



Environmental Functional Area

Environmental Support and Programmatic Outreach Group

UCRL-AR-144362-15

Lawrence Livermore National Laboratory Experimental Test Site

Annual Storm Water Monitoring Report for Waste Discharge Requirements 97-03-DWQ

July 2015

Craig Fish



**Lawrence Livermore
National Laboratory**

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U.S. Department of Energy, National Nuclear Security Administration under
Contract DE-AC52-07NA27344.**

*LLNL Experimental Test Site
Annual Storm Water Monitoring Report for Waste Discharge Requirements 97-03-DWQ – July 2015*

Lawrence Livermore National Laboratory Experimental Test Site Annual Storm Water Monitoring Report for Waste Discharge Requirements 97-03-DWQ

REGIONAL BOARD INFORMATION

REGION 5: CENTRAL VALLEY REGION, SACRAMENTO

Pamela Creedon, Executive Officer

11020 Sun Center Drive

Rancho Cordova, CA 95670-6114

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GENERAL INFORMATION

- A. Facility ID No.: 5S39I021179
- B. Operation:
 Lawrence Livermore Contact Person
 National Security, LLC Thom Kato
 Lawrence Livermore National Laboratory
 P.O. Box 808, L-627
 Livermore, CA 94551
 (925) 422-9642
- C. Facility/Site:
 Site 300 Contact Person
 John E. Scott
 Lawrence Livermore National Laboratory
 P.O. Box 808, L-871
 Livermore, CA 94551
 (925) 423-5026
- Facility SIC Codes: SIC Code 8733, Non-Commercial Research Organizations
 SIC Code 9711, National Security
 SIC Code 4953, Hazardous Waste Treatment (sector K)

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State of California
STATE WATER RESOURCES CONTROL BOARD

2014-2015
ANNUAL REPORT
FOR
STORM WATER DISCHARGES ASSOCIATED
WITH INDUSTRIAL ACTIVITIES

Reporting Period July 1, 2014 through June 30, 2015

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:

A. Facility Information:

Facility Business Name: Lawrence Livermore National Laboratory

Physical Address: Corral Hollow Road

City: Tracy State: CA Zip: 95376

Standard Industrial Classification (SIC) Code(s): Facility SIC Codes 8733, Non-Commercial Research Organizations, and SIC Code 9711, National Security; and Regulated SIC Code 4953 Hazardous Waste Treatment (sector K) and Landfill and Land Application Sites (sector L) << I want to delete, "and Landfill and Land..." I can't figure out how.

Facility WDID No: 5S39I021179

Contact Person: John E. Scott - Site Manager

e-mail: scott14@llnl.gov

Phone: (925) 423-5026

B. Facility Operator Information:

Operator Name: Lawrence Livermore National Security, LLC

Mailing Address: P.O. Box 808, Mail Stop L-627

City: Livermore State: CA Zip: 94551

Contact Person: Thomas T. Kato

e-mail: kato3@llnl.gov

Phone: (925) 422-9642

C. Facility Billing Information:

Operator Name: Lawrence Livermore National Laboratory

Mailing Address: P.O. Box 808, Mail Stop L-627

City: Livermore State: CA Zip: 94551

Contact Person: Thomas T. Kato

e-mail: kato3@llnl.gov

Phone: (925) 422-9642

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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? 1

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 (See explanation)

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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
See explanation.
5. Was sample collection or analysis reduced in accordance with Section B.7.d of the General Permit? YES NO,
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 N/A
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

See explanation.

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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 **See explanation.**

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.

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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 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | February | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| November | <input checked="" type="checkbox"/> | <input type="checkbox"/> | March | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| December | <input checked="" type="checkbox"/> | <input type="checkbox"/> | April | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| January | <input checked="" type="checkbox"/> | <input type="checkbox"/> | May | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

LLNL conducted monthly wet season visual observations for storm water discharges (see explanation).

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:

| | |
|--|--|
| <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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

| | |
|--|---|
| <ul style="list-style-type: none"> • facility boundaries • outline of all storm water drainage areas • areas impacted by run-on • storm water discharges locations | <ul style="list-style-type: none"> • storm water collection and conveyance system • structural control measures such as catch basins, berms, containment areas, oil/water separators, etc |
|--|---|

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

The following records should be reviewed:

- | | |
|---|--|
| <ul style="list-style-type: none"> • quarterly authorized non-storm water discharge visual observations • monthly storm water discharge visual observation • records of spills/leaks and associated clean-up/response activities | <ul style="list-style-type: none"> • 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:

- | | |
|--|---|
| <ul style="list-style-type: none"> • pollution prevention team • list of significant materials • description of potential pollutant sources | <ul style="list-style-type: none"> • 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:

- | | |
|--|--|
| <ul style="list-style-type: none"> • good housekeeping practices • spill response • employee training • erosion control • quality assurance | <ul style="list-style-type: none"> • preventative maintenance • material handling and storage practices • waste handling/storage erosion control • 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:

- | | |
|---|---|
| <ul style="list-style-type: none"> • identification of personnel performing the evaluation • the date(s) of the evaluation • necessary SWPPP revisions | <ul style="list-style-type: none"> • 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.

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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

- 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 persons 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: Thomas T. Kato

Signature:  Date: 6/29/15

Title: Environmental Functional Area Manager

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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

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Attachment 1
Explanations
Figure 1 and Tables 1, 2 & 3

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Explanations

E. SAMPLING AND ANALYSIS RESULTS

1. There were two qualifying storm events at Site 300 that generated runoff during work hours sufficient to be sampled during the 2014–2015. LLNL collected samples during the December 11, 2015 storm. The May 14, 2015 storm coincided with a lightning alert and a power outage throughout the entire site. Outdoor work, such as storm water sampling, was not allowed by LLNL policy due to safety concerns. Therefore, our sample team was not able to collect samples during that second storm. The average annual rainfall at Site 300 is 10.76 inches (27.33 cm), and the rainfall for the past year (June 1, 2014 to May 31, 2015) was 9.49 inches (24.10 cm). Monthly rainfall totals are presented in **Table 1**. Qualifying storms must generate runoff during Site 300 working hours (Monday thru Thursday between 7:00am and 5:30pm) and be separated from other runoff events by at least 3 working days. Runoff at Site 300 is typically associated with ≥ 0.25 inches of rainfall in a 24-hour period. Rainfall that did occur during working hours that was sufficient enough to generate runoff was either part of an event that began outside of working hours and had discharged for more than an hour by the time the work day began or was a storm not separated by three days from a previous storm discharge. **Table 2** lists the dates and rainfall totals for all 2014-2015 wet season events that generated ≥ 0.20 inches of precipitation, as measured at the Site 300 weather station, and a description of the rainfall event.
3. **Figure 1** shows the six storm water sample locations. Two additional sample locations, labeled CARW2 and GEOCRK, represent the off-site receiving water upstream and downstream, respectively, of the Experimental Test Site (Site 300).
4. Locations labeled N829 AND NPT6 (see **Figure 1**) were not sampled because they did not discharge offsite. These drainages would discharge offsite only during excessive storm events, greater than the 1997–1998 El Nino Season. The NLIN location was not sampled because no runoff flowed through this location.
11. LLNL has reported the analytical results on **Form 1**. Results that exceeded EPA Benchmarks are discussed in **Attachment 2**. Copies of the analytical reports and chains of custody are provided in a **Supplement** submitted with this report. The original laboratory reports are maintained in LLNL's data management system.

F. QUARTERLY VISUAL OBSERVATIONS

2. Unauthorized Non-Storm Water Discharges

- b. **Table 3** includes all unplanned non-routine releases that were not observed during visual inspections but are documented as part of the LLNL spill response procedures. All discharges remained on-site and percolated into ground.

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G. MONTHLY WET SEASON VISUAL OBSERVATIONS

1. Monthly wet season visual observations are reported on **Form 4**. Copies of the LLNL Observation Forms are provided in **Supplement** to this report.

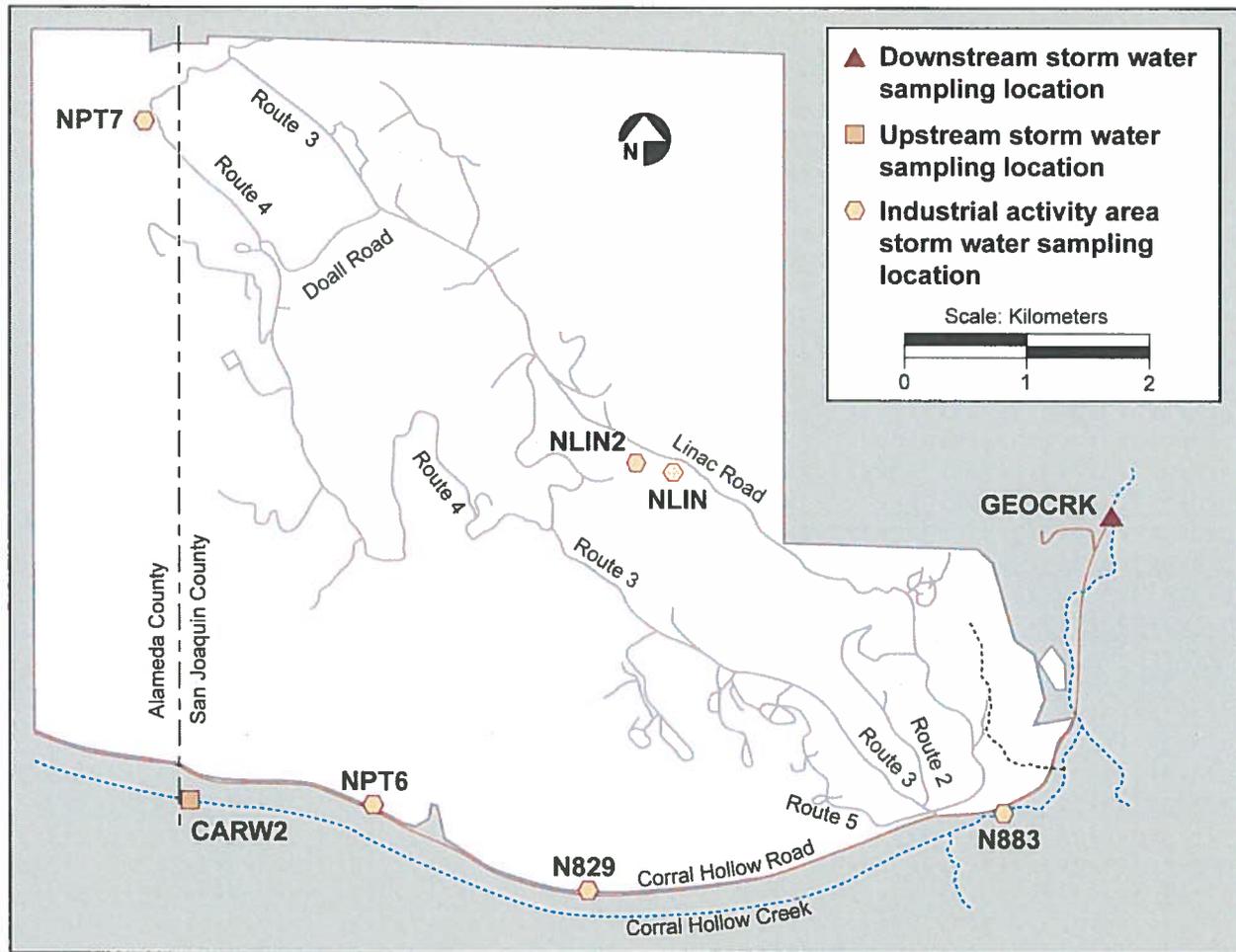


Figure 1. Storm water sampling locations at Site 300.

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Table 1. Monthly rainfall totals (inches) at Site 300 weather station, June 2014 through May 2015.

| Date | Monthly Total (in.) |
|-------------------------|----------------------------|
| June 2014 | 0.00 |
| July 2014 | 0.00 |
| August 2014 | 0.00 |
| September 2014 | 0.09 |
| October 2014 | 0.54 |
| November 2014 | 1.19 |
| December 2014 | 5.95 |
| January 2015 | 0.11 |
| February 2015 | 0.72 |
| March 2015 | 0.02 |
| April 2015 | 0.48 |
| May 2015 | 0.39 |
| Water Year TOTAL | 9.49 |

Table 2. Daily rainfall totals (for days with >0.2 inches precipitation) at Site 300 weather station and description of rainfall event, October 2014 through May 2015.

| Date | Precipitation Daily Total (Inches) | Day of Week | Description of Event |
|-------------------|---|--------------------|-----------------------------|
| October 31, 2014 | 0.53 | Friday | Not a work day |
| November 13, 2014 | 0.23 | Thursday | 0.2" fell by 2 am* |
| November 30, 2014 | 0.46 | Sunday | Not a work day |
| December 2, 2014 | 1.3 | Tuesday | Less than 3 work days |
| December 11, 2014 | 2.12 | Thursday | SAMPLED |
| December 12, 2014 | 0.49 | Friday | Not a work day |
| December 15, 2014 | 0.58 | Monday | Runoff too early* |
| December 16, 2014 | 0.35 | Tuesday | Only 0.1 inch by 8 pm* |
| December 17, 2014 | 0.28 | Wednesday | Only 0.1 inch by 7 pm* |
| December 19, 2014 | 0.28 | Friday | Not a work day |
| December 20, 2014 | 0.25 | Saturday | Not a work day |
| February 6, 2015 | 0.28 | Friday | Not a work day |
| February 7, 2015 | 0.23 | Saturday | Not a work day |
| April 25, 2015 | 0.27 | Saturday | Not a work day |
| May 14, 2015 | 0.29 | Thursday | Lightning Alert |

*Insufficient storm water run-off during hours of operation.

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Table 3. Summary of non-routine releases, June 2014 through May 2015.

| Date of incident | Location | Description |
|-------------------------|-----------------|---|
| 7/23/14 | Tank 7 | While doing rounds at S-300, an MUSD Technician was checking Tank 7 and noticed the altitude valve leaking. The water leak was a small stream of water when found. When the technician tried to valve off the tank, the valves would not close; a work order was established for the repairs. The fire trail north and down the hill from the tank had extensive erosion. It was estimated that approximately 9,600 gallons of drinking water was released from Tank 7. This release is not reportable, because the discharged volume flowed along a fire trail and soaked into the ground before reaching a Surface Water Channel or flowing off site. |
| 7/28/14 | B-843 | A heavy equipment hydraulic line leaked less than 1 quart onto gravel in the B-843 Corp Yard. Oil and gravel were immediately absorbed and removed for disposal via RHWM. Spill did not reach storm drainage, or streambeds. |
| 8/14/14 | B-872 | A release of less than 5 gallons of sewage was caused by a plugged sewer line, which caused the building toilet to back up into the restroom and adjacent hallway. It also backed up at the clean out access outside the building on the south side, releasing sewage to asphalt which dried/evaporated immediately. No disinfectant was applied because of the rapid drying and because the release occurred in a low traffic area. The plumber was contacted to clear the line, and the custodian was contacted to clean up the restroom and hallway. The release did not leave the asphalt, it did not reach a streambed/water of the U.S. |
| 8/28/14 | B-879 | An employee spilled approximately one liter of gasoline to concrete during vehicle refueling when the nozzle failed to shut off. The employee used the spill kit located next to the fuel pumps and placed absorbent on the spill. The used absorbent will be disposed of through RHWM. The spill did not exceed any RQs and did not reach a waterway. |
| 9/19/14 | GSA | S-300 MUSD discovered a broken pipe on the transfer tank to the Central General Services Area (CGSA) misting towers. MUSD turned off the breaker at the transfer tank and shut down the facility at the interface inside the PTU. It was determined that the leak occurred after the transfer pump and flow meter, where the metal attaches to the PVC line where a glue joint had separated. The discharge was treated ground water to a gravel area approximately 5-feet × 10-feet. The discharge created a 1-foot diameter × 6-inch deep depression in the gravel. Based on cycle volume and the size of the depression, it was estimated the discharge was less than 100 gallons. Repairs were completed on Monday, 9/22/14. There was no discharge to storm drain or stream bed. |
| 11/12/14 | B-801 | Less than 2 gallons was released of unpolished, excess water from the polishing system that was being held in the temporary holding tank. The water was potentially contaminated with low-level rad and beryllium. The H&S Tech and RHWM personnel responded, cordoned off the area, and immediately began clean up. Rad meter surveys and rad swipes resulted in nothing above background. Swipes were sent to the analytical lab for beryllium analysis. The release was to asphalt and did not reach a storm drain. The area around the tank was bermed off with a series of absorbent pigs to prevent any discharge to storm drain and the bermed area was covered with plastic to protect it from the predicted rain. There were no injuries associated with this event, no RQs exceeded, and no release to waters of the state/U.S. |
| 12/16/14 | B-810A | Approximately 2 quarts of hydraulic oil was released to asphalt from a backhoe on the south-east side of the building. The leak was caused by a damaged oil filter O-ring, repairs were completed immediately. MUSD personnel immediately applied absorbent material, the release was completely contained by the absorbent and did not leave the asphalt parking area. RHWM was notified for clean-up/disposal. The release did not reach a stream bed. |

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Table 3. Summary of non-routine releases, June 2014 through May 2015 (cont).

| Date of incident | Location | Description |
|------------------|---------------------------|--|
| 1/27/15 | B-873 | Approximately 10–15 gallons of sewage was released in the S-300 General Services Area. It was determined that the sewage line from B-879 was plugged, causing the clean out across from B-873 to overflow to the asphalt/concrete parking area before the blockage was cleared. Absorbent was applied to prevent any sewage from reaching the storm drain, the area was cordoned off and disinfectant (10:1 dilution of bleach) was applied. This did not exceed an RQ and did not reach a storm drain or stream bed. |
| 1/28/15 | B-812 | MUSD noticed water running under the door at B-812, coming from add-on equipment room at B-812A, which is a closed IFM facility. No water was visible outside the building but water was pooled inside the building. MUSD entered the building and discovered a broken valve on the water line, and eventually had to shut off the main line. The water is drinking water with chlorine residual (not measured). Though none was visible outside the building, the water is likely to have soaked into the ground underneath the equipment room concrete floor via a seam between the equipment room at B-812A. No one knows how long the water had been running, MUSD estimated the flow rate to be 2.5 gpm. The estimated volume of release from 12:30 p.m. to 2:00 p.m. at 2.5 gpm is 225 gals. This discharge is allowed under the S-300 permit and SWPPP and is not reportable other than in the routine periodic report. |
| 3/2/15 | B-804 | A portable toilet located near B-804 blew over, the container was on its side and there was some minor blue staining on the asphalt and the surface of the dirt/gravel area. The blue material was dry and material was no longer leaking from the toilet. Estimated less than 1 gallon (of the 5 gallons contained in it) was released. RHWB technicians scooped up the discolored portions of the dirt/gravel and containerized it for evaluation/disposal. Because B-804 is an RMA it was verified that there had been no rad releases in the area, and had the Health and Safety Tech surveyed the spill area and the accumulated material with no results above background. On 3/3/15, the vendor came to upright and remove the toilet and replace it with a fresh one. The release did not leave the immediate area, did not reach a storm drain or stream bed, did not exceed an RQ, and is non-hazardous. |
| 3/7/15 | B-851 Cooling Tower | During routine rounds, MUSD personnel observed that the B-851 Cooling Tower blow down hose had come apart at the fitting and water was discharging to the ground. The valve was secured to stop the discharge until repairs could be made. The release was estimated to be 5–10 gallons onto a cement area and flowed into the percolation pit drain, which is the normal discharge destination for this water. |
| 3/20/15 | B-889 | Irrigation line break at B-889. Water flow was stopped and break was repaired. Volume of this line break has been wrapped up with volume of larger break at Well 20 |
| 3/20/15 | Well 20 | 6-inch pipe broken near well 20, approximately 261,000 gallons of water released. The water crossed Corral Hollow Road but did not reach a blue line. Well 20 was shut down, break was repaired, and well 20 was restored to normal operating conditions |
| 4/21/15 | B-836C | Water released at B-836C from a fire sprinkler. It flowed into the room, eventually draining into an underground retention tank specifically installed to capture sprinkler water. Some drained down into a basement equipment pit, and some exited the building on the east side. All the water that escaped the building was on asphalt and concrete. No water left the pavement and there was no discharge to soil or surface water drainage course. Total release from the sprinkler is estimated to be approximately 1,050 gallons, the amount released outside to pavement is approximately 50 gallons. |

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Attachment 2

Explanation of Exceedances of EPA Benchmark Parameters

Compliance Approach, LLNL Site 300 Specific Threshold Criteria, and
Discussion of Analytical Results

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Explanation of Exceedances of EPA Benchmark Parameters

Compliance Approach, LLNL Site 300 Specific Threshold Criteria, and Discussion of Analytical Results

Site 300 is a remote experimental test site located in the Altamont Hills of the Diablo Range. It occupies approximately 7,000 acres, which consists of a series of steep hills and ridges oriented along a generally northwest-southeast trend, separated by intervening ravines. The elevation at Site 300 ranges from approximately 500 feet above sea level in the southeast portion of the site to 1,750 feet above sea level in the northwestern quadrant of the site. Approximately five percent of the 7,000 acres are developed. Storm water travels mostly through natural drainage courses and discharges into Corral Hollow Creek, which is along the southern and eastern boundary of the site. Corral Hollow Creek is an ephemeral stream that drains toward the San Joaquin basin. The creek terminates in an agricultural field east of Chrisman Road in Tracy. There is no visual evidence of a direct connection between Corral Hollow Creek and the San Joaquin River or any surface tributaries leading to the river. The river and its surface tributaries are more than 5 miles from the last visible portion of Corral Hollow Creek.

Though some of the storm water monitoring results at Site 300 exceed EPA benchmark values, the source of the constituents does not generally originate from the Site 300 industrial activities, rather from sediment transport through the natural drainage channels. LLNL believes that because of the unique rural characteristics at Site 300, storm water runoff quality is not comparable to the typical industrial facility and, therefore, the EPA benchmark values are not directly applicable. Beginning in 2000, LLNL established site-specific threshold comparison criteria to identify out-of-the-ordinary data that potentially would indicate inadequate best management practices (BMP) and would merit further investigation to determine if concentrations of the monitored parameters are increasing in storm water discharges. LLNL staff believes that this site-specific approach is in keeping with watershed management principles and provides a strong tool to evaluate BMP effectiveness. A complete discussion of LLNL's Site 300-specific Threshold Criteria and Evaluation Approach is provided in *An Approach to Industrial Stormwater Benchmarks: Establishing and Using Site-Specific Threshold Criteria at Lawrence Livermore National Laboratory*, Campbell, C.G. and S. Mathews (2006), CASQA Stormwater 2006 Conference, September 25-27, 2006.

As previously directed by the Regional Board, only results for samples collected from on-site discharge locations are reviewed in this report. LLNL also monitors an upstream receiving water location (CARW2), which is unaffected by Site 300 storm water discharges associated with industrial activities, and a downstream receiving water location (GEOCRK) on the Corral Hollow Creek (See **Figure 1** in **Attachment 1**). These two locations are important for understanding the background watershed water quality and local environment, which is consistent with EPA's use of benchmarks in relation to natural background pollutant levels in Section 6.2.1 of the 2008 Multi-Sector General Permit (MSGP).

Please note that a DOE/NNSA Conservation Set Aside Area (containing Pool M1a and b) is located within 1.68 acres of Elk Ravine and which includes NLIN2. (Sampling location NLIN is downstream from Pool M1a and b.) M1 a and b are wildlife mitigation ponds that were dredged this past year as part of routine maintenance of the set aside and designed to provide a breeding area for the federally-threatened California red-legged frog. During this rainfall event of December 11, 2014 the mitigation pools began to fill (had dried-up in August as a result of the statewide drought). The pools did not

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discharge during that rain event so no runoff upstream of this pool reached offsite. It is interesting to note that the M1 maintenance effort resulted in successful breeding of the California Red Legged Frog in large numbers this spring.

Storm water monitoring results at Site 300 that exceed EPA benchmark values

The Site 300 monitoring program currently includes six discharge sampling locations; four of which discharged storm water runoff in the 2014–2015 wet weather season:

- NLIN2 – An on-site location in Elk Ravine to characterize storm water runoff from a number of industrial activities that have storm water discharges into Elk Ravine, which is located downstream from a ground water-fed spring and an associated wetland area;
- N883 – An on-site location at a storm drain outfall, which characterizes runoff from the Resource Conservation and Recovery Act (RCRA) permitted container storage area as well the General Service Area (GSA), both located in a mostly paved area; and
- NPT7 – An on-site location at the outfall from the drainage diversion structure to characterize storm water runoff from a closed landfill.
- GEOCRK – This off-site location is downstream from all S300 discharges channels that drain to Corral Hollow Creek including Elk Ravine.

No runoff was observed to occur from two other routine sampling locations (NPT6 and N829). For the 2014–2015 wet season, the Site 300 storm water monitoring results at or above the EPA benchmark values are shown below in **Table 4**.

Table 4. Summary of Site 300 storm water monitoring results at or above EPA benchmark values.

| Analyte | EPA Benchmark Value | Units | Storm Water Monitoring Location & Date | |
|--------------------|---------------------|-------|--|---|
| | | | NLIN2 12/11/2014 | NLIN Downstream of NLIN2 12/11/2014 |
| TSS ^(a) | 100. | mg/L | 6200 | No flow |
| Beryllium | 0.0016 | mg/L | 0.010 | No flow |
| Lead | 0.030 | mg/L | 0.086 | No flow |

^(a) TSS = Total Suspended Solids.

Sources of pollutants that contribute to the exceedances in Site 300 storm water

Total Suspended Solids and Metals

As noted in previous years, total suspended solids (TSS) and metals including beryllium, iron, lead, and zinc are from sediments moving through the natural drainage channels and are the result of erosion upstream and within the channels. Metals are naturally occurring in soil. Metals concentrations in storm water samples are strongly correlated with the TSS values (Campbell 2006). This correlation suggests that the metals are sediment associated, as opposed to resulting from non-sediment sources (e.g., leaching from exposed materials).

While the TSS, beryllium and lead concentrations in the sample collected on December 11, 2014 from location NLIN2 were above their respective EPA benchmark values, a sample collected at GEOCRK

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(the downstream location below the discharge of Elk Ravine to Corral Hollow Creek) demonstrated that runoff was below the benchmark value for beryllium and lead below the discharge point from the site. In addition, the TSS value was well below our site-specific threshold comparison criteria. Moreover, a similar elevated TSS value was observed in the corresponding upstream sampling location CARW2 (5,000 mg/L).

Review of current BMPs and modifications/additions to reduce or eliminate the discharge of pollutants

Based on LLNL's evaluation of the monitoring data and through comparison to the Site 300-specific threshold values, LLNL believes that the storm water monitoring results for 2014–2015 are within expected values and do not merit further investigation of potential sources at Site 300 or additional best management practices. However, LLNL recognizes the importance of implementing best management practices for water quality protection; hence, LLNL implements best management practices throughout the site, not only at industrial activities (as defined by SIC codes) on-site. The constituents exceeding EPA benchmark values are largely associated with sediment transport, which is a natural process in this steeply sloped Corral Hollow Creek watershed. LLNL continues to implement a program to address general housekeeping, and erosion and sediment transport issues throughout the site.

Ongoing BMP activities:

LLNL continues to pursue funding opportunities for priority erosion projects identified by Consolidated Engineering Laboratories in their preliminary erosion assessment of Site 300, prepared in CY2000, as well as evaluating recently developed erosion areas. For example, Site 300 has received \$60,000 for FY2015 to address erosion issues associated with culverts and drainage channel crossings. Some of these projects are upstream of NLIN2 in the Elk Ravine drainage.

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Attachment 3

Forms 1 through 5

Form 1 First Storm Event (page 21)

Form 2 (page 24)

Form 3 (page 25)

Form 4 (page 27)

Form 5 (page 35)

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Form 1- Sampling & Analysis Result for the First Storm Event 2014-15 Annual Report

- 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): Bob Williams, Gary Bear, Karl Brunckhorst, Crystal Rosene

| DESCRIBE DISCHARGE LOCATION | DATE/TIME OF SAMPLE COLLECTION | TIME DISCHARGE STARTED | ANALYTICAL RESULTS | | | | | | | | | |
|---|---|--|--------------------|----------|----------|------------|---------|------------------|-------------------------|---------|---------|---------|
| | | | BASIC PARAMETERS | | | | | OTHER PARAMETERS | | | | |
| | | | pH | TSS | SC | O & G | COD | Total Hardness | Ammonia Nitrogen (as N) | Cyanide | HMX | RDY |
| N883 | 12/11/2014 10:45 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/> | Ongoing AM <input checked="" type="checkbox"/> PM <input type="checkbox"/> | 6.65 | 16 | 20.80 | <5 | 42 | N/S | 0.29 | <0.005 | N/S | N/S |
| NPT7 | 12/11/2014 11:25 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/> | Ongoing AM <input checked="" type="checkbox"/> PM <input type="checkbox"/> | 7.48 | 77 | 55.5 | <5 | 48 | N/S | <0.2 | <0.005 | N/S | N/S |
| NLIN2 | 12/11/2014 11:44 AM <input checked="" type="checkbox"/> PM <input type="checkbox"/> | Ongoing AM <input checked="" type="checkbox"/> PM <input type="checkbox"/> | 7.71 | 6200 | 429 | <5 | 180 | 500 | <0.2 | <0.005 | <1 | <1 |
| NLIN | 12/11/2014 AM <input type="checkbox"/> PM <input type="checkbox"/> | Not Flowing AM <input type="checkbox"/> PM <input type="checkbox"/> | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S |
| CARW2 (Offsite; in creek, upstream) | 12/11/2014 AM <input type="checkbox"/> 12:30 PM <input checked="" type="checkbox"/> | Ongoing AM <input type="checkbox"/> PM <input checked="" type="checkbox"/> | 7.52 | 5000 | 213 | <5 | 230 | 380 | <0.2 | <0.005 | <0.77 | <0.77 |
| GEOCRK (Offsite; in creek, downstream) | 12/11/2014 AM <input type="checkbox"/> 12:30 PM <input checked="" type="checkbox"/> | Ongoing AM <input type="checkbox"/> PM <input checked="" type="checkbox"/> | 8.04 | 120 | 3650 | <5 | 95 | 890 | <0.2 | <0.005 | <1 | <1 |
| TEST REPORTING UNITS: | | | pH Units | mg/L | umhos/cm | mg/L | mg O/L | mg/L | mg/L | mg/L | µg/L | µg/L |
| TEST METHOD DETECTION LIMIT:* | | | 0.05 | 1.0 | 1.0 | 5.0 | 25 | 0.5 | 0.1 | 0.005 | 1.0 | 1.0 |
| TEST METHOD USED: | | | SM-4500HB | SM-2540D | E120.1 | E1664A HEM | E410.4 | SM2340B | E350.1 | E335.4 | E8330 | E8330 |
| ANALYZED BY (SELF/LAB): | | | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs |

TSS - Total Suspended Solids

SC - Specific Conductance

O & G - Oil & Grease

COD - Chemical Oxygen Demand

N/S - Not Sampled

NA - Not Applicable

E - EPA Method

SM - Standard Method

* Test method detection limits may vary slightly by location. Listed limits are for the laboratory control "Method Blank" sample.

Form 1- Sampling & Analysis Result for the First Storm Event 2014–15 Annual Report (cont.)

- 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: <0.05)
- 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): Bob Williams, Gary Bear, Karl Brunckhorst, Crystal Rosene

| DESCRIBE DISCHARGE LOCATION | ANALYTICAL RESULTS For First Storm Event | | | | | | | | |
|---|---|-----------|---------|---------|---------|-----------|---------|----------|---------|
| | OTHER PARAMETERS: Metals | | | | | | | | |
| | Arsenic | Beryllium | Cadmium | Iron | Lead | Magnesium | Mercury | Selenium | Silver |
| N883 | <0.002 | <0.0002 | <0.0005 | <0.1 | <0.005 | N/S | <0.0002 | <0.002 | <0.001 |
| NPT7 | <0.002 | <0.0002 | 0.00058 | 6.4 | <0.005 | N/S | <0.0002 | <0.002 | <0.001 |
| NLIN2 | 0.029 | 0.01 | <0.0025 | 180 | 0.086 | N/S | <0.0002 | <0.01 | <0.005 |
| NLIN | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S |
| CARW2 (Offsite; in creek, upstream) | 0.057 | 0.0055 | 0.0013 | 160 | 0.082 | N/S | 0.00022 | <0.002 | <0.001 |
| GEOCRK (Offsite; in creek, downstream) | 0.0063 | <0.0002 | <0.0005 | 7.4 | <0.005 | N/S | <0.0002 | 0.0028 | <0.001 |
| TEST REPORTING UNITS: | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| TEST METHOD DETECTION LIMIT*: | 0.002 | 0.0002 | 0.0005 | 0.10 | 0.001 | 0.50 | 0.0002 | 0.002 | 0.001 |
| TEST METHOD USED: | E200.8 | E210.2 | E200.8 | E200.7 | E200.8 | E200.7 | E245.1 | E200.8 | E200.8 |
| ANALYZED BY (SELF/LAB): | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs | BC Labs |

E - EPA Method.

* Test method detection limits may vary slightly by location. Listed limits are for the laboratory control "Method Blank" sample.

Form 1- Sampling & Analysis Result for the First Storm Event 2014–15 Annual Report (cont.)

- 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): Bob Williams, Gary Bear, Karl Brunckhorst, Crystal Rosene

| DESCRIBE DISCHARGE LOCATION | ANALYTICAL RESULTS For First Storm Event | | | | | |
|---|---|---------------------|----------------------|-----------------------|-----------------------|-----------------------|
| | OTHER PARAMETERS: Radioactive | | | | | |
| | Gross Alpha | Gross Beta | Tritium | U234* | U235* | U238* |
| N883 | 0.05809 ± 0.02357 | 0.1554 ± 0.03441 | 2.3162 ± 2.9415 | 0.00132 ± 0.00179 | 0.00018 ± 0.00113 | -0.0003 ± 0.00127 |
| NPT7 | 0.01902 ± 0.01465 | 0.08584 ± 0.02431 | 0.02553 ± 2.6344 | 0.00299 ± 0.00263 | 0.00019 ± 0.00121 | 0.00189 ± 0.002 |
| NLIN2 | 1.1026 ± 0.29674 | 0.05365 ± 0.33559 | -0.4107 ± 2.7158 | 0.23014 ± 0.04107 | 0.00881 ± 0.00677 | 0.24975 ± 0.04366 |
| NLIN | N/S | N/S | N/S | N/S | N/S | N/S |
| CARW2 (Offsite; in creek, upstream) | 1.0878 ± 0.2072 | 0.8621 ± 0.1554 | -0.3315 ± 2.5826 | 0.09731 ± 0.0225 | 0.00796 ± 0.00659 | 0.10915 ± 0.02453 |
| GEOCRK (Offsite; in creek, downstream) | 0.5735 ± 0.25308 | 0.3959 ± 0.17464 | -0.6697 ± 2.6714 | 0.28675 ± 0.04329 | 0.01732 ± 0.00577 | 0.23236 ± 0.03567 |
| TEST REPORTING UNITS: | Bq/L | Bq/L | Bq/L | mBq/L | mBq/L | mBq/L |
| TEST METHOD DETECTION LIMIT: | 0.074 Bq/L (2 pCi/L) | 0.11 Bq/L (3 pCi/L) | 3.7 Bq/L (100 pCi/L) | 3.7 mBq/L (0.1 pCi/L) | 3.7 mBq/L (0.1 pCi/L) | 3.7 mBq/L (0.1 pCi/L) |
| TEST METHOD USED: | E900 | E900 | E906 | ALPHA SPEC | ALPHA SPEC | ALPHA SPEC |
| ANALYZED BY (SELF/LAB): | GEL Lab | GEL Lab | GEL Lab | GEL Lab | GEL Lab | GEL Lab |

E - EPA Method.

* Note that concentrations (or activities) of uranium (U) isotopes are expressed as mBq/L = Bq/1000L (1 pCi = 37 mBq).

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**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-SEPT. DATE: <u>9 / 23 / 14</u> | Observers Name: <u> Karl Brunckhorst </u> Title: <u> Scientific Technologist </u> Observations were made at the eight locations identified on Form 4. | WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <div style="float: right; text-align: right;"> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO </div> If YES, complete reverse side of this form. |
| QUARTER: OCT.-DEC. DATE: <u>11 / 25 / 14</u> | Observers Name: <u> Karl Brunckhorst </u> Title: <u> Scientific Technologist </u> Observations were made at the eight locations identified on Form 4. | WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <div style="float: right; text-align: right;"> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO </div> If YES, complete reverse side of this form. |
| QUARTER: JAN.-MARCH DATE: <u>2 / 24 / 15</u> | Observers Name: <u> Karl Brunckhorst </u> Title: <u> Scientific Technologist </u> Observations were made at the eight locations identified on Form 4. | WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <div style="float: right; text-align: right;"> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO </div> If YES, complete reverse side of this form. |
| QUARTER: APRIL-JUNE DATE: <u>5 / 28 / 15</u> | Observers Name: <u> Karl Brunckhorst </u> Title: <u> Scientific Technologist </u> Observations were made at the eight locations identified on Form 4. | WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <div style="float: right; text-align: right;"> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO </div> If YES, complete reverse side of this form. |

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

SIDE A

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

| | | | |
|--|---|--|--|
| QUARTER: JULY-SEPT. DATE/TIME OF OBSERVATIONS <u>09/23/14</u> <u>9:17</u> – <u>10:22</u> AM | Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> Observations were made at the eight locations identified on Form 4. | WERE UNAUTHORIZED NSWDs OBSERVED? NO WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDs? NO | If YES to either question, complete reverse side. |
| QUARTER: OCT.-DEC. DATE/TIME OF OBSERVATIONS <u>11/25/14</u> <u>1:39</u> – <u>2:45</u> AM | Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> Observations were made at the eight locations identified on Form 4. | WERE UNAUTHORIZED NSWDs OBSERVED? NO WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDs? NO | If YES to either question, complete reverse side. |
| QUARTER: JAN.-MARCH DATE/TIME OF OBSERVATIONS <u>02/24/15</u> <u>8:13</u> – <u>9:26</u> AM | Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> Observations were made at the eight locations identified on Form 4. | WERE UNAUTHORIZED NSWDs OBSERVED? NO WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDs? NO | If YES to either question, complete reverse side. |
| QUARTER: APRIL-JUNE DATE/TIME OF OBSERVATIONS <u>05/28/15</u> <u>09:45</u> – <u>10:31</u> AM | Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> Observations were made at the eight locations identified on Form 4. | WERE UNAUTHORIZED NSWDs OBSERVED? NO WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDs? NO | If YES to either question, complete reverse side. |

*LLNL Experimental Test Site
Annual Storm Water Monitoring Report for Waste Discharge Requirements 97-03-DWQ – July 2015*

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

SIDE B

| OBSERVATION DATE (FROM REVERSE SIDE) | NAME OF UNAUTHORIZED NSWD EXAMPLE: Vehicle Wash Water | SOURCE AND LOCATION OF UNAUTHORIZED NSWD EXAMPLE: NW Corner of Parking Lot | DESCRIBE UNAUTHORIZED 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 UNAUTHORIZED NSWD SOURCE | AT THE UNAUTHORIZED NSWD AREA AND DISCHARGE LOCATION | |
| ____ / ____ / ____ : ____ AM <input type="checkbox"/> PM <input type="checkbox"/> | | | | | |
| ____ / ____ / ____ : ____ AM <input type="checkbox"/> PM <input type="checkbox"/> | | | | | |
| ____ / ____ / ____ : ____ AM <input type="checkbox"/> PM <input type="checkbox"/> | | | | | |
| ____ / ____ / ____ : ____ AM <input type="checkbox"/> PM <input type="checkbox"/> | | | | | |

LLNL Experimental Test Site
Annual Storm Water Monitoring Report for Waste Discharge Requirements 97-03-DWQ – July 2015

**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 28 2014 Observers Name <u>Karl Brunckhorst</u> Title <u>Scientific Technologist</u> | Drainage Location Description | #1- CARW2 | #2 - NPT6 | #3 - N829 | #4 - N883 |
| | Observation Time | 01: 34 P.M. | 01: 37 P.M. | 01: 39 P.M. | 01: 44 P.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the low rainfall and observations made, there was likely no storm water runoff in October during hours of operation. | | | |
| | Were Pollutants Observed * (If yes, complete reverse side) | No | Yes | Yes | No |
| Observation Date: November 25 2014 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #1- CARW2 | #2 - NPT6 | #3 - N829 | #4 - N883 |
| | Observation Time | 01 : 39 P.M. | 01 : 41 P.M. | 01 : 45 P.M. | 01 : 50 P.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the low rainfall and observations made, there was likely no storm water runoff in November during hours of operation. | | | |
| | Were Pollutants Observed * (If yes, complete reverse side) | No | Yes | Yes | No |
| Observation Date: December 11 2014 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> - | Drainage Location Description | #1- CARW2 | #2 - NPT6 | #3 - N829 | #4 - N883 |
| | Observation Time | 12 : 30 P.M. | 12 : 15 P.M. | 12 : 10 P.M. | 10 : 45 A.M. |
| | Time Discharge Began | There was significant runoff at locations CARW2 and N883 during the inspection. This was a qualifying monitored storm event. There was no runoff at NPT6 or N829. | | | |
| | Were Pollutants Observed * (If yes, complete reverse side) | No | Yes | Yes | No |
| Observation Date: January 28 2015 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #1- CARW2 | #2 - NPT6 | #3 - N829 | #4 - N883 |
| | Observation Time | 09 : 22 A.M. | 09 : 25 A.M. | A.M. 09 : 28 | 09 : 31 A.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the observations made, there was likely no storm water runoff in January during hours of operation. | | | |
| | Were Pollutants Observed * (If yes, complete reverse side) | No | Yes | Yes | No |

* When there is runoff in these open channels (like CARW2), there is some turbidity because of mobilized sediments, but no visual contamination. Leaves, sticks, and other debris are common in all channels.

*LLNL Experimental Test Site
Annual Storm Water Monitoring Report for Waste Discharge Requirements 97-03-DWQ – July 2015*

**FORM 4 - MONTHLY VISUAL OBSERVATIONS OF
STORM WATER DISCHARGES**

SIDE B

| DATE/TIME OF OBSERVATION (From Reverse Side) | DRAINAGE AREA DESCRIPTION | DESCRIBE STORM WATER DISCHARGE CHARACTERISTICS | IDENTIFY AND DESCRIBE SOURCE(S) OF POLLUTANTS | DESCRIBE ANY REVISED OR NEW BMPs AND THEIR DATE OF IMPLEMENTATION |
|---|--|---|--|---|
| <u>10 / 28 / 14</u> <u>01 : 37</u> PM | EXAMPLE: Discharge from material storage Area #2 Sample location NPT6 | Indicate whether storm water discharge is clear, cloudy, or discolored; causing staining; containing floating objects or an oil sheen, has odors, etc. There was no runoff during the inspection. Debris, such as paper, plastic and cans were observed at the time of the inspection. | EXAMPLE: Oil sheen caused by oil dripped by trucks in vehicle maintenance area. Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>10 / 28 / 14</u> <u>01 : 39</u> PM | Sample location N829 | There was no runoff during the inspection. Debris, such as paper, plastic and cans were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>11 / 25 / 14</u> <u>01 : 41</u> PM | Sample location NPT6 | There was no runoff during the inspection. Debris, such as paper and plastic were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>11 / 25 / 14</u> <u>01 : 45</u> PM | Sample location N829 | There was no runoff during the inspection. Debris, such as plastic and cans were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>12 / 11 / 14</u> <u>12 : 10</u> PM | Sample location N829 | There was no runoff during the inspection. Debris, such as paper and plastic were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>12 / 11 / 14</u> <u>12 : 15</u> PM | Sample location NPT6 | There was no runoff during the inspection. There were plastic bottles, paper and cans observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>1 / 28 / 15</u> <u>09 : 25</u> AM | Sample location NPT6 | There was no runoff during the inspection. Debris, such as bottles and plastic were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>1 / 28 / 15</u> <u>09 : 28</u> AM | Sample location N829 | There was no runoff during the inspection. Debris, such as bottles and plastic were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |

LLNL Experimental Test Site
Annual Storm Water Monitoring Report for Waste Discharge Requirements 97-03-DWQ – July 2015

**FORM 4 (Continued) - 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: February 24 2015 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #1- CARW2 | #2 - NPT6 | #3 - N829 | #4 - N883 |
| | Observation Time | 8 : 13 A.M. | 8 : 17 A.M. | 8 : 20 A.M. | 8 : 25 A.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the observations made, there was likely no storm water runoff in February during hours of operation. | | | |
| | Were Pollutants Observed * (If yes, complete reverse side) | No | Yes | Yes | No |
| Observation Date: March 17 2015 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #1- CARW2 | #2 - NPT6 | #3 - N829 | #4 - N883 |
| | Observation Time | 9 : 09 A.M. | 9 : 12 A.M. | 9 : 15 A.M. | 9 : 21 A.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the observations made, there was likely no storm water runoff in March during hours of operation. | | | |
| | Were Pollutants Observed * (If yes, complete reverse side) | No | Yes | Yes | No |
| Observation Date: April 29 2015 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #1- CARW2 | #2 - NPT6 | #3 - N829 | #4 - N883 |
| | Observation Time | 01 : 41 P.M. | 01 : 44 P.M. | 01 : 47 P.M. | 2 : 01 P.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the observations made, there was likely no storm water runoff in April during hours of operation. | | | |
| | Were Pollutants Observed * (If yes, complete reverse side) | No | Yes | Yes | No |
| Observation Date: May 28 2015 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #1- CARW2 | #2 - NPT6 | #3 - N829 | #4 - N883 |
| | Observation Time | 09 : 45 A.M. | 09 : 48 A.M. | 09 : 51 A.M. | 10 : 04 A.M. |
| | Time Discharge Began | There was very likely sufficient runoff to sample on May 14th. The MetTower measured 0.29" of rainfall that day. However, outdoor activities were not allowed due to lightning alerts which cancel outdoor work for safety reasons. Our sampling team was not allowed to take samples. | | | |
| | Were Pollutants Observed * (If yes, complete reverse side) | No | Yes | Yes | No |

* When there is runoff in these open channels (like CARW2), there is some turbidity because of mobilized sediments, but no visual contamination. Leaves, sticks, and other debris are common in all channels.

LLNL Experimental Test Site
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**FORM 4 - MONTHLY VISUAL OBSERVATIONS OF
 STORM WATER DISCHARGES**

SIDE B

| DATE/TIME OF OBSERVATION (From Reverse Side) | DRAINAGE AREA DESCRIPTION <i>EXAMPLE:</i> 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 <i>EXAMPLE:</i> Oil sheen caused by oil dripped by trucks in vehicle maintenance area. | DESCRIBE ANY REVISED OR NEW BMPs AND THEIR DATE OF IMPLEMENTATION |
|---|--|--|---|---|
| <u>2 / 24 / 15</u> <u>08 : 17</u> AM | Sample location NPT6 | There was no runoff during the inspection. Debris, such as paper and plastic were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>2 / 24 / 15</u> <u>08 : 20</u> AM | Sample location N829 | There was no runoff during the inspection. Debris, such as paper and plastic were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>3 / 17 / 15</u> <u>09 : 12</u> AM | Sample location NPT6 | There was no runoff during the inspection. Debris, such as paper and plastic were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>3 / 17 / 15</u> <u>09 : 15</u> AM | Sample location N829 | There was no runoff during the inspection. Debris, such as cans and plastic were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>4 / 29 / 15</u> <u>01 : 44</u> PM | Sample location NPT6 | There was no runoff during the inspection. Debris, such as paper, plastic and cans were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>4 / 29 / 15</u> <u>01 : 47</u> PM | Sample location N829 | There was no runoff during the inspection. Debris, such as plastic was observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>5 / 28 / 15</u> <u>09 : 48</u> AM | Sample location NPT6 | There was no runoff during the inspection. Debris, such as paper and plastic were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |
| <u>5 / 28 / 15</u> <u>09 : 51</u> AM | Sample location N829 | There was no runoff during the inspection. Debris, such as paper and plastic were observed at the time of the inspection. | Sample location is just outside the Site 300 fence line (along Corral Hollow Road) where roadside debris occasionally collects. | None. |

LLNL Experimental Test Site
 Annual Storm Water Monitoring Report for Waste Discharge Requirements 97-03-DWQ – July 2015

FORM 4 (Continued) - 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 28 2014 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #5 – NPT7 | #6 - NLIN | #7 - NLIN2* | #8 - GEOCRK* |
| | Observation Time | 2: 10 P.M. | 2:00 P.M. | 2: 03 P.M. | 2: 31 P.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the low rainfall and observations made, there was likely no storm water runoff in October during hours of operation. | | | |
| | Were Pollutants Observed ** (If yes, complete reverse side) | No | No | No | Yes |
| Observation Date: November 25 2014 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #5 – NPT7 | #6 - NLIN | #7 - NLIN2* | #8 - GEOCRK* |
| | Observation Time | 02 : 18 P.M. | 02 : 03 P.M. | 02 : 07 P.M. | 02: 45 P.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the low rainfall and observations made, there was likely no storm water runoff in November during hours of operation. | | | |
| | Were Pollutants Observed ** (If yes, complete reverse side) | No | No | No | Yes |
| Observation Date: December 11 2014 Observers Name: <u>Gary Bear/Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #5 – NPT7 | #6 - NLIN | #7 - NLIN2* | #8 - GEOCRK* |
| | Observation Time | 11 : 25 A.M. | 11 : 38 A.M. | 11 : 44 A.M. | 12 : 30 P.M. |
| | Time Discharge Began | There was significant runoff at locations NPT7, NLIN2 and GEOCRK during the inspection. This was a qualifying monitored storm event. There was no runoff at NLIN. | | | |
| | Were Pollutants Observed ** (If yes, complete reverse side) | No | No | No | No |
| Observation Date: January 28 2015 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #5 - NPT7 | #6 - NLIN | #7 - NLIN2* | #8 - GEOCRK* |
| | Observation Time | 10 : 04 A.M. | 09 : 50 A.M. | 09 : 54 A.M. | 10 : 28 A.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the low rainfall and observations made, there was likely no storm water runoff in January during hours of operation. | | | |
| | Were Pollutants Observed ** (If yes, complete reverse side) | No | No | No | Yes |

* NLIN2 and GEOCRK generally have flow from springs located upstream of each location.

** When there is runoff in these open channels (NLIN2 and GEOCRK), there is some turbidity because of mobilized sediments but no visual contamination. Leaves, sticks, and other debris are common in all channels.

LLNL Experimental Test Site
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**FORM 4 - MONTHLY VISUAL OBSERVATIONS OF
 STORM WATER DISCHARGES**

SIDE B

| DATE/TIME OF OBSERVATION (From Reverse Side) | DRAINAGE AREA DESCRIPTION | DESCRIBE STORM WATER DISCHARGE CHARACTERISTICS | IDENTIFY AND DESCRIBE SOURCE(S) OF POLLUTANTS | DESCRIBE ANY REVISED OR NEW BMPs AND THEIR DATE OF IMPLEMENTATION |
|---|---|---|--|---|
| <u>10 / 28 / 14</u> 2 : 31 PM | EXAMPLE: Discharge from material storage Area #2 Downstream sample location GEOCRK | Indicate whether storm water discharge is clear, cloudy, or discolored; causing staining; containing floating objects or an oil sheen, has odors, etc. There was no runoff during the inspection. Water typically flows through the sample location from an upstream spring but was dry at the time of the observation. Debris, such as paper, bottles, cans and plastic were observed in the creek bed at the time of the inspection. | EXAMPLE: Oil sheen caused by oil dripped by trucks in vehicle maintenance area. Sample location is near Corral Hollow Creek where occasional roadside dumping occurs and roadside trash collects. | Not applicable, this is an offsite location. |
| <u>11 / 25 / 14</u> 2 : 45 PM | Downstream sample location GEOCRK | There was no runoff during the inspection. Base flow was present from an upstream spring at the time of the observation. Debris, such as paper and plastic were observed in the creek bed at the time of the inspection. A sheen was also observed in the water. | Sample location is near Corral Hollow Creek where occasional roadside dumping occurs and roadside trash collects. | Not applicable, this is an offsite location. |
| <u>1 / 28 / 15</u> 10 : 28 AM | Downstream sample location GEOCRK | There was no runoff during the inspection. Water flows through the sample location from an upstream spring. Debris, such as bottles and cans were observed in the creek bed at the time of the inspection. | Sample location is near Corral Hollow Creek where occasional roadside dumping occurs and roadside trash collects. | Not applicable, this is an offsite location. |

LLNL Experimental Test Site
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FORM 4 (Continued) - 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: February 24 2015 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #5 - NPT7 | #6 - NLIN | #7 - NLIN2* | #8 - GEOCRK* |
| | Observation Time | 9 : 00 A.M. | 8 : 46 A.M. | 8 : 50 A.M. | 9 : 26 A.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the observations made, there was likely no storm water runoff in February during hours of operation. | | | |
| | Were Pollutants Observed ** (If yes, complete reverse side) | No | No | No | Yes |
| Observation Date: March 17 2015 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #5 - NPT7 | #6 - NLIN | #7 - NLIN2* | #8 - GEOCRK* |
| | Observation Time | 9:54 A.M. | 9 : 37 A.M. | 9 : 41 A.M. | 10 : 26 A.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the observations made, there was likely no storm water runoff in March during hours of operation. | | | |
| | Were Pollutants Observed ** (If yes, complete reverse side) | No | No | No | Yes |
| Observation Date: April 29 2015 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #5 - NPT7 | #6 - NLIN | #7 - NLIN2* | #8 - GEOCRK* |
| | Observation Time | 2 : 30 P.M. | 2 : 17 P.M. | 2 : 20 P.M. | 1 : 55 P.M. |
| | Time Discharge Began | There was no runoff during the inspection. Based on the observations made, there was likely no storm water runoff in April during hours of operation. | | | |
| | Were Pollutants Observed ** (If yes, complete reverse side) | No | No | No | Yes |
| Observation Date: May 28 2015 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> | Drainage Location Description | #5 - NPT7 | #6 - NLIN | #7 - NLIN2* | #8 - GEOCRK* |
| | Observation Time | 10 : 31 A.M. | 10 : 20 A.M. | 10 : 22 A.M. | 9 : 58 A.M. |
| | Time Discharge Began ** | There was very likely sufficient runoff to sample on May 14th. The MetTower measured 0.29" of rainfall that day. However, outdoor activities were not allowed due to lightning alerts which cancel outdoor work for safety reasons. Our sampling team was not allowed to take samples. | | | |
| | Were Pollutants Observed (If yes, complete reverse side) | No | No | No | Yes |

* NLIN2 and GEOCRK generally have flow from springs located upstream of each location.

** When there is runoff in these open channels (NLIN2 and GEOCRK), there is some turbidity because of mobilized sediments but no visual contamination. Leaves, sticks, and other debris are common in all channels.

LLNL Experimental Test Site
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**FORM 4 (Continued) - MONTHLY VISUAL OBSERVATIONS OF
STORM WATER DISCHARGES**

SIDE B

| DATE/TIME OF OBSERVATION (From Reverse Side) | DRAINAGE AREA DESCRIPTION <i>EXAMPLE:</i> 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 <i>EXAMPLE:</i> Oil sheen caused by oil dripped by trucks in vehicle maintenance area. | DESCRIBE ANY REVISED OR NEW BMPs AND THEIR DATE OF IMPLEMENTATION |
|---|--|--|---|---|
| <u>02 / 24 / 15</u> <u>9 : 26 AM</u> | Downstream sample location GEOCRK | There was no runoff during the inspection. Water flows through the sample location from an upstream spring. Debris, such as paper, bottles and cans were observed in the creek bed at the time of the inspection. | Sample location is near Corral Hollow Creek where occasional roadside dumping occurs and roadside trash collects. | Not applicable, this is an offsite location. |
| <u>03 / 17 / 15</u> <u>10 : 26 AM</u> | Downstream sample location GEOCRK | There was no runoff during the inspection. Water flows through the sample location from an upstream spring. Debris, such as paper, bottles and cans were observed in the creek bed at the time of the inspection. | Sample location is near Corral Hollow Creek where occasional roadside dumping occurs and roadside trash collects. | Not applicable, this is an offsite location. |
| <u>04 / 29 / 15</u> <u>1 : 55 PM</u> | Downstream sample location GEOCRK | There was no runoff during the inspection. Water typically flows through the sample location from an upstream spring but was dry at the time of the observation. Debris, such as paper, bottles and cans were observed in the creek bed at the time of the inspection. | Sample location is near Corral Hollow Creek where occasional roadside dumping occurs and roadside trash collects. | Not applicable, this is an offsite location. |
| <u>05 / 28 / 15</u> <u>09 : 58 AM</u> | Downstream sample location GEOCRK | There was no runoff during the inspection. Water typically flows through the sample location from an upstream spring. There was no base flow present at the time of the observation. Debris, such as paper, bottles and cans were observed in the creek bed at the time of the inspection. | Sample location is near Corral Hollow Creek where occasional roadside dumping occurs and roadside trash collects. | Not applicable, this is an offsite location. |

LLNL Experimental Test Site
Annual Storm Water Monitoring Report for Waste Discharge Requirements 97-03-DWQ – July 2015

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

EVALUATION DATE: March 2015 – April 2015

SIGNATURE: Signed copies of the Annual Inspection Summary Certification Forms are provided in the Data Supplement

NOTE: Annual Facility Inspection Summary Forms are also provided in the Data Supplement

| <u>PRINCIPAL DIRECTORATE RESPONSIBLE</u> FOR POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY | HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? | ARE ADDITIONAL/ REVISED BMPs NECESSARY? | Describe deficiencies in BMPs or BMP implementation and Describe additional/revisted BMPs or corrective actions and their date(s) of implementation |
|---|---|---|--|
| Weapons and Complex Integration | NO | NO | No deficiencies were found |
| Operations and Business | NO | NO | A few minor deficiencies were discovered including peeling paint and materials stored outdoors. Corrective actions are underway. These actions are being tracked by ITS. |



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