

# **Guidance for Establishment and Implementation of a**

## **NATIONAL SAMPLE MANAGEMENT PROGRAM**

### **in Support of EM Environmental Sampling and Analysis Activities**

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## LIST OF ACRONYMS

Acronym	Description
ASP	Analytical Services Program
DOE	Department of Energy
EM	Office of Environmental Management
EM-20	Office of Compliance and Program Coordination
EM-263	Analytical Services Division
EM-30	Office of Waste Management
EM-40	Office of Environmental Restoration
EM-50	Office of Technology Development
EM-60	Office of Facility Transition and Management
FSMP	Field Sample Management Program
MIMS	Monitoring Information Management System
NSMP	National Sample Management Program
NSTS	National Sample Tracking System
POC	Point of Contact
QC	Quality Control

## 1.0 INTRODUCTION

### 1.1 BACKGROUND

The Department of Energy's (DOE's) Office of Environmental Management (EM) has been tasked with addressing all environmental contamination and waste problems facing the Department. A key element of any waste management or environmental restoration program is physical and chemical data, and an effective and efficient sampling and analysis program is needed to generate credible environmental data. The Analytical Services Division (EM-263) of the Office of Compliance and Program Coordination (EM-20) was created to provide the programmatic direction needed to establish and operate such an EM-wide program [1,2,3].

EM-263's strategic plan for operations is detailed in EM's "Analytical Services Program Five-Year Plan" (ASP Plan) [1]. Full implementation of the ASP Plan is intended to meet DOE's commitments to Congress and the Inspector General with respect to the generation of environmental data [2].

In very large sampling and analysis operations, systems should be in place to balance supply and demand, set priorities, and maintain sample flow from the field to the laboratory [4,5,6,7,8,9,10,11,12]. In addition, there is a need for the capabilities to project analytical needs and capacities, and to ensure that the generated analytical data are of the quality needed and claimed [4,5,6,7,8,9,10,11,12]. In order to address these needs, a policy on EM sample management has been established [13]. EM-263, in coordination with the Office of Waste Management (EM-30), the Office of Environmental Restoration (EM-40), the Office of Technology Development (EM-50), the Office of Facility Transition and Management (EM-60) and other divisions within EM-20, will establish a National Sample Management Program (NSMP). In addition, all Operations Offices should ensure that a number of associated tasks be carried out at the local level [1,2,3]. These tasks constitute the Field Sample Management Program (FSMP) and are described in the document "Guidance for Establishment and Implementation of Field Sample Management Programs in Support of EM Environmental Sampling and Analysis Activities" [14].

### 1.2 ROLE OF THE NSMP

The role of the NSMP is to be a resource for EM-263, the FSMPs, EM-20, EM-30, EM-40, EM-50 and EM-60. In this capacity it will be a source of information on sample analysis and data collection operations across EM activities within the DOE Complex [1,15]. Therefore, the NSMP's primary role is to coordinate and function as a central repository for information collected from the FSMPs. Such information may include summary data on:

- Numbers of samples and analyses [2,12];
- Cost of analyses [2,3,12,16];
- Turnaround and holding times [2,17];
- Capabilities of the DOE Complex analytical laboratories [1,3]; and

- Anticipated analytical needs for EM operations within the DOE Complex [1].

This information, to which access may be restricted in some cases, will be used to provide EM-263 with a national perspective on the analytical needs of EM operations in the DOE Complex, capabilities of analytical facilities, and analytical capacity utilized. EM-263 will use this information as a basis for making recommendations to EM environmental offices on long-term planning (e.g. facility acquisition) [1,2,3,12]. The field may also use this information for improving sampling and analysis operations.

An additional role of the NSMP is to monitor trends in data collected from the FSMPs over time and across sites or laboratories. Tracking these trends will allow identification of potential problems in the sampling and analysis process [1,2,12].

A summary of the roles of the NSMP and the FSMPs in the management of the EM sampling and analysis process is provided in Attachment A.

## 2.0 PURPOSE

The purpose of this document is to establish guidelines under which the NSMP should operate. This document will also establish the suggested scope of NSMP activities, list the drivers under which the program should operate, define terms, and list references.

## 3.0 SCOPE

This guidance will apply only to EM sampling and analysis operations. NSMP activities should include:

- Establishing and maintaining lines of communication with Operations Office Points of Contact (POCs) [18];
- Collecting information from the field and making summary sampling and analysis information available as needed [1,15];
- Establishing and operating the National Sample Tracking System (NSTS) [15,19];
- Monitoring trends in EM sampling and analysis activities that fall under the scope of the FSMPs; for example, assessment of EM-wide analytical needs and capacity [1];
- Preparing periodic reports to upper management and/or the FSMPs [4,5,12,18];
- Maintaining information on overall analytical costs to EM [12,16,18,20].



#### 4.0 DEFINITIONS

- DOE Complex - Department of Energy sites and operations.
- Customer Sample (abbreviated to "Sample" in this document) - material that represents a single spatial and temporal point or material needed for field quality control (QC).
- Sample Analysis (abbreviated to "Analysis" in this document) - the total analytical effort required to generate data for a given laboratory operation on a single sample.
- NSTS - National Sample Tracking System, a system designed and developed by EM-263 to collect and store information regarding the numbers, costs, and timeliness of sample analyses performed for EM operations [15].
- MIMS - Monitoring Information Management System, a database system, incorporating NSTS, which will be the primary information system to be used by EM-263 to monitor the Complex-wide management of sampling and analysis activities conducted for EM.

#### 5.0 GUIDELINES

##### 5.1 ESTABLISHMENT OF THE NSMP

The NSMP will be established by the Resource Management group of EM-263 to serve as the central repository for information collected from the FSMPs. It should provide EM-263 with summary data on sample analysis and data collection activities as requested [1].

An implementation schedule needs to be developed by the Resource Management group of EM-263 for establishing the NSMP and adhering to the guidance provided in this document [1].

##### 5.1.1 ORGANIZATION OF THE NSMP

The NSMP should designate a Federal employee as the NSMP POC, while the remainder of the NSMP organization may or may not be made up of Federal employees.

The NSMP POC will report directly to the Director of EM-263. His/her responsibilities include [1]:

- Developing an implementation plan for establishing the NSMP and meeting the guidelines in this document [1,2];
- Ensuring that sufficient resources are available for the NSMP to accomplish its mission [1,12,18];
- Overseeing the development of the NSTS [1,15];
- Overseeing the development of the MIMS [1];

- Establishing lines of communication with the Operations Office POCs and other FSMP personnel [18];
- Ensuring that information provided to the NSMP by the field is timely, complete, and of a quality suitable for use in the NSTS [4,5,12,15,19,21,22,23];
- Providing the Director and program managers of EM-263 with information necessary for making key decisions [1,2,3,18];
- Providing information feedback to the Operations Offices so they can adjust their activities to fit the needs of the program [3,12,18];
- Providing input to the Director and Program Managers of EM-263 on the future direction of the NSMP based on past performance and anticipated needs [3,4,5,12];
- Maintaining and upgrading the hardware and software required for the operation of the NSTS [19,23];
- Developing procedures to coordinate with field and other EM-263 programs and activities [6,7,8,9,10,11]; and
- Identifying all FSMP POCs.

## 5.2 NSMP ACTIVITIES

The NSMP should perform the following activities:

### 5.2.1 ESTABLISH AND MAINTAIN OPERATIONS OFFICE POINTS OF CONTACT (POCS)

The NSMP should ensure that each Operations Office identifies an Operations Office POC. The NSMP should provide these individuals or their designees with requests for information to be reported to the NSMP. The NSMP will oversee operations within the FSMPs through the Operations Office POCs [18].

### 5.2.2 ESTABLISH, IMPLEMENT, AND OPERATE THE NSTS

The NSMP should develop, implement, and manage the NSTS centralized data base for requesting, storing, processing, and reporting summaries of sampling and analysis information collected from the FSMPs [1,15].

The NSMP should develop procedures to operate the NSTS to meet the following objectives:

#### 5.2.2.1 INFORMATION COLLECTION

The NSMP should perform the following activities to collect information from the field:

- Provide guidance and assistance to the FSMPs for sending the NSTS data elements to the NSMP;
- Establish the standardized format in which the FSMP should report the data to the NSMP;

- Establish the schedule that the FSMP should follow for reporting the data to the NSMP; and
- Collect information from the field on a non-routine basis as requested by EM-263 (e.g., number of monitoring wells at the site, laboratories currently under contract to analyze samples and the PE programs in which they participate). This should be performed through questionnaires, telephone calls, etc.

#### 5.2.2.2 INFORMATION REPORTING

The NSMP should perform the following reporting functions:

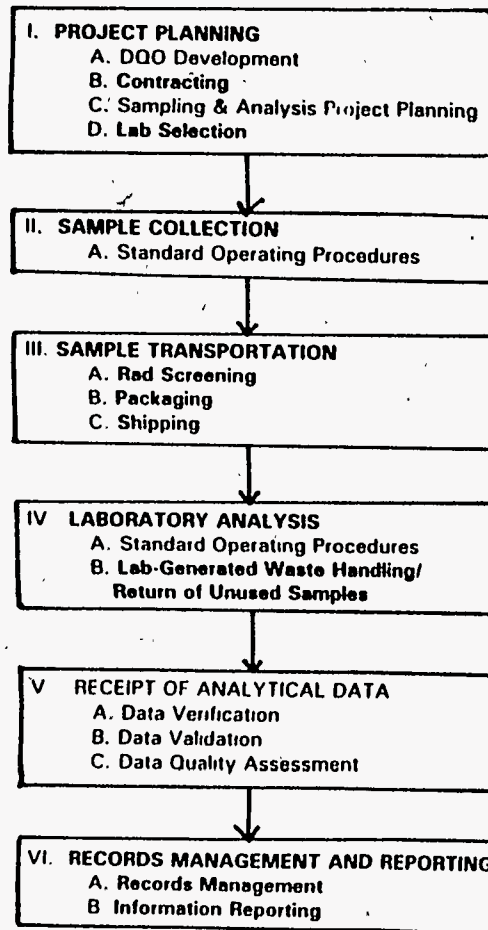
- Define the contents, format, and schedule of a routine report to EM-263 concerning both DOE and commercial laboratories. At a minimum, the reports should contain the following information for each reporting period:
  - Total number of samples sent for analysis [1,2,15];
  - Total number of analyses requested [1,2,15];
  - Cost of analyses performed [15,16,20]; and
  - Fraction of data received meeting turnaround and holding times [17].
- Provide each FSMP with both training materials and on-line access to the NSTS data base and, when available, the MIMS data base, allowing them to generate reports containing, at a minimum, the following information [24]:
  - Relative cost of analyses performed for the Operations Office compared to the remainder of EM [16,20];
  - Relative fraction of data received that meets turnaround and holding time requirements at the Operations Office compared to the remainder of EM [3,17]; and
  - Trends in numbers of samples sent relative to the number, cost and schedule of EM sample analyses performed by laboratories [4,5,20].
- Provide informational reports on sampling and analysis operations performed for EM, upon special request from EM-263 [1,3].

#### 6.0 FUTURE NSMP ACTIVITIES

As the program develops, the scope of NSMP activities is expected to change and expand. Some potential areas of program development that are currently being considered are given in Attachment B.

#### 7.0 ATTACHMENTS

- A. Roles of FSMP and NSMP in the Management of the EM Sampling and Analysis Process.
- B. List of Potential Future NSMP Activities.
- C. References.

RESPONSIBILITIES OF FSMP AND NSMP IN THEMANAGEMENT OF THE EM SAMPLING AND ANALYSIS PROCESSMANAGEMENT OF EM SAMPLING & ANALYSIS PROCESSFSMP  
(current responsibilities)

- IA. Verify that analytical capacity has been contracted for anticipated sampling needs following appropriate DOE policies.
- IB. Maintain database on contracts with laboratories and ensure that samples are sent only to labs in good standing
- IIA. Verify that radiation screening has been conducted or historical information is used to determine that laboratory license limits have not been exceeded.
- IIIB. Verify that samples have been packaged in compliance with appropriate regulations.
- IIIC. Verify that samples have been shipped in compliance with appropriate regulations.
- IVA. Monitor analytical methods used for conducting sample analyses.
- IVB. Verify that laboratory-generated waste and unused samples are managed.
- VA. Verify that records are maintained, managed and disposed of in full accordance with appropriate regulations
- VB. Track data on numbers and types of samples and analyses, costs of analyses, and turnaround times for all sampling and analysis activities
- VC.
- VIA.
- VIB.

FSMP  
(potential future responsibilities)

- IA. Verify that proper DQOs for the projects have been established.
- IB. Verify that analytical capacity has been contracted for anticipated sampling needs following guidelines provided by EM-263.
- IC. Verify existence of QA project plan/sampling and analysis plans.
- ID. Ensure that samples are sent only to laboratories in good standing based on performance assessment (PE samples, past performance, audit) and health and safety assessment.
- IIA. Monitor that sampling is conducted in full accordance with QA project plan/sampling & analysis plans, and standard operating procedures.
- IIIA. Verify that laboratory-generated waste and unused samples are managed according to the appropriate DOE policies.
- IIIB. Verify performance of data verification.
- IIIC. Verify that data validation is performed.
- IVB. Verify that data submitted are of the quality claimed and required, and are useable.
- VIA. Verify that records are maintained, managed and disposed of in full accordance with appropriate regulations
- VIB. Track data on numbers and types of samples and analyses, costs of analyses, and turnaround times for all sampling and analysis activities

NSMP

Collect information from the FSMPs and make summary sampling and analysis information available as necessary

Monitor trends in EM sampling & analysis activities

Maintain central repository for information on:

- numbers of samples and analyses
- costs of analyses
- turnaround times

## ATTACHMENT B: LIST OF POTENTIAL FUTURE NSMP ACTIVITIES

Potential future activities that may be performed by the NSMP as the program develops are listed below:

- Projecting sampling and analysis needs, capabilities and capacity of the DOE Complex based on historical sample collection summaries and scheduled environmental restoration projects [1,12];
- Tracking the number of analyses of QC samples (e.g. blanks, duplicates, spikes, etc.) performed relative to the total number of sample analyses performed [4,5];
- Maintaining records on the participation of commercial and DOE complex laboratories in audits and assessment programs [4,5];
- Review of the activities of the FSMPs, occasional participation in audits with FSMP personnel on field sampling and laboratory operations, and review of laboratory QC data [4,5,14];
- Storing in the NSMP database all Federal regulations, Congressional acts, and methods that pertain to EM sampling and analysis activities [1];
- Monitoring contract utilization by the Complex and providing a mechanism for leveling the analytical load on contract laboratories [25];
- Providing limited on-line access to the MIMS database to authorized FSMP participants [1]; and
- Negotiating and administering contracts that may be utilized at a national level [25].

## ATTACHMENT C: REFERENCES

1. EM Analytical Services Program Five-Year Plan, January 29, 1992.
2. IG-0293 Audit of Testing Laboratory Support to the Environmental Survey Program, December 21, 1990.
3. DOE/S-00097P, Environmental Restoration and Waste Management Five-Year Plan Fiscal Years 1994-1998.
4. ASME NQA-1-1989 Edition, Quality Assurance Program Requirements for Nuclear Facilities, March 31, 1990.
5. DOE Order 5700.6C, Quality Assurance of August 21, 1991.
6. Quality Assurance Guidance for Sampling in Support of EM Environmental Sampling and Analysis Activities, September 29, 1993.
7. Quality Assurance Guidance for Analytical Laboratories in Support of EM Environmental Sampling and Analysis Activities, September 29, 1993.
8. Quality Assurance Guidance for Management Assessment in Support of EM Environmental Sampling and Analysis Activities, September 29, 1993.
9. Quality Assurance Guidance for the Integrated Performance Evaluation Program in Support of EM Environmental Sampling and Analysis Activities, September 29, 1993.
10. Quality Assurance Guidance for Field Sampling and Measurement Assessment Plates in Support of EM Environmental Sampling and Analysis Activities, September 29, 1993.
11. Quality Assurance Guidance for Laboratory Assessment Plates in Support of EM Environmental Sampling and Analysis Activities, September 29, 1993.
12. DOE Order 4700.1, Project Management of March 6, 1987.
13. DOE Policy on EM Sample Management (to be issued with this document).
14. EM-263 Guidance for Establishment and Implementation of Field Sample Management Programs in Support of EM Environmental Sampling and Analysis Activities (to be issued with this document).
15. EM-263 National Sample Tracking System, Version 1.0, October 15, 1993.
16. IG-0295 Cost of Environmental Survey Testing, August 12, 1991.
17. EPA 600/4-79-020, Methods of Chemical Analysis of Water and Wastes, 1983.
18. EM-50 Management Policies and Requirements Doc., Rev. 0, May 1992.
19. DOE Order 1430.1C, Management of Scientific and Technical Information of February 27, 1992.
20. DOE Order 2250.1C, Cost and Schedule Control System Criteria of December 21, 1988.

21. DOE Order 1324.2A, *Records Disposition* of September 13, 1988.
22. DOE Order 1324.5A, *Records Management Program* of April 30, 1992.
23. DOE Order 1324.6, *Automated Office Electronic Recordkeeping* of July 8, 1982.
24. DOE Order 3410.1B, *Training* of October 18, 1989.
25. EM-263 *Model Contract for Acquiring Chemical Analytical Services from the Commercial Sector* (draft in preparation).