



Environmental Protection Department
Permits and Regulatory Affairs Division

UCRL-AR-144362-09

Lawrence Livermore National Laboratory
Site 300
Annual Storm Water Monitoring Report
for Waste Discharge Requirements 97-03-DWQ

July 2009

Michael A. Revelli



Lawrence Livermore
National Laboratory

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Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.**

LLNL Site 300 Annual Storm Water Monitoring Report For WDR 97-03-DWG

REGIONAL BOARD INFORMATION

REGION 5: CENTRAL VALLEY REGION, SACRAMENTO
Pamela Creedon, Executive Officer
11020 Sun Center Drive
Rancho Cordova, CA 95670-6114
Nova Clemenza (NClemenza@waterboards.ca.gov)
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GENERAL INFORMATION

- A. Facility ID No.: 5S39I021179
- B. Operation:
Lawrence Livermore National Security, LLC
- Contact Person
Steven J. Wuthrich
Lawrence Livermore National Laboratory
P.O. Box 808, L-510
Livermore, CA 94551
(925) 423-1310
- 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)
and Landfill and Land Application Sites (sector L)

State of California
STATE WATER RESOURCES CONTROL BOARD

2008-2009
ANNUAL REPORT
FOR
STORM WATER DISCHARGES ASSOCIATED
WITH INDUSTRIAL ACTIVITIES

Reporting Period July 1, 2008 through June 30, 2009

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 WDID No: 5S39I021179

Facility Business Name: Lawrence Livermore National Laboratory Contact Person: John E. Scott – Site Manager
Physical Address: Corral Hollow Road e-mail: scott14@llnl.gov
City: Tracy State: CA Zip: 95376 Phone: (925) 423-5026

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)

B. Facility Operator Information:

Operator Name: Lawrence Livermore National Security, LLC Contact Person: Steven J. Wuthrich
Mailing Address: P.O. Box 808, Mail Stop L-510 e-mail: wuthrich1@llnl.gov
City: Livermore State: CA Zip: 94551 Phone: (925) 423-1310

C. Facility Billing Information:

Operator Name: Lawrence Livermore National Laboratory Contact Person: C. Susi Jackson
Mailing Address: P.O. Box 808, Mail Stop L-626 e-mail: jackson4@llnl.gov
City: Livermore State: CA Zip: 94551 Phone: (925) 423-6577

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? 5 (See explanation)

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 (**See explanation**)

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** **N/A (See 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.

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

	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"/>

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:

- | | |
|---|--|
| <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 • 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.

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


Sampling and analyses were conducted; laboratory analytical reports are maintained by LLNL and are available upon request.

- 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: Steven J. Wuthrich

Signature:  Date: 6/24/09

Title: Director, Environment, Safety, Health & Quality

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 effects 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/stormwtr/contact.html>

Attachment 1

Explanations

Figure 1 and Tables 1 & 2

Explanations

E. SAMPLING AND ANALYSIS RESULTS

3. **Figure 1** (in this Attachment) shows the five storm water sample locations. Two additional sample locations, labeled CARW2 and GEOCRK, represent the receiving water upstream and downstream, respectively, of Site 300.
4. & 5. 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. In addition, CARW2 (upstream of Site 300) could not be sampled during the first storm, because there was no flow through that upstream location.
6. Normally, it is not possible to determine exactly when flow begins at each runoff sampling location. For the 1/22/09 storm, measurable rainfall was recorded between midnight and 8:00am. For the 2/17/09 storm, measurable rainfall was recorded between 6:00am and 9:15am. LLNL samples the runoff as soon as possible.
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:*

LLNL has reported the analytical results on the **Form 1**. Results that exceeded LLNL's Site 300-specific Threshold Criteria are discussed in **Attachment 3**. The analytical reports and chains of custody are maintained by LLNL and are available upon request.

F. QUARTERLY VISUAL OBSERVATIONS

2. **Unauthorized Non-Storm Water Discharges**
 - c. *Have each of the unauthorized non-storm water discharges been eliminated or permitted?*

Table 1 (in this Attachment) includes all unplanned non-routine releases that were not observed during visual inspections but are documented as part of the Lawrence Livermore National Laboratory's spill response procedures. Of the six unplanned non-routine releases reported in **Table 1**, only one event (10/9/08) could have discharged some volume to the Site 300 storm water drainage system.

G. MONTHLY WET SEASON VISUAL OBSERVATIONS

1. *Indicate below whether monthly visual observations of storm water discharges occurred at all discharge locations.*

Although monthly wet season visual observations are reported on **Form 4**, actual storm water discharge occurred only during January and February 2009 during regular working hours. See **Table 2** (in this Attachment) for monthly rainfall totals.

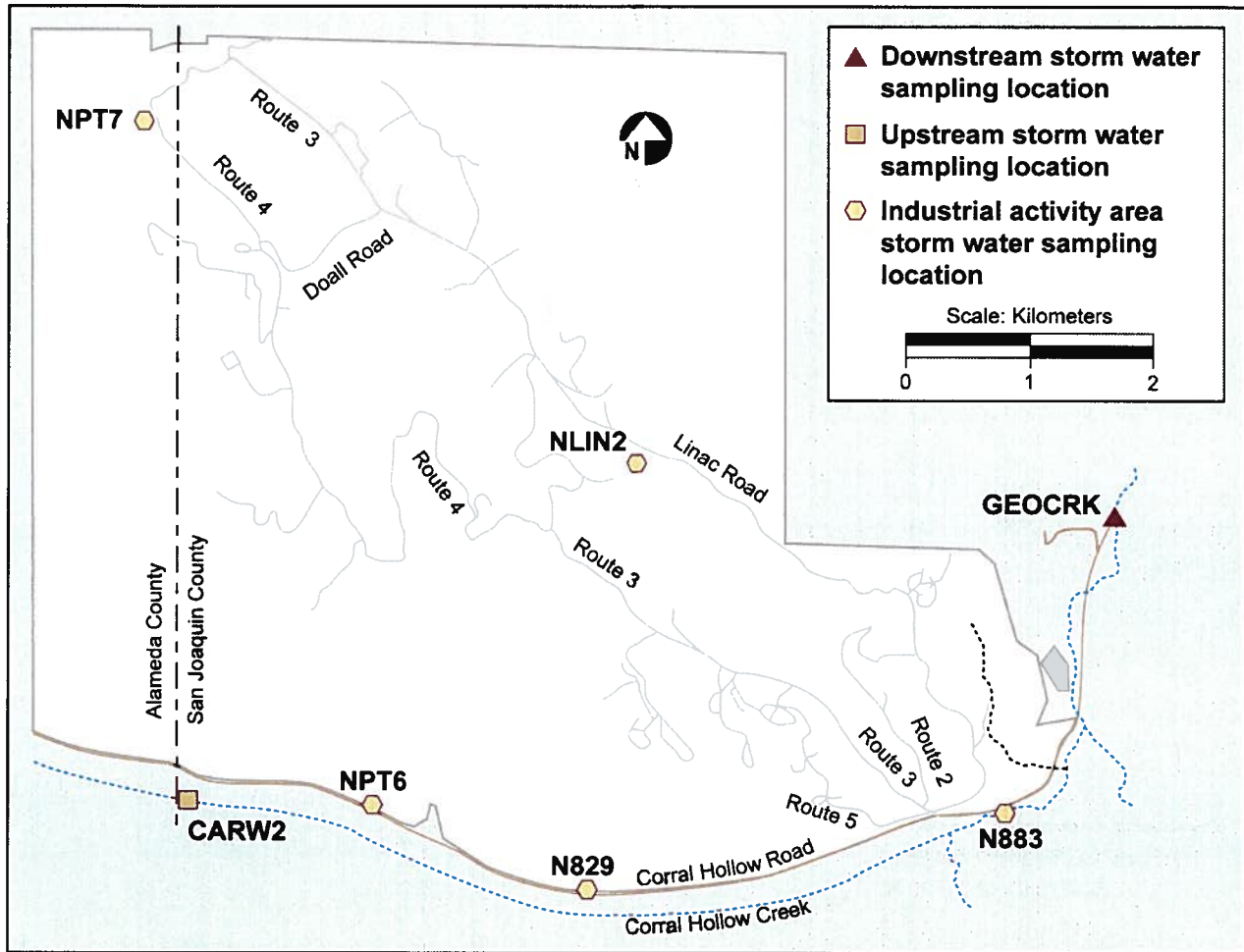


Figure 1. Storm water sampling locations at Site 300.

Table 1. Summary of non-routine releases June 2008–May 2009.

Date of Incident	Location	Description
6/12/08	Building 836C	A man-lift being used in the B-836C bay developed a hydraulic oil leak, releasing oil on the sealed concrete floor inside the bay. Approximately one pint was released onto the asphalt outside of the bay. Wipes were immediately used, until Plant Engineering arrived with absorbent that was placed on the released material. RHW M swept and containerized the contaminated absorbent, and managed it as hazardous waste.
7/31/08	Building 817	A valve was leaking domestic water from B-817 at a rate of 2-5 gal/hour. The leaking water was going into the retention tank just downhill from the building. A pipe connected to the outlet of the retention tank was broken and the water going into the tank exited the tank and onto the ground, it soaked in before reaching a surface water channel. A valve was shut on the retention tank to stop further water from leaking on the ground. The duration of the leak is unknown, possibly a few days.
8/5/08	Building 834	A water line broke near B-834 along Route 1. Maintenance Shop responded and secured the line with an estimated water loss of 2,000 gallons. Repairs began, following excavation of the line. The water did not reach a surface water channel.
10/6/08	Building 818	A broken water line outside of B-818 released an estimated 8,000 to 10,000 gallons prior to Maintenance Shop staff securing it. The discharge traveled down the process area erosion channel and soaked into the ground in the area of the sediment basin project but did not reach a surface water channel.
10/9/08	Building 817	Approximately 100,000 gallons of water flowed out of a broken water line upstream of B-817. It entered the new channel for the silt diversion project, flowed through the channel, and into the sedimentation project forebay. The water that collected in the forebay was pumped onto the baseball field to percolate into the ground. Maintenance Shop personnel secured the water line. Because the full flow path of the water could not be determined at the time the discharge occurred, LLNL staff assumes there was a potential that some of the chlorinated water could have discharged into Corral Hollow Creek. The Regional Board was notified.
1/20/09	Near Sewer Pond	A hose broke on an excavator being used on the sanitary sewer pipe upgrade project. A maximum of ½ gallon hydraulic oil was released to the dirt between the sewage pond & west security fence. A bucket was placed under the leak to contain the remaining oil and plastic was put down to catch any drips. The contaminated dirt was cleaned up and managed by RHW M.

Table 2. Monthly rainfall totals (in cm) at Site 300 weather station, June 2008 through May 2009.

Date	Monthly Total (cm)
June 2008	0.00
July 2008	0.00
August 2008	0.00
September 2008	0.00
October 2008	0.23
November 2008	1.93
December 2008	3.23
January 2009	4.72
February 2009	4.67
March 2009	2.79
April 2009	0.76
May 2009	0.48
Water Year TOTAL	18.81

Attachment 2

Forms 1 through 5

- Form 1 First Storm Event (page 16)
- Form 1 Second Storm Event (page 22)
- Form 2 (page 28)
- Form 3 (page 29)
- Form 4 (page 30)
- Form 5 (page 38)

Form 1- Sampling & Analysis Result for the First Storm Event 2008-09 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

DESCRIBE DISCHARGE LOCATION	ANALYTICAL RESULTS For First Storm Event									
	OTHER PARAMETERS: Metals									
	Arsenic	Beryllium	Cadmium	Iron	Lead	Magnesium	Mercury	Selenium	Silver	
N883	<0.002	<0.002	0.0005	1.1	0.0055	0.83	<0.0002	<0.002	<0.001	
GEOCRK (in creek, downstream)	0.0032	<0.002	<0.0005	0.96	<0.005	71	<0.0002	0.0023	<0.001	
CARW2 (in creek, upstream) No flow during first storm	-	-	-	-	-	-	-	-	-	-
NPT7	<0.002	<0.002	<0.0005	2.8	<0.005	5	<0.0002	<0.002	<0.001	
NLIN2	0.019	<0.002	<0.0005	0.51	<0.005	36	<0.0002	0.0031	<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	0.002	0.0005	0.05	0.005	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 2008-09 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

DESCRIBE DISCHARGE LOCATION	ANALYTICAL RESULTS						
	For First Storm Event						
	OTHER PARAMETERS: Radioactive						
	Gross Alpha	Gross Beta	Tritium	U234*	U235*	U238*	
N883	0.160 ± 0.052	0.240 ± 0.044	-0.4 ± 1.8	5.0 ± 2.3	-0.27 ± 0.56	7.4 ± 2.8	
GEOCRK (in creek, downstream)	-0.44 ± 0.37	0.55 ± 0.24	-0.4 ± 1.8	77.0 ± 8.9	5.1 ± 1.8	67.0 ± 8.1	
CAPW2 (in creek, upstream) No flow during first storm	-	-	-	-	-	-	
NPT7	0.055 ± 0.037	0.200 ± 0.041	-0.2 ± 1.8	8.2 ± 2.5	1.1 ± 1.1	10.0 ± 2.6	
NLIN2	0.130 ± 0.092	0.450 ± 0.063	-0.1 ± 1.8	140 ± 15	4.8 ± 1.8	120 ± 13	
TEST REPORTING UNITS:	Bq/L	Bq/L	Bq/L	mBq/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)	3.7 mBq/L (0.1 pCi/L)
TEST METHOD USED:	E900	E900	E906	ALPHA SPEC	ALPHA SPEC	ALPHA SPEC	ALPHA SPEC
ANALYZED BY (SELF/LAB):	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline

E - EPA Method
* Please note that concentrations (or activities) of uranium (U) isotopes are expressed as mBq/L = Bq/1000L (1 pCi = 37 mBq).

Form 1 - Sampling & Analysis Result for the First Storm Event 2008-09 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

DESCRIBE DISCHARGE LOCATION	ANALYTICAL RESULTS For First Storm Event										
	OTHER PARAMETERS: Dioxins & Furans										
	1,2,3,4,6,7,8-HpCDD	Total HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	Total HpCDF	1,2,3,4,7,8-HxCDF	Total-PentaCDD				
CARW2** (in creek, upstream) No flow during first storm	-	-	-	-	-	-	-	-	-	-	-
NLIN2**	<0.25	0.070	<0.25	<0.25	0.037	<0.25	<0.00087	<0.25	<0.25	<0.00096	
GEOCRK** (in creek, downstream)	<0.25	<0.0038	<0.25	<0.25	<0.0023	<0.25	<0.00096	<0.25	<0.25	<0.00096	
TEST REPORTING UNITS:	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
TEST METHOD DETECTION LIMIT***	0.0023	0.0023	0.0015	0.0017	0.0016	0.0048	0.00072	0.00048	0.00048	0.00072	
TEST METHOD USED:	E8290	E8290	E8290	E8290	E8290	E8290	E8290	E8290	E8290	E8290	
ANALYZED BY (SELF/LAB):	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	
E - EPA Method											

** - Polychlorinated biphenyl (PCB) monitoring results were all "not detected" from locations NLIN2 and GEOCRK. Analyses were performed using method E8020A with a method detection limit of 0.10 µg/L
 *** Test method detection limits may vary slightly by location. Listed limits are for the laboratory control "Method Blank" sample.
 **** Vista is a subcontractor to Caltest.

Form 1- Sampling & Analysis Result for the First Storm Event 2008-09 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.

NAME OF PERSON COLLECTING SAMPLE(S): Bob Williams, Gary Bear

DESCRIBE DISCHARGE LOCATION	ANALYTICAL RESULTS For First Storm Event										
	OTHER PARAMETERS: Dioxins & Furans (cont.)										
	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	2,3,4,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	OCDD			
CARW2** (in creek, upstream) No flow during first storm	-	-	-	-	-	-	-	-	-	-	-
NLIN2**	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.5
GEOCRK** (in creek, downstream)	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.5
TEST REPORTING UNITS:	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
TEST METHOD DETECTION LIMIT***:	0.00088	0.00087	0.00049	0.00084	0.00077	0.00057	0.0023				
TEST METHOD USED:	E8290	E8290	E8290	E8290	E8290	E8290	E8290				
ANALYZED BY (SELF/LAB):	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest				

E - EPA Method
 ** - Polychlorinated biphenyl (PCB) monitoring results were all "not detected" from locations NLIN2 and GEOCRK. Analyses were performed using method E8020A with a method detection limit of 0.10 µg/L.
 *** Test method detection limits may vary slightly by location. Listed limits are for the laboratory control "Method Blank" sample.
 **** Vista is a subcontractor to Caltest.

Form 1- Sampling & Analysis Result for the First Storm Event 2008-09 Annual Report (concluded)

- 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): Bob Williams, Gary Bear

DESCRIBE DISCHARGE LOCATION	ANALYTICAL RESULTS For First Storm Event							
	OTHER PARAMETERS: Dioxins & Furans (concluded)							
	Total HexaCDD	Total HexaCDF	Total PentaCDF	OCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	Total-TCDF	Total-TCDF
CARW2** (in creek, upstream) No flow during first storm	-	-	-	-	-	-	-	-
NLIN2**	<0.0028	0.0096	<0.00061	<0.5	<0.1	<0.1	<0.00044	<0.00046
GEOCRK** (in creek, downstream)	<0.0024	<0.0014	<0.00058	<0.5	<0.1	<0.1	<0.00046	<0.00046
TEST REPORTING UNITS:	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
TEST METHOD DETECTION LIMIT***:	0.00086	0.00057	0.00046	0.0015	0.00055	0.00038	0.00038	0.00038
TEST METHOD USED:	E8290	E8290	E8290	E8290	E8290	E8290	E8290	E8290
ANALYZED BY (SELF/LAB):	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest

E - EPA Method

** - Polychlorinated biphenyl (PCB) monitoring results were all "not detected" from locations NLIN2 and GEOCRK. Analyses were performed using method E8020A with a method detection limit of 0.10 µg/L.

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

**** Vista is a subcontractor to Caltest.

Form 1 - Sampling & Analysis Result for the Second Storm Event 2008-9 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): Gary Bear, Henry Jones, Karl Brunckhorst

DESCRIBE DISCHARGE LOCATION	DATE/TIME OF SAMPLE COLLECTION	TIME DISCHARGE STARTED	ANALYTICAL RESULTS											
			BASIC PARAMETERS					OTHER PARAMETERS						
			pH	TSS	SC	TOC	COD	Ammonia Nitrogen (as N)	Cyanide					
N883	2/17/09 9:50 AM PM	Ongoing	6.9	14	16	2.8	<25	<0.1	<0.005					
GEOCRK (in creek, downstream)	2/17/09 10:40 AM PM	Ongoing	8.12	2100	745	8.4	120	<0.1	<0.005					
CARW2 (in creek, upstream)	2/17/09 10:15 AM PM	Ongoing	7.99	3500	225	5.6	370	<0.1	<0.005					
NPT7	2/17/09 10:45 AM PM	Ongoing	8.29	320	136	3.7	<25	<0.1	<0.005					
NLIN2	2/17/09 10:15 AM PM	Ongoing	8.06	1100	332	5.4	75	<0.1	<0.005					
TEST REPORTING UNITS:			pH Units	mg/L	uS/cm	mg/L	mg O/L	mg/L	mg/L					
TEST METHOD DETECTION LIMIT: *			0.05	0.5	1.0	0.30	25	0.10	0.005					
TEST METHOD USED:			SM-4500HB	SM-2540D	E120.1	SM-5310C	E410.4	E350.1	E35.4					
ANALYZED BY (SELF/LAB):			BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs	BC Labs					
TSS - Total Suspended Solids			TOC - Total Organic Carbon											
COD - Chemical Oxygen Demand			E - EPA Method											
NA - not applicable														
* 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 Second Storm Event 2008-09 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): Gary Bear, Henry Jones, Karl Brunckhorst

DESCRIBE DISCHARGE LOCATION	ANALYTICAL RESULTS For Second Storm Event									
	OTHER PARAMETERS: Metals									
	Arsenic	Beryllium	Cadmium	Iron	Lead	Magnesium	Mercury	Selenium	Silver	
N883	<0.002	<0.0002	<0.0005	0.27	<0.005	<0.5	<0.0002	<0.002	<0.001	
GEOCRK (in creek, downstream)	0.034	0.004	0.00079	110	0.043	50	<0.0002	0.0031	<0.001	
CARW2 (in creek, upstream)	0.072	0.008	0.0017	200	0.083	49	<0.0002	0.0064	<0.001	
NPT7	0.0027	0.00065	0.0005	18	0.0053	7.3	<0.0002	<0.002	<0.001	
NLIN2	0.015	0.0029	0.0013	50	0.017	28	<0.0002	<0.002	<0.001	
TEST REPORTING UNITS:	mg/L	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	0.05	0.001	0.05	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	E200.8
ANALYZED BY (SELF/LAB):	BC Labs	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 Second Storm Event 2008-09 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): Gary Bear, Henry Jones, Karl Brunckhorst

DESCRIBE DISCHARGE LOCATION	ANALYTICAL RESULTS For Second Storm Event						
	OTHER PARAMETERS: Radioactive						
	Gross Alpha	Gross Beta	Tritium	U234*	U235*	U238*	
N883	-0.0006 ± 0.0092	0.025 ± 0.021	0.3 ± 1.8	-0.67 ± 0.81	0.33 ± 0.67		-0.13 ± 0.56
GEOCRK (in creek, downstream)	0.26 ± 0.10	0.420 ± 0.059	-1.0 ± 1.8	32.0 ± 5.6	2.3 ± 1.5		33.0 ± 5.6
CARW2 (in creek, upstream)	0.310 ± 0.085	0.430 ± 0.059	0.7 ± 1.8	58.0 ± 7.8	2.0 ± 1.5		57.0 ± 7.8
NPT7	0.022 ± 0.018	0.100 ± 0.037	-0.2 ± 1.8	10.0 ± 3.0	0.64 ± 0.85		16.0 ± 3.7
NLIN2	0.064 ± 0.037	0.310 ± 0.048	0.9 ± 1.8	41.0 ± 6.3	1.9 ± 1.4		54.0 ± 7.4
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):	Eberline	Eberline	Eberline	Eberline	Eberline		Eberline

E - EPA Method

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

Form 1 - Sampling & Analysis Result for the Second Storm Event 2008-09 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): Gary Bear, Henry Jones, Karl Brunckhorst

DESCRIBE DISCHARGE LOCATION	ANALYTICAL RESULTS For Second Storm Event										
	OTHER PARAMETERS: Dioxins & Furans										
	1,2,3,4,6,7,8-HpCDD	Total HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	Total HpCDF	1,2,3,4,7,8-HxCDF	Total-PentaCDD				Total-PentaCDD
CARW2** (in creek, upstream)	<0.25	0.060	<0.25	<0.25	0.031	<0.25		<0.25			0.018
NLIN2**	0.9	1.42	<0.25	<0.25	0.676	<0.25		<0.25			0.011
GEOCRK** (in creek, downstream)	<0.25	0.057	<0.25	<0.25	0.017	<0.25		<0.25			0.005
TEST REPORTING UNITS:	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L		ng/L			ng/L
TEST METHOD DETECTION LIMIT***	0.00058	0.00058	0.00035	0.00043	0.00039	0.00029		0.00029			0.00027
TEST METHOD USED:	E8290	E8290	E8290	E8290	E8290	E8290		E8290			E8290
ANALYZED BY (SELF/LAB):	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest		Vista****/Caltest			Vista****/Caltest
E - EPA Method											

** - Polychlorinated biphenyl (PCB) monitoring results were all "not detected" from locations CARW2, NLIN2 and GEOCRK. Analyses were performed using method E8020A with a method detection limit of 0.50 µg/L.

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

**** Vista is a subcontractor to Caltest.

Form 1 - Sampling & Analysis Result for the Second Storm Event 2008-09 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.

NAME OF PERSON COLLECTING SAMPLE(S): Gary Bear, Henry Jones, Karl Brunckhorst

DESCRIBE DISCHARGE LOCATION	ANALYTICAL RESULTS For Second Storm Event									
	OTHER PARAMETERS: Dioxins & Furans (cont.)									
	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	2,3,4,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	OCDD		
CARW2** (in creek, upstream)	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.5	<0.25	<0.5
NLIN2**	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	7	<0.25	<0.5
GEOCRK** (in creek, downstream)	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.5	<0.25	<0.5
TEST REPORTING UNITS:	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
TEST METHOD DETECTION LIMIT***:	0.00054	0.00052	0.00029	0.00051	0.00046	0.00033	0.00033	0.0022	0.00033	0.0022
TEST METHOD USED:	E8290	E8290	E8290	E8290	E8290	E8290	E8290	E8290	E8290	E8290
ANALYZED BY (SELF/LAB):	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest
E - EPA Method										

** - Polychlorinated biphenyl (PCB) monitoring results were all "not detected" from locations CARW2, NLIN2 and GEOCRK. Analyses were performed using method E8020A with a method detection limit of 0.50 µg/L.

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

**** Vista is a subcontractor to Caltest.

Form 1 - Sampling & Analysis Result for the Second Storm Event 2008-09 Annual Report (concluded)

- 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): Gary Bear, Henry Jones, Karl Brunkthorst

DESCRIBE DISCHARGE LOCATION	ANALYTICAL RESULTS For Second Storm Event									
	OTHER PARAMETERS: Dioxins & Furans (concluded)									
	Total HexaCDD	Total HexaCDF	Total PentaCDF	OCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	Total-TCDF			
CARW2** (in creek, upstream)	0.044	0.024	0.007	<0.5	<0.1	<0.1	0.013			
NLIN2**	0.143	0.195	0.026	1	<0.1	<0.1	0.002			
GEOCRK** (in creek, downstream)	0.019	0.006	0.002	<0.5	<0.1	<0.1	0.002			
TEST REPORTING UNITS:	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L			
TEST METHOD DETECTION LIMIT****:	0.00052	0.00034	0.00027	0.00095	0.00038	0.00040	0.00040			
TEST METHOD USED:	E8290	E8290	E8290	E8290	E8290	E8290	E8290			
ANALYZED BY (SELF/LAB):	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest	Vista****/Caltest			

E - EPA Method

** - Polychlorinated biphenyl (PCB) monitoring results were all "not detected" from locations CARW2, NLIN2 and GEOCRK. Analyses were performed using method E8020A with a method detection limit of 0.50 µg/L.

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

***** Vista is a subcontractor to Caltest.

**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.

<p>QUARTER: JULY-SEPT.</p> <p>DATE: <u>9 / 30 / 08</u></p>	<p>Observers Name: <u>Karl Brunckhorst</u></p> <p>Title: <u>Scientific Technologist</u></p> <p>Observations were made at the seven locations identified on Form 4.</p>	<p>WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER?</p> <p><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>If YES, complete reverse side of this form.</p>
<p>QUARTER: OCT.-DEC.</p> <p>DATE: <u>10 / 30 / 08</u></p>	<p>Observers Name: <u>Karl Brunckhorst</u></p> <p>Title: <u>Scientific Technologist</u></p> <p>Observations were made at the seven locations identified on Form 4.</p>	<p>WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER?</p> <p><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>If YES, complete reverse side of this form.</p>
<p>QUARTER: JAN.-MARCH</p> <p>DATE: <u>2 / 17 / 09</u></p>	<p>Observers Name: <u>Karl Brunckhorst</u></p> <p>Title: <u>Scientific Technologist</u></p> <p>Observations were made at the seven locations identified on Form 4.</p>	<p>WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER?</p> <p><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>If YES, complete reverse side of this form.</p>
<p>QUARTER: APRIL-JUNE</p> <p>DATE: <u>5 / 19 / 09</u></p>	<p>Observers Name: <u>Karl Brunckhorst</u></p> <p>Title: <u>Scientific Technologist</u></p> <p>Observations were made at the seven locations identified on Form 4.</p>	<p>WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER?</p> <p><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>If YES, complete reverse side of this form.</p>

SIDE 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 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>09/30/08</u> <u>8:53</u> – <u>9:52</u> AM	Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> Observations were made at the seven locations identified on Form 4.	WERE UNAUTHORIZED NSWDs OBSERVED? WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDs?	If YES to either question, complete reverse side. NO NO
QUARTER: OCT-DEC DATE/TIME OF OBSERVATIONS <u>10/30/08</u> <u>8:35</u> – <u>9:52</u> AM	Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> Observations were made at the seven locations identified on Form 4.	WERE UNAUTHORIZED NSWDs OBSERVED? WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDs?	If YES to either question, complete reverse side. NO NO
QUARTER: JAN-MARCH DATE/TIME OF OBSERVATIONS <u>02/17/09</u> <u>9:30</u> – <u>10:45</u> AM	Observers Name: <u>Karl Brunckhorst and Gary Bear</u> Title: <u>Scientific Technologist</u> Observations were made at the seven locations identified on Form 4.	WERE UNAUTHORIZED NSWDs OBSERVED? WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDs?	If YES to either question, complete reverse side. NO NO
QUARTER: APRIL-JUNE DATE/TIME OF OBSERVATIONS <u>05/19/09</u> <u>13:23</u> – <u>14:25</u> PM AM	Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u> Observations were made at the seven locations identified on Form 4.	WERE UNAUTHORIZED NSWDs OBSERVED? WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDs?	If YES to either question, complete reverse side. NO NO

**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 30, 2008		#1- CARW2		#2 - NPT6		#3 - N829		#4 - N883	
Observers Name: <u>Karl Brunckhorst</u>		8 : 43 A.M.		8 : 35 A.M.		8 : 50 A.M.		8 : 55 A.M.	
Title: <u>Scientific Technologist</u>		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.		No		No	
Were Pollutants Observed * (if yes, complete reverse side)		No		No		No		No	
Observation Date: November 24, 2008		#1- CARW2		#2 - NPT6		#3 - N829		#4 - N883	
Observers Name: <u>Karl Brunckhorst</u>		10 : 54 A.M.		10 : 47 A.M.		10 : 42 A.M.		9 : 54 A.M.	
Title: <u>Scientific Technologist</u>		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.		No		No	
Were Pollutants Observed * (if yes, complete reverse side)		No		No		No		No	
Observation Date: December 30, 2008		#1- CARW2		#2 - NPT6		#3 - N829		#4 - N883	
Observers Name: <u>Karl Brunckhorst</u>		10 : 06 A.M.		10 : 14 A.M.		10 : 16 A.M.		10 : 21 A.M.	
Title: <u>Scientific Technologist</u>		Time Discharge Began		There was no runoff at any sample location during the inspection except at N883 where there was an insignificant amount of runoff (less than one hour). Based on the low rainfall and observations made, there was likely no significant storm water runoff in December during hours of operation.		No		No	
Were Pollutants Observed * (if yes, complete reverse side)		No		No		No		No	
Observation Date: January 22, 2009		#1- CARW2		#2 - NPT6		#3 - N829		#4 - N883	
Observers Name: <u>Gary Bear</u>		10 : 49 A.M.		10 : 40 A.M.		10 : 30 A.M.		9 : 05 A.M.	
Title: <u>Scientific Technologist</u>		Time Discharge Began		There was measurable rainfall on 1/22/09 beginning at approx. 12:00 a.m. continuing through 8:00 a.m. At sample locations N883, NPT7, NLIN2 and GEOCRK runoff was sufficient for samples to be collected. There was no runoff at CARW2, NPT6 or N829.		Yes		No	
Were Pollutants Observed * (if yes, complete reverse side)		No		No		No		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.

**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
<p>1 / 22 / 09 10 : 49 AM</p>	<p>EXAMPLE: Discharge from material storage Area #2 Upstream sample location CARW2</p>	<p>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 at the time of the inspection; however, there was high turbidity in the standing water.</p>	<p>EXAMPLE: Oil sheen caused by oil dripped by trucks in vehicle maintenance area. Source of turbidity is unknown.</p>	<p>Not applicable, this is an off site location.</p>

**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 17, 2009 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u>		Drainage Location Description	#1- CARW2	#2 - NPT6	#3 - N829	#4 - N883
		Observation Time	10 : 15 A.M.	9 : 30 A.M.	9 : 35 A.M.	9 : 50 A.M.
		Time Discharge Began	There was measurable rainfall on 2/17/09 beginning at approx. 6:00 a.m. continuing through 9:15 a.m. At sample locations CARW2, N883, NPT7, NLIN2 and GEOCRK runoff was sufficient for samples to be collected. There was no runoff at NPT6 or N829.			
		Were Pollutants Observed * (if yes, complete reverse side)	Yes	No	No	No
Observation Date: March 30, 2009 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u>		Drainage Location Description	#1- CARW2	#2 - NPT6	#3 - N829	#4 - N883
		Observation Time	10 : 05 A.M.	10 : 20 A.M.	10 : 26 A.M.	10 : 38 A.M.
		Time Discharge Began	There was no runoff during the inspection though Corral Hollow Creek (CARW2) was flowing. Corral Hollow Creek flows for several weeks once sufficient rainfall occurs. There was insignificant rainfall in March.			
		Were Pollutants Observed * (if yes, complete reverse side)	No	No	No	No
Observation Date: April 27, 2009 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 : 57 A.M.	9 : 05 A.M.	9 : 09 A.M.	9 : 14 A.M.
		Time Discharge Began	There was no runoff during the inspection. There was insignificant rainfall in April.			
		Were Pollutants Observed * (if yes, complete reverse side)	Yes	No	No	No
Observation Date: May 19, 2009 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u>		Drainage Location Description	#1- CARW2	#2 - NPT6	#3 - N829	#4 - N883
		Observation Time	13 : 23 P.M.	13 : 30 P.M.	13 : 32 P.M.	13 : 46 P.M.
		Time Discharge Began	There was no runoff during the inspection. There was insignificant rainfall in May.			
		Were Pollutants Observed * (if yes, complete reverse side)	No	No	No	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.

**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
2 / 17 / 2009 10 : 15 AM	Upstream sample location CARW2	There was significant runoff at the time of the inspection. There was also a high level of turbidity in the water at the time of the inspection.	Source of turbidity is unknown.	Not applicable, this is an off site location.
4 / 27 / 2009 8 : 57 AM	Upstream sample location CARW2	There was no runoff at the time of the inspection; however, there was moderate turbidity in the standing water.	Source of turbidity is unknown.	Not applicable, this is an off site location.

**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 30 2008 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u>		Drainage Location Description Observation Time Time Discharge Began Were Pollutants Observed ** (if yes, complete reverse side)	#5 - NPT7 9 : 18 A.M. 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. No No	#6 - NLIN2* 9 : 34 A.M. #7 - GEOCRK* 9 : 52 A.M.
Observation Date: November 24 2008 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u>		Drainage Location Description Observation Time Time Discharge Began Were Pollutants Observed ** (if yes, complete reverse side)	#5 - NPT7 10 : 24 A.M. 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. No No	#6 - NLIN2* 10 : 16 A.M. #7 - GEOCRK* 9 : 39 A.M.
Observation Date: December 30 2008 Observers Name: <u>Karl Brunckhorst</u> Title: <u>Scientific Technologist</u>		Drainage Location Description Observation Time Time Discharge Began Were Pollutants Observed ** (if yes, complete reverse side)	#5 - NPT7 10 : 41 A.M. There was no runoff during the inspection. Based on the low rainfall and observations made, there was likely no storm water runoff in December during hours of operation. No No	#6 - NLIN2* 10 : 33 A.M. #7 - GEOCRK* 11 : 02 A.M.
Observation Date: January 22 2009 Observers Name: <u>Gary Bear</u> Title: <u>Scientific Technologist</u>		Drainage Location Description Observation Time Time Discharge Began Were Pollutants Observed ** (if yes, complete reverse side)	#5 - NPT7 10 : 00 A.M. There was measurable rainfall on 1/22/09 beginning at approx. 12:00 a.m. continuing through 8:00 a.m. At sample locations N883, NPT7, NLIN2 and GEOCRK runoff was sufficient for samples to be collected. There was no runoff at CARW2, NPT6 or N829. No No	#6 - NLIN2* 10 : 12 A.M. #7 - GEOCRK* 9 : 32 A.M.
		Were Pollutants Observed ** (if yes, complete reverse side)	No No No	Yes Yes 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.

FORM 4 (Continued)-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</u> / <u>30</u> / <u>08</u> <u>9</u> : <u>52</u> AM	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 flows through the sample location from an upstream spring. Debris, including a refrigerator, was noted 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 off site location.
<u>11</u> / <u>24</u> / <u>08</u> <u>9</u> : <u>39</u> AM	Downstream sample location GEOCRK	There was no runoff during the inspection. Water flows through the sample location from an upstream spring. Debris, including a refrigerator, was noted 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 off site location.
<u>12</u> / <u>30</u> / <u>08</u> <u>11</u> : <u>02</u> AM	Downstream sample location GEOCRK	There was no runoff during the inspection. Water flows through the sample location from an upstream spring. Debris, including a refrigerator, was noted 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 off site location.
<u>01</u> / <u>22</u> / <u>09</u> <u>9</u> : <u>32</u> AM	Downstream sample location GEOCRK	There was significant runoff during the inspection. In addition to the runoff, water flows through the sample location from an upstream spring. Debris, including a refrigerator, was noted 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 off site location.

**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 17, 2009 Observers Name: <u>Karl Brunckhorst & Gary Bear</u> Title <u>Scientific Technologist</u>		Drainage Location Description Observation Time Time Discharge Began Were Pollutants Observed ** (If yes, complete reverse side)	#5 - NPT7 10 : 45 A.M. There was measurable rainfall on 2/17/09 beginning at approx. 6:00 a.m. continuing through 9:15 a.m. At sample locations CARW2, N883, NPT7, NLIN2 and GEOCRK runoff was sufficient for samples to be collected. There was no runoff at NPT6 or N829.	#6 - NLIN2 10 : 15 A.M.	#7 - GEOCRK 10 : 40 A.M.
Observation Date: March 30, 2009 Observers Name: <u>Karl Brunckhorst</u> Title <u>Scientific Technologist</u>		Drainage Location Description Observation Time Time Discharge Began Were Pollutants Observed ** (If yes, complete reverse side)	#5 - NPT7 11 : 00 A.M. There was no runoff during the inspection. There was insignificant rainfall in March.	#6 - NLIN2 10 : 51 A.M.	#7 - GEOCRK 11 : 23 A.M.
Observation Date: April 27, 2009 Observers Name: <u>Karl Brunckhorst</u> Title <u>Scientific Technologist</u>		Drainage Location Description Observation Time Time Discharge Began Were Pollutants Observed ** (If yes, complete reverse side)	#5 - NPT7 9 : 42 A.M. There was no runoff during the inspection. There was insignificant rainfall in April.	#6 - NLIN2 9 : 30 A.M.	#7 - GEOCRK 10 : 18 A.M.
Observation Date: May 19, 2009 Observers Name: <u>Karl Brunckhorst</u> Title <u>Scientific Technologist</u>		Drainage Location Description Observation Time Time Discharge Began ** Were Pollutants Observed (If yes, complete reverse side)	#5 - NPT7 14 : 16 P.M. There was no runoff during the inspection. There was insignificant rainfall in May.	#6 - NLIN2 14 : 25 P.M.	#7 - GEOCRK 13 : 40 P.M.

* 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.

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

SIDE B

DATE/TIME OF OBSERVATION (From Reverse Side)	DRAINAGE AREA DESCRIPTION EXAMPLE: Discharge from material storage Area #2	DESCRIBE STORM WATER DISCHARGE CHARACTERISTICS	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 / 17 / 09 10 : 40 AM	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 significant runoff during the inspection and a high level of turbidity was noted. In addition to the runoff, water flows through this sample location from an upstream spring. Debris, including a refrigerator, was noted 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 off site location.
03 / 30 / 09 11 : 23 AM	Downstream sample location GEOCRK	There was no runoff during the inspection. Water flows through the sample location from an upstream spring. Debris, including a refrigerator was noted in the creek bed at the time of the inspection. There was a high level of turbidity noted at the time of the observation.	Sample location is near Corral Hollow Creek where occasional roadside dumping occurs and roadside trash collects. High turbidity was caused by cattle feeding in the streambed.	Not applicable, this is an off site location.
04 / 27 / 09 10 : 18 AM	Downstream sample location GEOCRK	There was no runoff during the inspection. Water flows through the sample location from an upstream spring. Debris, including a refrigerator was noted in the creek bed at the time of the inspection. There was a moderate level of turbidity noted at the time of the observation.	Sample location is near Corral Hollow Creek where occasional roadside dumping occurs and roadside trash collects.	Not applicable, this is an off site location.
05 / 19 / 09 13 : 40 PM	Downstream sample location GEOCRK	There was no runoff during the inspection. Water flows through the sample location from an upstream spring. Debris, including a refrigerator was noted in the creek bed at the time of the inspection. There was a moderate level of turbidity noted at the time of the observation.	Sample location is near Corral Hollow Creek where occasional roadside dumping occurs and roadside trash collects.	Not applicable, this is an off site location.

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

EVALUATION DATE: Oct 2008 - May 2009 NOTE: Specific BMP inspections records are available upon request

SIGNATURE: Signed inspection records are maintained and available upon request.

<u>PRINCIPAL DIRECTORATE RESPONSIBLE FOR POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY</u>	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
Directors Office	NO	NO	
Science and Technology	NO	NO	
Weapons and Complex Integration	NO	NO	
Operations and Business	NO	NO	

Attachment 3

Compliance Approach & Discussion of Analytical Results

Attachment 3

Compliance Approach & Discussion of Analytical Results

As in past years, some of the current storm water monitoring results at Site 300 exceeded EPA benchmark values. LLNL believes that because of the unique rural characteristics at Site 300, storm water runoff quality is not comparable to a typical industrial facility and therefore the EPA benchmark values are not directly applicable. For this reason, LLNL compares storm water monitoring data to Site 300-specific threshold criteria to identify out-of-the-ordinary (low probability of occurrence) results. The threshold criteria are calculated using data from the downstream (GEOCRK) sampling location to obtain the more conservative value. Because contributing storm water discharge (volume) would have an additive impact to the receiving water quality (concentration) in Corral Hollow Creek, the threshold values calculated using downstream data are generally lower than threshold values calculated using data from the other sampling locations. 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. UCRL-CONF-224278. Each year LLNL evaluates the storm water monitoring results relative to the threshold criteria and trends in the receiving water. The steps in this evaluation are applied in the following discussions.

TSS at locations CARW2 and GEOCRK on February 17, 2009

Total Suspended Solids (TSS) values of 3500 mg/L and 2100 mg/L, respectively at off-site CARW2 and GEOCRK locations, both exceed the S-300 Threshold Criteria of 1700 mg/L for this parameter. The downstream (GEOCRK) TSS value was lower than the level at the upstream (CARW2) location, indicating that the levels observed in the effluent are typical for the area. Suspended sediment is an issue in Corral Hollow Creek, but it is clear that activities at Site 300 are not producing a majority of that sediment. The highest TSS measured during this storm event at on-site discharge location (NLIN2) was 1100 mg/L.

COD at location CARW2 on February 17, 2009

A Chemical Oxygen Demand (COD) value of 370 mg O/L at this off-site, upstream location (above the S-300 Threshold Criteria of 200 mg O/L), may be the result of organic material being mobilized by runoff through the surrounding agricultural areas. The downstream (GEOCRK) TOC value (120 mg O/L) was lower than the level at the CARW2 location, indicating that the levels observed in the effluent are typical for the area. COD values reported for discharges from the on-site locations ranged from <25 to 75 mg O/L.

Beryllium at locations CARW2, GEOCRK and NLIN2 on February 17, 2009

Beryllium was reported above its S-300 Threshold Criteria (0.0016 mg/L) at both off-site locations (CARW2, Be @ 0.008 mg/L; GEOCRK, Be @ 0.004 mg/L) and at one on-site discharge location (NLIN2, Be @ 0.0029 mg/L). Given that a similar concentration of Be was reported for the NLIN2 location during a previous storm event (Be @ 0.0022 mg/L on March 6,

2006) and that both off-site locations reported higher concentrations of this constituent, the concentration of beryllium at NLIN2 appears consistent with natural concentrations and did not adversely affect downstream runoff.

(Note that Beryllium results for all locations sampled during the January 22, 2009 storm were reported at <0.002 mg/l. This Method Detection Limit, slightly above the S-300 Threshold Criteria for this constituent and an order of magnitude above the normal Detection Limit, was the result of a sample dilution performed at the contract analytical laboratory.)

Lead at locations CARW2 and GEOCRK on February 17, 2009

Lead values of 0.083 mg/L and 0.043 mg/L, respectively at off-site CARW2 and GEOCRK locations, both exceed the S-300 Threshold Criteria of 0.030 mg/L for this parameter. The downstream (GEOCRK) lead value was lower than the level at the upstream (CARW2) location, indicating that the levels observed in the effluent are typical for the area. The soils in this area have relatively high background concentrations of metals, so these lead values appear to be an artifact of the high sediment loads discussed above. Lead concentrations reported for discharges from the on-site locations ranged from <0.005 mg/L to 0.017 mg/L and did not adversely affect downstream runoff.



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