater Monitoring Program," Environmental Services Group, September 2009.

[4] Lawrence Berkeley National Laboratory, "Stormwater Monitoring Plan," Environmental Services Group, November 2005.

[5] Lawrence Berkeley National Laboratory, "Surface Water Monitoring Procedure, Procedure 263," Environmental Services Group, June 29, 2012.

[6] Lawrence Berkeley National Laboratory, "Data Quality Objectives and Assesment, Procedure 252," Environmental Services Group, April 15, 2010.

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

Appendix A

2012-2013 Annual Report

To Interested Parties:

2012-2013 ANNUAL REPORT ANNUAL REPORT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES

Attached is the 2012-21013 annual report that must be mailed to your Regional Board office by July 1, 2013. Dischargers within the Los Angeles Regional Board are required to electronically submit their annual reports via the Storm Water Multi-Application Reporting and Tracking System (SMARTS), email with a PDF attachment(s) to losangeles@waterboards.ca.gov, or mail a disk. Although electronic submittals are not mandatory for dischargers in other regions, we encourage all dischargers to register and use SMARTS. We anticipate that a new Industrial General Permit (IGP) will be adopted sometime next year that will mandate electronic reporting for future reporting years.

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 stormwater@waterboards.ca.gov.

To receive email updates on Storm Water Industrial permitting issues including updates on the IGP reissuance process (hearings, workshops, schedules, etc.), 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

Sincerely,

Storm Water Section

2012-2013
ANNUAL REPORT

State of California
STATE WATER RESOURCES CONTROL BOARD

2012-2013
ANNUAL REPORT
FOR
STORM WATER DISCHARGES ASSOCIATED
WITH INDUSTRIAL ACTIVITIES

Reporting Period July 1, 2012 through June 30, 2013

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

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:** _____

   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 ___/___/_____

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.

2012-2013
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: JOE DIONNE

Signature: Joe Dionne Date: 6/7/2013

Title: Acting Director EHSS Division

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

SIDE A

FORM 1-SAMPLING & ANALYSIS RESULTS
FIRST STORM EVENT

- 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:** John Jelinski

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

DESCRIBE DISCHARGE LOCATION	DATE / TIME OF SAMPLE LOCATION	TIME DISCHARGE STARTED	BASIC PARAMETERS pH	SC	TSS	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	11/082012 12:30 ☐ AM ☒ PM	11/082012 12:30 ☐ AM ☒ PM	8.19	110	180	ND	NR	NR	NR	NR	NR	NR	NR	NR
MP-2	11/082012 13:00 ☐ AM ☒ PM	11/082012 12:30 ☐ AM ☒ PM	7.60	100	23	ND	NR	NR	NR	NR	NR	NR	NR	NR
MP-3	11/082012 12:54 ☐ AM ☒ PM	11/082012 12:30 ☐ AM ☒ PM	9.43	110	30	ND	0.67	0.42 0.69 0.26	0.1	.011	72	NR	NR	NR
MP-4	11/082012 13:25 ☐ AM ☒ PM	11/082012 12:30 ☐ AM ☒ PM	7.88	64	51	ND	NR	NR	NR	ND	18	ND ND ND	1.00 ND ND ND	0.36
MP-5	11/082012 13:20 ☐ AM ☒ PM	11/082012 12:30 ☐ AM ☒ PM	7.77	30	9	ND	NR	NR	NR	ND	19	ND ND ND	0.45 ND ND ND	.31
MP-6	11/082012 12:40 ☐ AM ☒ PM	11/082012 12:30 ☐ AM ☒ PM	7.55	91	38	ND	NR	NR	NR	NR	NR	NR	NR	NR
TEST REPORTING UNITS:			pH Units	µmhos/cm	mg/L	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	0.005	0.001	10	0.01-0.05	0.0002-0.1	0.1
TEST METHOD USED:			SM 4500 HB	USEPA 120.1 or SM 2510B	SM 2540D	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.

FORM 1-SAMPLING & ANALYSIS RESULTS
SECOND STORM EVENT

- 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.

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

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	SC	TSS	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	02/07/2013 09:15 ☒ AM ☐ PM	02/07/2013 08:45 ☒ AM 09:25 ☐ PM	8.95	65	24	10.5	NR	NR	NR	NR	NR	NR	NR	NR
MP-2	02/07/2013 09:35 ☒ AM ☐ PM	02/07/2013 08:45 ☒ AM 09:25 ☐ PM	8.21	110	49	29.1	NR	NR	NR	NR	NR	NR	NR	NR
MP-3	02/07/2013 09:25 ☒ AM ☐ PM	02/07/2012 08:45 ☒ AM 09:25 ☐ PM	8.18	140	94	ND	0.99	0.71 1.4 0.75	0.075	0.035	67	NR	NR	NR
MP-4	02/07/2013 10:00 ☒ AM ☐ PM	02/07/2013 08:45 ☒ AM 09:25 ☐ PM	10.49	130	93	ND	NR	NR	NR	ND	20	ND ND ND	1.9 ND ND ND	0.13
MP-5	02/07/2013 09:50 ☒ AM ☐ PM	02/07/2013 08:45 ☒ AM 09:25 ☐ PM	8.56	33	9	ND	NR	NR	NR	ND	16	ND ND ND	0.52 ND ND ND	0.29
MP-6	02/07/2013 09:00 ☒ AM ☐ PM	02/07/2013 08:45 ☒ AM 09:25 ☐ PM	8.35	69	5	ND	NR	NR	NR	NR	NR	NR	NR	NR
TEST REPORTING UNITS:			pH Units	µmhos/cm	mg/L	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	0.005	0.001	10	0.01-0.05	0.0002-0.1	0.1
TEST METHOD USED:			SM 4500 HB	USEPA 120.1 or SM 2510B	SM 2540D	USEPA 1664	SM 2540D	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.

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 23, 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: **OCTOBER - DECEMBER** DATE: November 27, 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: **JANUARY - MARCH** DATE: February 14, 2013	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 02, 2013	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

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

DATE /TIME OF OBSERVATION	NAME OF AUTHORIZED NSWD EXAMPLE: AC Condensate	SOURCE AND LOCATION 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	
08/23/2012 13:30 ☐ AM 14:50 ☒ PM	Hydrauger discharge Hillside seepage Creek flow Cooling System Condensate	Groundwater Groundwater Groundwater Atmospheric condensate	Clear, no staining, no floating objects, no oil sheen, no odor	Clear, no staining, no floating objects, no oil sheen, no odor	N/A
11/27/2012 11:45 ☒ AM 12:45 ☒ 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
02/14/2013* 13:30 ☐ AM 14:50 ☒ PM	Hydrauger discharge Hillside seepage Creek flow B82 Water Line Break* B75 Water Tower Overflow* B15 Sprinkler Break*	Groundwater Groundwater Groundwater Water Line Break Fire Suppression Run-off Fire Suppression Run-off	Clear, no staining, no floating objects, no oil sheen, no odor	Clear, no staining, no floating objects, no oil sheen, no odor	1) B82 water line break observations were on 11/29/12 (04:50–12:00), valve was shut-off within 30 minutes. Line fixed on 12/07/2012. 2) B75 water tower overflow was on 12/12/2012. Facilities repair completed during the month of March 2013. 3) B15 fire sprinkler break was on 01/15/2013 (12:30-14:00)
05/02/2013 11:40 ☒ AM 13:30 ☒ 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

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 cannot 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 08/23/2012 13:30 ☐ AM 14:50 ☒ PM	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE UNAUTHORIZED NSWD'S OBSERVED?** WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWD'S?	☐ YES ☒ NO ☐ YES ☒ NO	If **YES** to either question, complete the reverse side of this form
QUARTER: **OCTOBER -DECEMBER** Date/Time of Observations 11/27/2012 11:45 ☒ AM 12:45 ☒ PM	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE UNAUTHORIZED NSWD'S OBSERVED?** WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWD'S?	☒ YES ☐ NO ☐ YES ☒ NO	If **YES** to either question, complete the reverse side of this form
QUARTER: **JANUARY - MARCH** Date/Time of Observations 02/14/2013 13:00 ☐ AM 14:00 ☒ PM	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE UNAUTHORIZED NSWD'S OBSERVED?** WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWD'S?	☒ YES ☐ NO ☐ YES ☒ NO	If **YES** to either question, complete the reverse side of this form
QUARTER: **APRIL - JUNE** Date/Time of Observations 05/02/2013 11:40 ☒ AM 13:30 ☒ PM	Observers Name: John Jelinski Title: Quality Coordinator Signature:	**WERE UNAUTHORIZED NSWD'S OBSERVED?** WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWD'S?	☐ YES ☒ NO ☐ YES ☒ NO	If **YES** to either question, complete the reverse side of this form

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

DATE /TIME OF OBSERVATION (FROM REVERSE SIDE)	NAME OF UN-AUTHORIZED NSWD EXAMPLE: AC Condensate	SOURCE AND LOCATION OF UN-AUTHORIZED NSWD EXAMPLE: Groundwater	DESCRIBE UN-AUTHORIZED NSWD CHARACTERISTICS Indicate whether unauthorized NSWD is clear, cloudy, discolored, causing stains; contains floating objects or an oil sheen, has odors, etc.		DESCRIBE CORRECTIVE ACTIONS TO ELIMINATE UNAUTHORIZED NSWD AND TO CLEAN IMPACTED DRAINAGE AREAS. PROVIDE UNAUTHORIZED NSWD ELIMINATION DATE.
			AT THE NSWD SOURCE	AT THE NSWD AREA & DISCHARGE LOCATION	
10/11/2012 16:00 ☒ AM 16:30 ☒ PM	Water Barrel Discharge Water Line break	B51 Parking lot B51 Parking lot	Clear, no staining, no floating objects, no oil sheen, no odor	Clear, no staining, no floating objects, no oil sheen, no odor	Email sent to tent vendor to add dechlorination tablets to water barrels, clean trash from path to storm drain inlets, release water at a manageable rate, and only use as much water in barrels as is required to hold down the tents
11/12/2012 06:30 ☒ AM 11:30 ☐ PM	B75 Water Tank Overflow	B75 Water Tower (potable water)	Clear, no staining, no floating objects, no oil sheen, no odor	Clear, no staining, no floating objects, no oil sheen, no odor	ESG personnel placed dechlorination tablets at source of overflow & surrounding all affected storm drain inlets as soon as they were notified @ approximately 10:50. Facilities waiting on parts for repair
11/29/2012 10:40 ☒ AM 11:00 ☐ PM	B70 Loading Dock SSO	Sewer Overflow @ B70	Color, odor & turbidity observed at source. No floatables or oil sheen present.	Color, odor & turbidity observed at source. No floatables or oil sheen present.	Reportable spill. Water quality measurements taken at length of North Fork of Strawberry Creek & South Fork of Strawberry creek.
☐ AM ☐ PM					

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 22, 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	10/22/2012 10:15 ☒ AM ☐ PM	10/22/2012 09:40 ☒ AM ☐ PM	10/22/2012 09:15 ☒ AM ☐ PM	10/22/2012 09:00-10:35 ☒ AM ☐ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	10/22/1012 01:00 ☒ AM ☐ PM	10/22/1012 01:00 ☒ AM ☐ PM	10/22/1012 01:00 ☒ AM ☐ PM	10/22/1012 01:00 ☒ AM ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☐ YES ☒ **NO**	☒ **YES** ☐ NO	☐ YES ☒ **NO**	☒ **YES** ☐ NO
OBSERVATION DATE: November 08, 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	11/08/2012 12:30 ☐ AM ☒ PM	11/08/2012 13:40 ☐ AM ☒ PM	11/08/2012 13:35 ☐ AM ☒ PM	11/08/2012 12:30-13:25 ☐ AM ☒ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	11/08/2012 12:30 ☐ AM ☒ PM	11/08/2012 12:30 ☐ AM ☒ PM	11/08/2012 12:30 ☐ AM ☒ PM	11/08/2012 12:30 ☐ AM ☒ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☒ **YES** ☐ NO	☒ **YES** ☐ NO	☐ YES ☒ **NO**	☒ **YES** ☐ NO
OBSERVATION DATE: December 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	12/12/2012 14:55 ☐ AM ☒ PM	12/12/2012 14:40 ☐ AM ☒ PM	12/12/2012 14:30 ☐ AM ☒ PM	12/12/2012 14:35-15:00 ☐ AM ☒ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	12/12/2012 No Discharge ☐ AM ☐ PM	12/12/2012 No Discharge ☐ AM ☐ PM	12/12/2012 No Discharge ☐ AM ☐ PM	12/12/2012 No Discharge ☐ AM ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☐ YES ☒ **NO**	☐ YES ☒ **NO**	☐ YES ☒ **NO**	☒ **YES** ☐ NO
OBSERVATION DATE: January 23, 2013	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	01/23/2013 13:50 ☒ AM ☐ PM	01/23/2013 13:35 ☒ AM ☐ PM	01/23/2013 13:15 ☒ AM ☐ PM	01/23/2013 13:00-13:45 ☒ AM ☐ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	01/23/2013 13:00 ☒ AM ☐ PM	01/23/2013 13:00 ☒ AM ☐ PM	01/23/2013 13:00 ☒ AM ☐ PM	01/23/2013 13:00 ☒ AM ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☒ **YES** ☐ NO	☒ **YES** ☐ NO	☐ YES ☒ **NO**	☒ **YES** ☐ NO

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
10/22/2012 09:00 ☒ AM 10:35 ☐ PM	1-MP1, Chicken Creek 2-MP1	Turbidity observed[1] Floatables observed[2]	Turbidity & floatables caused by hillside runoff/ debris in parking lots	N/A
11/08/2012 12:30 ☐ AM 13:40 ☒ PM	1-MP1, Chicken & NF Strawberry Creeks 2-MP1 & MP2 3-MP2 4-MP2 5-MP2	Turbidity observed[1] Floatables observed[2] Color observed[3] Sheen observed[4] Odor observed[5]	1) Turbidity & color caused by hillside runoff/ debris in parking lots 2) Oil sheen & odor from parking lot area runoff 3) Floatables from hillside runoff	N/A
12/12/2012 14:35 ☐ AM 15:00 ☒ PM	4 - MP1, MP2, MP3, MP6	Sheen observed[4]	Oil sheen from parking lot area runoff	N/A
01/23/2013 13:00 ☐ AM 13:50 ☒ PM	1-MP1 thru MP3, Chicken & NF Strawberry Crks 2-MP1 thru MP3, Chicken & NF Strawberry Crks 3-MP1 thru MP3 4-MP1 thru MP3	Turbidity observed[1] Floatables observed[2] Color observed[3] Sheen observed[4]	1) Turbidity & color caused by hillside runoff/ debris in parking lots 2) Oil sheen from parking lot area runoff 3) Floatables from hillside runoff	N/A
☒ AM ☐ PM				

SIDE A

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

- 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, 2013	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	02/07/2013 09:15 ☒ AM ☐ PM	02/07/2013 10:25 ☒ AM ☐ PM	02/07/2013 10:20 ☒ AM ☐ PM	02/07/2013 09:15-10:00 ☒ AM ☐ PM
Title: Program Manager	Time Storm Event and/or Discharge Began	02/07/2013 08:45-09:25 ☒ AM ☐ PM	02/07/2013 08:45-09:25 ☒ AM ☐ PM	02/07/2013 08:45-09:25 ☒ AM ☐ PM	02/07/2013 08:45-09:25 ☒ AM ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☐ YES ☒ **NO**	☐ YES ☒ **NO**	☐ YES ☒ **NO**	☒ **YES** ☐ NO
OBSERVATION DATE: March 20, 2013	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	03/20/2013 13:30 ☐ AM ☒ PM	03/20/2013 13:10 ☐ AM ☒ PM	03/20/2013 13:00 ☐ AM ☒ PM	03/20/2013 12:30-13:25 ☐ AM ☒ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	03/19/2013 08:30 ☐ AM ☒ PM	03/19/2013 08:30 ☐ AM ☒ PM	03/19/2013 08:30 ☐ AM ☒ PM	03/19/2013 08:30 ☐ AM ☒ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☐ YES ☒ **NO**	☐ YES ☒ **NO**	☐ YES ☒ **NO**	☒ **YES** ☐ NO
OBSERVATION DATE: April 01, 2013	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	04/01/2013 11:05 ☒ AM ☐ PM	04/01/2013 11:10 ☒ AM ☐ PM	04/01/2013 11:15 ☒ AM ☐ PM	04/01/2013 10:40-11:25 ☒ AM ☐ PM
Title: Quality coordinator	Time Storm Event and/or Discharge Began	04/01/2013 01:30 ☒ AM ☐ PM	04/01/2013 01:30 ☒ AM ☐ PM	04/01/2013 01:30 ☒ AM ☐ PM	04/01/2013 01:30 ☒ AM ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☐ YES ☒ **NO**	☐ YES ☒ **NO**	☐ YES ☒ **NO**	☒ **YES** ☐ NO
OBSERVATION DATE: May 06, 2013	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	05/06/2013 13:55 ☐ AM ☒ PM	05/06/2013 14:35 ☐ AM ☒ PM	05/06/2013 14:15-14:30 ☐ AM ☒ PM	05/06/2013 13:50-14:25 ☐ AM ☒ PM
Title: Quality Coordinator	Time Storm Event and/or Discharge Began	NA ☐ AM ☐ PM	NA ☐ AM ☐ PM	NA ☐ AM ☐ PM	NA ☐ AM ☐ PM
Signature:	Were Pollutants observed (if YES, complete reverse side)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO

FORM 4 (Continued)-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
02/07/2013 09:00 ☒ AM 10:00 ☐ PM	1-MP2 2-MP2, MP3, MP6	Floatables observed[2] Sheen observed[4]	1) Floatables caused by hillside runoff/ debris in parking lots 2) Oil sheen & odor from parking lot area runoff	N/A
03/20/2013 12:40 ☐ AM 13:25 ☒ PM	2-MP2 3-MP2 4- MP1, MP2, MP3, MP6	Floatables observed[2] Color observed[3] Sheen observed[4]	1) Color caused by hillside runoff/ debris in parking lots 2) Oil sheen from parking lot area runoff 3) Floatables from hillside runoff	N/A
04/01/2013 10:40 ☒ AM 11:25 ☐ PM	3-MP2 4-MP1, MP2	Color observed[3] Sheen observed[4]	1) Color caused by hillside runoff/ debris in parking lots 2) Oil sheen from parking lot area runoff	N/A
☐ AM ☐ PM				
☐ AM ☐ PM				

SIDE A

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

EVALUATION DATE: 05-02-2013 **INSPECTOR NAME:** John Jelinski **TITLE:** Quality Coordinator **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 chips on yard.	Training of new personnel will be reinforced in the coming months but before the wet season. In addition, in order to improve the control of soluble metals, the existing BMP will be modified by incorporating zeolite adsorbant media into the collection trench.
	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		
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	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
Secondary Containment (Site-wide)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	NA	NA
	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	Site wide there are several trash bins with open or damaged lids (B6 & B67) & open metal bins (B77-79)	Building Manager and/or custodian notifications with additional training on 05/08/2013
	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		

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

EVALUATION DATE: 05/02/2013 **INSPECTOR NAME:** John Jelinski **TITLE:** Quality Coordinator **SIGNATURE:** John Jelinski

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 (48)	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 (Under NPDES General Industrial Permit)							
B31 Staging Areas	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		
Spills & Leaks							
B64 building Cooling System Leak (07/16/2012)	Have Any BMPs not been Fully Implemented?	☒	Yes	☐	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
B48 Oil Stain (07/25/2012)	Have Any BMPs not been Fully Implemented?	☒	Yes	☐	No	NA	Facilities removed truck offsite for repairs. Absorbent placed and work request submitted
	Are Additional/revised BMPs Necessary?	☒	Yes	☐	No		
B51 P-lot water barrel spill (10/11/2012)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	Dechlorination tablets were not placed in storm drain inlets	Email sent to vendor to add dechlorination tablets to barrels, clean trash from path, release water at manageable rate, only use as much as is needed
	Are Additional/revised BMPs Necessary?	☒	Yes	☐	No		
B75 Water Tower (11/12/2012)	Have Any BMPs not been Fully Implemented?	☒	Yes	☐	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
B82 Water Line Break (11/29/2012)	Have Any BMPs not been Fully Implemented?	☒	Yes	☐	No	NA	LBNL Facilities put in work request to fix water valve (which was the primary reason for the leak)
	Are Additional/revised BMPs Necessary?	☒	Yes	☐	No		
B70 Loading Dock SSO (11/29/2012)	Have Any BMPs not been Fully Implemented?	☒	Yes	☐	No	NA	NA
	Are Additional/revised BMPs Necessary?	☐	Yes	☒	No		
B75 Water Tower (12/12/2012)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	No dechlorination tablets were placed at source when spill first occurred	Facilities waiting on parts to complete repairs to water tower
	Are Additional/revised BMPs Necessary?	☒	Yes	☐	No		
B85A Fire Suppression spill (03/02/2013)	Have Any BMPs not been Fully Implemented?	☐	Yes	☒	No	EH&S Procedure 870 not fully implemented	Additional training implemented & EH&S Procedure 870 updated
	Are Additional/revised BMPs Necessary?	☒	Yes	☐	No		

2012-2013 Annual Report
Storm Water Discharges Associated With Industrial Activities
Lawrence Berkeley National Laboratory
Facility WDID No. 2 01I002421

EXPLANATIONS TO SPECIFIC 2012-2013 ANNUAL REPORT QUESTIONS

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
Authorized discharges that were occurring during the quarterly observation period were inspected the day of the observations. It is possible that authorized non-storm water discharges may occur at other times when no quarterly observations are taking place. Authorized discharges which were observed on other days are:

- B82 water line break observations were made on 11/29/12 (04:50–12:00)
- B75 water tower overflow observations were made on 12/12/2012 (all day)
- B15 fire sprinkler break observations were made on 01/15/2013 (12:30-14:00)

Appendix B

Sampling Report for November 8, 2012 Storm Event

BERKELEY LAB

Environment / Health / Safety / Security
DIVISION
Environmental Services

CERTIFIED MAIL
Receipt No. 7012 1010 0000 9090 0790

Reference No.: ES-13-033

January 4, 2013

San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, California 94612

Attn: Cecil Felix

Subject: Analytical Results for November 8, 2012 Stormwater Sampling Event

Stormwater samples were collected during a rain event on November 8, 2012 in accordance with the Water Board's General Permit for Stormwater Discharges Associated with Industrial Activities and the Lawrence Berkeley National Laboratory's Stormwater Monitoring Plan. The sampling results show that LBNL's stormwater Best Management Practices (BMPs) provide adequate control for stormwater discharges at all designated industrial locations with the exception of the Blackberry Parking Lot and the Building 77/79 Metal Fabrication and Scrap Recycling Yard. The Stormwater Pollution Prevention Plan will be revised based on these results.

At the Blackberry Parking Lot, the measured level of Total Suspended Solids (TSS) was 180 milligrams per liter (mg/l), exceeding the TSS benchmark goal of 100 mg/l. During this particular rain event, a storm drain inlet had become plugged, causing excessive surface water runoff from the hillside to flow onto the parking lot. While the asphalt berm surrounding the parking lot and storm drain filter where functional, the additional erosion from the hillside was not retained by the BMPs. To prevent this occurrence in the future, the cleaning frequency of the adjacent storm drain inlets will be increased.

At the Building 77/79 Metal Fabrication and Scrap Recycling Yard, the pH was measured at 9.43 pH units, exceeding the benchmark goal of a maximum of 9.0. Also, the level for copper and for zinc was 0.1 mg/l and 0.26 mg/l, respectively; exceeding the benchmark goals of 0.0636 mg/l for copper and 0.117 mg/l for zinc. An additional surface water sampling was performed at this location during a subsequent storm event on November 16, 2012 for pH with results of 7.70 and 7.68, which are within the acceptable range. The elevated pH results that were seen during the November 8, 2012 event may have been related to concrete pumping activities at Building 77, which occurred several days prior to the rain event. In addition, a previous investigation had determined that the solid forklift tires contain significant amounts of zinc that may be the source of zinc found in the stormwater. In order to minimize the accumulation of both zinc and copper, the surface cleaning frequency of the work areas will be increased.

Ernest Orlando Lawrence Berkeley National Laboratory
One Cyclotron Road | Berkeley, California 94720 | Mail Stop 75R0123 | Tel: 510.486.7614 | Fax: 510.486.6939
Email: ROPauer@lbl.gov

In addition, the benchmark goals for magnesium at the Building 85 Hazardous Waste Handling Facility's Lower and Upper Yards were exceeded; however, a source study in 2009 had determined that the elevated level of magnesium is from aerial deposition of naturally occurring magnesium in the soil surrounding both yards and not from waste management activities at the facility. The study report was submitted to the Regional Water Quality Control Board in 2009.

The Stormwater Pollution Prevention Plan will be revised to reflect any changes in BMPs and implemented within 90 days in accordance with the Industrial General Permit requirements. This revision will include changes in BMPs as a result of the information from the November 8, 2012 rain events. It is understood that any revisions to an existing BMP may require modification by Regional Water Quality Control Board.

If you have any questions, please contact Tim Bauters (twbauters@lbl.gov) at 510-486-5831 or me (ropauer@lbl.gov) at (510) 486-7614.

Sincerely,

Ron Pauer

Ron Pauer
Environmental Manager

enclosures:

1) Curtis and Tompkins Analytical Laboratories Report
2) LBNL Sample Collection Form
3) pH Calibration and Measurement Worksheet
4) Turbidity Calibration and Measurement Worksheet

cc via email w/enclosure:

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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 241115
ANALYTICAL REPORT

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

Sample ID	Lab ID
69074	241115-001
69075	241115-002
69077	241115-003
69078	241115-004
69080	241115-005
69081	241115-006
69082	241115-007
69083	241115-008
69090	241115-009
69091	241115-010
69092	241115-011
69093	241115-012
69095	241115-013
69096	241115-014
69097	241115-015
69098	241115-016
69100	241115-017
69101	241115-018
69103	241115-019

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: Isabelle Choy Date: 11/26/2012

Isabelle Choy
Project Manager
(510)204-2223

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**241115**
Client:	**Lawrence Berkeley National Lab**
Location:	**Surface Water Monitoring - ASWMP Samp**
Request Date:	**11/08/12**
Samples Received:	**11/08/12**

This data package contains sample and QC results for nineteen water samples, requested for the above referenced project on 11/08/12. 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 192664. No other analytical problems were encountered.

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

241115

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 75R0123
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.: 07669
Release Number / Document Control No.: ESG-07669
Collection(s): 7431

1	69074	11/8/2012 12:30	11/8/2012 12:30	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		11/8/2012 12:30	11/8/2012 12:30	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
2	69075	11/8/2012 12:30	11/8/2012 12:30	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
3	69077	11/8/2012 13:00	11/8/2012 13:00	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		11/8/2012 13:00	11/8/2012 13:00	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
4	69078	11/8/2012 13:00	11/8/2012 13:00	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
5	69080	11/8/2012 12:54	11/8/2012 12:54	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		11/8/2012 12:54	11/8/2012 12:54	Grab	Aqueous	1 Liter PE	1	None	NO3+NO2(asN):MULT		
		11/8/2012 12:54	11/8/2012 12:54	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
6	69081	11/8/2012 12:54	11/8/2012 12:54	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
7	69082	11/8/2012 12:54	11/8/2012 12:54	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
8	69083	11/8/2012 12:54	11/8/2012 12:54	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 & John

Special Instructions/Comments:

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: B — Time: 3:15 PM	Signature / Time	Signature / Time
Printed Name: Tim BAUERS — Date: NOV 8, 12	Printed Name / Date	Printed Name / Date
Company: LBNL	Company	Company

Received By	Received By	Received By
Signature: [illegible] — Time: 1515	Signature / Time	Signature / Time
Printed Name: Isabelle CHOY — Date: NOV 8, 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.

241115

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 75R0123
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.: 07669

Release Number / Document Control No.: ESG-07669
Collection(s): 7431

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 69090	11/8/2012 13:25	11/8/2012 13:25	Grab	Aqueous	1 Liter PE	1	None	E120.1		
	11/8/2012 13:25	11/8/2012 13:25	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
10 69091	11/8/2012 13:25	11/8/2012 13:25	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
11 69092	11/8/2012 13:25	11/8/2012 13:25	Grab	Aqueous	500 ml PE	1	H2SO4	Ammonia(asN):MULT		
	11/8/2012 13:25	11/8/2012 13:25	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
12 69093	11/8/2012 13:25	11/8/2012 13:25	Grab	Aqueous	500 ml PE	2	HNO3 or NaOH	STORMMET-ASWMP-85		
13 69095	11/8/2012 13:20	11/8/2012 13:20	Grab	Aqueous	1 Liter PE	1	None	E120.1		
	11/8/2012 13:20	11/8/2012 13:20	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
14 69096	11/8/2012 13:20	11/8/2012 13:20	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
15 69097	11/8/2012 13:20	11/8/2012 13:20	Grab	Aqueous	500 ml PE	1	H2SO4	Ammonia(asN):MULT		
	11/8/2012 13:20	11/8/2012 13:20	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
16 69098	11/8/2012 13:20	11/8/2012 13:20	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 & John

Special Instructions/Comments:

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [signature] Time: 3:15 PM	Signature / Time	Signature / Time
Printed Name: Tim BAUERS Date: Nov. 8. 12	Printed Name / Date	Printed Name / Date
Company: LBNL	Company	Company

Received By	Received By	Received By
Signature: [signature] Time: 1515	Signature / Time	Signature / Time
Printed Name: Isabelle Choy Date: 11/8/12	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 tumaround time is for reporting and is in work days, as defined in the Joint LBNL/LLNL Analytical Services blanket order.

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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.: 07669
Release Number / Document Control No.: ESG-07669
Collection(s): 7431

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 69100	11/8/2012 12:40	11/8/2012 12:40	Grab	Aqueous	1 Liter PE	1	None	E120.1		
	11/8/2012 12:40	11/8/2012 12:40	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
18 69101	11/8/2012 12:40	11/8/2012 12:40	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
19 69103	11/8/2012 14:00	11/8/2012 14:00	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 + John

Special Instructions/Comments:

Relinquished By (Sampler)
Signature: [signature] Time: 3:15 PM
Printed Name: Tim BAKERS Date: NOV. 8, 2012
Company: LBNL

Received By
Signature: [signature] Time: 1515
Printed Name: Isabelle Choy Date: 11/8/12
Company: C&T

Relinquished By
Signature Time
Printed Name Date
Company

Received By
Signature Time
Printed Name Date
Company

Relinquished By
Signature Time
Printed Name Date
Company

Received By
Signature Time
Printed Name Date
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 # 241115 Date Received 11/8/12 Number of coolers 1
Client U.C. LAWRENCE BERKELY NATIONAL LAB Project SURFACE WATER MONITORING PROGRAM - ASWMP SAMPLING

Date Opened 11/8 By (print) P.C. (sign) [signature]
Date Logged in ↓ By (print) EL (sign) [signature]

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 21 Name SIGNATURE Date 11/8/12
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) 9.4

☒ 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 241115

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
-002a	[ ]	[ ]	[ ]	_____
-003a	[ ]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
-005a	[ ]	[ ]	[ ]	_____
-006a	[ ]	[ ]	[ ]	_____
-007a	[X]	[ ]	[ ]	_____
-008a	[ ]	[ ]	[ ]	_____
-009a	[ ]	[ ]	[ ]	_____
-010a	[ ]	[ ]	[ ]	_____
-011a	[X]	[ ]	[ ]	_____
-012a	[X]	[ ]	[ ]	_____
b	[ ]	[ ]	[X]	_____
-013a	[ ]	[ ]	[ ]	_____
-014a	[ ]	[ ]	[ ]	_____
-015a	[X]	[ ]	[ ]	_____
-016a	[X]	[ ]	[ ]	_____
b	[ ]	[ ]	[X]	_____
-017a	[ ]	[ ]	[ ]	_____
-018a	[ ]	[ ]	[ ]	_____
-019a	[X]	[ ]	[ ]	_____

Analyst: P.S.
Date: 11/8/12

Page 1 of 1

Curtis & Tompkins, Ltd.

Metals Analytical Report

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.7
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring - ASWMP Samp		
COC #:	07669	Batch#:	192828
Requested:	STORMMET-ASWMP-77	Instrument:	MET26
Matrix:	Water	Chemist:	AH
Units:	mg/L	Received:	11/08/12
Diln Fac:	5.000	Prepared:	11/13/12 19:45

Field ID: 69083 Lab ID: 241115-008
Type: SAMPLE Sampled: 11/08/12 12:54

Analyte	Code	Result	RL	Analyzed
Aluminum	0313	0.42	0.050	11/21/12 02:24
Copper	2800	0.10	0.0050	11/21/12 02:24
Iron	5350	0.69	0.050	11/21/12 02:24
Lead	5450	0.011	0.0050	11/21/12 02:24
Zinc	9050	0.26	0.050	11/25/12 02:15

Field ID: 69103 Lab ID: 241115-019
Type: SAMPLE Sampled: 11/08/12 14:00

Analyte	Code	Result	RL	Analyzed
Aluminum	0313	ND	0.050	11/21/12 03:02
Copper	2800	ND	0.0050	11/21/12 03:02
Iron	5350	ND	0.050	11/21/12 18:50
Lead	5450	ND	0.0050	11/21/12 03:02
Zinc	9050	0.082	0.050	11/25/12 02:30

Type: BLANK Lab ID: QC665914

Analyte	Code	Result	RL	Analyzed
Aluminum	0313	ND	0.050	11/21/12 01:50
Copper	2800	ND	0.0050	11/21/12 01:50
Iron	5350	ND	0.050	11/21/12 01:50
Lead	5450	ND	0.0050	11/21/12 01:50
Zinc	9050	ND	0.050	11/25/12 02:06

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Metals Analytical Report

Lab #:	241115	Location:	Surface Water Monitoring - ASWMP Samp
Client:	Lawrence Berkeley National Lab	Cert #:	01107CA
Project#:	STANDARD		
COC #:	07669	Units:	mg/L
Requested:	STORMMET-ASWMP-85	Received:	11/08/12

Field ID:	69093	Matrix:	Water
Type:	SAMPLE	Sampled:	11/08/12 13:25
Lab ID:	241115-012		

Analyte	Code	Result	RL	Diln Fac	Batch#	Instrument	Chemist	Prepared	Analyzed	Prep	Analysis
Arsenic	0450	ND	0.050	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:38	EPA 200.7	EPA 200.8
Cadmium	1650	ND	0.010	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:38	EPA 200.7	EPA 200.8
Lead	5450	ND	0.050	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:38	EPA 200.7	EPA 200.8
Magnesium	5500	1.0	0.050	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:38	EPA 200.7	EPA 200.8
Mercury	5600	ND	0.00020	1.000	192932	MET34	CRT	11/16/12 10:20	11/16/12 15:34	METHOD	EPA 245.1
Selenium	7600	ND	0.050	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:38	EPA 200.7	EPA 200.8
Silver	7800	ND	0.010	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:38	EPA 200.7	EPA 200.8

Field ID:	69098	Matrix:	Water
Type:	SAMPLE	Sampled:	11/08/12 13:20
Lab ID:	241115-016		

Analyte	Code	Result	RL	Diln Fac	Batch#	Instrument	Chemist	Prepared	Analyzed	Prep	Analysis
Arsenic	0450	ND	0.050	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:43	EPA 200.7	EPA 200.8
Cadmium	1650	ND	0.010	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:43	EPA 200.7	EPA 200.8
Lead	5450	ND	0.050	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:43	EPA 200.7	EPA 200.8
Magnesium	5500	0.45	0.050	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:43	EPA 200.7	EPA 200.8
Mercury	5600	ND	0.00020	1.000	192932	MET34	CRT	11/16/12 10:20	11/16/12 15:36	METHOD	EPA 245.1
Selenium	7600	ND	0.050	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:43	EPA 200.7	EPA 200.8
Silver	7800	ND	0.010	5.000	192828	MET26	AH	11/13/12 19:45	11/21/12 02:43	EPA 200.7	EPA 200.8

Type:	BLANK	Chemist:	AH
Lab ID:	QC665914	Prepared:	11/13/12 19:45
Matrix:	Water	Analyzed:	11/21/12 01:50
Diln Fac:	5.000	Prep:	EPA 200.7
Batch#:	192828	Analysis:	EPA 200.8
Instrument:	MET26		

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	Instrument:	MET34
Type:	BLANK	Chemist:	CRT
Lab ID:	QC666362	Prepared:	11/16/12 10:20
Matrix:	Filtrate	Analyzed:	11/16/12 15:19
Diln Fac:	1.000	Prep:	METHOD
Batch#:	192932	Analysis:	EPA 245.1

Analyte	Result	RL
Mercury	ND	0.00020

ND= Not Detected
RL= Reporting Limit

23.3

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.7
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	STORMMET-ASWMP-77	Diln Fac:	5.000
Type:	LCS	Batch#:	192828
Lab ID:	QC665915	Instrument:	MET26
Matrix:	Water	Chemist:	AH
Units:	mg/L	Prepared:	11/13/12 19:45

Analyte	Code	Spiked	Result	%REC	Limits	Analyzed
Aluminum	0313	2.000	1.950	97	58-134	11/21/12 01:54
Copper	2800	0.2500	0.2335	93	74-120	11/21/12 01:54
Iron	5350	1.000	1.043	104	55-145	11/21/12 01:54
Lead	5450	0.1000	0.09785	98	72-120	11/21/12 01:54
Zinc	9050	0.5000	0.5115	102	70-123	11/25/12 02:11

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.7
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	STORMMET-ASWMP-85	Batch#:	192828
Type:	LCS	Instrument:	MET26
Lab ID:	QC665915	Chemist:	AH
Matrix:	Water	Prepared:	11/13/12 19:45
Units:	mg/L	Analyzed:	11/21/12 01:54
Diln Fac:	5.000		

Analyte	Code	Spiked	Result	%REC	Limits
Arsenic	0450	0.1000	0.09875	99	76-120
Cadmium	1650	0.05000	0.04452	89	75-120
Lead	5450	0.1000	0.09785	98	72-120
Magnesium	5500	20.00	18.35	92	59-133
Selenium	7600	0.1000	0.1061	106	69-126
Silver	7800	0.05000	0.05345	107	75-120

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.7
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	STORMMET-ASWMP-77	Batch#:	192828
Field ID:	69083	Instrument:	MET26
MSS Lab ID:	241115-008	Chemist:	AH
Matrix:	Water	Sampled:	11/08/12 12:54
Units:	mg/L	Received:	11/08/12
Diln Fac:	5.000	Prepared:	11/13/12 19:45

Type: MS Lab ID: QC665916

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Aluminum	0313	0.4243	2.000	2.431	100	58-130	11/21/12 02:28
Copper	2800	0.1012	0.2500	0.3349	94	64-120	11/21/12 02:28
Iron	5350	0.6890	1.000	1.688	100	50-138	11/21/12 02:28
Lead	5450	0.01054	0.1000	0.1074	97	66-120	11/21/12 02:28
Zinc	9050	0.2564	0.5000	0.7460	98	58-123	11/25/12 02:20

Type: MSD Lab ID: QC665917

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Aluminum	0313	2.000	2.420	100	58-130	0	20	11/21/12 02:33
Copper	2800	0.2500	0.3349	93	64-120	0	44	11/21/12 02:33
Iron	5350	1.000	1.738	105	50-138	3	34	11/21/12 02:33
Lead	5450	0.1000	0.1083	98	66-120	1	20	11/21/12 02:33
Zinc	9050	0.5000	0.7565	100	58-123	1	44	11/25/12 02:25

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.7
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	STORMMET-ASWMP-85	Batch#:	192828
Field ID:	69083	Instrument:	MET26
MSS Lab ID:	241115-008	Chemist:	AH
Matrix:	Water	Sampled:	11/08/12 12:54
Units:	mg/L	Received:	11/08/12
Diln Fac:	5.000	Prepared:	11/13/12 19:45

Type: MS Lab ID: QC665916

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Arsenic	0450	0.001404	0.1000	0.1013	100	68-121	11/21/12 02:28
Cadmium	1650	0.0005745	0.05000	0.05000	99	68-120	11/21/12 18:40
Lead	5450	0.01054	0.1000	0.1074	97	66-120	11/21/12 02:28
Magnesium	5500	1.175	20.00	19.79	93	44-139	11/21/12 02:28
Selenium	7600	0.001509	0.1000	0.09985	98	61-125	11/21/12 18:40
Silver	7800	<0.0001394	0.05000	0.05485	110	66-120	11/21/12 02:28

Type: MSD Lab ID: QC665917

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Arsenic	0450	0.1000	0.09855	97	68-121	3	42	11/21/12 02:33
Cadmium	1650	0.05000	0.05175	102	68-120	3	31	11/21/12 18:45
Lead	5450	0.1000	0.1083	98	66-120	1	20	11/21/12 02:33
Magnesium	5500	20.00	19.95	94	44-139	1	44	11/21/12 02:33
Selenium	7600	0.1000	0.09240	91	61-125	8	37	11/21/12 18:45
Silver	7800	0.05000	0.05295	106	66-120	4	26	11/21/12 02:33

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 245.1
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Mercury	Diln Fac:	1.000
Code:	5600	Batch#:	192932
Requested:	STORMMET-ASWMP-85	Instrument:	MET34
Type:	LCS	Chemist:	CRT
Lab ID:	QC666363	Prepared:	11/16/12 10:20
Matrix:	Filtrate	Analyzed:	11/16/12 15:21
Units:	mg/L		

Spiked	Result	%REC	Limits
0.002500	0.002546	102	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 245.1
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Mercury	Diln Fac:	1.000
Code:	5600	Batch#:	192932
Requested:	STORMMET-ASWMP-85	Instrument:	MET34
Field ID:	ZZZZZZZZZZ	Chemist:	CRT
MSS Lab ID:	241151-004	Sampled:	11/07/12 09:50
Matrix:	Filtrate	Received:	11/09/12
Units:	mg/L	Prepared:	11/16/12 10:20

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
MS	QC666364	<0.00002014	0.002500	0.002595	104	64-124			11/16/12 15:25
MSD	QC666365		0.002500	0.002529	101	64-124	3	40	11/16/12 15:31

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Nitrate/Nitrite Nitrogen

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	Surface Water Monitoring - ASWMP Samp		
Code:	5950	Diln Fac:	1.000
COC #:	07669	Batch#:	192635
Requested:	NO3+NO2(asN):MULT	Instrument:	IC03
Field ID:	69080	Chemist:	RDG
Matrix:	Water	Sampled:	11/08/12 12:54
Units:	mg/L	Received:	11/08/12

Type: SAMPLE Analyzed: 11/08/12 18:59
Lab ID: 241115-005

Analyte	Result	RL
Nitrogen, Nitrate/Nitrite	0.67	0.10

Type: BLANK Analyzed: 11/08/12 11:59
Lab ID: QC665087

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 #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	NO3+NO2(asN):MULT	Diln Fac:	1.000
Type:	LCS	Batch#:	192635
Lab ID:	QC665088	Instrument:	IC03
Matrix:	Water	Chemist:	VQ
Units:	mg/L	Analyzed:	11/08/12 18:07

Analyte	Code	Spiked	Result	%REC	Limits
Nitrogen, Nitrite	5960	1.000	1.050	105	80-120
Nitrogen, Nitrate	5945	1.000	1.073	107	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

Nitrate/Nitrite Nitrogen

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	NO3+NO2(asN):MULT	Batch#:	192635
Field ID:	ZZZZZZZZZZ	Instrument:	IC03
MSS Lab ID:	241068-001	Chemist:	RDG
Matrix:	Water	Sampled:	11/01/12 10:23
Units:	mg/L	Received:	11/07/12
Diln Fac:	2.000		

Type: MS Analyzed: 11/08/12 21:01
Lab ID: QC665215

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits
Nitrogen, Nitrite	5960	<0.02574	1.000	1.029	103	80-121
Nitrogen, Nitrate	5945	4.245	1.000	5.184	94 NM	80-120

Type: MSD Analyzed: 11/08/12 21:18
Lab ID: QC665216

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim
Nitrogen, Nitrite	5960	1.000	1.030	103	80-121	0	22
Nitrogen, Nitrate	5945	1.000	5.192	95 NM	80-120	0	20

NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Oil & Grease (HEM)

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 1664A
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Oil & Grease (HEM)	Batch#:	192819
Code:	6325	Instrument:	H3000
COC #:	07669	Chemist:	NJT
Requested:	E1664	Received:	11/08/12
Matrix:	Water	Analyzed:	11/13/12 00:00
Units:	mg/L		

Field ID	Type	Lab ID	Result	RL	Diln Fac	Sampled
69075	SAMPLE	241115-002	ND	4.85	0.9700	11/08/12 12:30
69078	SAMPLE	241115-004	ND	4.75	0.9500	11/08/12 13:00
69081	SAMPLE	241115-006	ND	4.80	0.9600	11/08/12 12:54
69091	SAMPLE	241115-010	ND	4.75	0.9500	11/08/12 13:25
69096	SAMPLE	241115-014	ND	4.75	0.9500	11/08/12 13:20
69101	SAMPLE	241115-018	ND	4.80	0.9600	11/08/12 12:40
	BLANK	QC665870	ND	5.00	1.000	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Oil & Grease (HEM)

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 1664A
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Oil & Grease (HEM)	Diln Fac:	1.000
Code:	6325	Batch#:	192819
Requested:	E1664	Instrument:	H3000
Matrix:	Water	Chemist:	NJT
Units:	mg/L	Analyzed:	11/13/12 00:00

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC665871	40.00	35.30	88	78-114		
BSD	QC665872	40.00	35.90	90	78-114	2	18

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Ammonia Nitrogen

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	SM4500NH3-B
Project#:	STANDARD	Analysis:	SM4500NH3-D
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Ammonia-N	Diln Fac:	1.000
Code:	0325	Batch#:	192752
COC #:	07669	Instrument:	OR_NH3
Requested:	Ammonia(asN):MULT	Chemist:	NJT
Matrix:	Water	Received:	11/08/12
Units:	mg/L	Analyzed:	11/12/12 11:00

Field ID	Type	Lab ID	Result	RL	Sampled
69092	SAMPLE	241115-011	0.36	0.10	11/08/12 13:25
69097	SAMPLE	241115-015	0.31	0.10	11/08/12 13:20
	BLANK	QC665566	ND	0.10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Ammonia Nitrogen

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	SM4500NH3-B
Project#:	STANDARD	Analysis:	SM4500NH3-D
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Ammonia-N	Diln Fac:	1.000
Code:	0325	Batch#:	192752
Requested:	Ammonia(asN):MULT	Instrument:	OR_NH3
Field ID:	ZZZZZZZZZZ	Chemist:	NJT
MSS Lab ID:	241096-001	Sampled:	11/07/12 10:14
Matrix:	Water	Received:	11/08/12
Units:	mg/L	Analyzed:	11/12/12 11:00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
LCS	QC665567		5.000	4.700	94	76-120		
MS	QC665568	0.2200	5.000	4.900	94	66-120		
MSD	QC665569		5.000	4.500	86	66-120	9	27

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Chemical Oxygen Demand

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM5220D
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Chemical Oxygen Demand	Batch#:	192853
Code:	1875	Instrument:	DR2800
COC #:	07669	Chemist:	NJT
Requested:	E410.4	Received:	11/08/12
Matrix:	Water	Prepared:	11/14/12 11:50
Units:	mg/L	Analyzed:	11/14/12 14:00
Diln Fac:	1.000		

Field ID	Type	Lab ID	Result	RL	Sampled
69082	SAMPLE	241115-007	72	10	11/08/12 12:54
69092	SAMPLE	241115-011	18	10	11/08/12 13:25
69097	SAMPLE	241115-015	19	10	11/08/12 13:20
	BLANK	QC666022	ND	10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Chemical Oxygen Demand

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM5220D
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Chemical Oxygen Demand	Batch#:	192853
Code:	1875	Instrument:	DR2800
Requested:	E410.4	Chemist:	NJT
Field ID:	69097	Sampled:	11/08/12 13:20
MSS Lab ID:	241115-015	Received:	11/08/12
Matrix:	Water	Prepared:	11/14/12 11:50
Units:	mg/L	Analyzed:	11/14/12 14:00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
LCS	QC666023		75.00	71.62	95	90-110			1.000
MS	QC666024	18.98	300.0	318.6	100	58-130			2.000
MSD	QC666025		300.0	336.1	106	58-130	5	20	2.000

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Cyanide

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM4500CN-E
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Cyanide	Batch#:	192678
Code:	2850	Instrument:	LAMBDA
COC #:	07669	Chemist:	DM
Requested:	MET-Cn:MULT	Received:	11/08/12
Matrix:	Water	Prepared:	11/09/12 08:30
Units:	mg/L	Analyzed:	11/09/12 12:26
Diln Fac:	1.000		

Field ID	Type	Lab ID	Result	RL	Sampled
69093	SAMPLE	241115-012	ND	0.02	11/08/12 13:25
69098	SAMPLE	241115-016	ND	0.02	11/08/12 13:20
	BLANK	QC665266	ND	0.01	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Cyanide

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM4500CN-E
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Cyanide	Diln Fac:	1.000
Code:	2850	Batch#:	192678
Requested:	MET-Cn:MULT	Instrument:	LAMBDA
Field ID:	ZZZZZZZZZZ	Chemist:	DM
MSS Lab ID:	241107-001	Sampled:	11/07/12 15:00
Matrix:	Water	Received:	11/08/12
Units:	mg/L	Analyzed:	11/09/12 00:00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC665267	0.02140	0.2000	0.1977	88	66-123		
MSD	QC665268		0.2000	0.1901	84	66-123	4	28
LCS	QC665269		0.2000	0.1822	91	78-120		

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Conductivity

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2510B
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Specific Conductance	Diln Fac:	1.000
Code:	8000	Batch#:	192781
COC #:	07669	Instrument:	VWR_EC
Requested:	E120.1	Chemist:	KR
Matrix:	Water	Received:	11/08/12
Units:	umhos/cm	Analyzed:	11/12/12 19:20

Field ID	Type	Lab ID	Result	RL	Sampled
69074	SAMPLE	241115-001	110	1.0	11/08/12 12:30
69077	SAMPLE	241115-003	100	1.0	11/08/12 13:00
69080	SAMPLE	241115-005	110	1.0	11/08/12 12:54
69090	SAMPLE	241115-009	64	1.0	11/08/12 13:25
69095	SAMPLE	241115-013	30	1.0	11/08/12 13:20
69100	SAMPLE	241115-017	91	1.0	11/08/12 12:40
	BLANK	QC665709	ND	1.0	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Conductivity

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2510B
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Specific Conductance	Diln Fac:	1.000
Code:	8000	Batch#:	192781
Requested:	E120.1	Instrument:	VWR_EC
Field ID:	69100	Chemist:	KR
MSS Lab ID:	241115-017	Sampled:	11/08/12 12:40
Matrix:	Water	Received:	11/08/12
Units:	umhos/cm	Analyzed:	11/12/12 19:20

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
LCS	QC665710		1,000	1,003		100	90-110		
SDUP	QC665711	91.00		90.40	1.000			1	20

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Suspended Solids (TSS)

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2540D
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Total Suspended Solids	Batch#:	192664
Code:	7450	Instrument:	SCALE
COC #:	07669	Chemist:	KR
Requested:	TSS:SM2540D	Received:	11/08/12
Matrix:	Water	Prepared:	11/08/12 21:15
Units:	mg/L	Analyzed:	11/09/12 11:05
Diln Fac:	0.2000		

Field ID	Type	Lab ID	Result	RL	Sampled
69074	SAMPLE	241115-001	180	0.2	11/08/12 12:30
69077	SAMPLE	241115-003	23	0.2	11/08/12 13:00
69080	SAMPLE	241115-005	30	0.2	11/08/12 12:54
69090	SAMPLE	241115-009	51	0.2	11/08/12 13:25
69095	SAMPLE	241115-013	9	0.2	11/08/12 13:20
69100	SAMPLE	241115-017	38	0.2	11/08/12 12:40
	BLANK	QC665195	ND	1	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Suspended Solids (TSS)

Lab #:	241115	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2540D
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Total Suspended Solids	Batch#:	192664
Code:	7450	Instrument:	SCALE
Requested:	TSS:SM2540D	Chemist:	KR
Field ID:	ZZZZZZZZZZ	Sampled:	11/07/12 15:00
MSS Lab ID:	241107-001	Received:	11/08/12
Matrix:	Water	Prepared:	11/08/12 21:15
Units:	mg/L	Analyzed:	11/09/12 11:05
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC665196		50.00	53.00	106	80-120		
BSD	QC665197		50.00	50.00	100	80-120	6 *	5
MS	QC665198	155.0	50.00	215.0	120	63-138		
MSD	QC665199		50.00	204.0	98 NM	63-138	5	5

*= Value outside of QC limits; see narrative
NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

ESG Sample Collection Form

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

Surface Water Monitoring
ASWMP Sampling
Collection: 7431

Sample Data

Sample ID	Location	SampleType	QC Type	Coll Type	Lab/Analysis	Date/time	Container(s)	Presv	Amount	Sample Notes
69074	MP1	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	11/8/2012 12:30:00 PM	1-1 Liter PE	None	1 L	
69075	MP1	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	11/8/2012 12:30:00 PM	1-1 Liter AG	HCL	1 L	
69076	MP1	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	11/8/2012 12:30:00 PM	1-250 ml PE	None	0.25 L	In house measurement not send to lab pH = 8.19, Turbidity = 184
69077	MP2	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	11/8/2012 1:00:00 PM	1-1 Liter PE	None	1 L	
69078	MP2	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	11/8/2012 1:00:00 PM	1-1 Liter AG	HCL	1 L	
69079	MP2	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	11/8/2012 1:00:00 PM	1-250 ml PE	None	0.25 L	In house measurement not send to lab. pH = 7.60, Turbidity = 29.4
69080	MP3	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D, NO3+NO2(asN):MULT	11/8/2012 12:54:00 PM	1-1 Liter PE	None	1 L	
69081	MP3	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	11/8/2012 12:54:00 PM	1-1 Liter AG	HCL	1 L	
69082	MP3	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E410.4	11/8/2012 12:54:00 PM	1-500 ml PE	H2SO4	0.5 L	
69083	MP3	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP STORMMET-ASWMP-77	11/8/2012 12:54:00 PM	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
69084	MP3	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	11/8/2012 12:54:00 PM	1-250 ml PE	None	0.25 L	In house measurement not send to lab. pH = 9.43, Turbidity = 41.8
69085	MP3	Aqueous Sample Collected: **Yes**	Dup	Grab	BCLABS-BAK E120.1, TSS:SM2540D	11/8/2012 12:54:00 PM	1-1 Liter PE	None	1 L	
69086	MP3	Aqueous Sample Collected: **Yes**	Dup	Grab	BCLABS-BAK E1664	11/8/2012 12:54:00 PM	1-1 Liter AG	HCL	1 L	
69087	MP3	Aqueous Sample Collected: **Yes**	Dup	Grab	BCLABS-BAK E410.4, NO3+NO2(asN):MULT	11/8/2012 12:54:00 PM	1-500 ml PE	H2SO4	0.5 L	
69088	MP3	Aqueous Sample Collected: **Yes**	Dup	Grab	BCLABS-BAK STORMMET-ASWMP-77	11/8/2012 12:54:00 PM	1-500 ml PE	HNO3	0.5 L	
69089	MP3	Aqueous Sample Collected: **Yes**	Dup	Grab	pH-aq:SM4500H+B	11/8/2012 12:54:00 PM	1-250 ml PE	None	0.25 L	In house measurement not send to lab. pH = 9.28, Turbidity = 58
69090	MP4	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	11/8/2012 1:25:00 PM	1-1 Liter PE	None	1 L	
69091	MP4	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	11/8/2012 1:25:00 PM	1-1 Liter AG	HCL	1 L	
69092	MP4	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E410.4, Ammonia(asN):MULT	11/8/2012 1:25:00 PM	1-500 ml PE	H2SO4	0.5 L	
69093	MP4	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP STORMMET-ASWMP-85	11/8/2012 1:25:00 PM	2-500 ml PE	HNO3 or NaOH	1 L	
69094	MP4	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	11/8/2012 1:25:00 PM	1-250 ml PE	None	0.25 L	In house measurement not send to lab. pH = 7.88, Turbidity = 60.2
69095	MP5	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	11/8/2012 1:20:00 PM	1-1 Liter PE	None	1 L	

Sample Data

Sample ID	Location	SampleType	QC Type	Coll Type	Lab/Analysis	Date/time	Container(s)	Presv	Amount	Sample Notes
69096	MP5	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	11/8/2012 1:20:00 PM	1-1 Liter AG	HCL	1 L	
69097	MP5	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E410.4, Ammonia(asN):MULT	11/8/2012 1:20:00 PM	1-500 ml PE	H2SO4	0.5 L	
69098	MP5	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP STORMMET-ASWMP-85	11/8/2012 1:20:00 PM	2-500 ml PE	HNO3 or NaOH	1 L	
69099	MP5	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	11/8/2012 1:20:00 PM	1-250 ml PE	None	0.25 L	In house measurement not send to lab. pH = 7.77, Turbidity = 18.1
69100	MP6	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	11/8/2012 12:40:00 PM	1-1 Liter PE	None	1 L	
69101	MP6	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	11/8/2012 12:40:00 PM	1-1 Liter AG	HCL	1 L	
69102	MP6	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	11/8/2012 12:40:00 PM	1-250 ml PE	None	0.25 L	In house measurement not send to lab. pH = 7.55, Turbidity = 40.9
69103	TRAVEL BLANK	Aqueous Sample Collected: **Yes**	Blank	Grab	CURTISTOMP STORMMET-ASWMP-77	11/8/2012 2:00:00 PM	1-500 ml PE	HNO3	0.5 L	
69104	TRAVEL BLANK	Aqueous Sample Collected: **Yes**	Blank	Grab	BCLABS-BAK STORMMET-ASWMP-77	11/8/2012 2:00:00 PM	1-500 ml PE	HNO3	0.5 L	

pH Calibration & Measurement Worksheet

Analytical Method:	Standard Method 4500H+B		
Instrument ID:	EXTECH	Serial #	78528
Analyst:	John Jelinski		

Analysis Date:	November 8, 2012
Time of Analysis:	14:00 to 14:30
Analysis Units:	Standard Units

Program Name: ASWMP Sampling

Collection # 7431

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	003	12/12/12	3.98	3.99	3.99	0.00	PASS
7.00 pH	Oakton	PR1	09/01/13	6.80	7.03	7.03	0.00	PASS
10.00 pH	Oakton	A346-10	12/12/12	10.00	10.01	10.01	0.00	PASS

Measurement Results

Sample ID	Location	Sample Date	Result (pH)	Comments
69076	MP1	11/8/12 12:30	8.19	
69079	MP2	11/8/12 13:00	7.60	
69084	MP3	11/8/12 12:54	9.43	Measured a 2nd time = 9.40, also measured from TSS bottle @ same site 9.44
69094	MP4	11/8/12 13:25	7.88	
69099	MP5	11/8/12 13:20	7.77	
69102	MP6	11/8/12 12:40	7.55	
69089	MP3 (field duplicate)	11/8/12 12:54	9.28	
DUP-ph110812	MP1 (internal duplicate)	11/8/12 12:30	8.15	
LCS-pH110812	LCS	11/8/12 14:25	7.09	

Quality Assurance Quality Control Analysis Results

QAQC	Sample Result / ID		Duplicate Result / ID		RPD	Pass/Fail	Comments
Internal Dup QAQC	8.19	69076	8.15	DUP-ph110812	0.00	PASS	
Field Dup QAQC	9.43	69084	9.28	69089	0.02	PASS	

QAQC	Spike Amount	Spike Sample Result / ID		RPD	% Recovery	Pass/Fail	Comments
LCS	7.00	7.09	LCS-pH110812	0.01	98.7%	PASS	

LCS Manufacture:	LSS	LCS Lot #	A23605	Exp. Date	August 1, 2013

Notes:

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

% Error = 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

11/14/2012

X

Tim Bauters
QAQC Reviewer

11/9/2012

X

John Jelinski
Analyst
Signed by: John Jelinski

Turbidity Calibration & Measurement Worksheet

Analytical Method:	Standard Method 2130 B		
Instrument ID:	Oakton T-100	Serial #	540388
Analyst:	John Jelinski		

Analysis Date:	November 8, 2012
Time of Analysis:	14:15 to 14:45
Analysis Units:	Nephelometric Turbidity Units (NTU)

Program Name: ASWMP Sampling

Collection # 7431

Calibration Standard Measurement and Analysis Results

Standard	Manufacturer	Lot #	Exp. Date	Value (as found)	Calibration Value	Value (as left)	% Error	Pass/Fail
800 NTU	Oakton	S 092/1	Nov/2012	797.00	800.00	800.00	0.00%	PASS
100 NTU	Oakton	S 092/1	Nov/2012	100.00	100.00	100.00	0.00%	PASS
20 NTU	Oakton	S 092/1	Nov/2012	20.00	20.00	20.00	0.00%	PASS
0.02 NTU	Oakton	S 092/1	Nov/2012	0.02	0.02	0.02	0.00%	PASS

Measurement Results

Sample ID	Location	Sample Date	Result (Turbidity)	Comments
69076	MP1	11/8/12 12:30	184.00	
69079	MP2	11/8/12 13:00	29.40	
69084	MP3	11/8/12 12:54	41.80	
69094	MP4	11/8/12 13:25	60.20	
69099	MP5	11/8/12 13:20	18.10	
69102	MP6	11/8/12 12:40	40.90	
69089	MP3 (field duplicate)	11/8/12 12:54	58.00	
DUP-T110812	MP1 (internal duplicate)	11/8/12 12:30	182.00	
LCS-T110812	LCS	11/8/12 14:25	97.90	

Quality Assurance Quality Control Analysis Results

QAQC	Sample Result / ID		Duplicate Result / ID		RPD	Pass/Fail	Comments
Internal Dup QAQC	184.00	69076	182.00	DUP-T110812	0.01	PASS	
Field Dup QAQC	41.80	69084	58.00	69089	0.32	FAIL	OK, Internal duplicate & LCS passed

QAQC	Spike Amount	Spike Sample Result / ID		RPD	% Recovery	Pass/Fail	Comments
LCS	100.00	97.90	LCS-T110812	0.02	102.1%	PASS	

LCS Manufacture:	Oakton	LCS Lot #	S 092/1	Exp. Date	November / 2012

Notes:

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

% Error = 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

11/14/2012

X

Tim Bauters
QAQC Reviewer

11/9/2012

X

John Jelinski
Analyst
Signed by: John Jelinski

Appendix C

Sampling Report for February 7, 2013 Storm Event

Environment / Health / Safety / Security
DIVISION
Environmental Services

Via email and Certified Mail
Receipt No. 7012 1010 0000 9090 1001 Reference No.: ES-13-079

April 15, 2013

San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, California 94612
Attn: Cecil Felix

Subject: Analytical Results for February 7, 2013 Stormwater Sampling Event at Lawrence Berkeley National Laboratory (LBNL)

Stormwater samples were collected on February 7, 2013 in accordance with the General Permit for Stormwater Discharges Associated with Industrial Activities and the LBNL Alternative Stormwater Monitoring Plan. The attached sampling results show that LBNL's stormwater Best Management Practices (BMPs) provide adequate control for stormwater discharges at all designated industrial locations except at the Building 76 Vehicle Fueling Station, the Building 77/79 Metal Fabrication and Scrap Recycling Yard and the Building 85 Hazardous Waste Handling Facility's Lower Yard. Additional BMPs will be developed to improve controls and these BMPs will be incorporated into a revised Stormwater Pollution Prevention Plan (SWPPP).

At the Building 76 Vehicle Fueling Station the measured level of Oil and Grease (O&G) was 29.1 milligrams per liter (mg/l) in the sample collected on February 7, exceeding the O&G benchmark goal of 15 mg/l. In order to improve O&G controls, two new BMPs have been identified: 1) the frequency of the oil and water separator inspections will be increased to weekly; and, 2) the absorbent pad in the oil and water separator will be replaced on a monthly basis or more frequently if significant contamination is seen on the pad during the weekly inspection. These two provisions will be added to the fueling station's maintenance procedure, which is included in Appendix E of the SWPPP. On March 20, 2013 a second sample was collected during a subsequent rain event and no O&G was detected.

At the Building 77/79 Metal Fabrication and Scrap Recycling Yard the levels for copper, iron, and zinc were 0.08 mg/l, 1.40 mg/l and 0.75 mg/l, respectively, which exceeds the benchmark goals of 0.0636 mg/l for copper, 1.0 mg/l for iron and 0.117 mg/l for zinc. The discharge sample was obtained at a location immediately downstream of a particulate filter, a BMP located within a 50-foot stormwater collection trench. In order to improve the control of soluble metals, the existing BMP will be modified by incorporating zeolite adsorbant media into the collection trench.

At the Building 85 Hazardous Waste Handling Facility's Lower Yard, the measured level of pH was 10.49, exceeding the benchmark goal of 9. An investigation found a small amount of concrete rubble in the Lower Yard's storm drain system that was related to a recent construction activity. After the concrete rubble was cleaned out of the storm drain system, another sample was collected during a subsequent

Ernest Orlando Lawrence Berkeley National Laboratory
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Email: ROPauer@lbl.gov

rain event on March 20, 2013 and the pH was measured at 7.48. Since construction activities have been completed at the Lower Yard, no additional BMPs are warranted.

In addition, the benchmark goal for magnesium at the Building 85 Hazardous Waste Handling Facility's Lower and Upper Yards was exceeded; however, a source study in 2009 had determined that the elevated level of magnesium is due to aerial deposition of naturally occurring magnesium in the soil surrounding both yards and not from waste management activities at the facility. As a result, no additional BMPs are warranted. The study report was submitted to the Regional Water Quality Control Board with the 2009/2010 Annual Stormwater Report.

If you have any questions, please contact Tim Bauters (twbauters@lbl.gov) at 510-486-5831 or me (ROPauer@lbl.go) at (510) 486-7614.

Sincerely,

Ron Pauer

Ron Pauer
Environmental Manager

enclosures:

1. Sampling Results for February 7, 2013 Rain Event:
   a. LBNL Sample Collection Form
   b. Curtis & Tompkins Analytical Report
   c. LBNL pH Calibration & Measurement Worksheet
   d. LBNL Turbidity Calibration & Measurement Worksheet
2. Follow-up Sampling Results for March 20, 2013 Rain Event:
   a. LBNL Sample Collection Form
   b. Curtis & Tompkins Analytical Report
   c. LBNL pH Calibration & Measurement Worksheet

cc via email w/enclosures:

Kim Abbott (kvabbott@lbl.gov)
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Ernest Orlando Lawrence Berkeley National Laboratory
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Email: ROPauer@lbl.gov

Enclosure 1

Sampling Results for February 7, 2013 Rain Event:

a. **LBNL Sample Collection Form (3 pages)**
b. **Curtis & Tompkins Analytical Report (30 pages)**
c. **LBNL pH Calibration & Measurement Worksheet (1 page)**
d. **LBNL Turbidity Calibration & Measurement Worksheet (1 page)**

ESG Sample Collection Form

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

Surface Water Monitoring
ASWMP Sampling
Collection: 7471

Sample Data

Sample ID	Location	SampleType	QC Type	Coll Type	Lab/Analysis	Date/time	Container(s)	Presv	Amount	Sample Notes
69906	**MP1**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	2/7/2013 9:15:00 AM	1-1 Liter PE	None	1 L	
69907	**MP1**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	2/7/2013 9:15:00 AM	1-1 Liter AG	HCL	1 L	
69908	**MP1**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	2/7/2013 9:15:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab; pH=8.95, Turbidity=40.6
69909	**MP2**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	2/7/2013 9:35:00 AM	1-1 Liter PE	None	1 L	
69910	**MP2**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	2/7/2013 9:35:00 AM	1-1 Liter AG	HCL	1 L	
69911	**MP2**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	2/7/2013 9:35:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab; pH=8.21, Turbidity=43.1
69912	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D, NO3+NO2(asN):MULT	2/7/2013 9:25:00 AM	1-1 Liter PE	None	1 L	
69913	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	2/7/2013 9:25:00 AM	1-1 Liter AG	HCL	1 L	
69914	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E410.4	2/7/2013 9:25:00 AM	1-500 ml PE	H2SO4	0.5 L	
69915	**MP3**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP STORMMET-ASWMP-77	2/7/2013 9:25:00 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
69916	**MP3**	Aqueous	Sample	Grab	pH-aq:SM4500H+B	2/7/2013 9:25:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab; pH=8.18, Turbidity=34.2
		Sample Collected:	**Yes**							
69922	**MP4**	Aqueous	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	2/7/2013 10:00:00 AM	1-1 Liter PE	None	1 L	
		Sample Collected:	**Yes**							
69923	**MP4**	Aqueous	Sample	Grab	CURTISTOMP E1664	2/7/2013 10:00:00 AM	1-1 Liter AG	HCL	1 L	
		Sample Collected:	**Yes**							
69924	**MP4**	Aqueous	Sample	Grab	CURTISTOMP E410.4, Ammonia(asN):MULT	2/7/2013 10:00:00 AM	1-500 ml PE	H2SO4	0.5 L	
		Sample Collected:	**Yes**							
69925	**MP4**	Aqueous	Sample	Grab	CURTISTOMP STORMMET-ASWMP-85	2/7/2013 10:00:00 AM	2-500 ml PE	HNO3 or NaOH	1 L	
		Sample Collected:	**Yes**							
69926	**MP4**	Aqueous	Sample	Grab	pH-aq:SM4500H+B	2/7/2013 10:00:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab; pH=10.49, Turbidity=93.8
		Sample Collected:	**Yes**							
69927	**MP5**	Aqueous	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	2/7/2013 9:50:00 AM	1-1 Liter PE	None	1 L	
		Sample Collected:	**Yes**							
69928	**MP5**	Aqueous	Sample	Grab	CURTISTOMP E1664	2/7/2013 9:50:00 AM	1-1 Liter AG	HCL	1 L	
		Sample Collected:	**Yes**							
69929	**MP5**	Aqueous	Sample	Grab	CURTISTOMP E410.4, Ammonia(asN):MULT	2/7/2013 9:50:00 AM	1-500 ml PE	H2SO4	0.5 L	
		Sample Collected:	**Yes**							
69930	**MP5**	Aqueous	Sample	Grab	CURTISTOMP STORMMET-ASWMP-85	2/7/2013 9:50:00 AM	2-500 ml PE	HNO3 or NaOH	1 L	
		Sample Collected:	**Yes**							
69931	**MP5**	Aqueous	Sample	Grab	pH-aq:SM4500H+B	2/7/2013 9:50:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab; pH=8.56, Turbidity=19.2
		Sample Collected:	**Yes**							
69932	**MP6**	Aqueous	Sample	Grab	CURTISTOMP E120.1, TSS:SM2540D	2/7/2013 9:00:00 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
69933	**MP6**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	2/7/2013 9:00:00 AM	1-1 Liter AG	HCL	1 L	
69934	**MP6**	Aqueous Sample Collected: **Yes**	Sample	Grab	pH-aq:SM4500H+B	2/7/2013 9:00:00 AM	1-250 ml PE	None	0.25 L	In house measurement not send to lab; pH=8.35, Turbidity=12.6

Enclosure 1.b

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

Laboratory Job Number 242971
ANALYTICAL REPORT

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

Sample ID	Lab ID
69906	242971-001
69907	242971-002
69909	242971-003
69910	242971-004
69912	242971-005
69913	242971-006
69914	242971-007
69915	242971-008
69922	242971-009
69923	242971-010
69924	242971-011
69925	242971-012
69927	242971-013
69928	242971-014
69929	242971-015
69930	242971-016
69932	242971-017
69933	242971-018

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: Isabelle Choy Date: 02/19/2013

Isabelle Choy
Project Manager
(510)204-2223

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**242971**
Client:	**Lawrence Berkeley National Lab**
Location:	**Surface Water Monitoring - ASWMP Samp**
Request Date:	**02/07/13**
Samples Received:	**02/07/13**

This data package contains sample and QC results for eighteen water samples, requested for the above referenced project on 02/07/13. 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) (EPA 160.2):
High RPD was observed for total suspended solids in the BS/BSD for batch 195387. High RPD was observed for total suspended solids in the MS/MSD for batch 195387; the parent sample was not a project sample. No other analytical problems were encountered.

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

242971

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 75R0123
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.: 07749
Release Number / Document Control No.: ESG-07749
Collection(s): 7471

	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	69906	2/7/2013 9:15	2/7/2013 9:15	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2013 9:15	2/7/2013 9:15	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
2	69907	2/7/2013 9:15	2/7/2013 9:15	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
3	69909	2/7/2013 9:35	2/7/2013 9:35	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2013 9:35	2/7/2013 9:35	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
4	69910	2/7/2013 9:35	2/7/2013 9:35	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
5	69912	2/7/2013 9:25	2/7/2013 9:25	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2013 9:25	2/7/2013 9:25	Grab	Aqueous	1 Liter PE	1	None	NO3+NO2(asN):MULT		
		2/7/2013 9:25	2/7/2013 9:25	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
6	69913	2/7/2013 9:25	2/7/2013 9:25	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
7	69914	2/7/2013 9:25	2/7/2013 9:25	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
8	69915	2/7/2013 9:25	2/7/2013 9:25	Grab	Aqueous	500 ml PE	1	HNO3	STORMMET-ASWMP-77		

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

Special Instructions/Comments:

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [signature] Time: 1300	Signature / Time	Signature / Time
Printed Name: Jelinski Date: 2/7/13	Printed Name / Date	Printed Name / Date
Company: LBNL	Company	Company

Received By	Received By	Received By
Signature: [signature] Time: 1300	Signature / Time	Signature / Time
Printed Name: DESIREE TETRAULT Date: 2/7/13	Printed Name / Date	Printed Name / Date
Company: CT	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.

242971

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 75R0123
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.: 07749
Release Number / Document Control No.: ESG-07749
Collection(s): 7471

	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	69922	2/7/2013 10:00	2/7/2013 10:00	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2013 10:00	2/7/2013 10:00	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
10	69923	2/7/2013 10:00	2/7/2013 10:00	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
11	69924	2/7/2013 10:00	2/7/2013 10:00	Grab	Aqueous	500 ml PE	1	H2SO4	Ammonia(asN):MULT		
		2/7/2013 10:00	2/7/2013 10:00	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
12	69925	2/7/2013 10:00	2/7/2013 10:00	Grab	Aqueous	500 ml PE	2	HNO3 or NaOH	STORMMET-ASWMP-85		
13	69927	2/7/2013 9:50	2/7/2013 9:50	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2013 9:50	2/7/2013 9:50	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
14	69928	2/7/2013 9:50	2/7/2013 9:50	Grab	Aqueous	1 Liter AG	1	HCL	E1664		
15	69929	2/7/2013 9:50	2/7/2013 9:50	Grab	Aqueous	500 ml PE	1	H2SO4	Ammonia(asN):MULT		
		2/7/2013 9:50	2/7/2013 9:50	Grab	Aqueous	500 ml PE	1	H2SO4	E410.4		
16	69930	2/7/2013 9:50	2/7/2013 9:50	Grab	Aqueous	500 ml PE	2	HNO3 or NaOH	STORMMET-ASWMP-85		

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

Special Instructions/Comments:

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [signature] Time: 1300	Signature / Time	Signature / Time
Printed Name: Jelinski Date: 2/7/13	Printed Name / Date	Printed Name / Date
Company: LBNL	Company	Company

Received By	Received By	Received By
Signature: [signature] Time: 1300	Signature / Time	Signature / Time
Printed Name: DESIREE TETRAULT Date: 2/7/13	Printed Name / Date	Printed Name / Date
Company: CT	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.

242971

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 75R0123
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.: 07749

Release Number / Document Control No.: ESG-07749
Collection(s): 7471

	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	69932	2/7/2013 9:00	2/7/2013 9:00	Grab	Aqueous	1 Liter PE	1	None	E120.1		
		2/7/2013 9:00	2/7/2013 9:00	Grab	Aqueous	1 Liter PE	1	None	TSS:SM2540D		
18	69933	2/7/2013 9:00	2/7/2013 9:00	Grab	Aqueous	1 Liter AG	1	HCL	E1664		

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

Special Instructions/Comments:

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [signature] Time: 1300	Signature: Time:	Signature: Time:
Printed Name: JJelinski Date: 2/7/13	Printed Name: Date:	Printed Name: Date:
Company: LBNL	Company:	Company:

Received By	Received By	Received By
Signature: [signature] Time: 1300	Signature: Time:	Signature: Time:
Printed Name: DESIREE TETRAULT Date: 2/7/13	Printed Name: Date:	Printed Name: Date:
Company: CT	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 # 242971 Date Received 2/7/13 Number of coolers 1
Client LBNL Project Surface Water Monitoring Prgm - ASWMP sampling

Date Opened 2/7/13 By (print) EL (sign) E. Le
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 _____ Name _____ Date _____
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) _____

☒ 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 242971

Sample	pH: <2	>9	>12	Other
-001a	[ ]	[ ]	[ ]	_____
-002a	[ ]	[ ]	[ ]	_____
-003a	[ ]	[ ]	[ ]	_____
-004a	[ ]	[ ]	[ ]	_____
-005a	[ ]	[ ]	[ ]	_____
-006a	[ ]	[ ]	[ ]	_____
-007a	[X]	[ ]	[ ]	_____
-008a	[ ]	[ ]	[X]	_____
-009a	[ ]	[ ]	[ ]	_____
-010a	[ ]	[ ]	[ ]	_____
-011a	[X]	[ ]	[ ]	_____
-012a	[X]	[ ]	~~[X]~~ SL	_____
b	[ ]	[ ]	[X]	
-013a	[ ]	[ ]	[ ]	_____
-014a	[ ]	[ ]	[ ]	_____
-015a	[X]	[ ]	[ ]	_____
SL ~~b~~	~~[ ]~~	~~[ ]~~	~~[ ]~~	
-016a	[X]	[ ]	~~[X]~~ SL	_____
b	[ ]	[ ]	[X]	
-017a	[ ]	[ ]	[ ]	_____
-018a	[ ]	[ ]	[ ]	_____

Analyst: SL

Date: 2/7/13

Page 1 of 1

Curtis & Tompkins, Ltd.

Metals Analytical Report

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.8
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring - ASWMP Samp		
COC #:	07749	Batch#:	195364
Requested:	STORMMET-ASWMP-77	Instrument:	MET26
Field ID:	69915	Chemist:	AH
Matrix:	Water	Sampled:	02/07/13 09:25
Units:	mg/L	Received:	02/07/13
Diln Fac:	5.000	Prepared:	02/07/13 19:45

Type: SAMPLE Analyzed: 02/08/13 13:41
Lab ID: 242971-008

Analyte	Code	Result	RL
Aluminum	0313	0.71	0.050
Copper	2800	0.075	0.0050
Iron	5350	1.4	0.050
Lead	5450	0.035	0.0050
Zinc	9050	0.75	0.050

Type: BLANK Analyzed: 02/08/13 13:03
Lab ID: QC675989

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 #:	242971	Location:	Surface Water Monitoring - ASWMP Samp
Client:	Lawrence Berkeley National Lab	Cert #:	01107CA
Project#:	STANDARD		
COC #:	07749	Units:	mg/L
Requested:	STORMMET-ASWMP-85	Received:	02/07/13

Field ID:	69925	Matrix:	Water
Type:	SAMPLE	Sampled:	02/07/13 10:00
Lab ID:	242971-012		

Analyte	Code	Result	RL	Diln Fac	Batch#	Instrument	Chemist	Prepared	Analyzed	Prep	Analysis
Arsenic	0450	ND	0.050	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:46	EPA 200.8	EPA 200.8
Cadmium	1650	ND	0.010	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:46	EPA 200.8	EPA 200.8
Lead	5450	ND	0.050	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:46	EPA 200.8	EPA 200.8
Magnesium	5500	1.9	0.050	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:46	EPA 200.8	EPA 200.8
Mercury	5600	ND	0.00020	1.000	195433	MET34	CRT	02/11/13 10:45	02/11/13 15:43	METHOD	EPA 245.1
Selenium	7600	ND	0.050	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:46	EPA 200.8	EPA 200.8
Silver	7800	ND	0.010	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:46	EPA 200.8	EPA 200.8

Field ID:	69930	Matrix:	Water
Type:	SAMPLE	Sampled:	02/07/13 09:50
Lab ID:	242971-016		

Analyte	Code	Result	RL	Diln Fac	Batch#	Instrument	Chemist	Prepared	Analyzed	Prep	Analysis
Arsenic	0450	ND	0.050	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:50	EPA 200.8	EPA 200.8
Cadmium	1650	ND	0.010	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:50	EPA 200.8	EPA 200.8
Lead	5450	ND	0.050	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:50	EPA 200.8	EPA 200.8
Magnesium	5500	0.52	0.050	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:50	EPA 200.8	EPA 200.8
Mercury	5600	ND	0.00020	1.000	195433	MET34	CRT	02/11/13 10:45	02/11/13 15:45	METHOD	EPA 245.1
Selenium	7600	ND	0.050	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:50	EPA 200.8	EPA 200.8
Silver	7800	ND	0.010	5.000	195364	MET26	AH	02/07/13 19:45	02/08/13 13:50	EPA 200.8	EPA 200.8

Type:	BLANK	Chemist:	AH
Lab ID:	QC675989	Prepared:	02/07/13 19:45
Matrix:	Water	Analyzed:	02/08/13 13:03
Diln Fac:	5.000	Prep:	EPA 200.8
Batch#:	195364	Analysis:	EPA 200.8
Instrument:	MET26		

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	Instrument:	MET34
Type:	BLANK	Chemist:	CRT
Lab ID:	QC676253	Prepared:	02/11/13 10:45
Matrix:	Filtrate	Analyzed:	02/11/13 14:59
Diln Fac:	1.000	Prep:	METHOD
Batch#:	195433	Analysis:	EPA 245.1

Analyte	Result	RL
Mercury	ND	0.00020

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.8
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	STORMMET-ASWMP-77	Batch#:	195364
Type:	LCS	Instrument:	MET26
Lab ID:	QC675990	Chemist:	AH
Matrix:	Water	Prepared:	02/07/13 19:45
Units:	mg/L	Analyzed:	02/08/13 13:07
Diln Fac:	5.000		

Analyte	Code	Spiked	Result	%REC	Limits
Aluminum	0313	10.00	9.515	95	58-134
Copper	2800	0.1000	0.09800	98	74-120
Iron	5350	10.00	9.555	96	55-145
Lead	5450	0.1000	0.1012	101	72-120
Zinc	9050	0.1000	0.1021	102	70-123

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.8
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	STORMMET-ASWMP-85	Batch#:	195364
Type:	LCS	Instrument:	MET26
Lab ID:	QC675990	Chemist:	AH
Matrix:	Water	Prepared:	02/07/13 19:45
Units:	mg/L	Analyzed:	02/08/13 13:07
Diln Fac:	5.000		

Analyte	Code	Spiked	Result	%REC	Limits
Arsenic	0450	0.1000	0.09135	91	76-120
Cadmium	1650	0.1000	0.09595	96	75-120
Lead	5450	0.1000	0.1012	101	72-120
Magnesium	5500	10.00	9.645	96	59-133
Selenium	7600	0.1000	0.1005	100	69-126
Silver	7800	0.1000	0.09720	97	75-120

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.8
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	STORMMET-ASWMP-77	Batch#:	195364
Field ID:	ZZZZZZZZZZ	Instrument:	MET26
MSS Lab ID:	242947-002	Chemist:	AH
Matrix:	Water	Sampled:	02/04/13 09:50
Units:	mg/L	Received:	02/06/13
Diln Fac:	5.000	Prepared:	02/07/13 19:45

Type: MS Analyzed: 02/08/13 13:31
Lab ID: QC675991

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits
Aluminum	0313	0.01093	10.00	9.145	91	58-130
Copper	2800	0.01181	0.1000	0.1074	96	64-120
Iron	5350	0.02568	10.00	9.225	92	50-138
Lead	5450	<0.0002907	0.1000	0.1001	100	66-120
Zinc	9050	0.009025	0.1000	0.1076	99	58-123

Type: MSD Analyzed: 02/08/13 13:36
Lab ID: QC675992

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	0313	10.00	8.610	86	58-130	6	20
Copper	2800	0.1000	0.1030	91	64-120	4	44
Iron	5350	10.00	9.285	93	50-138	1	34
Lead	5450	0.1000	0.09260	93	66-120	8	20
Zinc	9050	0.1000	0.1069	98	58-123	1	44

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	EPA 200.8
Project#:	STANDARD	Analysis:	EPA 200.8
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	STORMMET-ASWMP-85	Batch#:	195364
Field ID:	ZZZZZZZZZZ	Instrument:	MET26
MSS Lab ID:	242947-002	Chemist:	AH
Matrix:	Water	Sampled:	02/04/13 09:50
Units:	mg/L	Received:	02/06/13
Diln Fac:	5.000	Prepared:	02/07/13 19:45

Type: MS Analyzed: 02/08/13 13:31
Lab ID: QC675991

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits
Arsenic	0450	0.0002315	0.1000	0.09345	93	68-121
Cadmium	1650	<0.00007476	0.1000	0.09050	91	68-120
Lead	5450	<0.0002907	0.1000	0.1001	100	66-120
Magnesium	5500	13.59	10.00	24.11	105	44-139
Selenium	7600	<0.0002579	0.1000	0.09585	96	61-125
Silver	7800	<0.0001394	0.1000	0.09510	95	66-120

Type: MSD Analyzed: 02/08/13 13:36
Lab ID: QC675992

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim
Arsenic	0450	0.1000	0.08950	89	68-121	4	42
Cadmium	1650	0.1000	0.08410	84	68-120	7	31
Lead	5450	0.1000	0.09260	93	66-120	8	20
Magnesium	5500	10.00	22.48	89	44-139	7	44
Selenium	7600	0.1000	0.09525	95	61-125	1	37
Silver	7800	0.1000	0.09150	92	66-120	4	26

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 245.1
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Mercury	Diln Fac:	1.000
Code:	5600	Batch#:	195433
Requested:	STORMMET-ASWMP-85	Instrument:	MET34
Type:	LCS	Chemist:	CRT
Lab ID:	QC676254	Prepared:	02/11/13 10:45
Matrix:	Filtrate	Analyzed:	02/11/13 15:01
Units:	mg/L		

Spiked	Result	%REC	Limits
0.002500	0.002430	97	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

Metals Analytical Report

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 245.1
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Mercury	Diln Fac:	1.000
Code:	5600	Batch#:	195433
Requested:	STORMMET-ASWMP-85	Instrument:	MET34
Field ID:	ZZZZZZZZZZ	Chemist:	CRT
MSS Lab ID:	242953-003	Sampled:	02/06/13 10:20
Matrix:	Filtrate	Received:	02/06/13
Units:	mg/L	Prepared:	02/11/13 10:45

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
MS	QC676255	0.00005240	0.002500	0.002875	113	64-124			02/11/13 15:04
MSD	QC676256		0.002500	0.002778	109	64-124	3	40	02/11/13 15:06

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Nitrate/Nitrite Nitrogen

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	Surface Water Monitoring - ASWMP Samp		
Code:	5950	Diln Fac:	1.000
COC #:	07749	Batch#:	195338
Requested:	NO3+NO2(asN):MULT	Instrument:	IC04
Field ID:	69912	Sampled:	02/07/13 09:25
Matrix:	Water	Received:	02/07/13
Units:	mg/L		

Type:	SAMPLE	Chemist:	RDG
Lab ID:	242971-005	Analyzed:	02/07/13 16:34

Analyte	Result	RL
Nitrogen, Nitrate/Nitrite	0.99	0.10

Type:	BLANK	Chemist:	VQ
Lab ID:	QC675883	Analyzed:	02/07/13 09:54

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 #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	NO3+NO2(asN):MULT	Diln Fac:	1.000
Type:	LCS	Batch#:	195338
Lab ID:	QC675884	Instrument:	IC04
Matrix:	Water	Chemist:	VQ
Units:	mg/L	Analyzed:	02/07/13 10:11

Analyte	Code	Spiked	Result	%REC	Limits
Nitrogen, Nitrite	5960	1.000	1.042	104	80-120
Nitrogen, Nitrate	5945	1.000	0.9145	91	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

Nitrate/Nitrite Nitrogen

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 300.0
Location:	Surface Water Monitoring - ASWMP Samp		
Requested:	NO3+NO2(asN):MULT	Batch#:	195338
Field ID:	69912	Instrument:	IC04
MSS Lab ID:	242971-005	Chemist:	RDG
Matrix:	Water	Sampled:	02/07/13 09:25
Units:	mg/L	Received:	02/07/13
Diln Fac:	1.020		

Type: MS Analyzed: 02/07/13 18:01
Lab ID: QC675981

Analyte	Code	MSS Result	Spiked	Result	%REC	Limits
Nitrogen, Nitrite	5960	0.06000	0.5100	0.5885	104	80-121
Nitrogen, Nitrate	5945	0.9853	0.5100	1.450	91	80-120

Type: MSD Analyzed: 02/07/13 18:18
Lab ID: QC675982

Analyte	Code	Spiked	Result	%REC	Limits	RPD	Lim
Nitrogen, Nitrite	5960	0.5100	0.5968	105	80-121	1	22
Nitrogen, Nitrate	5945	0.5100	1.458	93	80-120	0	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Oil & Grease (HEM)

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 1664A
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Oil & Grease (HEM)	Batch#:	195481
Code:	6325	Instrument:	H3000
COC #:	07749	Chemist:	NJT
Requested:	E1664	Received:	02/07/13
Matrix:	Water	Analyzed:	02/11/13 00:00
Units:	mg/L		

Field ID	Type	Lab ID	Result	RL	Diln Fac	Sampled
69907	SAMPLE	242971-002	10.5	4.75	0.9500	02/07/13 09:15
69910	SAMPLE	242971-004	29.1	4.75	0.9500	02/07/13 09:35
69913	SAMPLE	242971-006	ND	4.75	0.9500	02/07/13 09:25
69923	SAMPLE	242971-010	ND	4.80	0.9600	02/07/13 10:00
69928	SAMPLE	242971-014	ND	4.75	0.9500	02/07/13 09:50
69933	SAMPLE	242971-018	ND	4.75	0.9500	02/07/13 09:00
	BLANK	QC676471	ND	5.00	1.000	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Oil & Grease (HEM)

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 1664A
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Oil & Grease (HEM)	Diln Fac:	1.000
Code:	6325	Batch#:	195481
Requested:	E1664	Instrument:	H3000
Matrix:	Water	Chemist:	NJT
Units:	mg/L	Analyzed:	02/11/13 00:00

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC676472	40.00	36.30	91	78-114		
BSD	QC676473	40.00	35.60	89	78-114	2	18

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Ammonia Nitrogen

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	SM4500NH3-B
Project#:	STANDARD	Analysis:	SM4500NH3-D
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Ammonia-N	Diln Fac:	1.000
Code:	0325	Batch#:	195403
COC #:	07749	Instrument:	OR_NH3
Requested:	Ammonia(asN):MULT	Chemist:	NJT
Matrix:	Water	Received:	02/07/13
Units:	mg/L	Analyzed:	02/08/13 12:45

Field ID	Type	Lab ID	Result	RL	Sampled
69924	SAMPLE	242971-011	0.13	0.10	02/07/13 10:00
69929	SAMPLE	242971-015	0.29	0.10	02/07/13 09:50
	BLANK	QC676136	ND	0.10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Ammonia Nitrogen

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	SM4500NH3-B
Project#:	STANDARD	Analysis:	SM4500NH3-D
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Ammonia-N	Diln Fac:	1.000
Code:	0325	Batch#:	195403
Requested:	Ammonia(asN):MULT	Instrument:	OR_NH3
Field ID:	ZZZZZZZZZZ	Chemist:	NJT
MSS Lab ID:	242960-003	Sampled:	02/06/13 13:40
Matrix:	Water	Received:	02/07/13
Units:	mg/L	Analyzed:	02/08/13 12:45

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
LCS	QC676137		5.000	4.800	96	76-120		
MS	QC676138	<0.1000	5.000	5.000	100	66-120		
MSD	QC676139		5.000	5.200	104	66-120	4	27

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Chemical Oxygen Demand

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM5220D
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Chemical Oxygen Demand	Batch#:	195520
Code:	1875	Instrument:	DR2800
COC #:	07749	Chemist:	NJT
Requested:	E410.4	Received:	02/07/13
Matrix:	Water	Prepared:	02/13/13 11:30
Units:	mg/L	Analyzed:	02/13/13 14:00
Diln Fac:	1.000		

Field ID	Type	Lab ID	Result	RL	Sampled
69914	SAMPLE	242971-007	67	10	02/07/13 09:25
69924	SAMPLE	242971-011	20	10	02/07/13 10:00
69929	SAMPLE	242971-015	16	10	02/07/13 09:50
	BLANK	QC676611	ND	10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Chemical Oxygen Demand

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM5220D
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Chemical Oxygen Demand	Batch#:	195520
Code:	1875	Instrument:	DR2800
Requested:	E410.4	Chemist:	NJT
Field ID:	ZZZZZZZZZZ	Sampled:	02/06/13 13:40
MSS Lab ID:	242960-003	Received:	02/07/13
Matrix:	Water	Prepared:	02/13/13 11:30
Units:	mg/L	Analyzed:	02/13/13 14:00

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac
LCS	QC676612		75.00	74.19	99	90-110			1.000
MS	QC676613	<10.00	300.0	293.5	98	58-130			2.000
MSD	QC676614		300.0	281.7	94	58-130	4	20	2.000

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Cyanide

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM4500CN-E
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Cyanide	Batch#:	195556
Code:	2850	Instrument:	LAMBDA
COC #:	07749	Chemist:	DM
Requested:	MET-Cn:MULT	Received:	02/07/13
Matrix:	Water	Prepared:	02/14/13 10:00
Units:	mg/L	Analyzed:	02/14/13 12:56
Diln Fac:	1.000		

Field ID	Type	Lab ID	Result	RL	Sampled
69925	SAMPLE	242971-012	ND	0.02	02/07/13 10:00
69930	SAMPLE	242971-016	ND	0.02	02/07/13 09:50
	BLANK	QC676752	ND	0.02	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Cyanide

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM4500CN-E
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Cyanide	Batch#:	195556
Code:	2850	Instrument:	LAMBDA
Requested:	MET-Cn:MULT	Chemist:	DM
Field ID:	69925	Sampled:	02/07/13 10:00
MSS Lab ID:	242971-012	Received:	02/07/13
Matrix:	Water	Prepared:	02/14/13 10:00
Units:	mg/L	Analyzed:	02/14/13 12:56
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC676753	<0.02000	0.2000	0.1911	96	66-123		
MSD	QC676754		0.2000	0.1971	99	66-123	3	28
LCS	QC676755		0.2000	0.2004	100	78-120		

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Conductivity

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2510B
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Specific Conductance	Diln Fac:	1.000
Code:	8000	Batch#:	195388
COC #:	07749	Instrument:	VWR_EC
Requested:	E120.1	Chemist:	KR
Matrix:	Water	Received:	02/07/13
Units:	umhos/cm	Analyzed:	02/08/13 11:45

Field ID	Type	Lab ID	Result	RL	Sampled
69906	SAMPLE	242971-001	65	1.0	02/07/13 09:15
69909	SAMPLE	242971-003	110	1.0	02/07/13 09:35
69912	SAMPLE	242971-005	140	1.0	02/07/13 09:25
69922	SAMPLE	242971-009	130	1.0	02/07/13 10:00
69927	SAMPLE	242971-013	33	1.0	02/07/13 09:50
69932	SAMPLE	242971-017	69	1.0	02/07/13 09:00
	BLANK	QC676075	ND	10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Conductivity

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2510B
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Specific Conductance	Diln Fac:	1.000
Code:	8000	Batch#:	195388
Requested:	E120.1	Instrument:	VWR_EC
Field ID:	ZZZZZZZZZZ	Chemist:	KR
MSS Lab ID:	242962-001	Sampled:	02/07/13 09:34
Matrix:	Water	Received:	02/07/13
Units:	umhos/cm	Analyzed:	02/08/13 11:45

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
LCS	QC676076		1,000	995.0		100	90-110		
SDUP	QC676077	197.7		198.8	10.00			1	20

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Suspended Solids (TSS)

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 160.2
Location:	Surface Water Monitoring - ASWMP Samp		
Analyte:	Total Suspended Solids	Batch#:	195387
Code:	7450	Instrument:	SCALE
COC #:	07749	Chemist:	KR
Requested:	TSS:SM2540D	Received:	02/07/13
Matrix:	Water	Prepared:	02/08/13 14:45
Units:	mg/L	Analyzed:	02/11/13 10:15

Field ID	Type	Lab ID	Result	RL	Diln Fac	Sampled
69906	SAMPLE	242971-001	24	1	0.2000	02/07/13 09:15
69909	SAMPLE	242971-003	49	1	0.2000	02/07/13 09:35
69912	SAMPLE	242971-005	94	1	0.2000	02/07/13 09:25
69922	SAMPLE	242971-009	93	1	0.2000	02/07/13 10:00
69927	SAMPLE	242971-013	9	1	0.2000	02/07/13 09:50
69932	SAMPLE	242971-017	5	1	0.2000	02/07/13 09:00
	BLANK	QC676070	ND	5	1.000	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Suspended Solids (TSS)

Lab #:	242971	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 160.2
Location:	Surface Water Monitoring - ASWMP Samp		

Analyte:	Total Suspended Solids	Batch#:	195387
Code:	7450	Instrument:	SCALE
Requested:	TSS:SM2540D	Chemist:	KR
Field ID:	ZZZZZZZZZZ	Sampled:	02/06/13 10:40
MSS Lab ID:	242960-016	Received:	02/07/13
Matrix:	Water	Prepared:	02/08/13 14:45
Units:	mg/L	Analyzed:	02/11/13 10:15
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC676071		50.00	49.00	98	80-120		
BSD	QC676072		50.00	55.00	110	80-120	12 *	5
MS	QC676073	<5.000	50.00	40.00	80	63-138		
MSD	QC676074		50.00	45.00	90	63-138	12 *	5

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

Enclosure 1.c

pH Calibration & Measurement Worksheet

Analytical Method:	Standard Method 4500H+B		
Instrument ID:	EXTECH	Serial #	78528
Analyst:	John Jelinski		

Analysis Date:	February 7, 2013
Time of Analysis:	11:15 to 11:45
Analysis Units:	Standard Units

Program Name: ASWMP Sampling 02/07/2013

Collection # 7471

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	La Motte	51211218	06/30/14	4.00	4.00	4.00	0.00	PASS
7.00 pH	LSS	A236-05	08/25/13	6.87	7.04	7.04	0.00	PASS
10.00 pH	La Motte	16211228	02/28/14	9.70	10.00	10.00	0.00	PASS

Measurement Results

Sample ID	Location	Sample Date	Result (pH)	Comments
69908	MP1	2/7/13 9:15	8.95	
69911	MP2	2/7/13 9:35	8.21	
69916	MP3	2/7/13 9:25	8.18	
69926	MP4	2/7/13 10:00	10.49	
69931	MP5	2/7/13 9:50	8.56	
69934	MP6	2/7/13 9:00	8.35	
DUP-ph020713	MP4	2/7/13 10:00	10.48	
LCS-pH020713	LCS	2/7/13 11:30	7.15	

Quality Assurance Quality Control Analysis Results

QAQC	Sample Result / ID		Duplicate Result / ID		RPD	Pass/Fail	Comments
Internal Dup QAQC	10.49	69926	10.48	DUP-ph020713	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	7.15	LCS-pH020713	0.02	97.9%	PASS	

LCS Manufacture:	La Motte	LCS Lot #	29241221	Exp. Date	April 30, 2014

Notes:

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

% Error = 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

2/8/2013

X

Tim Bauters
QAQC Reviewer

2/7/2013

X

John Jelinski
Analyst
Signed by: John Jelinski

Turbidity Calibration & Measurement Worksheet

Analytical Method:	Standard Method 2130 B		
Instrument ID:	Oakton T-100	Serial #	540388
Analyst:	John Jelinski		

Analysis Date:	February 7, 2013
Time of Analysis:	11:15 to 11:45
Analysis Units:	Nephelometric Turbidity Units (NTU)

Program Name: ASWMP Sampling 02/07/2013

Collection # 7471

Calibration Standard Measurement and Analysis Results

Standard	Manufacturer	Lot #	Exp. Date	Value (as found)	Calibration Value	Value (as left)	% Error	Pass/Fail
800 NTU	Oakton	C254894	Nov/2014	811.00	800.00	800.00	0.00%	PASS
100 NTU	Oakton	C254200	Nov/2014	100.00	100.00	100.00	0.00%	PASS
20 NTU	Oakton	C254883	Nov/2014	20.00	20.00	20.00	0.00%	PASS
0.02 NTU	Oakton	C254873	Nov/2014	0.02	0.02	0.02	0.00%	PASS

Measurement Results

Sample ID	Location	Sample Date	Result (Turbidity)	Comments
69908	MP1	2/7/13 9:15	40.60	
69911	MP2	2/7/13 9:35	43.10	
69916	MP3	2/7/13 9:25	34.20	
69926	MP4	2/7/13 10:00	93.80	
69931	MP5	2/7/13 9:50	19.20	
69934	MP6	2/7/13 9:00	12.60	
DUP-ph020713	MP4	2/7/13 10:00	97.30	
LCS-pH020713	LCS	2/7/13 11:30	20.00	

Quality Assurance Quality Control Analysis Results

QAQC	Sample Result / ID		Duplicate Result / ID		RPD	Pass/Fail	Comments
Internal Dup QAQC	93.80	69926	97.30	DUP-ph020713	0.04	PASS	
Field Dup QAQC	NA	NA	NA	NA	NA	NA	

QAQC	Spike Amount	Spike Sample Result / ID		RPD	% Recovery	Pass/Fail	Comments
LCS	20.00	20.00	LCS-pH020713	0.00	100.0%	PASS	

LCS Manufacture:	Oakton	LCS Lot #	C254200	Exp. Date	Nov/2014

Notes:

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

% Error = 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

2/8/2013

X

Tim Bauters
QAQC Reviewer

2/7/2013

X

John Jelinski
Analyst
Signed by: John Jelinski

Enclosure 2

Sampling Results for March 20, 2013 Rain Event:

a. **LBNL Sample Collection Form (1 page)**
b. **Curtis & Tompkins Analytical Report (6 pages)**
c. **LBNL pH Calibration & Measurement Worksheet (1 page)**

Enclosure 2.a

ESG Sample Collection Form

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

Surface Water Monitoring
ASWMP resampling from MP2, Mar. 2013
Collection: 7484

Sample Data

Sample ID	Location	SampleType	QC Type	Coll Type	Lab/Analysis	Date/time	Container(s)	Presv	Amount	Sample Notes
70255	**MP2**	Aqueous Sample Collected: **Yes**	Sample	Grab	CURTISTOMP E1664	3/20/2013 11:55:00 AM	1-1 Liter AG	HCL	1 S	Collected with pre-cleaned bailer, light rain observed some run-off into the oil water separator

RECEIVED 3/29/13

REVIEWED BY 4/1/13 JOHN JELINSKI

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

Laboratory Job Number 243961
ANALYTICAL REPORT

Lawrence Berkeley National Lab	Project : STANDARD
1 Cyclotron Road	Location : ASWMP resampling from MP2, Mar. 2013
Berkeley, CA 94720	Level : II

COC07791

Sample ID	Lab ID
70255	243961-001

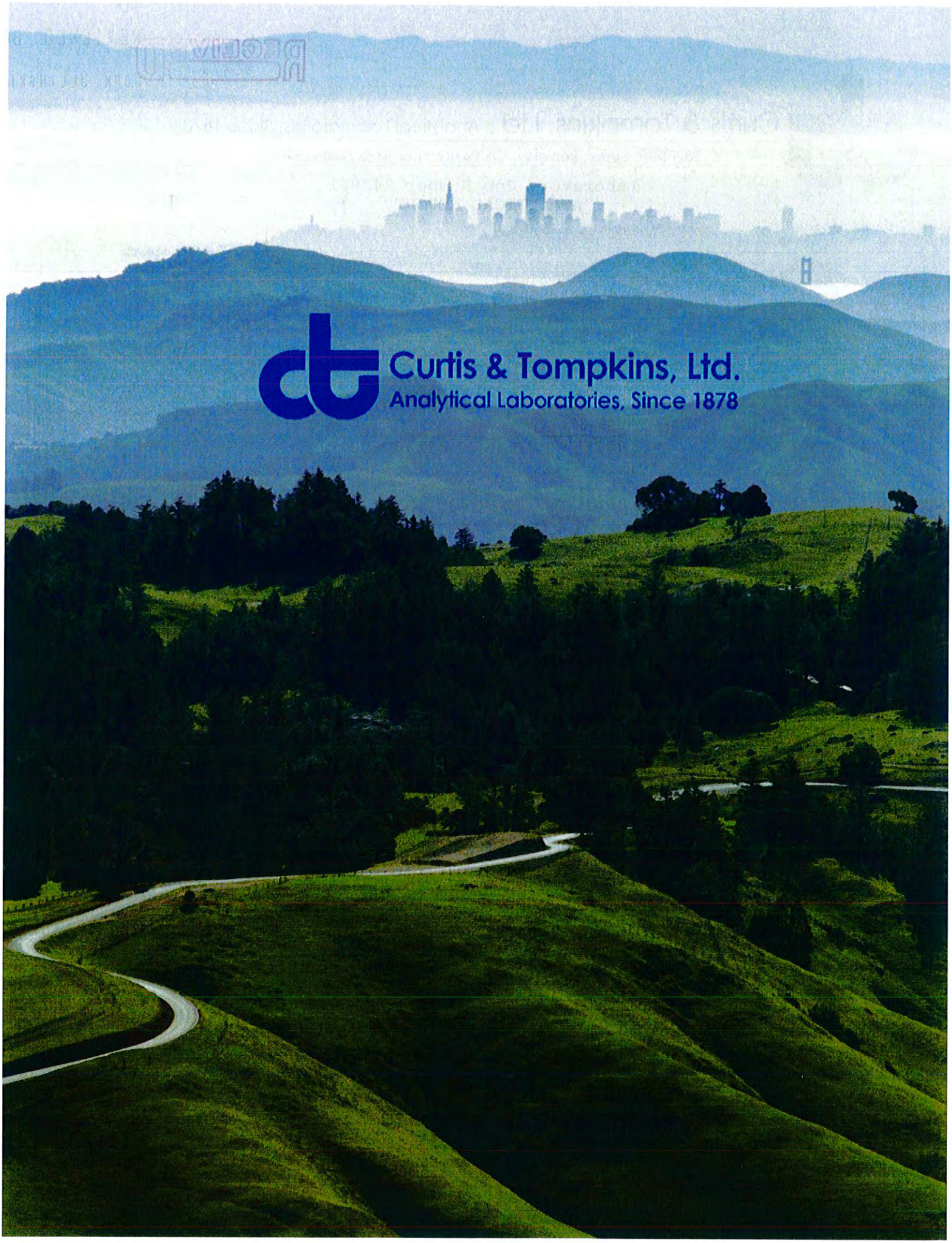
This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to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

Signature: Isabelle Choy

Date: 03/29/2013

Isabelle Choy
Project Manager
(510) 486-0900

NELAP # 01107CA


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**243961**
Client:	**Lawrence Berkeley National Lab**
Location:	**ASWMP resampling from MP2, Mar. 2013**
Request Date:	**03/20/13**
Samples Received:	**03/20/13**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 03/20/13. The sample was received cold and intact. All holding times and calibration criteria were met.

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

243961

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 75R0123
For questions contact John Jelinski, e-mail: JAJelinski@lbl.gov
Phone: 510-486-7616 Fax: 510-486-7034

Purpose: Surface Water Monitoring Program - ASWMP resampling from MP2, Mar. 2013

COC No.: 07791
Release Number / Document Control No.: ESG-07791
Collection(s): 7484

HE56D6C

[redacted]

70255	3/20/2013 11:55	3/20/2013 11:55	Grab	Aqueous	1 Liter AG	1	HCL	E1664		

Total No. of Containers: 1
Shipping Document ID: hand carry
Turnaround Time****: 10 days
Lab Name: CURTISTOMP
Sampled by: Tim BAUTERS

Special Instructions/Comments:

Relinquished By (Sampler)	Relinquished By	Relinquished By
Signature: [illegible] Time: 4:00 PM	Signature: [illegible] Time: 4:00	Signature: Time:
Printed Name: Tim BAUTERS Date: 3/20/2013	Printed Name: Pat Gonzalez Date:	Printed Name: Date:
Company: LBNL / GRADER	Company: CGT 3/20/13	Company:

Received By	Received By	Received By
Signature: [illegible] Time: 4:00 pm	Signature: Time:	Signature: Time:
Printed Name: Pat Gonzalez Date:	Printed Name: Date:	Printed Name: Date:
Company: CGT 3/20/13	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 # 243961 Date Received 3/20/13 Number of coolers 1
Client LBNL Project ASWMP resampling MPR

Date Opened 3/20/13 By (print) [illegible] (sign) [illegible]
Date Logged in 3/21/13 By (print) [illegible] (sign) [illegible]

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 _____ Name _____ Date _____
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) _____

   ☑ 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, Ltd.

Total Oil & Grease (HEM)

Lab #:	243961	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 1664A
Location:	ASWMP resampling from MP2, Mar. 2013		
Analyte:	Oil & Grease (HEM)	Diln Fac:	1.000
Code:	6325	Batch#:	196600
COC #:	07791	Instrument:	H3000
Requested:	E1664	Chemist:	NJT
Field ID:	70255	Sampled:	03/20/13 11:55
Matrix:	Water	Received:	03/20/13
Units:	mg/L	Analyzed:	03/21/13 00:00

Type	Lab ID	Result	RL
SAMPLE	243961-001	ND	5.00
BLANK	QC681000	ND	5.00

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Oil & Grease (HEM)

Lab #:	243961	Cert #:	01107CA
Client:	Lawrence Berkeley National Lab	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA 1664A
Location:	ASWMP resampling from MP2, Mar. 2013		
Analyte:	Oil & Grease (HEM)	Diln Fac:	1.000
Code:	6325	Batch#:	196600
Requested:	E1664	Instrument:	H3000
Matrix:	Water	Chemist:	NJT
Units:	mg/L	Analyzed:	03/21/13 00:00

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC681001	40.00	35.20	88	78-114		
BSD	QC681002	40.00	33.00	83	78-114	6	18

RPD= Relative Percent Difference

Enclosure 2.c

pH Calibration & Measurement Worksheet

Analytical Method:	Standard Method 4500H+B	Analysis Date:	March 20, 2013
Instrument ID:	EXTECH Serial # 78528	Time of Analysis:	11.15 AM
Analyst:	Tim Bauters	Analysis Units:	Standard Units

Program Name: ASWMP Sampling, Retest of MP4 for pH

Collection # 7484

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	LaMotte	51211218	06/30/14	4.15	4.00	4.00	0.00	PASS
7.00 pH	LSS	A236-05	08/25/13	7.26	7.00	7.00	0.00	PASS
10.00 pH	LaMotte	16211228	02/28/14	9.64	10.01	10.00	0.01	PASS

Measurement Results

Sample ID	Location	Sample Date	Result (pH)	Comments
69926 (resample)	MP4	3/20/13 11:00	7.48	
DUP-ph0320213	MP4	3/20/13 11:00	7.53	
LCS-ph032013	LCS	3/20/13 11:15	7.25	

Quality Assurance Quality Control Analysis Results

QAQC	Sample Result / ID		Duplicate Result / ID		RPD	Pass/Fail	Comments
Internal Dup QAQC	7.48	69926 (resample)	7.53	DUP-ph0320213	0.01	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	7.25	LCS-ph032013	0.04	96.6%	PASS	

LCS Manufacture: LaMotte LCS Lc April 30, 2014

Notes:

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

% Error = 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

Tim Bauters
QAQC Reviewer and Analyst

Appendix D

Technical Memorandum: Hazardous Waste Handling Facility Investigative 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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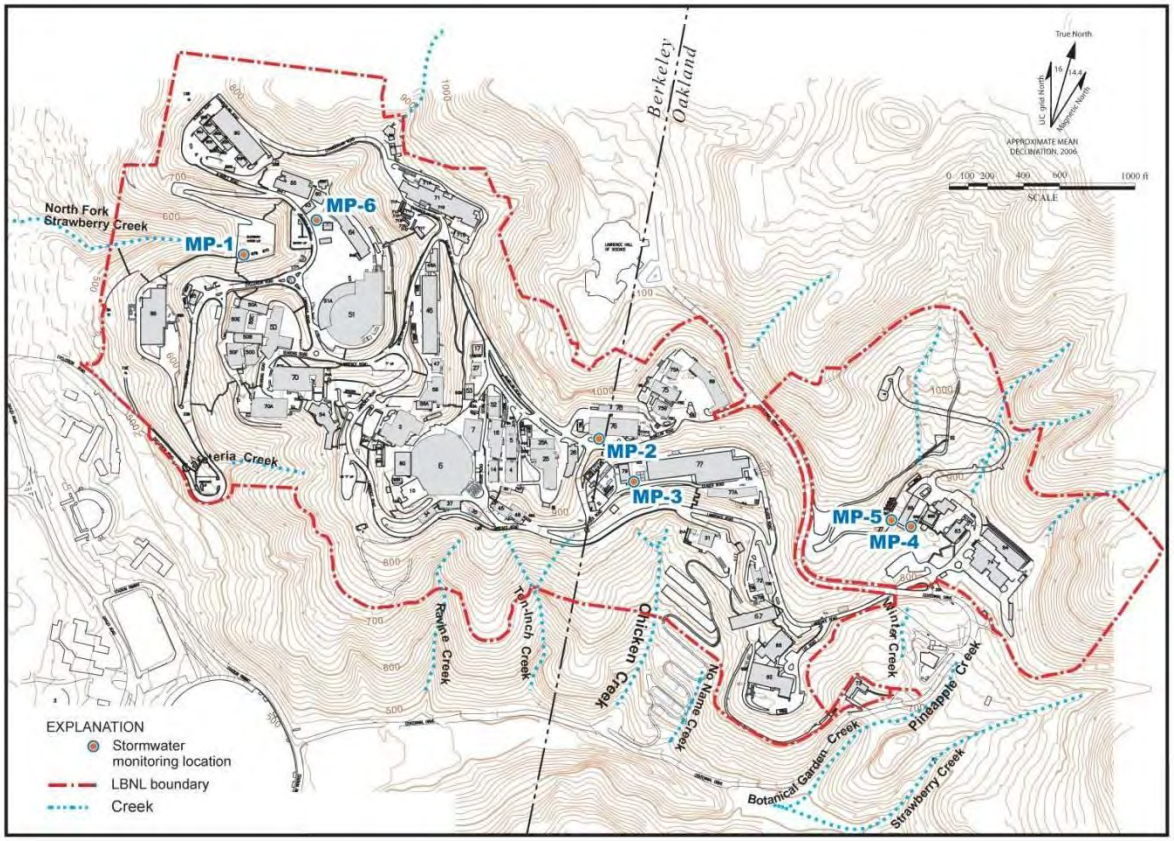

Figure 1. LBNL Facility Plan with Buildings, Topography, and Stormwater Monitoring Locations

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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.

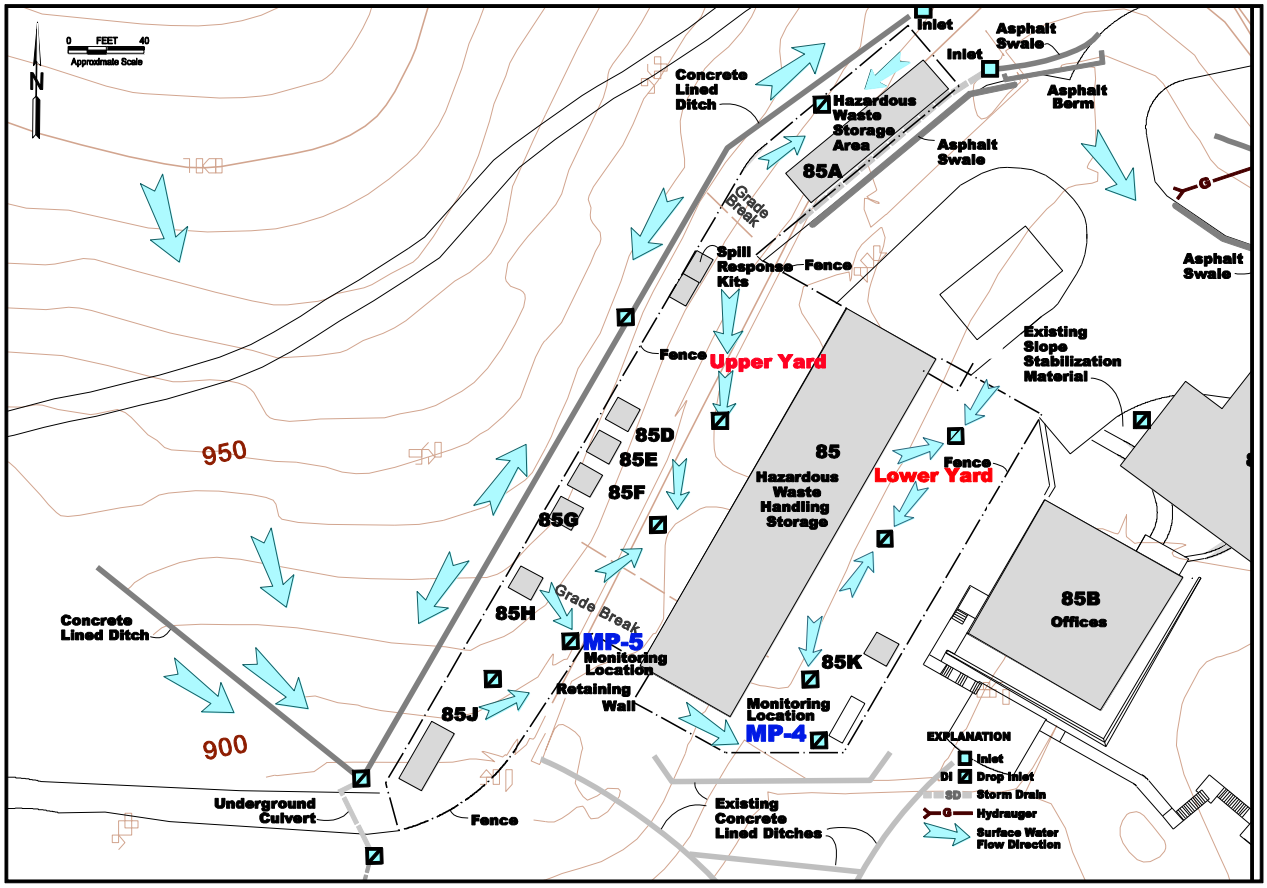

Figure 2. Schematic Overview of the Hazardous Waste Handling Facility, Building 85

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 E

Monthly and Quarterly Observations
and Annual Inspection Forms

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**

Observation Month: **October 22, 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	
October 22, 2012 10:15	N.F. Strawberry Crk Drainage Area	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Moderate flow. Note that sediment was building up in creek at fenceline, however, no turbidity was observed. pH, SC, DO & turbidity measurements taken, all within normal creek parameters.
October 22, 2012 09:40	Chicken Crk Drainage Area	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	Yes	NA	Moderate flow. Slight turbidity was observed. pH, SC, DO & turbidity measurements taken, all within normal creek parameters.
October 22, 2012 09:15	Winter & Pineapple Crk Disharge Areas	Cloudy & raining. Site in good condition (some debris observed in outfall)	Yes	No	No	No	No	NA	No	NA	Slight creek flow observed.
October 22, 2012 09:10	Winter & Pineapple Crk Influent Areas	Cloudy & raining. Some BMP issues at Borrow Pit area	No	No	No	No	No	No	No	NA	No Creek flow at winter's Creek Influent.
October 22, 2012 09:55	MP 1 Sampling Sites	Cloudy & raining. Large landslide observed at northeast corner of parking lot	Yes	No	Yes	No	No	NA	Yes	NA	Trickle flow observed. Landslide at NE corner of P-lot sent mud & debris into MP1 storm drain inlet.
October 22, 2012 10:35	MP 2 Sampling Sites	Cloudy & raining. Site in good condition	No	No	No	No	No	NA	No	NA	No flow observed
October 22, 2012 09:00	MP 3 Sampling Sites	Cloudy & raining. Site in OK condition (several galvanized metal structures in yard were not covered)	Yes	No	No	No	No	NA	No	NA	Slight flow observed.
October 22, 2012 09:10	MP 4 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Trickle flow observed.
October 22, 2012 09:10	MP 5 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Trickle flow observed.
October 22, 2012 10:00	MP 6 Sampling Sites	Cloudy & raining. Site in good condition	No	No	No	No	No	No	No	NA	No flow observed.

* = Little but not significant amount observed

Approximate Start of Rain Event	October 22, 2012 1:00 AM
Approximate Start of Significant Discharge	October 22, 2012 1:30 AM

10/22/2012

X

Tim Bauters
LBNL Stormwater Program Manager

10/22/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

This does not qualify as a permit applicable stormwater event since significant discharge occurred during non-business hours

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski & Tim Bauters**

Observation Month: **November 8, 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	
November 8, 2012 12:30	N.F. Strawberry Crk Drainage Area	Cloudy & raining. Site in good condition	Yes	Yes	No	No	No	NA	Yes	NA	Moderate flow. Slight turbidity and foam was observed.
November 8, 2012 13:40	Chicken Crk Drainage Area	Cloudy & raining. Site in good condition	Yes	Yes	No	No	No	NA	Yes	NA	Moderate flow. Slight turbidity and foam was observed.
November 8, 2012 13:35	Winter & Pineapple Crk Discharge Areas	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Slight creek flow observed.
November 8, 2012 13:30	Winter & Pineapple Crk Influent Areas	Cloudy & raining. Some BMP issues at Borrow Pit area	No	No	NA	NA	NA	No	NA	NA	No Creek flow at Winter's Creek Influent.
November 8, 2012 12:30	MP 1 Sampling Sites	Cloudy & raining. Site in good condition	Yes	Yes	Yes	No	No	NA	Yes	NA	Low flow observed. Very slight color & turbidity in water with a few floatables
November 8, 2012 13:00	MP 2 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	Yes	Yes	Yes	NA	No	NA	Trickle flow observed. Diesel/gas smell was present (due to work being done on gas pumps at time of sampling). Sheen & floatables were present
November 8, 2012 12:54	MP 3 Sampling Sites	Cloudy & raining. Site in OK condition	Yes	No	No	No	No	NA	No	NA	Slight flow observed.
November 8, 2012 13:25	MP 4 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Trickle flow observed.
November 8, 2012 13:00	MP 5 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Trickle flow observed.
November 8, 2012 12:40	MP 6 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	Yes	No	No	No	No	NA	Trickle flow observed with a very few floatables.

* = Little but not significant amount observed

Approximate Start of Rain Event	November 08, 2012 12:15 PM
Approximate Start of Significant Discharge	November 08, 2012 12:30 PM

11/14/2012

X

Tim Bauters
LBNL Stormwater Program Manager

11/14/2012

X

ohn Jelinski
BNL Stormwater Inspection Technician
gned by: John Jelinski

Additional Comments

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski & Tim Bauters**

Observation Month: **December 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	
December 12, 2012 14:55	N.F. Strawberry Crk Drainage Area	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Light to Moderate flow.
December 12, 2012 14:40	Chicken Crk Drainage Area	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Light to Moderate flow.
December 12, 2012 14:30	Winter & Pineapple Crk Discharge Areas	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Slight creek flow observed.
December 12, 2012 14:35	Winter & Pineapple Crk Influent Areas	Cloudy & raining. Some BMP issues at Borrow Pit area	Yes	No	No	No	No	NA	No	NA	Trickle Creek flow at Winter's Creek Influent.
December 12, 2012 14:55	MP 1 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	Yes	NA	No	NA	Trickle flow observed. Lots of sediment in parking lot. Sheen observed.
December 12, 2012 15:00	MP 2 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	Yes	NA	No	NA	Trickle flow observed. Sheen was present
December 12, 2012 14:45	MP 3 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	Yes	NA	No	NA	Trickle flow observed. Sheen was present
December 12, 2012 14:35	MP 4 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Trickle flow observed.
December 12, 2012 14:35	MP 5 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Trickle flow observed.
December 12, 2012 14:50	MP 6 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	Yes	NA	No	NA	Trickle flow observed. Sheen was present

* = Little but not significant amount observed

Approximate Start of Rain Event	December 12, 2012 12:00 AM
Approximate Start of Significant Discharge	NA (Before 06:00 on 12/12/12)

12/14/2012

X

Tim Bauters
LBNL Stormwater Program Manager

12/12/2012

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

This does not qualify as a permit applicable stormwater event since significant discharge occurred during non-business hours

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski & Tim Bauters**

Observation Month: **January 23, 2013**

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 23, 2013 13:50	N.F. Strawberry Crk Drainage Area	Cloudy & raining. Site in good condition	Yes	No	Yes	No	No	NA	Yes	NA	Light to Moderate flow. Presence of white foam (DOM)
January 23, 2013 13:35	Chicken Crk Drainage Area	Cloudy & raining. Site in good condition	Yes	No	Yes	No	No	NA	Yes	NA	Light to Moderate flow. Presence of white foam (DOM)
January 23, 2013 13:15	Winter & Pineapple Crk Discharge Areas	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Slight creek flow observed.
January 23, 2013 13:30	Winter & Pineapple Crk Influent Areas	Cloudy & raining. Some BMP issues at Borrow Pit area	Yes	No	No	No	No	NA	No	NA	Trickle Creek flow at Winter's Creek Influent.
January 23, 2013 13:45	MP 1 Sampling Sites	Cloudy & raining. Site in poor condition (lots of dirt & debris in parking lot surface)	Yes	YES	Yes	No	Yes	NA	Yes	NA	Light flow observed. Sheen and dirt/debri observed flowing into storm drain from parking lot. Discharge was greyish brown in color
January 23, 2013 13:00	MP 2 Sampling Sites	Cloudy & raining. Site in poor condition (filters were dark in color with a noticable oil/sheen present)	Yes	YES	YES	No	Yes	NA	YES	NA	Light flow observed. Sheen and dirt/debri observed flowing into storm drain from paved surfaces. Discharge was dark grey in color
January 23, 2013 13:10	MP 3 Sampling Sites	Cloudy & raining. Site in poor condition (filters were dark in color with a noticable oil/sheen present)	Yes	YES	YES	No	Yes	NA	YES	NA	Light flow observed. Sheen and dirt/debri observed flowing into storm drain from paved surfaces. Discharge was dark grey in color
January 23, 2013 13:20	MP 4 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Light flow observed.
January 23, 2013 13:20	MP 5 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Light flow observed.
January 23, 2013 13:40	MP 6 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	Yes	NA	No	NA	Light flow observed. Sheen was present

* = Little but not significant amount observed

Approximate Start of Rain Event	January 23, 2013 12:30 PM
Approximate Start of Significant Discharge	January 23, 2013 1:00 PM

1/28/2013

X

Tim Bauters
LBNL Stormwater Program Manager

1/23/2013

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

This qualifies as a permit applicable stormwater event

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**

Observation Month: **February 7, 2013**

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, 2013 09:15	N.F. Strawberry Crk Drainage Area	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Light flow.
February 7, 2013 10:25	Chicken Crk Drainage Area	Cloudy (not raining). Site in good condition	Yes	No	No	No	No	NA	No	NA	Light flow.
February 7, 2013 10:20	Winter & Pineapple Crk Discharge Areas	Cloudy (not raining). Site in good condition	Yes	No	No	No	No	NA	No	NA	Trickle creek flow observed.
February 7, 2013 10:15	Winter & Pineapple Crk Influent Areas	Cloudy (not raining). Site in good condition	Yes	No	No	No	No	NA	No	NA	Trickle creek flow observed.
February 7, 2013 09:15	MP 1 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Light flow observed. Sheen observed flowing into storm drain from parking lot.
February 7, 2013 09:35	MP 2 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	YES	No	Yes	NA	No	NA	Light flow observed. Sheen & Debris observed flowing into storm drain from parking lot. Discharge was greyish in color.
February 7, 2013 09:25	MP 3 Sampling Sites	Cloudy & raining. Site in ok condition.	Yes	No	No	No	Yes	NA	No	NA	Light flow observed. Sheen observed flowing into storm drain from paved surfaces.
February 7, 2013 10:00	MP 4 Sampling Sites	Cloudy (not raining). Site in good condition	Yes	No	No	No	No	NA	No	NA	Light flow observed.
February 7, 2013 09:50	MP 5 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	No	NA	No	NA	Light flow observed.
February 7, 2013 09:00	MP 6 Sampling Sites	Cloudy & raining. Site in good condition	Yes	No	No	No	Yes	NA	No	NA	Light flow observed. Sheen observed flowing into storm drain from parking lot.

* = Little but not significant amount observed

Approximate Start of Rain Event	February 07, 2013 8:00 AM
Approximate Start of Significant Discharge	2/7/2013 08:45-09:25

2/8/2013

X

Tim Bauters
LBNL Stormwater Program Manager

2/7/2013

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

This qualifies as a permit applicable stormwater event. Storm water samples collected under ASWMP

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John jelinski**

Observation Month: **March 20, 2013**

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 20, 2013 13:30	N.F. Strawberry Crk Drainage Area	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Light flow observed. Creek discharge was clear.
March 20, 2013 13:10	Chicken Crk Drainage Area	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Light flow observed. Creek discharge was clear.
March 20, 2013 13:00	Winter & Pineapple Crk Disharge Areas	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Light flow observed. Creek discharge was clear.
March 20, 2013 12:55	Winter & Pineapple Crk Influent Areas	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Trickle flow observed. Creek discharge was clear.
March 20, 2013 13:25	MP 1 Sampling Sites	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	YES	NA	NO	NA	Sheen present in discharge. Filter for storm drain in good condition.
March 20, 2013 12:30	MP 2 Sampling Sites	Cloudy with light rain. BMP's in ok condition. There was some debris and dark color in the oil/water seperator.	YES	YES	YES	NO	YES	NA	NO	NA	Sheen, dark color and floatables present in oil/water seperator.
March 20, 2013 12:40	MP 3 Sampling Sites	Cloudy with light rain. BMP's in ok condition. Main metal bin in front of B79 was open.	YES	NO	NO	NO	YES	NA	NO	NA	Sheen present in discharge. Filter for storm drain in good condition.
March 20, 2013 12:45	MP 4 Sampling Sites	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	
March 20, 2013 12:50	MP 5 Sampling Sites	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	
March 20, 2013 13:20	MP 6 Sampling Sites	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	YES	NA	NO	NA	Sheen present in discharge. Filter for storm drain in good condition.

* = Little but not significant amount observed

Approximate Start of Rain Event	March 19, 2013 6:30 PM
Approximate Start of Significant Discharge	March 19, 2013 8:30 PM

3/20/2013

X

Tim Bauters
LBNL Stormwater Program Manager

3/20/2013

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

Note: This is not a permit applicable storm event, however, observations were made since there were o permit applicable storm events for the month of March-2013

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John jelinski**

Observation Month: **April 1, 2013**

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 1, 2013 11:05	N.F. Strawberry Crk Drainage Area	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Light flow observed. Creek discharge was clear.
April 1, 2013 11:10	Chicken Crk Drainage Area	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Light flow observed. Creek discharge was clear.
April 1, 2013 11:15	Winter & Pineapple Crk Disharge Areas	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Light flow observed. Creek discharge was clear.
April 1, 2013 11:20	Winter & Pineapple Crk Influent Areas	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Trickle flow observed. Creek discharge was clear.
April 1, 2013 11:00	MP 1 Sampling Sites	Cloudy with light rain. BMP's in ok condition. Filter for drain inlet was full of debris.	YES	NO	NO	NO	YES	NA	NO	NA	Sheen present in discharge. Filter for storm drain needs to be cleaned out.
April 1, 2013 10:40	MP 2 Sampling Sites	Cloudy with light rain. BMP's in ok condition. The oil/water seperator was a dark grey color.	YES	YES	NO	NO	YES	NA	NO	NA	Sheen & dark color present in oil/water seperator.
April 1, 2013 10:50	MP 3 Sampling Sites	Cloudy with light rain. BMP's in ok condition. Lots of metal chips in yard	YES	NO	NO	NO	NO	NA	NO	NA	Filter for storm drain in ok condition, There is a small build-up of debris on the filter .
April 1, 2013 11:25	MP 4 Sampling Sites	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	
April 1, 2013 11:25	MP 5 Sampling Sites	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	
April 1, 2013 10:55	MP 6 Sampling Sites	Cloudy with light rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Filter for storm drain in good condition.

* = Little but not significant amount observed

Approximate Start of Rain Event	March 31, 2013 11:30 PM
Approximate Start of Significant Discharge	April 01, 2013 1:30 AM

4/24/2013

X

Tim Bauters
LBNL Stormwater Program Manager

4/1/2013

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

Note: This is not a permit applicable storm event, however, observations were made since there were o permit applicable storm events for the month of April-2013

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**

Observation Month: **May 6, 2013**

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 6, 2013 13:55	N.F. Strawberry Crk Drainage Area	Cloudy with light drizzle rain. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Light flow observed. Creek discharge was clear.
May 6, 2013 14:35	Chicken Crk Drainage Area	Cloudy with light drizzle. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Light flow observed. Creek discharge was clear.
May 6, 2013 14:15	Winter & Pineapple Crk Disharge Areas	Cloudy with light drizzle. BMP's in good condition.	YES	NO	NO	NO	NO	NA	NO	NA	Light flow observed. Creek discharge was clear.
May 6, 2013 14:30	Winter & Pineapple Crk Influent Areas	Cloudy with light drizzle. BMP's in good condition.	NO	NA	NA	NA	NA	NO	NA	NA	No flow observed.
May 6, 2013 13:50	MP 1 Sampling Sites	Cloudy with light drizzle. BMP's in good condition.	NO	NA	NA	NA	NA	NO	NA	NA	No flow observed.
May 6, 2013 14:05	MP 2 Sampling Sites	Cloudy with light drizzle. BMP's in good condition.	NO	NA	NA	NA	NA	NO	NA	NA	No flow observed.
May 6, 2013 14:10	MP 3 Sampling Sites	Cloudy with light drizzle. BMP's in ok condition. Lots of metal chips in yard	NO	NA	NA	NA	NA	NO	NA	NA	No flow observed.
May 6, 2013 14:20	MP 4 Sampling Sites	Cloudy with light drizzle. BMP's in good condition.	NO	NA	NA	NA	NA	NO	NA	NA	No flow observed.
May 6, 2013 14:25	MP 5 Sampling Sites	Cloudy with light drizzle. BMP's in good condition.	NO	NA	NA	NA	NA	NO	NA	NA	No flow observed.
May 6, 2013 14:00	MP 6 Sampling Sites	Cloudy with light drizzle. BMP's in good condition.	NO	NA	NA	NA	NA	NO	NA	NA	No flow observed.

* = Little but not significant amount observed

Approximate Start of Rain Event	NA (no significant rain occurred)
Approximate Start of Significant Discharge	NA

5/8/2013

X

Tim Bauters
LBNL Stormwater Program Manager

5/8/2013

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Additional Comments

Note: This is not a permit applicable storm event; however, wet weather observations were made.

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**

Quarterly Period: **July-September 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
August 23, 2012 13:30-14:50	NA	NA	Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
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			Source								
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			Area								
			Source								
			Area								

No UNAUTHORIZED NSWDs were observed

Additional Comments

10/12/2012

X

Tim Bauters
LBNL Stormwater Program Manager

10/12/2012

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: **July-September 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	
August 23, 2012 13:30-14:50	Hydraugers Hillside Seepage	Groundwater Buildings 31 37 64 77 roadside	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
August 23, 2012 13:30-14:50	Creek Flow	Groundwater NF Strawberry & Chicken Creeks	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
August 23, 2012 13:30-14:50	Cooling System Condensate	Atmospheric Condensate Buildings 2 64	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								

Additional Comments

10/12/2012

X

Tim Bauters
LBNL Stormwater Program Manager

10/12/2012

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 2012**

Quarterly Visual Observations of Non-Storm Water Discharges (NSWD) - General Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	NSWD Observed (Y or N)*	Authorized Type (Y, N, or NA)	Notes, Including Indications of Prior *Unauthorized NSWD* and Any Actions Taken
August 23, 2012 14:45	North Fork Strawberry Creek Drainage Area	Sunny & Clear. BMP's in good condition	Yes	Authorized	NF Strawberry Crk lite flow
August 23, 2012 14:50	Chicken Creek Drainage Area	Sunny & Clear. BMP's in good condition	Yes	Authorized	Chicken Crk lite flow
August 23, 2012 13:55	East Canyon & Winters Crk Drainage Areas	Sunny & Clear. BMP's in good condition	No	NA	Winter Crk Influent trickle to no flow East Canyon discharge no flow
August 23, 2012 13:30-14:35	MP1-MP6 Sampling Sites	Sunny & Clear. BMP's in ok condition. Filters & MP1 & MP3 need to be cleaned out	Yes	Authorized	Sprinkler flushing/check was observed at MP3 (see notes below)
August 23, 2012 14:40	Area I (Blds 65, 88)	Sunny & Clear. BMP's in good condition	No	NA	NA
August 23, 2012 14:35	Area II (Blds 50, 54, 70, 70A)	Sunny & Clear. BMP's in good condition	No	NA	NA
August 23, 2012 14:15	Area III (Blds 51, 55, 64, 90)	Sunny & Clear. BMP's in good condition	Yes	Authorized	B64 hydraugers, cooling system condensate Note: pipe from B64 spill on 7/16/12 still dripping (notified Tim B.)
August 23, 2012 14:25	Area IV (Bld 71)	Sunny & Clear. BMP's in good condition	No	NA	NA
August 23, 2012 14:10	Area V (Blds 2, 46, 58)	Sunny & Clear. BMP's in good condition. Area behind B2 significantly improved	Yes	Authorized	Condensate from cooling system
August 23, 2012 14:00	Area VI (Blds 6, 7, 10, 17, 37, 80)	Sunny & Clear. BMP's in ok condition - 2 open trash bins at b7	Yes	Authorized	B37 hydrauger Presence of de-chloro tablets at sevral storm drains
August 23, 2012 14:05	Area VII (Blds 4, 5, 14, 16, 45, 48, 52)	Sunny & Clear. BMP's in good condition	No	NA	NA
August 23, 2012 13:30	Area VIII (Blds 69, 75, 76)	Sunny & Clear. BMP's in good condition. DSA behind b75A significantly improved	No	NA	NA
August 23, 2012 13:45	Area IX (Bld 77-79)	Sunny & Clear. BMP's need improvement . Lots of metal chips on road.	Yes	Authorized	B77 hydraugers, sprinkler flushing Sprinkler flushing/check was observed at MP3 (see notes below)
August 23, 2012 13:50	Area X (Blds 31, 62, 66, 67, 72)	Sunny & Clear. BMP's in ok condition . Overstuffed bins at B72A	Yes	Authorized	B31 hydraugers Presence of de-chloro tablets at sevral storm drains
August 23, 2012 13:55	Area XI (Blds 74, 83, 84, 85)	Sunny & Clear. BMP's in ok condition .	Yes	Authorized	roadside hydraugers large oil stain on road leading up to b85 water tower

Additional Comments

10/12/2012

X

Tim Bauters
LBNL Stormwater Program Manager

10/12/2012

X

John Jelinski
LBNL Stormwater Ispection Techician
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.

*If NSWD was observed, complete appropriate *Authorized* or *Unauthorized* details form.

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**

Quarterly Period: **October - December 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
October 11, 2012 16:00 - 16:30	Discharge of water barrels & water line break @ B51 P-lot	B51 parking lot	Source	NA	NA	NA	NA	NA	NA	NA	Email sent to tent vendor to add dechlorination tablets to water barrels, clean trash from path to storm drain drain inlets, release water at a manageable rate, and only use as much water in barrels as is required to hold down the tents
			Area	NA	NA	NA	NA	NA	NA	NA	
November 12, 2012 06:30 to 11:30	B75 Water Tank Overflow	B75 Water Tower behind B75	Source	No	No	No	No	NA	No	NA	ESG personnel placed dechlor tablets at source of overflow & surrounding all affected storm drain inlets as soon as they were notified @ approx 10:50
			Area	No	No	No	No	NA	No	NA	
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								

Additional Comments

11/28/2

X

Tim Bauters
LBNL Stormwater Program Manager

11/28/2012

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: **October - December 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	
November 27, 2012	Hydraugers	Groundwater	Source	N	N	N	N	N	N	NA	NA
11:45 to 12:45	Hillside Seepage	Buildings 31 37 46 55 74 76 77	Area	N	N	N	N	N	N	NA	
November 27, 2012	Creek Flow	Groundwater	Source	N	N	N	N	N	N	NA	NA
11:45 to 12:45		NF Strawberry & Chicken Creeks	Area	N	N	N	N	N	N	NA	
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								

Additional Comments

11/28/2C

X

Tim Bauters
LBNL Stormwater Program Manager

11/28/2012

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: **October - December 2012**

Quarterly Visual Observations of Non-Storm Water Discharges (NSWD) - General Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	NSWD Observed (Y or N)*	Authorized Type (Y, N, or NA)	Notes, Including Indications of Prior *Unauthorized NSWD* and Any Actions Taken
November 27, 2012 12:35	North Fork Strawberry Creek Drainage Area	Sunny, clear. BMP's in good condition	YES	Authorized	N.F. Strawberry Crk flow
November 27, 2012 12:05	Chicken Creek Drainage Area	Sunny, clear. BMP's in good condition	YES	Authorized	Chicken Crk flow
November 27, 2012 11:55	East Canyon & Winters Crk Drainage Areas	Sunny, clear. BMP's in good condition	NO	NA	East Canyon Outfall & Winter's Crk Influent not flowing
November 27, 2012 11:45 to 12:45	MP1-MP6 Sampling Sites	Sunny, clear. BMP's in good condition, except at MP1 where there is noticeable soil & dirt built up in the lot & near the storm drain inlet.	NO	NA	
November 27, 2012 12:45	Area I (Blds 65, 88)	Sunny, clear. BMP's in good condition	NO	NA	
November 27, 2012 12:25	Area II (Blds 50, 54, 70, 70A)	Sunny, clear. BMP's in ok condition. Open trash bin in cafeteria loading dock.	NO	NA	
November 27, 2012 12:30	Area III (Blds 51, 55, 64, 90)	Sunny, clear. BMP's in ok condition. Soil and dirt in road behind B64.	YES	Authorized	B64 & B55 hydraugers
November 27, 2012 12:22	Area IV (Bld 71)	Sunny, clear. BMP's in good condition	NO	NA	
November 27, 2012 12:20	Area V (Blds 2, 46, 58)	Sunny, clear. BMP's in good condition	YES	Authorized	B46 hydraugers
November 27, 2012 12:10	Area VI (Blds 6, 7, 10, 17, 37, 80)	Sunny, clear. BMP's in good condition	YES	Authorized	B37 hydraugers
November 27, 2012 12:15	Area VII (Blds 4, 5, 14, 16, 45, 48, 52)	Sunny, clear. BMP's in good condition	NO	NA	B25 under separate construction permit
November 27, 2012 11:45	Area VIII (Blds 69, 75, 76)	Sunny, clear. BMP's in good condition	YES	Authorized	B76 hydrauger
November 27, 2012 11:50	Area IX (Bld 77-79)	Sunny, clear. BMP's in ok condition. 1 open metal bin. Loose debris & dirt in paved areas.	YES	Authorized	B77 hydraugers
November 27, 2012 12:05	Area X (Blds 31, 62, 66, 67, 72)	Sunny, clear. BMP's in poor condition. Several 5gal buckets of chemicals at B67 CT not in 2nd containment. Open trash bin.	YES	Authorized	B31 hydrauger, Chicken Creek flow
November 27, 2012 11:55	Area XI (Blds 74, 83, 84, 85)	Sunny, clear. BMP's in good condition. Borrow Pit area in good condition	YES	Authorized	B74 hydrauger

Additional Comments

11/28/2012

X

Tim Bauters
LBNL Stormwater Program Manager

11/28/2012

X

John Jelinski
LBNL Stormwater Ispection Techician
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.

*If NSWD was observed, complete appropriate *Authorized* or *Unauthorized* details form.

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinski**

Quarterly Period: **January to March 2013**

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 29, 2012 10:40 to 11:00	B70 Loading Dock SSO	SSO @ B70		Source	Yes	No	Yes	N0	NA	Yes	NA	Reportable spill. Water quality measurements taken at length of NFS Creek & S creek.
				Area	Yes	No	Yes	N0	NA	Yes	NA	
				Source								
				Area								
				Source								
				Area								
				Source								
				Area								
				Source								
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				Area								
				Source								
				Area								

Additional Comments

2/27/2013

X

Tim Bauters
LBNL Stormwater Program Manager

2/14/2013

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 to March 2013**

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 29, 2012 04:50 to 12:00	B82 Water Line Break	Water Line Break At B82 Water Tower	Source	N	N	N	N	N	N	NA	Valve was shut-off with 30 minutes. Water flow present for approx 8 hours. Line fixed 12/7/12
			Area	N	N	N	N	N	N	NA	
December 12, 2012 All Day	B75 Water Tower Overflow	Fire Suppression Run-off	Source	N	N	N	N	N	N	NA	Total Cl measured at 0.12 ppm @ 12:30. Dechlor tablets placed at 12:30
			Area	N	N	N	N	N	N	NA	
January 15, 2013 Approximately 14:20	B15 Fire Sprinkler Break	Fire Suppression Run-off	Source	N	N	N	N	N	N	NA	Approximately 500 gal of water discharged into storm drain, BMP's fully implemented
			Area	N	N	N	N	N	N	NA	
February 14, 2013 12:30 to 14:00	Creek Flow	Groundwater NF Strawberry, Chicken, & Winters Creeks	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
February 14, 2013 12:30 to 14:00	Hydraugers Hillside Seepage	Groundwater Buildings 31 37 46 55 64 74 76 77	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								

Additional Comments

2/27/2013

X

Tim Bauters
LBNL Stormwater Program Manager

2/14/2013

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 to March 2013**

Quarterly Visual Observations of Non-Storm Water Discharges (NSWD) - General Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	NSWD Observed (Y or N)*	Authorized Type (Y, N, or NA)	Notes, Including Indications of Prior *Unauthorized NSWD* and Any Actions Taken
February 14, 2013	North Fork Strawberry Creek Drainage Area	Sunny & clear. BMP's in good condition.	YES	Authorized	Crrek flow @ NF Strawberry Creek
February 14, 2013	Chicken Creek Drainage Area	Sunny & clear. BMP's in good condition.	YES	Authorized	Crrek flow @ Chicken Creek
February 14, 2013	East Canyon & Winters Crk Drainage Areas	Sunny & clear. BMP's in good condition.	YES	Authorized	Crrek flow @ Winters Creek (influent & East Canyon discharge.
February 14, 2013	MP1-MP6 Sampling Sites	Sunny & clear. BMP's in good condition.	NO	NA	NA
February 14, 2013	Area I (Blds 65, 88)	Sunny & clear. BMP's in good condition.	NO	NA	NA
February 14, 2013	Area II (Blds 50, 54, 70, 70A)	Sunny & clear. BMP's in good condition.	NO	NA	B50 construction areas under separate stormwater construction permit.
February 14, 2013	Area III (Blds 51, 55, 64, 90)	Sunny & clear. BMP's in good condition.	YES	Authorized	B55 & B64 Hydraugers, Hillside seepage. B90 construction areas under separate stormwater construction permit.
February 14, 2013	Area IV (Bld 71)	Sunny & clear. BMP's in good condition.	NO	NA	NA
February 14, 2013	Area V (Blds 2, 46, 58)	Sunny & clear. BMP's in good condition.	YES	Authorized	B46 Hydraugers, Hillside seepage.
February 14, 2013	Area VI (Blds 6, 7, 10, 17, 37, 80)	Sunny & clear. BMP's in good condition.	YES	Authorized	B37 Hydraugers.
February 14, 2013	Area VII (Blds 4, 5, 14, 16, 45, 48, 52)	Sunny & clear. BMP's in good condition.	NO	NA	B25 under separate stormwater construction permit.
February 14, 2013	Area VIII (Blds 69, 75, 76)	Sunny & clear. BMP's in good condition.	YES	Authorized	B76 Hydraugers, Hillside seepage.
February 14, 2013	Area IX (Bld 77-79)	Sunny & clear. BMP's in good condition.	YES	Authorized	B77 Hydraugers, Hillside seepage.
February 14, 2013	Area X (Blds 31, 62, 66, 67, 72)	Sunny & clear. BMP's in good condition.	YES	Authorized	B31 Hydraugers, Hillside seepage.
February 14, 2013	Area XI (Blds 74, 83, 84, 85)	Sunny & clear. BMP's in good condition.	YES	Authorized	B74 Hydraugers.

Additional Comments

2/27/2013

X

Tim Bauters
LBNL Stormwater Program Manager

2/14/2013

X

John Jelinski
LBNL Stormwater Ispection Techician
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.

*If NSWD was observed, complete appropriate *Authorized* or *Unauthorized* details form.

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Observer: **John Jelinsi**

Quarterly Period: **April to June 2013**

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 2, 2013 11:40-13:30	NA	NA	Source	NA	NA	NA	NA	NA	NA	NA	NA
			Area	NA	NA	NA	NA	NA	NA	NA	
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								
			Source								
			Area								

No UNAUTHORIZED NSWDs were observed

Additional Comments

5/8/2013

X

Tim Bauters
LBNL Stormwater Program Manager

5/8/2013

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 Jelinsi**

Quarterly Period: **April to June 2013**

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 2, 2013 11:40-13:30	Creek Flow	Groundwater NF Strawberry, Chicken, & Winters Creeks	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
May 2, 2013 11:40-13:30	Hydraugers Hillside Seepage	Groundwater Buildings 31 37 46 55 64 74 77 84	Source	N	N	N	N	N	N	NA	NA
			Area	N	N	N	N	N	N	NA	
			Source								
			Area								
			Source								
			Area								
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			Area								
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			Area								
			Source								
			Area								

Additional Comments

5/8/2013

X

Tim Bauters
LBNL Stormwater Program Manager

5/8/2013

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 to June 2013**

Quarterly Visual Observations of Non-Storm Water Discharges (NSWD) - General Form

Date & Time	Site visited	General Conditions & Observations (e.g. weather, housecleaning)	NSWD Observed (Y or N)*	Authorized Type (Y, N, or NA)	Notes, Including Indications of Prior *Unauthorized NSWD* and Any Actions Taken
May 2, 2013 13:30	North Fork Strawberry Creek Drainage Area	Sunny. BMP's in good condition.	YES	Authorized	Creek flow @ NF Strawberry Creek
May 2, 2013 12:15	Chicken Creek Drainage Area	Sunny. BMP's in good condition.	YES	Authorized	Creek flow @ Chicken Creek
May 2, 2013 12:00	East Canyon & Winters Crk Drainage Areas	Sunny. BMP's in good condition.	YES	Authorized	Creek flow @ Winters Creek East Canyon discharge (no flow at influent site).
May 2, 2013 11:40-13:30	MP1-MP6 Sampling Sites	Sunny. BMP's in good condition.	NO	NA	NA
May 2, 2013 13:20	Area I (Blds 65, 88)	Sunny. BMP's in good condition.	NO	NA	NA
May 2, 2013 13:30	Area II (Blds 50, 54, 70, 70A)	Sunny. BMP's in good condition.	NO	NA	B50 area under separate construction NPDES stormwater permit
May 2, 2013 13:10	Area III (Blds 51, 55, 64, 90)	Sunny. BMP's in good condition.	YES	Authorized	Hydraugers behind B55 & B64 B51 & B90 areas under separate construction NPDES stormwater permit
May 2, 2013 12:50	Area IV (Bld 71)	Sunny. BMP's in good condition.	NO	NA	NA
May 2, 2013 12:40	Area V (Blds 2, 46, 58)	Sunny. BMP's in good condition.	YES	Authorized	B46 Hydraugers, Hillside seepage.
May 2, 2013 12:20	Area VI (Blds 6, 7, 10, 17, 37, 80)	Sunny. BMP's in ok condition. Open trash bin @ B6.	YES	Authorized	B37 Hydraugers, Hillside seepage.
May 2, 2013 12:30	Area VII (Blds 4, 5, 14, 16, 45, 48, 52)	Sunny. BMP's in good condition.	NO	NA	B25-25A area under separate construction NPDES stormwater permit
May 2, 2013 11:40	Area VIII (Blds 69, 75, 76)	Sunny. BMP's in good condition.	NO	NA	NA
May 2, 2013 11:45	Area IX (Bld 77-79)	Sunny. BMP's in ok condition. Open metal bins @ B77-79 & metal tailing on yard.	YES	Authorized	B77 Hydraugers, Hillside seepage. Rusty colored water stains in 77-79 yard & 77 cooling tower leading to storm drain inlet
May 2, 2013 12:15	Area X (Blds 31, 62, 66, 67, 72)	Sunny. BMP's in ok condition. Open trash bin @ B67.	YES	Authorized	B31 Hydraugers, Hillside seepage. Presence of overflow at B62 cooling tower
May 2, 2013 11:55	Area XI (Blds 74, 83, 84, 85)	Sunny. BMP's in ok condition. Exposed dirt mound across from b85 and lots of dirt/debris on road Under separate construction permit).	YES	Authorized	B74 & B84 Hydraugers, Hillside seepage.

Additional Comments

X 5/8/2013
Tim Bauters
LBNL Stormwater Program Manager

X 5/8/2013
John Jelinski
LBNL Stormwater Ispection Techician
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.

*If NSWD was observed, complete appropriate *Authorized* or *Unauthorized* details form.

Lawrence Berkeley National Laboratory

Environmental Services Group , Storm Water Monitoring Program

Inspected By: **John Jelinski**

Annual Comprehensive Site Compliance Evaluation Log

Inspection Date	Location	Inspection Criteria		Comments	Follow-Up Required
May 2, 2013	**Area I** (Blds 65 88)	General area (trash & metal bins)	x	Good	NA
		Cooling towers (88 roof)	x	Good	NA
		Generators (88 roof)	NA	NA (runs on propane no 2nd containment required)	NA
		B88 Bank (2nd containment)	x	Good	NA
		Parking area	x	Good	NA
		Erosion control measures	x	Good	NA
May 2, 2013	**Area II** (Blds 50 54 70 70A)	General area (trash & metal bins)	x	Good	NA
		Cooling towers (70, 50A-B)	x	Good	NA
		Generators & UST/AST (50, 70, 70A)	NA	B50 generator & 50-70-70A AST on rooftop, inspection not required	NA
		FTU's (70A)	x	Good	NA
		B50, B70, B70A Banks (2nd containment)	x	Good	NA
		Parking area	x	Good	NA
		Erosion control measures	x	Good	NA
				Note: B50 construction area under separate construction NPDES stormwater permit	
May 2, 2013	**Area III** (Blds 51 55 64 90)	General area (trash & metal bins)	x	Good	NA
		Cooling towers (64)	x	Good	NA
		Generators & UST/AST (64, 90)	x	Good	NA
		WAA's (51)	NA	Note: B51 construction area under separate construction NPDES stormwater permit	NA
		Treatment Systems (51FT-MGR-L)	x	Good	NA
		B90 Bank (2nd containment)	x	Good	NA
		Parking area	x	Good	NA
		Erosion control measures	x	Good	NA
				Note: B90 construction area under separate construction NPDES stormwater permit	NA
May 2, 2013	**Area IV** (Bld 71)	General area (trash & metal bins)	x	Good	NA
		Cooling towers (71)	x	Good	NA
		UST or AST (71WT, 71)	x	Good	NA
		Parking area	x	Good	NA
		Erosion control measures	x	Good	NA
May 2, 2013	**Area V** (Blds 2 46 58)	General area (trash & metal bins)	x	Good	NA
		DSA & UST/AST (2, 58)	x	Good	NA
		Treatment systems (46, 58)	x	Good	NA
		B46 & B58 Banks (2nd containment)	NA	B58 Bank not checked (special key needed to enter)	NA
		Parking area	x	Good	NA
		Erosion control measures	x	Good	NA
May 2, 2013	**Area VI** (Blds 6 7 10 17 37 80)	General area (trash & metal bins)	x	Open trash bin @ B6	NA
		Cooling tower (37)	x	Good	NA
		Generators & UST/AST (37)	x	Good	NA
		Treatment Systems (6, 7)	x	Good	NA
		B6L, B6U, B37 Banks (2nd containment)	x	Good	NA
		Parking area	x	Good	NA
		Erosion control measures	x	Good	NA

Annual Comprehensive Site Compliance Report Inspection (continued)

Inspection Date	Location	Inspection Criteria		Comments	Follow-Up Required
May 2, 2013	Area VII (Blds 4 5 14 16 25 45 48 52)	General area (trash & metal bins)	x	Good	NA
		Treatment Systems (25, 25A)	NA	Note: B25-25A construction area under separate construction NPDES stormwater permit	NA
		B25 & B26 Bank (2nd containment)	x	Good	NA
		Vehicle Washing (48)	x	Good	NA
		Parking area	x	Good	NA
		Erosion control measures	x	Good	NA
May 2, 2013	Area VIII (Blds 69 75 76)	General area (trash & metal bins)	x	Good	NA
		UST/AST (75WT, 76)	x	Good	NA
		FTU's (76)	x	Good	NA
		WAA's (76)	x	Good	NA
		B69 Sub (2nd containment)	x	Good	NA
		Vehicle Washing (76)	x	Good	NA
		Parking area	x	Area behind B75B has congested parking issues	NA
		Erosion control measures	x	Good	NA
May 2, 2013	Area IX (Bld 77 79)	General area (trash & metal bins)	x	Open metal bins and metal shavings on yard in B77-79 area	YES
		Cooling towers (77)	x	Rusty colored stains observed at B77 cooling tower	NA
		DSA & UST/AST (77-79)	x	Good	NA
		WAA's (77)	x	Good	NA
		FTU's (77)	x	Good	NA
		Bank 72 (2nd containment)	x	Good	NA
		Parking area	x	Good	NA
		Erosion control measures	x	Good	NA
May 2, 2013	Area X (Blds 31 62 66 67 72)	General area (trash & metal bins)	x	Open trash bin @ B67	NA
		Cooling tower (62)	x	Good	NA
		Generator, DSA, UST/AST (31, 62, 66)	x	Good	NA
		Parking area	x	Good	NA
		Erosion control measures	x	Good	NA
May 2, 2013	Area XI (Blds 74 83 84 85)	General area (trash & metal bins)	NA	Note: B85 construction area under separate construction NPDES stormwater permit	NA
		Cooling towers (74, 84, 85)	x	Good	NA
		Generators (85)	x	Good	NA
		UST or AST (83, 84, 85)	x	Good	NA
		WAA's (85)	x	Good	NA
		Parking area	x	Good	NA
		Erosion control measures	x	Some of the waddles in front of B85 have degraded & need to be replaced	NA
May 2, 2013	Construction Sites	25-25A, B50, B51, & B90 Construction	x	Note: These areas were not inspected as they fall under separate NPDES permits	NA
		B85 under seismic Phase II construction permit			
May 2, 2013	Parking Lots	General parking lot areas	x	Good	NA

5/8/2013

X

Tim Bauters
LBNL Stormwater Program Manager

5/8/2013

X

John Jelinski
LBNL Stormwater Inspection Technician
Signed by: John Jelinski

Appendix F

Letter Report for November 29, 2012 Sanitary Sewer Overflow

BERKELEY LAB

Environment / Health / Safety / Security
DIVISION
Environmental Services

CERTIFIED MAIL
Receipt No. 7012 1010 0000 9090 0745

Reference No.: ES-13-028

December 14, 2012

Tina J. Low
Water Resources Control Engineer
State Water Resources Control Board
San Francisco Bay Region
TMDL/Planning Division
1515 Clay Street, Suite 14000
Oakland, CA 94612

Subject: Final Report Regarding the Sanitary Sewer Overflow (SSO) at Lawrence Berkeley National Laboratory (LBNL) on November 29, 2012.

On November 29, 2012, approximately 3,000 to 5,000 gallons of wastewater flowed out of a sewer manhole and into a nearby storm drain located at LBNL's building 70 loading area. The storm drain system at this location discharges to the North Fork of Strawberry Creek. The SSO was caused by the discharge of a large volume of wastewater used to disinfect a domestic water system at an LBNL construction project. The wastewater had been collected in a tank and treated to neutralize the chlorine content prior to discharge into the sanitary sewer system. The SSO was discovered at about 10:40 AM and stopped at about 10:58 AM, and it was reported to you on November 29. We received, per email, a list of the State Water Resources Control Board's (SWRCB) requirements the same day with a request to provide a progress report by close of business on November 30. A progress report was provided with preliminary information on November 30 by email. This letter provides a final report with respect to the SWRCB's following requirements:

- *Report to CalEMA (which you indicated has already been done) and the local health department.*

  The release was reported to CalEMA, the City of Berkeley, the San Francisco Bay Regional Water Quality Control Board, and UC Berkeley. The Cal EMA report number is 12-7208.

- *Take reasonable abatement measures (e.g., stop and/or minimize any ongoing discharge, cordon off and contain spill on street or storm drain, recover spill, clean up debris, flush with dechlorinated water).*

  The overflow was caused by the discharge of a large volume of wastewater that had been generated from the disinfection of a domestic water system at a project site and discharged into the sanitary sewer system. The disinfection water had been contained and treated to remove the chlorine prior to being pumped into the sanitary sewer system. Upon discovery of the overflow, the discharge of disinfection water was stopped, which stopped the sanitary sewer system overflow. The sanitary sewer overflow effluent was cleaned from the loading area.

Ernest Orlando Lawrence Berkeley National Laboratory
One Cyclotron Road | Berkeley, California 94720 | Mail Stop 75R0123 | Tel: 510.486.7614 | Fax: 510.486.6939
Email: ROPauer@lbl.gov

Because of the steepness of the hillside location, it was not possible to contain the spill. It is believed that the majority of the sanitary sewer overflow consisted of treated disinfection water.

A portion of the sanitary sewer line below the manhole where the SSO occurred has been evaluated and roots were found that partially obstructed the line. The roots have been removed.

- *Post notice of the sewage spill at location of spill and in downstream areas with known or reasonably suspected public access (beaches, parks, hiking trails, and informal trails).*

  The overflow at the building 70 loading area was immediately cleaned up, so posting at the release location was not necessary, and since there are no publically accessible areas at the creeks on the LBNL site, no postings were placed at LBNL. Although the creek flows through publically accessible areas on the UC Berkeley campus, campus staff was not able to safely post these areas the day of the release due to the impending darkness and storm event. The storm produced over 2 inches of rainfall overnight, flushing the creek that flows through campus, so it was determined that notices were not necessary the day following the release.

- *Collect samples, when feasible and safe, and make and record visual inspection, upstream, downstream, and at spill location. Sample for: bacteria (total or fecal coliform, or enterococcus), ammonia, and D.O. Continue once about every 8 hours until back to ambient.*

  Following the SSO on November 29, 2012, direct measurements were performed for turbidity, pH, specific conductance, and dissolved oxygen at the building 70 loading area and at a number of downstream locations including the creek's discharge point into the San Francisco Bay. In addition, samples were collected and taken to an analytical laboratory to determine the levels of total and fecal coliform and ammonia. On November 30, 2012 additional direct measurements were performed and samples collected. The enclosed map, table, and photos provide information regarding sample locations, results, and visual observations.

  Results for samples collected on November 29, 2012 showed levels within typical background levels for the creek on dry days for pH, chlorine, and dissolved oxygen. Results for specific conductance indicated that the discharged water was primarily from a domestic water source with low conductance values. Specific conductance values that were measured in the North Fork of Strawberry Creek were significantly less than the values measured in the non-impacted South Fork of Strawberry Creek. The turbidity levels in the North Fork of Strawberry Creek were elevated by comparison to the levels in the South Fork of Strawberry, which may be due to re-mobilization of sediments present in the creek bed.

  Results for samples collected on November 30, 2012 reflect the impact of the significant storm event that occurred the previous night. The coliform levels in the creek were typical of levels found during and after rain events. This observation was confirmed by UC Berkeley staff that monitors the campus creeks. The fecal coliform at the building 70 loading area decreased from >1600 MPN/100ml to 300 on the following day, which was due to the cleaning that took place at that location.

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If you have any further questions, please contact Tim Bauters at 510-486-5831 (twbauters@lbl.gov) or me at 510-486-7614 (ROPauer@lbl.gov).

Sincerely,

Ron Pauer
Environmental Manager

enclosures:

1) Map showing Strawberry Creek sampling points
2) Analytical Results for B70 Loading Area SSO Spill
3) Photos showing visual observations

cc via email w/enclosures:

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Strawberry Creek Sampling Point Designations

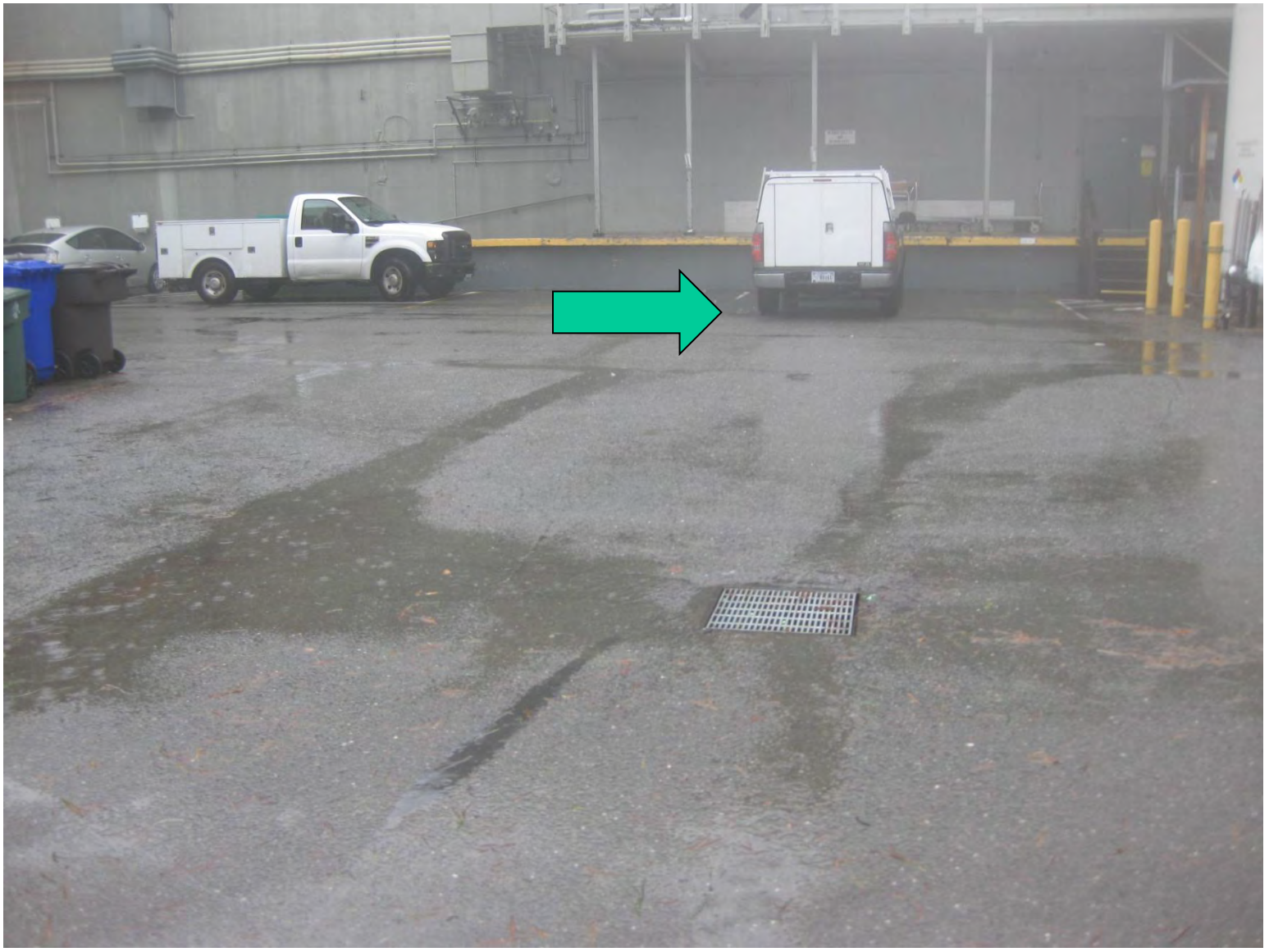
1 — SFSC-DB
2 — SFSC-CC
3 — SFSC-UCB-E
4 — SFSC-UCB-W
5 — NFSC-88
6 — NFSC-LeRoy
7 — NFSC-UCB-N
8 — NFSC-UCB-W
9 — SC-UCB-OSC
10 — SC-SCP
11 — SC-BO

Strawberry Creek Watershed Map
Revised: December 12, 2012

Analytical Results for B70 Loading Area SSO Spill (Sampling events: Nov 29 and 30, 2012)

Sample ID[a]	Location Name	Description	Dates and Time Sampled		pH		Turbidity (NTU)		Conductivity (µS/cm)		Dissolved Oxygen (mg/l)		Total Chlorine (ppm)		Total Coliform (MPN/100ml)		Fecal Coliform (MPN/100ml)		Ammonia (mg/l)	
			29-Nov	30-Nov	29-Nov	30-Nov	29-Nov	30-Nov	29-Nov	30-Nov	29-Nov	30-Nov	29-Nov	30-Nov	29-Nov	30-Nov	29-Nov	30-Nov	11/29/2012[b]	30-Nov
B70	B70 Loading Area	Storm drain inlet in B70 loading area where the SSO entered the storm drain system	11:45	10:25	8.25	7.7	183	55.3	106.8	18.8	5.5	7.22	0.01	0.01	>1600	>1600	>1600	300	0.39	0.27
6	NFSC-LeRoy	North Fork Strawberry Creek @ 1755 LeRoy Ave	11:55	10:35	8.25	7.43	70	59.1	316	200	7.05	6.85	0	0	1600	>1600	300	>1600	0.13	0.28
7	NFSC-UCB-N	North Fork Strawberry Creek, UC Berkeley Campus @ Euclid	12:05	10:40	8.13	7.62	41.9	62.7	336	114.1	7.18	7.09	0	0	>1600	>1600	>1600	>1600	0.16	ND[c]
8	NFSC-UCB-W	North Fork Strawberry Creek, UC Berkeley Campus @ Oxford & Allston St.	12:15	10:55	8.05	7.68	120	55.7	319	121.1	7.32	7.27	0	0	>1600	>1600	>1600	>1600	NS[d]	ND
3	SFSC-UCB-E (N)[e]	South Fork Strawberry Creek, UC Berkeley Campus @ Men's Club	13:00	NS	8.47	NS	5	NS	745	NS	7.11	NS	0.01	NS	500	NS	240	NS	NS	NS
4	SFSC-UCB-W[e]	South Fork Strawberry Creek, UC Berkeley Campus @ Oxford & Allston St.	12:17	NS	8.12	NS	4.9	NS	505	NS	7.2	NS	0	NS	>1600	NS	900	NS	NS	NS
9	SC-UCB-OSC[f]	Strawberry Creek, UC Berkeley Campus @ Oxford Culvert	NS	11:00	NS	7.75	NS	74.5	NS	147.8	NS	7.06	NS	0	NS	>1600	NS	>1600	NS	ND
10	SC-SCP[f]	Strawberry Creek @ Strawberry Creek Park	12:30	11:10	8.21	7.7	73	73.1	378	128.7	7.32	7.12	0	0	>1600	>1600	>1600	>1600	ND	ND
11	SC-BO[f]	Strawberry Creek @ Berkeley Outfall into SF Bay	12:45	11:20	7.29	7.59	21.9	50.2	Out of Range[g]	123.3	6.75	7.3	0	0	>1600	>1600	>1600	>1600	NS	0.11

a: Refer to sample location map.
b: The request for Ammonia analysis was received late in the day on November 29, 2012; adequate sample volumes could only be retrieved from the samples taken at B70 loading area NFSC-Leroy, NFSC-UCB-N, and SC-SCP
c: ND = Not detected
d: NS = Not sampled
e: South fork of Strawberry Creek was unaffected by this SSO. This data point could be interpreted as a "background" grab sample for this event.
f. Strawberry Creek, past the confluence of the north and south forks.
g. San Francisco Bay, high tide when sampled, no outflow from Strawberry Creek at time of sampling.



Building 70 loading dock area, storm drain is visible in the middle of the parking lot, while the Sanitary Sewer Overflow (SSO) manhole is near the parked truck (identified with the arrow).

SSO Building 70, Visual Observations

Lawrence Berkeley National Laboratory, CA

North Fork of Strawberry Creek at Leroy Ave (NFSC-Leroy)

SSO Building 70, Visual Observations

Lawrence Berkeley National Laboratory, CA

North Fork of Strawberry Creek at University California Berkeley Campus near entry location on Campus (NFSC-UCB-N).

SSO Building 70, Visual Observations

Lawrence Berkeley National Laboratory, CA

North Fork of Strawberry Creek at University California Berkeley Campus near confluence of the South Fork of Strawberry Creek (NFSC-UCB-W).

SSO Building 70, Visual Observations

Lawrence Berkeley National Laboratory, CA

Strawberry Creek at University California Berkeley Campus (SC-UCB-OSC) at the confluence of the South Fork (left hand side of the picture) and North Fork of Strawberry Creek (bottom of the picture).

SSO Building 70, Visual Observations

Lawrence Berkeley National Laboratory, CA

Sampling at Strawberry Creek Park (SC-SCP).

Strawberry Creek outfall in San Francisco Bay, while high tide around 12:45 PM, there was creek water outflow (SC-BO).

SSO Building 70, Visual Observations

Lawrence Berkeley National Laboratory, CA