

# Los Alamos National Laboratory

## Environmental Stewardship

### Water Quality and Hydrology Group

## Quality Assurance Project Plan

for the

# Storm Water Multi-Sector General Permit for Industrial Activities Program

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## General information about this procedure

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### History of revisions

This table lists the revision history and effective dates of this procedure.

Revision	Date	Description of Changes
0	6/03	New document
1	12/05	Annual review

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**Attachments** This plan has the following attachments:

<b>Number</b>	<b>Title</b>	<b>No. of pages</b>
1	MSGP Program Organization	1
2	Multi Sector General Permit Program Data Quality Objectives	12
3	Multi-Sector General Permit Storm Water Visual Inspection Guidelines, September 2002	9
4	Comprehensive Site Compliance Evaluation Report	6
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# SECTION 1

## Quality Program

### Organization

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**Policy** LANL will comply with the continuous monitoring requirements as required by the NPDES Storm Water Multi-Sector General Permit for Industrial Activities. Compliance will be demonstrated through the successful implementation of this project plan and applicable procedures.

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**Purpose of the program** The Los Alamos National Laboratory (Laboratory) has established a comprehensive storm water program for its industrial activities. Historically, the Laboratory operated under the NPDES Baseline General Permit and then under the NPDES 1995 Multi-Sector General Permit. On December 23, 2000, the University of California and Department Of Energy Office of Los Alamos Operations (OLASO) received NPDES coverage for its industrial activities under the 2000 Multi-Sector General Permit (MSGP), Permit Nos. NMR05A734 and NMR05A735 respectively.

The purpose of this program is to ensure compliance with:

- 2000 Multi-Sector General Permit (MSGP), Permit Nos. NMR05A734 and NMR05A735 respectively, and the Clean Water Act.
- DOE Order 450.1, *Environmental Protection Program*, and DOE Order 5400.5, *Radiation Protection of the Public and Environment*, which establish environmental protection program policies, requirements, and responsibilities.

The Water Quality and Hydrology (WQH) group has been tasked with overseeing institutional storm water compliance related activities at the Laboratory pursuant to LIR 404-50-01.0.

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**Purpose of this plan** This QA Project Plan describes the policies and requirements that ensure the MSGP activities are conducted in a consistent, agreed-upon manner. Drivers for the quality plan include:

- DOE O 414.1, *Quality Assurance*
  - ENV-IMP, *ENV Integrated Management Plan*
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## Organization, continued

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**Structure of the quality program** The QA Project Plan, including implementing procedures, is a sub-tier document to the ENV-WQH Quality Management Plan. The following documents provide requirements to ensure that the MSGP is operated in accordance with established plans and procedures:

- ENV-WQH Quality Management Plan
  - QA Project Plan for MSGP (this document)
  - Implementing procedures
- 

**Group organization** The ENV-WQH Group is responsible for oversight of the Laboratory's MSGP. See the WQH Quality Management Plan for a description of the group organization, level of authorities, and lines of communication. The group is organized by teams under the line management direction of the group leader. Teams are cross-functional and focus on specific LANL water quality responsibility, deliverables, or products. Teams are guided by team leaders who have the responsibility to assure the project is completed or the program is properly implemented.

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**Program organization** The Team Leader coordinates the programs and reports to the ENV-WQH Group Leader. The Program Lead implements program oversight, coordinates contractor efforts, and reports to the Team Leader. A group QA specialist is assigned to work for the team leader to provide quality assurance assistance, advice, and review.

In addition, representatives from other groups may participate and contribute to this team as subject matter experts for program activities. The program organization is shown in Attachment 1.

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**Applicable regulatory quality criteria**

- Clean Water Act (CWA)
- NPDES Permit Nos. NMR05A734 and NMR05A735
- DOE Order 450.1, *Environmental Protection Program*
- DOE Order 5400.5, *Radiation Protection of Public and Environment*
- IP-300-SD, *LANL Quality Assurance Program*
- LPR 404-00-00, *Environmental Protection*
- LIR 404-50-01, *Water Pollution Control*

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## Organization, continued

**Implement-  
tation**

The following table lists specific responsibilities:

Who	What
Group Leader	Assure that qualified staff properly comply with continuous monitoring requirements required by the MSGP.
Program Lead	Ensure that MSGP related activities are performed in accordance with the requirements specified in this plan.
WQH Staff	Perform MSGP related activities as assigned by the Team Leader
Contractors	Conduct MSGP related activities as defined by the Scope of Work.

## SECTION 2

### Personnel Development

#### Personnel Training and Qualification

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**Personnel qualification requirements** Qualified team members will be hired and trained as prescribed in the WQH QMP. The LANL personnel division maintains documentation of education qualification.

The MSGP requires personnel with the following skills:

- Bachelors degree in environmental sciences, engineering, or equivalent studies
  - Knowledge of federal and state environmental water quality laws
  - Communicating well orally and in writing
  - Proficient with Microsoft Office products
  - Completed ENV-WQH training required for the conductance of general field work
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**Training of personnel** All personnel performing MSGP project-related work are required to obtain appropriate training prior to performing work governed by a procedure. Training for all project personnel will be performed and documented according to the WQH procedure for training (ENV-WQH-QP-024).

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**Implementation** The following table lists specific responsibilities:

Who	What
Group Leader	Ensure Group personnel meet all Laboratory training requirements.
Team Leader	Establish and document job descriptions for each position within the MSGP Program.  Ensure all program personnel have the appropriate level of education, experience, and training.

## SECTION 3

### Quality Improvement

#### Improving Quality

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**Policy** The MSGP Program subscribes to the WQH Quality Management Program (QMP) principles of problem prevention and continuous improvement. The Program Lead is committed to evaluating improvement opportunities identified by trending and reporting.

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**Performance reports** The Program Lead provides written updates, as needed, to the Team Leader and Group Leader to keep group management apprised of the focus of the MSGP Program activities and to address any shortcomings that may be identified.

The Program Lead will provide an annual quality improvement performance report to the Team Leader and Group Leader defining program performance, trending data, modifications required, issues identified, and planned corrective actions. The Program Lead will monitor and document issues and corrective actions.

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**Performance report distribution** The following receive copies of the annual quality improvement performance reports:

- ENV-WQH Group Leader
  - ENV-WQH Regulatory Compliance and Line Services Team Leader
  - MSGP personnel working on project activities
  - ENV-WQH QA Specialist
- 

**Corrective actions with-in WQH** Corrective actions for all WQH projects are initiated, tracked, corrected, and documented according to the ENV-WQH QMP and ENV-WQH-QP-033, *Issues Reporting and Action Tracking*.

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## Improving Quality, continued

### Implementation

The following table lists specific responsibilities:

Who	What
Program Lead	Monitor program performance and ensure deficiencies are corrected in a timely manner. Prepare and distribute annual quality improvement performance reports.
All personnel	Identify opportunities for process improvement, health and safety enhancement, environmental protection, or other improvements of the program's operations. Discuss the identified opportunities with the Program Lead. Ensure deficiencies are reported and corrected in a timely manner.

## SECTION 4

### Documents and Records

#### Program Documents

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**Revising this plan** This plan will be controlled through the WQH procedure ENV-WQH-QP-021, *Document Control*. The Program Leads or team leader, at least one reviewer, and the group leader will approve all revisions to this plan. Revisions to the plan will be provided to the QA Officer.

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**Document control** This document will be controlled under the organization's document control system (ENV-WQH-QP-021, *Document Control*) to ensure that those performing work for the system will receive a controlled copy and all revisions. Those who will receive or have nearby access to a controlled copy include:

- ENV-WQH Group Leader
  - ENV-WQH QA Specialist
  - ENV-WQH MSGP staff members
  - ENV-WQH MSGP technicians
  - Assistant Area Manager, Office of Environment and Projects, DOE Los Alamos Area Office
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**Procedures** Procedures will be developed as necessary and in accordance with the policy in the ENV-WQH QMP.

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**Other communications** Phone calls, email, or fax communications will be documented and controlled if the content provides direction or results in decisions.

## Program Records

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**Records resulting from this program**

The number, type, and detail of all records to be kept will provide sufficient information to allow an individual with equivalent education and training to verify or reconstruct the results. Implementing procedures specify the records, forms, logbook entries, or other information to be kept as documentation of the performance of the procedure.

Records, as required in the MSGP, shall be kept in the WQH records system in accordance with ENV-WQH-QP-025, *Records Management*.

Records of permit documentation may include:

- Copy of Multi-Sector General Permit
- Copies of Storm Water Pollution Prevention Plans
- Quarterly and Annual Site Compliance Evaluation reports
- Reports and certifications required by MSGP
- Records of all data used to complete Notice of Intent to be covered by MSGP
- Data quality objectives documentation
- Discharge Monitoring Reports
- Supporting analytical data reports

**Records final disposition and retention period**

All records will be maintained and available (after the deadline for submittal as given in applicable procedures) for auditing in the records center at the WQH group office (ENV-WQH-QP-025, *Records Management*).

**Implementation**

The following table lists specific responsibilities:

Who	What
Team Leader	Ensure QAPP meets minimum specifications for documentation and records of ENV-IMP and ENV-WQH-QMP.
Program Lead	Conduct annual review of records to ensure compliance with program requirements.

## Electronic Media

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**Policy** The project will utilize electronic means as necessary to maintain data and perform calculations on these data. Electronic means will not replace paper copy. All records that must be maintained to meet the requirements of the Permit will be kept in hard copy as the official record.

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**Databases** Backups -- All databases used to hold data and generate reports to be used in demonstrating compliance will be maintained on a common drive of a server. These databases will be backed up daily to minimize potential losses of data.

Verification of data -- 10% of all data uploaded through electronic means into the WQDB will be completely verified to be accurate against the original paper copy provided by the analytical laboratory. Data that are uploaded through manual means will undergo 100% verification by someone other than the data entry person. These reviews will be documented and forwarded to the appropriate record series.

Verification of calculations -- A person other than the person who generated the query will review for accuracy all compliance related calculations performed in a database through queries. This review will be documented and forwarded to the appropriate record series.

Software control -- The integrity of all databases will be ensured by maintaining them on a common server. This will enable the database administrator to control access to these databases, allowing only trained authorized persons access to the databases.

## Electronic media, continued

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**Spreadsheets** Backups -- All spreadsheets used to hold data and generate reports to be used in demonstrating compliance will be maintained in a secure location. The preferred location is on the group server. Spreadsheets will be backed up at least weekly.

Verification of data -- All compliance-related data uploaded into a spreadsheet will be verified to be accurate against the original paper copy. Data that are uploaded through electronic means will undergo a 10% verification. Data that are uploaded through manual means will undergo a 100% verification. Someone other than the data entry person must perform the 100% review. This review will be documented and forwarded to the appropriate record series.

Verification of calculations -- A person other than the person who generated the spreadsheet will review for accuracy all compliance-related calculations performed in a spreadsheet. This review will be documented and forwarded to the appropriate record series. Modifications to the function of these spreadsheets will also be verified in this manner.

Software control -- The integrity of spreadsheets will be ensured by limiting access to these spreadsheets to only trained, authorized personnel. Additionally, at least once per year, the function of the spreadsheets will be verified by hand calculations. Documentation of this review will be forwarded to the appropriate record series.

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### Implement- ation

The following table lists specific responsibilities:

Who	What
Program Lead	Regularly assess data integrity methods used by MSGP program personnel.

## SECTION 5

### Work Processes

#### Planning and Performing Work

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**Policy**

Work conducted under this program ensures compliance with the 2000 Multi-Sector General Permit (MSGP), Permit Nos. NMR05A734 and NMR05A735 respectively, and the Clean Water Act; and DOE Orders 450.1, *Environmental Protection Program*, and 5400.5, *Radiation Protection of the Public and Environment*.

Work that contributes to achieving the quality specifications of the MSGP deliverables will be planned and documented as described in this document and implementing procedures (see ENV-WQH QMP, Section 5).

Work will be performed according to applicable plans and implementing procedures. The team leader will provide first line supervision of personnel assigned to project tasks to ensure work is performed to achieve project quality specifications. Before changing a work process that affects the project quality specifications, the team leader will ensure the same level of planning and review as used in the initial project planning steps.

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**Work processes**

All work should be regarded as a process. Each process consists of a series of actions and is planned and carried out by qualified workers using specified work processes and equipment under administrative, technical, and environmental controls established by management to achieve an end result. Workers are the best resource of contributing ideas for improving work processes and will be involved in work process design, process evaluation, and providing the feedback necessary for improvement.

All work is planned and performed using the principles of Integrated Safety Management and in compliance with the RRES-WQH-QMP and IMP 300-00-00, Integrated Work Management for Work Activities.

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## Planning and Performing Work, continued

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**Work performance** Management should ensure that the following are clearly identified and conveyed to workers prior to beginning work:

- customer and data requirements for the work and final product
- acceptance criteria applicable to work and final product
- hazards associated with the work
- technical standards applicable to work and final product
- safety, administrative, technical, and environmental controls to be employed during the work

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**Description of work processes** The work processes used to meet the regulatory requirements and the requirements of this plan can be divided as follows:

- Storm Water Pollution Prevention Plan (Multi-Sector General Permit Section 4.0 – Storm Water Pollution Prevention Plans)
- Storm Water Monitoring (Multi-Sector General Permit Section 5.0 - Monitoring Requirements and Numeric Limitations)
- Discharge Monitoring Reports (Multi-Sector General Permit Section 7.1 – Reporting Results of Monitoring)
- Best Management Practices (Multi-Sector General Permit Section 4.2.7 – Storm Water Controls)
- Information management (support information requests of Multi-Sector General Permit Sections 5.0 - Monitoring Requirements and Numeric Limitations and 4.2.7.2.2.1 – Sediment and Erosion Control)
- Responding to Water Quality Exceedances
- Process Verification and Peer Review

## Storm Water Pollution Prevention Plan

**Development and implementation** Storm Water Pollution Prevention Plan (SWPPP) development and implementation is required for MSGP compliance. The SWPPP is required to properly manage potential pollutants, reduce pollution of the environment, reduce administrative and permitting costs, and minimize or eliminate the number of NPDES MSGP exceedances. The short-term SWPPP development process involves evaluating Industrial Activity SWPPPs and requiring Facility Management support in implementation and improvement of the Plans. The long-term SWPPP development effort involves justification for continued support from owners including erosion controls, inspection and maintenance, and storm water monitoring. Considerations to be used for SWPPP development decisions will include type of storm water permit (individual vs. general), land use and planning, type of industrial activity, and regulator approval.

**Discharge monitoring reports** The Laboratory is required to submit analytical results of storm water monitoring and to keep the results with the specific SWPPP. The Laboratory must submit analytical monitoring results obtained from each gaging station associated with industrial activity (or a certification as per Section 5.3.2 of the MSGP) on a Discharge Monitoring Report (DMR) form.

**Inspection & maintenance** The MSGP requires periodic inspection and maintenance of processes and Best Management Practices (BMPs) to assure SWPPP effectiveness. The Laboratory has implemented a quarterly inspection process to support this determination. A copy of the Comprehensive Site Compliance Evaluation Form is provided (Attachment 4).

**Implementation** The following table lists responsibilities:

Who	What
Program Lead	Ensure that SWPPP requirements are performed in accordance with the MSGP
Facility Management Support	Implement SWPPP requirements as recommended by the Program Lead
WQH Staff	Assure SWPPP implementation as required by MSGP
Contractors	Develop and modify SWPPPs as defined by the Scope of Work and assist facility personnel with SWPPP implementation.



## Storm Water Monitoring

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**Benchmark storm water monitoring** Benchmark storm water monitoring is the required mechanism for determining the effectiveness of Storm Water Pollution Prevention Plans (SWPPPs) and meeting the requirements of the MSGP. Refer to Attachment 5, SWPP Plans and Storm Water Stations Associated with Industrial Activities, for a list of Laboratory sites that have SWPPPs and monitoring requirements. Laboratory management has made an investment in time and materials, in addition to a commitment to characterize the Laboratory's surface water quality. The Laboratory currently has 74 monitoring stations of which 23 are used for the MSGP. A Data Quality Objective (DQO) process to identify which gaging stations are required to support the MSGP and what pollutant sources are located upstream from these stations has been completed. Considerations to be used for MSGP storm water monitoring development decisions will include MSGP requirements, new State water quality standards, Administrative Authority requests, or new permit requirements. Storm water monitoring will be conducted as specified in the LANL NPDES Storm Water Monitoring Plan (October 2001, Rev. 0.0). The Storm Water Monitoring Plan will be reviewed and updated annually.

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**Visual monitoring** Visual examinations are also required by the MSGP and are an important tool for to collecting information to determine the effectiveness of controls in preventing potential contaminants from migrating off Laboratory property. Accordingly, field personnel must conduct visual monitoring of storm water collected at the gaging stations or discharged through industrial point source discharges located throughout the Laboratory. Information recorded will document all observations that are required by the MSGP. Reference Multi-Sector General Permit Storm Water Visual Inspection Guidelines, September 2002 (Attachment 3).

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**Data quality objectives** Data quality objectives (DQOs) are statements of the uncertainty level a decision maker is willing to accept in results derived from environmental data, and of the issues that the collected data will help to resolve. As such, they are a management tool used to limit the amount of data needed to reach a correct conclusion. The DQO process must also define the required level of data defensibility and hence the level of documentation desired. DQOs must strike a balance between time, money, and data quality. The DQOs for the Storm Water Multi-Sector General Permit Program are developed in accordance with EPA QA/G-4, *Guidance for the Data Quality Objectives Process*, 1994.

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## Storm Water Monitoring, continued

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**MSGP DQOs** Refer to Attachment 2, DQO Process Outputs for NPDES Storm Water Compliance Monitoring for Conventional Industrial Activities, for the DQOs and the DQO process used in planning data collection to meet the NPDES Storm Water Multi-Sector General Permit compliance monitoring requirements.

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**Review and assessment of DQOs** An annual review and reiteration, if necessary, of DQOs will be conducted to determine that the collected data met the performance criteria specified in the established DQOs.

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**Sample collection** The Laboratory's MSGP permit requires storm water quality monitoring to evaluate compliance with water quality standards and permit benchmarks. The Laboratory operates 74 storm water monitoring stations, which include 23 stations specifically used for storm water compliance monitoring under the MSGP. Parameters sampled at the compliance monitoring stations are selected based on permit requirements.

Storm water sampling is required on a quarterly frequency at locations listed in Attachment 5, "SWPP Plans and Storm Water Stations Associated with Industrial Activities," and will be conducted by WQH in accordance with LANL and NPDES Permit requirements. A description of the detailed sampling procedures is included in the LANL NPDES Storm Water Monitoring Plan.

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## Storm Water Monitoring, continued

### Sample tracking

The storm water samples are used to demonstrate compliance with requirements to meet benchmark parameters (Attachment 6). Any persons involved in the preparation, retrieval, and analysis must maintain positive control of samples at all times until sample disposal. WQH personnel will follow guidance in ENV-WQH-QP-029, *Creating and Maintaining a Chain of Custody*.

Chain of custody is maintained during:

Activity	Responsibility
Sample collection and preparation	All persons (other than analytical personnel) performing sample preparation and collection will be trained to sample collection procedures and must adhere to the chain of custody requirements therein.
Analysis	Analytical laboratories performing sample analysis will maintain sufficient procedures to ensure positive control of samples as specified in the existing Statement of Work.
Storage/disposal	Analytical laboratories will maintain retained samples and/or sample portions under chain of custody until reanalysis, return to WQH, or ultimate disposal.

## Storm Water Monitoring, continued

### Implementation

The following table lists responsibilities:

Who	What
Program Lead	<p>Ensure that all program monitoring requirements are performed in accordance with the MSGP.</p> <p>Ensure the DQO process is implemented as specified in Attachment 2.</p> <p>Review and update the Storm Water Monitoring Plan annually.</p> <p>Conduct DQO process to assure that appropriate monitoring stations are identified to support the MSGP requirements. When complete, communicate findings to the Operations Team Leader for implementation.</p>
WQH Operations Team	<p>Implement monitoring program as required by the MSGP under direction of the Operations Team Leader and MSGP Program Lead.</p> <p>Conduct storm water sampling in accordance with NPDES Storm Water Monitoring Plan and applicable procedures.</p> <p>Ensure procedures for sample handling and control during sample preparation and retrieval are followed.</p>
Facility Management Support	<p>Perform all program monitoring requirements as requested by the Program Lead</p>
Contractors	<p>Assist Operations Team with monitoring activities as identified by the Scope of Work.</p>

## Discharge Monitoring Reports

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### **Discharge monitoring reporting**

The Laboratory is required to submit analytical results of storm water monitoring and to keep the results with the specific Storm Water Pollution Prevention Plan. The Laboratory must submit analytical monitoring results obtained from each gaging station associated with industrial activity (or a certification as per Section 5.3.1 of the MSGP) on a Discharge Monitoring Report (DMR) form (one form must be submitted for each storm event sampled).

The completion and submittal of DMRs is required under the MSGP during the 2<sup>nd</sup> and 4<sup>th</sup> year of the permit. The reports must be submitted by January 28<sup>th</sup> of the year following the monitoring. See section “Responding to Water Quality Exceedances” of this document for details on required follow up actions. A copy of the DMR is available on the Internet at <http://www.epa.gov/owm/sw/permits-and-forms/index.htm>.

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### **Sample analysis**

Site analytical requirements are defined by the industrial activity in the MSGP permit. All MSGP analytes applicable to LANL are consistent with the requirements of 40 CFR Part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants*.

Sample analytical requirements vary by site depending on the industrial activities performed at the site. Refer to Attachment 6 for a list of analytes by Industrial Sector. If an insufficient quantity of sample is available, then sample collection will be prioritized at that location for future events. We will collect additional samples to meet permit requirements. MSGP analytes receive first priority for submittal to the analytical laboratory.

## Discharge Monitoring Reports, continued

**Sample analysis (con't)**

WQH shall refer to the requirements of the NPDES Multi-Sector General Permit, as described in the NPDES Surface Water Monitoring Plan and Watershed Management Plan to determine the priorities of required analyses.

**Implementation**

The following table lists responsibilities:

Who	What
Program Lead	Ensure implementing procedures for sample analyses are used. Ensure that DMRs are submitted to EPA and NMED in accordance with the MSGP.
WQH Analytical Chemistry Coordinator	Ensure analytical laboratories comply with the DOE Statement of Work as described in the Surface Water Monitoring Plan.
WQH Staff	Assure DMRs are completed as required by the MSGP

## Best Management Practices

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**BMP  
Installation,  
Inspection &  
Maintenance  
Program**

It is critical that the Laboratory be able to effectively inspect and maintain the Best Management Practices (BMP) that have been installed at various locations. Quarterly and Annual Site Compliance Evaluation reports must be completed and provided to Program Leader for inclusion into the records system. Laboratory management has made an investment in time and materials, in addition to a commitment to minimizing the potential migration of contaminants. Report findings are evaluated, and in conjunction with facility personnel, BMPs are modified, installed or removed as necessary.

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**Implement-  
ation**

The following table lists responsibilities:

<b>Who</b>	<b>What</b>
Program Lead	Assists facility personnel with implementation of the BMP Installation, Inspection & Maintenance Program at MSGP facilities. Oversee contractor support for conventional sites as described in the contractor's statement of work.
Facility Management Support	Coordinate with Program Lead and provide funding if needed to support BMP Installation, Inspection & Maintenance Program
Contractors	Implement BMP Installation, Inspection & Maintenance Program as defined by the Scope of Work.

## Information Management

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### Policy

The WQH Group's Water Quality Database (WQDB) is a database information system designed in part to support the information management (IM) needs of the Laboratory's MSGP. MSGP support from IM includes storm water discharge monitoring reporting, Geographic Information System (GIS) development, BMP Tracking System (BMPTS), Surface Water Tracking System (SWTS), and other IM activities.

All information management activities will be conducted in accordance with ENV-WQH-QP-027, *Managing Electronic Data*. All information will be maintained in an accurate and defensible manner.

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### Implementation

The following table lists responsibilities:

Who	What
Program Lead	Assure that IM support is provided to meet regulatory deadlines
IM Team	Coordinate with Program Lead to assure that GIS, DMR and BMPTS needs are met
WQH Staff	Support Program Lead and IM Team in assuring that regulatory deadlines are met.



## Watershed Management Program

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### Policy

The Watershed Management Program (WMP) outlines the watershed management approach the Laboratory will use to protect the surface water quality within its boundaries. This program complements the Pajarito Plateau Watershed Partnership (PPWP) watershed protection plan that is in development by the PPWP. This partnership consists of Laboratory and neighboring landowners and land managers, including the U.S. Forest Service, National Park Service, and Los Alamos County, and neighboring Pueblos.

This WMP describes the elements of the Laboratory's watershed management program, specifically data collection activities and control actions that will support surface water quality protection and management within the watershed. Portions of this data collection effort are directly related to the Laboratory's MSGP. Additional components of the effort related to the MSGP includes:

- Total Maximum Daily Load support
- Site-Wide Stabilization Plan development
- Long-term stewardship
- BMP Effectiveness Studies
- Water Quality Control Commission regulations
- Stakeholder presentations

In using a watershed approach, the Laboratory is following U.S. Environmental Protection Agency (EPA) guidance. EPA advocates the watershed approach because it offers a stronger foundation for addressing all of the issues within a watershed by managing both point and non-point sources of pollution. The watershed approach provides a holistic perspective from which actions necessary to protect or restore resources can be implemented. ENV.

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### Implementation

The following table lists responsibilities:

Who	What
Program Lead	Support and integration with the Surface Water Assessment Team tasked with development and implementation of the Laboratory's Watershed Management Program

## Responding to Water Quality Exceedances

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### **Corrective action plan**

The identification of a pollutant source(s) contributing to a water quality exceedance will be addressed through the creation of a corrective action plan. Federal storm water regulations implemented under the Laboratory's MSGP (40 CFR 122, EPA Administered Permit Programs: The National Pollutant Discharge Elimination System) require that corrective action be taken if exceedances of water quality standards or MSGP benchmark parameters are identified. Corrective actions are typically accomplished by modifying, as appropriate, existing BMPs and SWPPPs.

When a water quality exceedance occurs, the Laboratory will submit the data on the required DMRs, investigate the occurrence, document corrective actions, and incorporate the data on the Group Website.

The following steps lead to corrective actions:

<b>Step</b>	<b>Action</b>
1	Establish that an analytical result from a location is valid and has exceeded a standard or MSGP benchmark.
2	Evaluate and demonstrate that the analyte is of LANL origin, if possible.
3	Determine the source and assign responsibility for the corrective action.
4	Develop a corrective action plan.

### **Failure to meet specified DQOs**

When an exceedance of the MSGP Benchmark Parameters is detected, an action plan will be developed under the SWPPP to evaluate, improve BMPs, update the SWPPP. The Program Lead will assure the analytical data is reviewed, notify appropriate SWPPP owners, and recommend and track corrective actions where required.

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## Responding to Water Quality Exceedances, continued

### Implementation

The following table lists responsibilities:

Who	What
Program Lead	Assure that analytical data is reviewed and accurate. Notify appropriate SWPPP owners and Laboratory management. Develop a corrective action plan. Follow up with corrective actions if required. Track corrective actions.
Facility Management	Review analytical data with Program Lead and provide input into a possible corrective action necessary to improve water quality where needed.
QA Specialist	Validate analytical data.
Contractors	Evaluate and improve BMPs in accordance with LANL Best Management Practice Guidance Document, August 1998.

## Process Verification and Peer Review

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**Purpose** MSGP monitored industrial activities will be reviewed and verified by qualified persons to ensure that project requirements outlined in Section 5 of this document are met.

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**Verification and peer review methods** Through a process of peer review and verification, LANL helps ensure that these activities meet project requirements. Responsibilities are described below for each process and method of review.

<b>Who</b>	<b>What</b>
Program Lead	Review and approve the initial DQOs and approve any modifications to these DQOs. Review site-specific Storm Water Pollution Prevention Plans to ensure that response processes to exceedances of Benchmark Parameters meet project requirements. Review approved Storm Water Monitoring Plan to ensure sample tracking methods meet project requirements.
Operations Team	Review currently approved Storm Water Monitoring Plan to ensure sample collection processes meet project requirements.
Analytical Chemistry Coordinator	Review currently approved Storm Water Monitoring Plan to ensure sample analysis processes meet project requirements.

## Instrumentation and Equipment

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### Equipment calibration and maintenance

Instrument calibration is essential for documenting the quality of data obtained with the instrument. Instrumentation used for environmental measurements is calibrated on a routine basis as prescribed by WQH procedures. All WQH technical work that depends upon the accuracy of data will be performed using equipment for which the calibration status and limits of accuracy are known and controlled.

WQH shall calibrate and perform maintenance procedures on all monitoring and analytical field instruments at intervals frequent enough to ensure accuracy of measurements and shall maintain appropriate records of such activities. All equipment shall be calibrated using methods provided by the equipment manufacturer and must meet NPDES permit requirements. All field calibrations will be documented in the field logbook.

Equipment and instrumentation calibration and maintenance requirements are set forth in the NPDES Surface Water Monitoring Plan and ENV-DO-203, *Field Water Quality Analyses*. Analytical laboratories shall calibrate instruments as set forth in the Statement of Work.

Who	What
Operations Team Leader	Ensure field instrumentation and equipment are calibrated and that maintenance of equipment is completed as specified in the NPDES Storm Water Monitoring Plan and ENV-DO-203, <i>Field Water Quality Analyses</i> .
Operations Team	Conduct instrument calibration as specified in implementing procedures.
Analytical Laboratory	Ensure analytical instruments are calibrated in accordance with Statement of Work.

## SECTION 6

### Design

#### Design

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**Policy** Design activities, when identified, are conducted and reviewed in accordance with established Laboratory, DOE, industry, and other appropriate standards and requirements. Facility engineering designs incorporate and implement sound engineering/scientific principles.

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**Identify design requirements** Design standards under this program include, but are not limited to temporary and permanent BMPs, Corrective Action Measures, and surface water monitoring support.

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**Design process** Design inputs will be specified and approved on a timely basis for making design decisions. Inputs will contain the level of detail required to permit the performance of design activities correctly.

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**Design review** Formal design reviews, including design verifications and evaluation of design changes, will be conducted to ensure that the design input is correctly incorporated into the design output. Changes to design will undergo the same review as the original design.

Verification and validation of the adequacy of designs are conducted before relying on the performance of the design function. Verification and validation are conducted in accordance with implementing procedures.

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## Design, continued

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**Implementa-  
tion** The following table lists responsibilities.

<b>Who</b>	<b>What</b>
Program Lead	Provide input to the design process in accordance with appropriate standards, requirements, and implementing procedures Determine the qualifications required to perform a review of design documents. Identify a WQH resource with skills, knowledge, ability, training, and certifications required to complete the review of the facility engineering design documents. Communicate the results of the review to the requestor.
WQH Staff	Review design documents and requests as assigned. Inform the Program Lead of concerns regarding the facility engineering designs.

## SECTION 7

### Procurement

#### Procurement

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**Policy** Procurement of items and services used in this project will follow the Laboratory procurement process and the requirements in the WQH QMP. Most items and services required for this project are commercial grade in nature and no special procurement requirements or needs are necessary.

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**Procedure** For items and all services for which special requirements are necessary, the Program Lead and project members will identify such items or services.

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**Implementation** The following table lists responsibilities:

Who	What
Group Leader	Ensure all procurements are conducted in accordance with ENV-IMP.
Program Lead	Recommend to Group Leader contracting items and services. Develop acceptance criteria.
WQH Staff	Identify potential suppliers of products or services necessary to complete work activities that must be procured from outside WQH.



## SECTION 8

### Inspection and Acceptance Testing

#### Inspection and Acceptance Testing

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**Policy**

Any materials or services will be inspected and/or tested prior to acceptance for use in this project. Most supplies used during performance of project activities are commercial grade in nature and require no special acceptance practices or procedures.

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**Implementation**

The following table lists responsibilities:

<b>Who</b>	<b>What</b>
Group Leader	Ensure procedures for inspection meet ENV-IMP requirements.
Program Lead	Verify that all materials and services meet acceptance criteria.
WQH Staff	Follow established procedures for inspection and acceptance testing.

## SECTION 9

### Management Assessment

#### Program Management Assessments

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**Internal assessments**

The WQH Group conducts internal management assessments of all projects and programs in the group in accordance with requirements in ENV-DO-104, *Planning and Conducting Management Self-Assessments*. Assessments of the project are documented and filed as records.

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**Responding to assessments**

When deficiencies of requirements are found during a management assessment, a deficiency report is initiated to document the violation. Corrective actions are tracked and documented in accordance with ENV-WQH-QP-033, *Issues Reporting and Action Tracking*.

---

**Implementation**

The following table lists responsibilities:

Who	What
Group Leader	Ensure management self-assessments for the MSGP program are conducted as specified in implementing procedures.
Program Lead	Ensure program management self-assessments are conducted.

## **SECTION 10**

### **Independent Assessment**

#### **Program Assessments**

**Policy** Independent assessments are those assessments conducted by organizations external to WQH. As required by the WQH QMP, this project may include assessments by outside organizations.

**Internal audits** Annual audits/assessments will be conducted, with input from the Program Lead identifying one or more areas of the project to be audited each year.

**Implementation** Annual audits/assessments will be conducted, with input from the Program Lead.  
The following table lists responsibilities:

<b>Who</b>	<b>What</b>
Program Lead	Approve audit schedules. Provide input to the QA Specialist as to the content of audit. Review audit reports for factual accuracy. Address all findings and implement corrective actions as appropriate.
QA Specialist	Identify areas to be addressed during internal audits. Contract with the Quality Management Group to perform annual internal audits. Review audit procedures to ensure they meet the requirements in this section.
Team Members	Cooperate with auditors by providing information, data, etc. Implement corrective actions as directed by the Program Lead.

## Assessing Suppliers

### Policy

The Program Lead (in coordination with the QA Specialist) will ensure that periodic assessments are conducted to determine whether required information from the following organizations meets quality specifications:

- analytical laboratories supplying data
- organizations supplying services

If problems are found with a supplier's product, WQH will work with that supplier until the problem is corrected or will obtain alternate suppliers.

### Analytical laboratories

WQH will perform annual audits of analytical laboratories that provide analytical data used in compliance calculations. These audits will be conducted by the Analytical Chemistry Coordinator in conjunction with the QA Specialist and/or any other persons the coordinator deems appropriate.

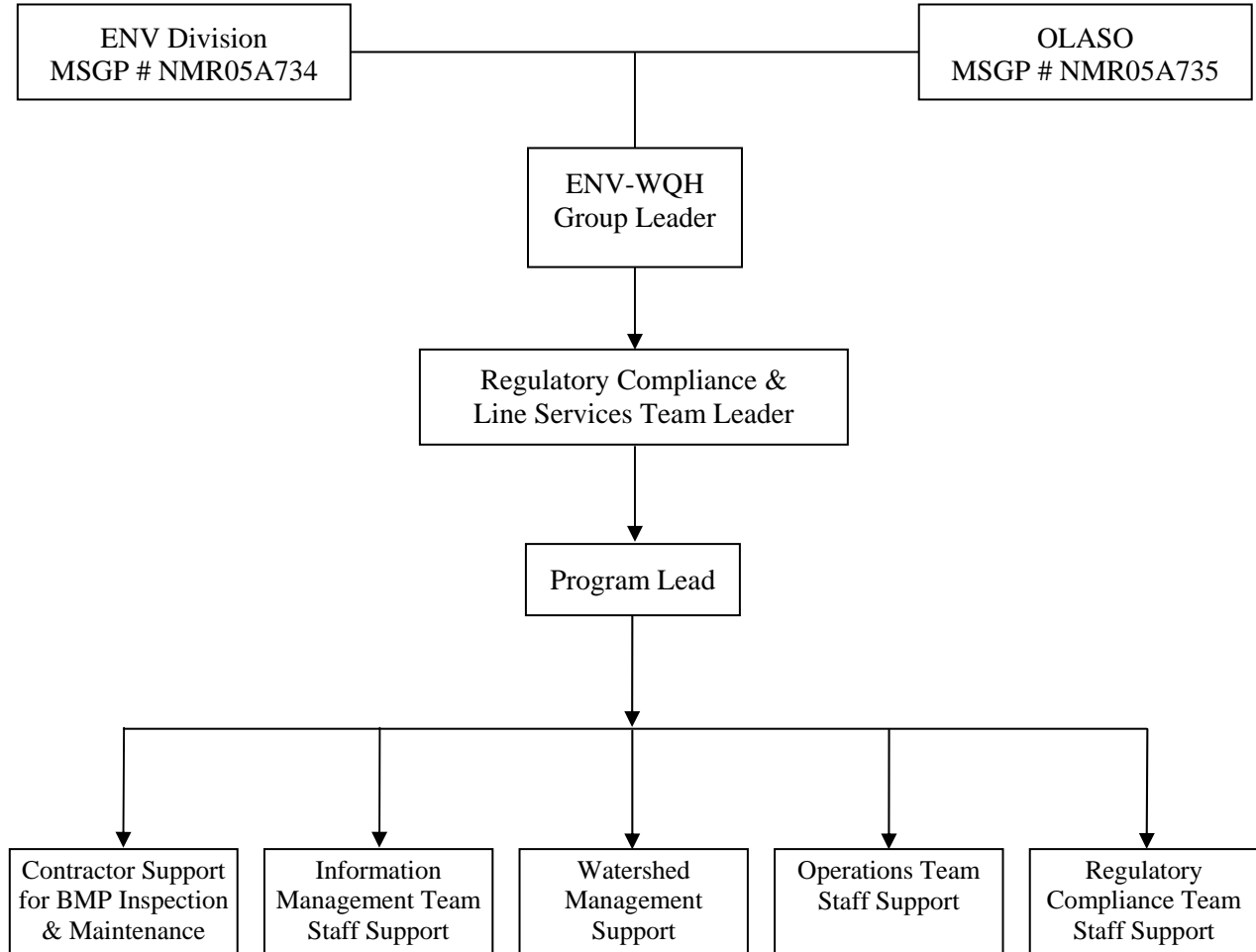
### Implementation

The following table lists responsibilities:

Who	What
Group Leader	Ensure assessments follow requirements of ENV-IMP.
Program Lead	Approve audit/assessment schedules. Review audit reports for factual accuracy. Address all findings and recommend corrective actions as appropriate.
QA Specialist	Identify areas to be addressed during audits of suppliers. Contract with the Quality Management Group to perform annual internal audits. Review audit procedures to ensure they meet the requirements in this section.
Analytical Chemistry Coordinator	Develop procedures for auditing analytical laboratories. Assemble audit team and perform analytical lab audits. Notify Program Lead and QA Specialist of findings by issuing final audit report.

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## MSGP Program Organization



\*Program Lead acts as liaison and will work directly with Team Leaders for staff assignments.



## **Multi Sector General Permit Program Data Quality Objectives**





**Los Alamos National Laboratory**  
**DQO Process Outputs for NPDES Storm Water Compliance Monitoring for Conventional Industrial Activities**

## 1.0 INTRODUCTION

In January of 2002, the Laboratory began a Data Quality Objective (DQO) process to plan data collection that would meet the NPDES Storm Water Multi-Sector General Permit (MSGP) compliance monitoring requirements. The DQO process was employed not only to ensure acceptable data, but as a means to develop consensus with the Department of Energy (DOE), New Mexico Environment Department (NMED), and the U.S. Environmental Protection Agency (EPA) on the Los Alamos National Laboratory's MSGP monitoring approach. This document summarizes the results of applying the DQO process to develop a MSGP compliance monitoring design.

This effort was expected to:

- Improve communication between regulators, LANL and DOE
- Get regulator input into the storm water monitoring plan
- Verify that the assignment of industrial activities into the MSGP sectors has been appropriately completed
- Confirm the value of using Standard Operating Procedure (SOP) 2.01 for determining erosion potential at Solid Waste Management Units (SWMUs)
- Define "representative sample" and assure that samples are collected properly at industrial activity sites
- Evaluate monitoring storm water runoff from SWMUs and make recommendations to collect more representative samples.

The DQO team consisted of representatives of the Laboratory, DOE, NMED DOE Oversight Bureau, NMED Surface Water Quality Bureau, and NMED Hazardous Waste Bureau. The team met approximately once per week to work through the steps of the DQO process. Notes of each meeting that summarized the approaches and decisions were distributed to participants and EPA for review and comment to ensure consensus on the results of each meeting. A DQO process chronicle of events is included as Attachment A to this document.

## 2.0 Problem Statement

The DQO team agreed on the following problem statement:

Storm water that flows over industrial facilities can pick up benchmark pollutants such that the water may have concentrations of pollutants above benchmark values and have the potential to transport these pollutants to surface water.

## 3.0 Identify the Decision

The DQO team specified the decision statement for the MSGP storm water compliance monitoring to be:

Storm water from *defined industrial activities at LANL* may contain pollutant concentrations above *Multi-Sector General Permit benchmarks*. The quality of storm water must be monitored and reported. If storm water quality is found to be above benchmark(s), *develop and implement Storm Water Pollution Prevention Plan Modification(s)*.

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Based on the problem statement and decision, the DQO team defined an approach to compliance monitoring for storm water under the MSGP:

*Industrial Activities that will have MSGP compliance monitoring of storm water:*

- Conventional industrial activities (all sectors except L and K)
- TSDs that are identified in the RCRA Operating Permit (Sector K)
- MDAs that are active landfills (Sector L with Sector K benchmarks added)

*Solid Waste Management Units (SWMUs):*

- NPDES MSGP storm water compliance monitoring for SWMUs with point source discharges
- May have RCRA and/or Environmental Surveillance driven surface water monitoring as described in the Watershed Management Plan
- Additional monitoring of SWMUs not yet identified

Under this approach, the DQO Team first addressed the compliance monitoring at conventional industrial activities that require MSGP compliance monitoring of storm water. This document describes the results of that effort.

There was general recognition and agreement that the approach for SWMUs would require concurrence of the Laboratory, DOE, NMED, and EPA and would not be credible until there is a comprehensive Watershed Management Plan in place. Thus, the specific storm water monitoring of SWMUs is not addressed in this document. However, Section 9.0 summarizes discussions relevant to monitoring storm water from SWMUs that the DQO team felt are important, regardless of the regulatory program applied.

**4.0 Identify the Inputs to the Decision**

Three major inputs to the decision for each conventional industrial activity were determined by the DQO team. These inputs are described in the following sections.

**4.1 Identification of industrial activities at LANL and assignment of those activities to sectors defined in the MSGP.** The industrial activities are shown in Table 4-1.

<b>Table 4-1 Los Alamos National Laboratory Industrial Activities under the Multi-Sector General Permit</b>		
<b>CONVENTIONAL INDUSTRIAL ACTIVITIES</b>	<b>Assigned Station</b>	<b>Comments</b>
TA-3-22 POWER PLANT (SECTOR O)	E121	
TA-3-38 METAL SHOP (SECTOR AA)	E122	
TA-3-39 METAL SHOP (SECTOR AA)	E243.5	
TA-3-66 Foundry/Plating Shops (Sector F)	E122.3	
TA-3-73 Asphalt Batch Plant (Sector D)	E122.2	
TA-60 Metals Recycling Facility (Sector N)	E122.4	
TA-60 Motor Pool (Sector P)	E122.5	Visual Monitoring Only

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<b>Table 4-1 Los Alamos National Laboratory Industrial Activities under the Multi-Sector General Permit</b>		
<b>CONVENTIONAL INDUSTRIAL ACTIVITIES</b>	<b>Assigned Station</b>	<b>Comments</b>
<b>SECTOR K- TREATMENT, STORAGE AND DISPOSAL FACILITIES</b> (Hazardous waste treatment, storage, or disposal (TSD) facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA)		
TA-3-29 Wing 9 Basement		No Exposure Certification needed
TA-14-23 Firing point & burn cage	E262	
TA-16-88 Container Storage		No Exposure Certification needed
TA-16 Burn Grounds including structures; 16-387, 16-388, 16-394, 16-399, 16-401, 16-406 and 16-1409	E257	
TA-36-8 Firing Point 8	E267.5	
TA-39-6 Firing Point 6	E274	
TA-39-57 Firing Point 57	E274	
TA-50 including structures; 50-1, 50-37, 50-69 and 50-114	E201.1 E201.3	
TA-54 Area G including structures; 54-8, 54-36, 54-48, 54-49, 54-144, 54-145, 54-146, 54-147, 54-153, 54-224, 54-229, 54-230, 54-231, 54-232, 54-283, 54-375, 54-1027, 54-1028, 54-1029, 54-1041, CHAPS, TWISP 1, TWISP 2, TWISP 4, Drum Prep Facility, DVRS, Pit 37 and Shaft 124	E227 E247 E248 E248.5 E249 E249.5	No Exposure Certification may apply at some sites.
TA-54 West including structures; RANT 54-38 High Bay, Low Bay, Loading Dock and Pad adjacent to RANT	E220	
TA-54 Area L including structures; 54-32, 54-35, 54-36, 54-215, 54-216, Shafts 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, Surface Impoundments B, C and D	E223	No Exposure Certification may apply at some Sites.
TA-55 including structures; 55-4 Areas 8, 9, 10, Basement Areas 1-7 and 12, Outdoor Pad, 55-185 and Vitrification Slab tanks	E196	No Exposure Certification may apply at some sites.
<b>Sector L - Landfills Including Those Subject to Regulation Under Subtitle D of RCRA</b>		
TA-16, MDA-P	E256	Site is undergoing Clean Closure
TA-54, MDA-G	E227 E247 E248 E248.5 E249 E249.5	No Exposure Certification may apply at some sites.
TA-54, MDA-H		No Exposure Certification may apply.
TA-54, MDA-J	E221	2 temp stations for closure
TA-54, MDA-L	E223	No Exposure Certification may apply.
TA-39, MDA-Y	E274	No Exposure Certification may apply.

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**4.2 Specification of what storm water monitoring data is required: representative samples, location of sampling points.** A representative sample should reflect what best produces “conservative or worst case” information from an industrial facility. The Team agreed the following statement is an acceptable definition for “representative sample”:

“Storm samples are collected from a representative sampling location when the sampling station(s) collect storm water runoff which represents runoff from the majority of the exposed industrial activity and minimizes the storm water collected from areas up slope of the industrial activity. All samples will be collected in accordance with the procedures set forth in the Storm Water Monitoring Plan developed by ENV-WQH (October 2001).”

Sampling locations were determined by the DQO team on a site-by-site basis based on maps, plans, and field visits. These are summarized in Section 8.0.

**4.3 What analyses will be done on the samples collected and what results will be reported in the Discharge Monitoring Reports (DMRs).** The required analyses include field-based evaluations, visual monitoring, approved EPA methodologies and water quality analysis by certified laboratories.

To meet the visual monitoring requirements of the MSGP the Laboratory has developed an inspection form to be completed by field sampling crews when they retrieve the bottles from the ISCO samplers. In the near future, the Laboratory will recommend that facility personnel complete the inspections during rain events whenever possible. A guidance document will be developed to help facility personnel implement the new approach.

The SWAT supported this approach but would recommend additional documentation regarding corrective actions in response to site inspections; (i.e., if shewn were noted, identify corrective action). The inspection form should include a trigger for action and estimates for completion dates. Since the monitoring station locations have been selected by the SWAT to be representative of the industrial activities, there was general agreement that when implemented, this approach would meet the visual monitoring requirements. The form is attached as Attachment B.

Storm water samples collected will be analyzed for the benchmark parameters in the MSGP using analytical methods required in 40 CFR 136. The results of these analyses will be reported in the Discharge Monitoring Reports.

## **5.0 Define Study Boundaries**

The study boundaries for each industrial activity were agreed to be:

- Spatial: samples must be collected at the furthest downstream point from an industrial activity prior to the storm water entering waters of the United States, unless waiver provisions apply; and,
- Temporal: Once a quarter in the second year (10/31/01-9/30/02) and fourth year (10/1/03 - 9/30/04) of the Multi-Sector General Permit.

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## **6.0 Develop a Decision Rule**

The decision rule will be used when data are collected at the specified locations and frequencies to determine if LANL is in compliance with the monitoring requirements under the MSGP. The DQO team agreed on the following decision rule:

At every sampling point for industrial activities, if any analytical result for a benchmark constituent is above the benchmark value for the industrial activity, then evaluate Storm Water Plan Modification, BMPs and/or corrective actions.

## **7.0 Specify the Limits on Decision Errors**

The DQO team concurred that if the data were collected following procedures, and analyzed by certified laboratories, and in accordance with MSGP protocol the resultant data will be adequate for basing a decision about compliance with NPDES storm water monitoring requirements.

- The Quality Assurance/Quality Control requirements are specified in the LANL Storm Water Monitoring Plan (October 2001). These include LANL Standard Operating Procedures applicable to sampling surface water and certification of the analytical laboratory to perform water quality analyses. Copies were provided to NMED and EPA.
- Analytical methods are specified in the MSGP as those described in 40 CFR 136.

## **8.0 Optimize the Design for Obtaining Data**

The SWAT agreed on a step-wise evaluation to developing the approach to storm water compliance monitoring. Steps one through three were to be completed first, then the focus will turn to Solid Waste Management Units (SWMUs). The first three steps are:

- 1) Conventional Industrial Activities (all MSGP sectors except K and L)
  - Existing list of permitted facilities were reviewed and assumed to be accurate based on information provided by LANL (types of industrial activities occurring at LANL to be evaluated periodically),
  - Evaluate current monitoring locations and processes and make recommendations to improve monitoring approach, if necessary.
- 2) Treatment, Storage and Disposal Facilities (TSDF) (MSGP - Sector K)
  - Identify the TSDFs on current RCRA Permit.
  - Evaluate current monitoring locations and processes and make recommendations to improve monitoring approach, if necessary.
  - Apply for “no exposure certification” where appropriate.
- 3) Material Disposal Areas (MDAs) or Landfills (Sector L)
  - It was proposed that several MDAs be categorized as Landfills and not as SWMUs as defined by the current approach.
  - Identify candidates for monitoring waiver based on depth of waste, erosion potential, MDA H process. Apply for “no exposure certification” where appropriate.
  - For remaining MDAs and Landfills, evaluate current monitoring locations and processes and make recommendations to improve monitoring approach, if necessary.

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Based on the proceeding steps, the Laboratory will update internal sampling plans, quality assurance plans, etc., to incorporate the recommended changes to the monitoring program. A follow up action plan will be developed to list all DQO related recommendations, schedule and prioritize actions and obtain the necessary funding to complete the actions.

**8.1 Conventional Industrial Facilities**

The SWAT agreed that a realistic approach to evaluating conventional industrial activities is to review existing site drainage maps and Storm Water Pollution Prevention Plans (SWPPPs) for the five identified industrial facilities. The team then conducted a field site visit to answer questions and field verify whether current sampling stations collect representative samples. Based on this review, the SWAT prepared the following recommendations needed to improve the monitoring process (Table 8-1).

<b>Table 8-1: Storm Water Monitoring Recommendations for Conventional Industrial Activities at Los Alamos National Laboratory</b>		
<b>Location of Activity</b>	<b>Recommendation</b>	<b>Rationale</b>
TA-3-22 Power Plant	Remove E121 from tributary drainage and install at culvert which discharges on the east side of facility near fence line.	E121 is located in an adjacent tributary drainage south of main facility.
TA-3-38 Metal Shop	Recommend moving station E122 to manhole on southeast corner of 3-38 or to the culvert that daylights near the Library.	E122 is located +/- 1 mile downstream.
TA-3-39 Metal Shop	No changes at this time.	
TA-3-66 Sigma	No changes at this time.	
TA-3-73 Asphalt Plant	No changes at this time.	

**8.2 Treatment, Storage, Disposal Facilities (TSDF)**

Similarly, the SWAT agreed that a realistic approach to evaluating activities at TSDFs is to review existing site drainage maps and Storm Water Pollution Prevention Plans (SWPPPs) for the facilities identified on the Laboratory’s current RCRA Operating Permit. The team then conducted a field site visit to answer questions and field verify whether current sampling stations collect representative samples. Based on this review, the SWAT prepared the following recommendations needed to improve the monitoring process (Table 8-2).

<b>Table 8-2 : Storm Water Monitoring Recommendations for Treatment, Storage, and Disposal Facilities at Los Alamos National Laboratory</b>		
<b>Location of Activity</b>	<b>Recommendation</b>	<b>Rationale</b>
TA-3-29 CMR	Complete “no exposure certification” for TSDFs not exposed to storm events.	EPA allows a “no exposure certification” for industrial activities not exposed to storm water runoff.

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<b>Table 8-2 : Storm Water Monitoring Recommendations for Treatment, Storage, and Disposal Facilities at Los Alamos National Laboratory</b>		
<b>Location of Activity</b>	<b>Recommendation</b>	<b>Rationale</b>
TA-14-23 Open Detonation	*Install single-stage sampler or similar device below regulated activity.	E262 is located +/- 4 miles downstream.
TA-16-88 Container Storage	Complete “no exposure certification” for TSDFs not exposed to storm events.	EPA allows a “no exposure certification” for industrial activities not exposed to storm water runoff.
TA-16 Burning Grounds	No changes at this time	
TA-36-08 Minie Site	*Install single-stage sampler or similar device below regulated activity.	E267.5 is located +/- 4 miles downstream.
TA-39-6	*Install single-stage sampler or similar device below regulated activity.	E274 is located +/- 2 miles downstream.
TA-39-57	*Install single-stage sampler or similar device below regulated activity.	E274 is located +/- 2 miles downstream.
TA-50	Complete “no exposure certification” for TSDFs not exposed to storm events.	EPA allows a “no exposure certification” for industrial activities not exposed to storm water runoff.
TA-54 Area G	Discontinue the collection of MSGP related samples from E247 (G1)	No TSDFs, SWMUs or other regulated industrial activities were observed within the G1 drainage area. WMP may want to continue monitoring.
TA-54 MDA-L	Complete “no exposure certification” for TSDFs not exposed to storm events.	EPA allows a “no exposure certification” for industrial activities not exposed to storm water runoff.
TA-54 West	None at this time	
TA-55	Install new monitoring station to collect runoff from outdoor storage pads.	Runoff from the storage pad is not currently monitored.
	Complete “no exposure certification” for TSDFs not exposed to storm events.	EPA allows a “no exposure certification” for industrial activities not exposed to storm water runoff.

\* ENV-WQH’s Operations Team will assess potential for single-stage sampler. Other options may be available.

**8.3 Material Disposal Areas (MDAs)**

There was a preliminary consensus at previous meetings that Material Disposal Areas (MDAs) would be considered landfills (Sector L) for the purposes of compliance monitoring under the Multi-Sector General Permit. However, many of the MDAs include SWMUs. There was discussion about how to conduct compliance monitoring for MDAs. The discussion items were:

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- In the previous 1995 MSGP, the sites that were considered Sector L landfills were MDA-J, MDA-L, MDA-G and MDA-P. This was based on their identification as TSDFs in the RCRA operating permit and their status as active landfills. Currently, MDAs G, H, J, L, P and Y are identified on the RCRA permit.
- If MDAs are considered singular landfill units, the SWMUs (Sector K benchmarks) within the MDA would be monitored in addition to Sector L benchmarks and would be included in the DMRs if the erosion matrix score was greater than 40. The DOE/OB suggested that RCRA parameters also be analyzed and reported on DMRs. Currently, RCRA parameters would be analyzed under the Watershed Management Program or Environmental Surveillance Program, but are not required by the MSGP.
- Some MDAs may qualify under the no exposure provision in the MSGP.
- MDAs that have been cleaned up or do not have the potential to impact surface water quality (e.g., low erosion matrix scores) should not be monitored under the MSGP. The NMED/HWB will need to “verify” that a “cleanup” is acceptable prior to this designation.
- NMED/HWB is concerned about MDAs where there is currently waste in place.
- MDAs that are active landfills should have compliance monitoring under the MSGP; inactive MDAs should have monitoring under the Watershed Management Plan or Environmental Surveillance Program.

The SWAT agreed that a realistic approach to evaluating activities at landfills is to review existing site drainage maps and Storm Water Pollution Prevention Plans (SWPPPs) for the landfills identified on the Laboratory’s current RCRA Operating Permit or HSWA Module VIII. The team then conducted a field site visit to answer questions and field verify whether current sampling stations collect representative samples. Based on this review, the SWAT prepared recommendations needed to improve the monitoring process (Table 8-3).

<b>Table 8-3: Storm Water Monitoring Recommendations for Landfills (Material Disposal Areas) at Los Alamos National Laboratory</b>		
<b>Location of Activity</b>	<b>Recommendation</b>	<b>Rationale</b>
TA-16 MDA-P	No changes at this time	
TA-39 MDA-Y	Complete “no exposure certification” for TSDFs not exposed to storm events.	EPA allows a “no exposure certification” for industrial activities not exposed to storm water runoff.
TA-54 Area G	Complete “no exposure certification” for pits and shafts not exposed to storm events.	EPA allows a “no exposure certification” for industrial activities not exposed to storm water runoff.
TA-54 MDA-L	Complete “no exposure certification” for shafts not exposed to storm events.	EPA allows a “no exposure certification” for industrial activities not exposed to storm water runoff.
TA-54 MDA-J	Support for two temporary monitoring stations used for site closure	Collection of data to support closure activities until final stabilization is achieved.
TA-54 MDA-H	No changes at this time	



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**9.0 Factors to Consider in Developing an Approach to Storm Water Monitoring for SWMUs**

Currently at the Laboratory, storm water run off from SWMUs is monitored using a watershed-based approach. This is an efficient approach to monitoring 43-square miles with over 1000 identified SWMUs. There are gaging stations with automated samplers in at the up-stream and down-stream Laboratory boundary of each major canyon and within the canyons at the confluence with other major canyons. Water samples collected at these stations are analyzed for a comprehensive list of constituents and the resulting analytical data are available from the Water Quality Database accessible at [wqdbworld.lanl.gov](http://wqdbworld.lanl.gov). If contaminants were detected at any of these stations, they could be traced up the canyon to find the source.

However, EPA and NMED have expressed concerns that this approach does not meet the requirements for compliance monitoring in the MSGP. A number of options have been discussed to improve the approach including: Applying for individual storm water permits; transferring the surface water monitoring requirements to the Laboratory's RCRA Permit; or improving the sampling approach under the current MSGP. The potential for RCRA-based approach to storm water monitoring has been discussed with NMED/Hazardous Waste Bureau, NMED/Surface Water Quality Bureau and various LANL Groups. LANL is currently evaluating those options and will work with EPA and NMED to reach a consensus on the monitoring for SWMUs. The Laboratory has completed a White Paper on a proposed Monitoring Approach for Solid Waste Management Units (SWMUs) at Los Alamos National Laboratory and is currently in negotiations with NMED over this issue, with a final agreement targeted for early July 2003. Laboratory representatives will present the findings of the DQO process in early FY03. A proposed draft agenda for the presentation would include:

- DQO process and recommendations for monitoring at conventional industrial activities
- Review options and corrective actions
- Selection of a path forward for evaluating SWMU monitoring
- Regulator approval for storm water monitoring

**9.1 Erosion Score Process (SOP 2.01)**

The DQO team agreed that only those SWMUs that have high erosion potential need to be monitored. The Laboratory developed a process to evaluate erosion potential as described in LANL ER Standard Operating Procedure 2.01. This procedure has been applied to all the identified SWMUs by a team of LANL and NMED representatives. The erosion score represents erosion potential: the higher the score, the higher the potential for erosion. The DQO team proposes that at LANL SWMUs that have erosion scores of less than 40 do not require monitoring. Two documents were provided to describe the process for assigning erosion scores to SWMUs.

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- Veenis, S.J. and Mays, D.C., 1998. Systematic Approach to Evaluate Erosion Potential at Environmental Restoration Sites, Proceedings of Spectrum '98, International Conference on Decommissioning and Decontamination and on Nuclear and Hazardous Waste Management, Denver Colorado, September 13-18, 1998, pp. 936-941
- Overheads from presentation of Systematic Approach to Evaluate Erosion Potential at Environmental Restoration Sites at the Spectrum '98,
- International Conference on Decommissioning and Decontamination and on Nuclear and Hazardous Waste Management, Denver Colorado, September 13-18, 1998, pp. 936-941
- Los Alamos National Laboratory, 1999, Standard Operating Procedure ER-SOP-2.01, Surface Water Site Assessments.

**9.2 Additional Issues Associated with Monitoring Runoff from SWMUs**

The following issues will be evaluated in the development of a monitoring approach for SWMUs.

- Erosion matrix score components will be broken out – run-on, runoff, vegetative cover, slope, proximity to watercourse and visible evidence of erosion.
- Precipitation and runoff coefficient information.
- Drainage area above and including SWMU boundary (areal extent).
- Existing structural BMPs at a site.
- Transport characteristics of contaminants (e.g. strongly sorbing, easily dissolves)
- Those that have the same storm water management practices (i.e., BMPs)
- All SWMUs identified within a consolidated unit
- SWMUs covered under the same SWPPP

Use of this approach could promote efficiencies. For example, it could potentially reduce the number of monitoring stations at Area G as follows: examine the data, find one outfall that is representative, and conduct monitoring only at that outfall.

## **Multi-Sector General Permit Storm Water Visual Inspection Guidelines, September 2002**



**Attachment B**

**MULTI-SECTOR GENERAL PERMIT STORMWATER  
VISUAL INSPECTION GUIDELINES**

**DRAFT**

**ENV - Water Quality and Hydrology Group  
Los Alamos National Laboratory**

**September 2002**

## MSGP STORMWATER VISUAL INSPECTION GUIDELINES

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## MSGP STORMWATER VISUAL INSPECTION GUIDELINES

### 1.0 PURPOSE

This procedure is written to provide requirements for conducting visual monitoring under facility specific Storm Water Pollution Prevention Plans (SWPPP).

### 2.0 SCOPE

Requirements set forth in this document apply to Los Alamos National Laboratory facilities covered by the National Pollutants Discharge Elimination System (NPDES) Storm Water Multi-Sector General Permit (MSGP). Inspections may not be required for discharges exempted under the representative discharge provision. Inspection waivers are granted for adverse weather conditions and unstaffed or inactive sites.

### 3.0 DEFINITIONS

- 3.1 Adverse weather conditions – weather that prohibits collection of samples such as local flooding, high winds, hurricanes, tornadoes, electrical storms, etc. Could also include drought, extended frozen conditions, etc.
- 3.2 Best Management Practices (BMPs) – Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce pollution. BMPs can also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
- 3.3 Foam – an accumulation of fine frothy bubbles formed in or on the surface of water. A mass of bubbles of air in a matrix of liquid film.
- 3.4 Oil sheen – the presence of rainbow like colors glistening on the surface of the liquid. The color of oil sheen will vary dependent on thickness and consistency.
- 3.5 Color – unpolluted water will be clear and colorless. Color should not be confused with clarity.
- 3.6 Odor – the property or quality of waters that affects or stimulates the sense of smell. Examples of odors that may be present are burnt oil, sewage, diesel, sulfuric, or detergent odors.
- 3.7 Clarity – clearness or cleanness of appearance. This includes the visual observation of suspended sediment.
- 3.8 Floating solids – particulate material floating on the surface of the water. Examples include: leaves, pinecones, pine needles, dead grass, twigs, branches, and common trash.
- 3.9 Settled solids – settled particulate material i.e. heavier than water. Examples include sand, gravel, metal turnings, and glass.

- 3.10 Suspended solids – particulate materials that are floating between the bottom of the sample and the surface of the water.
- 3.11 Representative discharge – two or more outfalls that are reasonably believed to discharge substantially identical effluents.
- 3.12 Unstaffed and Inactive Sites – a facility maintaining certification with SWPPP that it is inactive and unstaffed and visual examinations are not feasible.

#### 4.0 ROLES AND RESPONSIBILITIES

- 4.1 Pollution Prevention Team – Responsible for collecting samples and completing required documentation. Personnel will be fully knowledgeable of the site specific SWPPP. Whenever practicable the same person should carry out the inspection and examination of the discharges throughout the life of the permit to ensure consistency in interpretation of results. Further, team members should be familiar with facility operations so that potential pollution discharge sources can be determined.

#### • PROCEDURE

- 5.1 Visual examinations of storm water discharge shall be conducted quarterly for each discharge point covered by the MSGP and the site specific SWPPP.
- 5.2 A grab sample will be collected during daylight hours in a 1 liter wide mouth clear glass bottle within 30 minutes of discharge if practicable, but no later than one hour after discharge. The sampler will document the reason a sample could not be collected within 30 minutes.
- 5.3 Complete Attachment A: MSGP Stormwater Visual Inspection Form.
  - 5.3.1 Complete top section of form including location, date and time, person performing inspection, and inspection quarter.
  - 5.3.2 Provide documentation if sample is not collected within 30 minutes of discharge.
  - 5.3.3 Describe sample parameters. Refer to section 3.0 Definitions.
    - Odor – describe any odors that may be observed in the discharge. Caution: any unusual odors should be documented, and sampler shall leave the site immediately.
    - Color – describe the color of the discharge.
    - Clarity – Clarity can be described as the depth in which you can look into or through water. For example an individual can see through a clear glass of clean water in daylight. Generally the clarity of the water is a good visual indicator of the purity of water. If the



water is poor in clarity there is most likely suspended solids throughout the water.

Floating solids – Note any floating solids in the sample. Careful examination should determine whether the solids are raw or waste materials.

Settled solids – Note any settled solids in the sample. Settled solids may be an indicator of unstable ground cover combined with a high intensity storm water runoff event.

Suspended solids – Note any suspended solids in the sample. Most often suspended solids include fine sediment. This may be an indication of an unstable channel that may have eroding banks. Some water appears to be colored because of relatively coarse particulate material in suspension such as sediment.

Foam – note an accumulation of fine frothy bubbles formed in or on the surface of water. Describe the color of the foam.

Oil sheen – note if there is an oil sheen present, the thickness, and consistency.

Other – describe any other indicators of storm water pollution in addition to the descriptions mentioned above.

#### 5.3.4 Site Observations:

- Note if there are any potential sources of pollutants on site.
- If yes document potential sources.
- Indicate if there are any BMPs on site.
- If yes, evaluate effectiveness.
- If no BMPs, determine if installation could correct future pollutant migration.

5.3.5 While conducting the visual examinations, the personnel should constantly be attempting to relate any pollutant that is observed in the samples to the sources of pollutants that are on the site.

## 6.0 GUIDANCE

6.1 A clean up of the site should be conducted if the pollutant source is known and well defined. A design change could also be incorporated into the storm water pollution prevention plan to eliminate or minimize the contaminant source from occurring in the future. Personnel should evaluate whether or not additional BMPs should be implemented in the pollution prevention plan to address the observed contaminant, and if BMPs have already been implemented, evaluating whether or not these are working correctly or need maintenance. Corrective actions must be taken if BMPs are not performing effectively. Actions should be taken within 60 days from the discovery of any pollutants.

- 6.2 A set of tracking or follow-up procedures must be used to ensure that appropriate actions are taken in response to the examinations.

## 7.0 REFERENCES

### 7.1 Documents

Federal Register. Final Reissuance of National Pollutant Discharge Elimination System Storm Water Multi-Sector General Permit for Industrial Activities. Federal Register: October 30, 2000, Volume 65, Number 210.

### 7.2 Referrals

IMP300-00-00 Integrated Work Management for Work Activities  
LIR240-01-03.2 Authorization Agreement  
LIR250-02-02.5 Facility-Tenant Agreement  
LIR280-02-01.0 Laboratory Facility Management Program  
LIR307-01-04.0 Safety Concern Program  
LIR401-10-01.0 Stop Work and Restart  
LIR402-10-01.4 Hazard Analysis and Control for Facility Work  
LIR402-100-02.0 Hazardous Waste Operations and Emergency Response Training Requirements  
LIR402-702-01.1 ALARA  
LIR402-706-01.1 Personnel Dosimetry  
LIR402-1320-01.1 Vehicular Safety

In addition to these LIRs, please read any site specific requirements before proceeding with work.

## 8.0 ATTACHMENTS

Attachment A: MSGP Stormwater Visual Inspection Form

## **MSGP STORMWATER VISUAL INSPECTION FORM**

Permit Number: NMR05A734 and NMR05A735

Inspection Location: \_\_\_\_\_

Inspection Date & Time: \_\_\_\_\_

Inspection Person: \_\_\_\_\_

Inspection Quarter (Circle One): Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec

**Inspection Completed Within First Half Hour Of Flow:**  Yes  No

Reason if not within first half hour: \_\_\_\_\_

### **Sample Parameters (Provide Description)**

Odor: \_\_\_\_\_

Color: \_\_\_\_\_

Clarity: \_\_\_\_\_

Floating Solids: \_\_\_\_\_

Settled Solids: \_\_\_\_\_

Suspended Solids: \_\_\_\_\_

Foam: \_\_\_\_\_

Oil Sheen: \_\_\_\_\_

Other Indicators of Possible Storm Water Pollution: \_\_\_\_\_

### **Site Observations**

**Potential Pollutants found during visual examination:**  Yes  No

If Yes:

Potential sources of pollutants: \_\_\_\_\_

**BMPs on site:**  Yes  No

If BMPs on site are they working correctly:  Yes  No

If no BMPs, could installation mitigate contamination migration:  Yes  No



## COMPREHENSIVE SITE COMPLIANCE EVALUATION REPORT

Name of Facility: \_\_\_\_\_ Date of Inspection: \_\_\_\_\_

Describe Specific Evaluation Location (if only evaluating part of the facility): \_\_\_\_\_

**Frequency of Inspection:**

Monthly                      Quarterly                      Semi-Annual                      Annual                      Other

Name of Inspector(s): \_\_\_\_\_

Inspector Qualifications: \_\_\_\_\_

**Scope:**

This comprehensive site compliance evaluation shall include the inspection of all areas where industrial materials or activities are exposed to storm water, areas where spills and leaks have occurred within the past 3 years, and areas where storm water discharges have the potential to impact down gradient activities such as critical habitat and National Historic Preservation sites. Such inspections include, but are not limited to, identification of:

- I. Industrial material, residues, or trash on the ground that could contaminate or be washed away in storm water
- II. Leaks or spills
- III. Off-site vehicle tracking
- IV. Migration of raw, final, or waste material to areas exposed to storm water
- V. Evidence of, or the potential for, pollutants entering the facility's storm drain system
- VI. Effectiveness of storm water management measures and other BMPs identified in the plan

In addition, the completeness and implementation of the SWPP Plan shall also be evaluated.

**Major Observations:** \_\_\_\_\_

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**Follow-up Actions Required:** \_\_\_\_\_

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**Incidents of Non-compliance:** \_\_\_\_\_

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**Noteworthy Accomplishments:** \_\_\_\_\_

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**Comments:** \_\_\_\_\_

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**Following the completion of the inspection, answer the following questions with Yes/No:**

- \_\_\_\_\_ Must the SWPPP be updated?
- \_\_\_\_\_ Are New BMPs or Modifications of BMPs Required?
- \_\_\_\_\_ Is a report for follow-up action required?

## COMPREHENSIVE SITE COMPLIANCE EVALUATION

### Certification Statement

***Based on compliance of the site, decide which of the following two paragraphs must be used. The final paragraph on this page (the certification paragraph) must be used in both cases. Once complete, delete the unused paragraph and the instructions from this page.***

This facility, \_\_\_\_\_, was inspected on \_\_\_\_\_, and there were no observed incidents of non-compliance with the Storm Water Pollution Prevention Plan. I am certifying that this facility is in compliance with its Storm Water Pollution Prevention Plan and the General Permit.

**OR**

This facility, \_\_\_\_\_, was inspected on \_\_\_\_\_, and there were observed incidents of non-compliance with the Storm Water Pollution Prevention Plan as described above under "Incidents of Non-compliance". These incidences must be corrected before the next anticipated storm event, if practicable, but not more than twelve (12) weeks after the date of this inspection.

**AND**

"I certify under penalty of law that this document and all attachments were prepared by me or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated 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."

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## COMPREHENSIVE SITE COMPLIANCE EVALUATION CHECKLIST OF AREAS REQUIRED TO BE EVALUATED

Please use the enclosed list to ensure that each area is thoroughly inspected. Place a checkmark in each box as the coENVponding topic is observed. Record major observations related to the implementation of the SWPP Plan, actions taken, incidents of non-compliance, and noteworthy accomplishments in their appropriate places above. Throughout the evaluation, consider the results of both visual and analytical monitoring done during the year.

### SWPP PLAN EVALUATION

Ensure that all necessary procedures are described in the SWPP. Evaluate the effectiveness of existing programs or procedures to reduce pollutant loadings into storm water discharges, ensure these programs and procedures are implemented correctly, and determine whether additional programs or procedures are needed. The following programs should be evaluated:

#### Good Housekeeping

- Check that plan describes good housekeeping procedures (storage practices, material inventory, routine area cleanup, organized work areas, operation/maintenance of equipment, and routine inspections for leaks and the condition of storage containers)

#### Preventive Maintenance

- Check that there is an active preventive maintenance program to comply with the SWPPP
- Make sure that the current PM program includes periodic inspections and testing, as well as records of inspections and of maintenance on equipment and systems

#### Visual and Analytical Monitoring

- Ensure that Sector Specific analytical monitoring requirements have been met, and the appropriate downstream gauging station has been identified in the SWPPP (E060).
- Ensure that there is an existing quarterly storm water visual inspection program
- Ensure that there is an existing annual non-storm water visual inspection program
- Check that inspections are documented in the SWPPP
- Check that there are follow-up procedures

#### Employee Training

- Check that training is provided on spill response, good housekeeping, material management, preventive maintenance, and components and goals of the SWPPP
- Make sure there is a schedule for periodic training

#### Review and Revisions

- Check for procedures describing the review and revision of the Plan
- Check that Pollution Prevention Team Members are current
- Ensure that the description of potential pollutant sources is still accurate
- Make sure that the spills table has been updated
- Check that the site maps are current
- Check that the plan is certified by the person designated in the signatory letter
- Review the plan to see that it has been revised to reflect the October 2000 permit. Make sure that it includes a copy of the regulations and a new permit number. (This is a one-time check.)



## SITE EVALUATION

Observe structural control measures, erosion control measures and/or other pollution prevention measures identified in the Plan to ensure that they are adequate and functioning correctly. Also look for general cleanliness and evidence of spills, leaks, tracking of materials, and potential pollutants. The following programs should be evaluated:

### I. Storage and handling of industrial material, residues, and trash

- Check that all trash containers, storage areas, and loading docks are orderly and are regularly cleaned
- Check that there are no industrial materials, residue, or trash on the ground that could contaminate storm water
- Note that all other areas are clean and orderly

### II. Leaks or Spills

- Look for new spills or leaks since the last inspection. Pay close attention to industrial equipment; drums, barrels, tanks and other similar containers; chemicals usage locations and any other susceptible locations
- Look for new high-risk areas
- Look for new non-storm water discharges

### III. Vehicle Tracking

- Look for evidence of offsite tracking of industrial materials or sediment where vehicles enter or exit the site

### IV. Migration of Raw, Final, or Waste Material

- Look for areas where raw, final, or waste material has been blown, tracked, or carried from areas of no exposure to areas exposed to storm water

### V. Evidence of, or the Potential for, Pollutants Entering the Drainage System

- Look for pollutants and potential pollutants in new areas, materials or physical features including
  - Loading/unloading areas
  - Outdoor storage
  - Outdoor manufacturing or processing
  - Dust or particulate generating processes
  - On-site waste disposal activities
  - Transportation or conveyance activities
  - SWMUs
- Other areas, please describe: \_\_\_\_\_

**SITE EVALUATION** *(Continued)*

**VI. Storm Water Management Measures**

- Look for new areas of erosion or the potential for erosion
- Make sure erosion controls are provided for storm water and other discharges
- See that runoff control structures are in place
- Ensure that vegetated areas are maintained
- Inspect discharge points, where accessible, to see whether BMPs are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, inspect downstream locations.
- Note locations of BMPs that require maintenance or have proven inadequate. Also note any locations where additional BMPs are needed.
- Look for areas where storm water discharges have the potential to impact down gradient activities such as critical habitat and National Historic Preservation sites
- Note any other observations about storm water management and sediment and erosion control

**Los Alamos National Laboratory  
SWPP Plans and Storm Water Stations Associated With Industrial Activity 2002, Permit #NMR05A734 & NMR05A735**

#	LOCATION	OPERATION	Activity	Sector	GROUP	STATION	DRAINAGE
1	TA-3-22	POWER PLANT	STEAM ELECTRIC POWER	O, K	FM-UI	E121	Sandia
2	TA-3-38	METAL SHOP	FABRICATED METALS	K, AA	FM-FMU 3 DF	E122	Sandia
3	TA-3-39	METAL SHOP	FABRICATED METALS	K, AA	MSM	E243.5	Pajarito
4	TA-3-66	SIGMA FOUNDARY	PRIMARY METALS	F	MST	E122.3	Sandia
5	TA-3-73	ASPHALT BATCH PLANT	ASPHALT BATCH PLANT	K, D	FM-UI	E122.2	Sandia
6	TA-16	BURN GROUNDS	TSD	K	ESA-MEE	E257	Valle
7	TA-50 FACILITIES (2 Stations)						
	TA-50-1	RLWTF	TSD	K	NWIS-RLW	E201.1	Ten Site - Mortandad
	TA-50-37	WCRRF & RAMROD FACILITY	TSD	K	NWIS-RLW	E201.3	Ten Site - Mortandad
8	TA-55	TA-55 PLUTONIUM FACILITY	TSD	K	NMT-7	E196	Effluent
9	TA-54 AREA G, L, J, RANT (9 Stations)						
	TA-54	AREA G - South Side	TSD	K	NWIS-OS	E249.5, E249, E248.5, E248	Pajarito
	TA-54	AREA G - North Side	TSD	K	NWIS-OS	E227	Canada del Buey
	TA-54	AREA L	TSD	K	NWIS-OS	E223	Canada del Buey
	TA-54	AREA J WEST	LANDFILL	L	NWIS-OS	E220.5	Canada del Buey
	TA-54	AREA J EAST	LANDFILL	L	NWIS-OS	E220.7	Canada del Buey
	TA-54-38	RANT	TSD	K	NWIS-OS	E220	Canada del Buey
10	ACTIVE DX SITES (2 STATIONS)						
	TA-14-23	OB/OD	TSD	K	DX-TSO	E262	Canyon de Valle
	TA-39-6	OB/OD	TSD	K	DX-TSO	E274	Ancho
	TA-39-57	OB/OD	TSD	K	DX-TSO	E274	Ancho
11	TA-60-1	MOTORPOOL	VEHICLE MAINTENANCE	K,P	FM-FMU 3 DF	E122.5	Sandia
12	TA-60	MATERIALS RECYCLING FACILITY	RECYCLING	N	NWIS-OS	E122.35	Sandia

## Analytes by Industrial Sector

Sector	Target Analyte	Benchmark Value	Method
<b>A</b>	<b>Timber Processing</b>		
	TSS	100 mg/l	160.2
<b>AA</b>	<b>Fabricated Metals</b>		
	Aluminum, total recoverable	0.75 mg/l	202.1, 202.2, 200.7,200.8
	Iron, total recoverable	1.0 mg/l	236.1,236.2,200.7,200.8
	Nitrate + Nitrite Nitrogen	0.68 mg/l	353.1,353.2,353.3,354.1
	Zinc, total recoverable	0.117 mg/l	289.1,289.2,200.7,200.8
<b>D</b>	<b>Asphalt</b>		
	TSS	100 mg/l	160.2
<b>F</b>	<b>Primary Metals</b>		
	Copper, total recoverable	0.0636 mg/l	202.1, 202.2, 200.7,200.8
	Zinc, total recoverable	0.117 mg/l	289.1,289.2,200.7,200.8
<b>K</b>	<b>Treatment, Storage, and Disposal</b>		
	Ammonia	19 mg/l	350.1,350.2,350.3
	Arsenic, total recoverable	0.16854 mg/l	206.2,206.3,206.4,206.5,200.7,200.8
	Cadmium, total recoverable	0.0159 mg/l	213.1,213.2,200.7,200.8
	Chemical Oxygen Demand	120 mg/l	410.1,410.2,410.3,410.4
	Cyanide, total	0.0636 mg/l	335.2,335.3
	Lead, total recoverable	0.0816 mg/l	239.1,239.2,200.7,200.8
	Magnesium, total recoverable	0.0636 mg/l	242.1,200.7
	Mercury, total	0.0024 mg/l	245.1,245.2
	Selenium, total recoverable	0.2385 mg/l	270.2,200.7,200.8
	Silver, total recoverable	0.0318 mg/l	272.1,272.2,200.7,200.8
<b>L</b>	<b>Landfill</b>		
	Iron, total recoverable	1.0 mg/l	236.1,236.2,200.7,200.8
	TSS	100 mg/l	160.2
<b>N</b>	<b>Recycling</b>		
	Aluminum, total recoverable	0.75 mg/l	202.1, 202.2, 200.7,200.8
	Chemical Oxygen Demand	120 mg/l	410.1,410.2,410.3,410.4
	Copper, total recoverable	0.0636 mg/l	202.1, 202.2, 200.7,200.8
	Iron, total recoverable	1.0 mg/l	236.1,236.2,200.7,200.8
	Lead, total recoverable	0.0816 mg/l	239.1,239.2,200.7,200.8
	TSS	100 mg/l	160.2
	Zinc, total recoverable	0.117 mg/l	289.1,289.2,200.7,200.8
<b>O</b>	<b>Steam Electric</b>		
	Iron, total recoverable	1.0 mg/l	236.1,236.2,200.7,200.8
<b>P</b>	<b>Motor Freight</b>		
	None Specified		

## References and Guidance Documents

40 CFR 122, *EPA Administered Permit Programs*

40 CFR Part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants.*

Clean Water Act, Title 33 U.S.C. 1251

DOE O 414.1, *Quality Assurance*

DOE Order 450.1, *Environmental Protection Program*

DOE Order 5400.5, *Radiation Protection of Public and Environment*

EPA QA/G-4, *Guidance for the Data Quality Objectives Process*, 1994

LANL LIR 404-50-01, *Water Pollution Control*

LANL IP-300-SD, *LANL Quality Assurance Program*

LANL LPR 404-00-00, *Environmental Protection*

LANL Storm Water/Surface Water Pollution Prevention Best Management Practice Guidance Document, August 1998.

### ENV/WQH documents:

*ENV/WQH-QAPP-GSWSED, Quality Assurance Project Plan for the Groundwater, Surface Water, and Sediment Monitoring Program*

ENV-WQH-QP-021, *Document Control*

ENV-WQH-QP-024, *Training*

ENV-WQH-QP-025, *Records Management*

ENV-WQH-QP-027, *Managing Electronic Data*

ENV-WQH-QP-029, *Creating and Maintaining a Chain of Custody*

ENV-WQH-QP-033, *Issues Reporting and Action Tracking*

ENV-WQH-QMP, *ENV-WQH Quality Management Program*

ENV-DO-104, *Planning and Conducting Management Self-Assessments*

ENV-DO-203, *Field Water Quality Analyses*

ENV-IMP, *ENV Integrated Management Plan*

Storm Water Pollution Prevention Plan

Surface Water Monitoring Plan, October 2001, Rev. 0.0