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**YUCCA MOUNTAIN PROJECT OFFICE
DOCUMENT APPROVAL SHEET**

Y-AD-002
4/90

Title
BRANCH TECHNICAL PROCEDURE: SAMPLE MANAGEMENT FOR THE YUCCA
MOUNTAIN PROJECT OFFICE

NO. BTP-SMF-001
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APPROVAL

**T&MSS Assistant
PROJECT MANAGER:**

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6/28/89

Date

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Edwin L. Wilmot

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6/28/89

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Signature

6/28/89

Date

REVISION 0 EFFECTIVE DATE: 7/7/89

REVISIONS

INITIAL AND DATE

REVISION 1

REVISION 2

REVISION 3

REVISION 4

PROJECT MANAGER:

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10-26-90

DIRECTOR, QA:

[Signature]
10/26/90

**YMP Branch Chief
(OTHER, AS REQUIRED)**

[Signature] 10-26-90
10-26-90

EFFECTIVE DATE:

10/26/90



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1.0 PURPOSE AND SCOPE

This procedure describes the Yucca Mountain Project Office (Project Office) requirements and responsibilities for management and operation of the Sample Management Facility (SMF) and Field Operations (FO), Site Operations of the Technical and Management Support Services (T&MSS) contractor. The T&MSS contractor is responsible for the curation of selected Yucca Mountain Project (Project) samples.

2.0 APPLICABILITY

This procedure applies to organizational structure, facility access, staff training, quality assurance (QA) indoctrination, organizational interfaces, and records management of the SMF and the FO.

3.0 DEFINITIONS

3.1 SAMPLE MANAGEMENT

Sample Management (SM) of the T&MSS contractor is the organization responsible for the collection, documentation, storage, and control of selected samples, remnants, and records. SM includes the SMF and FO. SM staff consists of management and operations personnel who ensure that SM operations and documentation satisfy applicable regulatory requirements.

3.2 SAMPLE MANAGEMENT FACILITY

The SMF is the facility used for the documentation, storage, and control of selected samples, remnants, and records collected for the Project. The SMF consists of a physical facility and equipment designed to effectively process and preserve these samples, remnants, and records. Preservation of samples will be for the life of the Project unless otherwise directed by the Project Office.

3.3 SAMPLE

A sample is part of a population whose properties are studied to gain information about the whole or group. Geologic, hydrologic, environmental, or other types of examinations or analyses are conducted on samples covered by this procedure. Examples of samples include core, cuttings, hand- and bulk-size samples, muck, soils, alluvium, drilling and construction materials, and fluids collected at Project field sites.

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3.4 CORE

A core is a cylindrical section of rock, or fragment thereof, taken as a sample of the interval penetrated by a core bit and brought to the surface for examination and/or analysis.

3.5 CUTTINGS

Cuttings are chips of rock produced during drilling that are removed from the borehole by circulation of drilling fluids (gas, foam, or liquid).

3.6 SPECIMEN

A specimen is a subsection or portion which has been removed from a sample.

3.7 SAMPLE OVERVIEW COMMITTEE

The Sample Overview Committee (SOC) is comprised of representatives from Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Sandia National Laboratories, the U.S. Geological Survey, SM, T&MSS, and the Project Office. The purpose of the SOC is to ensure a balance between Project sample needs, acquisition, and use, and the need to curate samples for posterity.

3.8 CURATORIAL SAMPLE INVENTORY AND TRACKING SYSTEM

The Curatorial Sample Inventory and Tracking System (CSITS) is the computer data base that has been developed to track in detail all actions taken on Project samples over which the SMF has control. The CSITS will also record all samples collected for the entire Project even if the samples are maintained by the User. The primary objective of the CSITS is to assist in establishing and maintaining traceable records of each sample collected for the Project. The CSITS user's manuals and other related documents will be available to Users.

3.9 USER

A User is an individual from a Project participating organization or outside interest who interacts with SM staff to acquire access to samples and specimens under the control of SM.

4.0 RESPONSIBILITIES

4.1 SAMPLE MANAGEMENT MANAGER

The SM Manager shall administer the overall operations of SM to ensure that samples and related documents and records collected during the Project

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will support a successful license application. The SM Manager will be responsible for integrating SM activities with Project Office goals; acting as the primary point of policy level interaction with the Project Office and Project participants; representing SM on the SOC; and implementing T&MSS Cost Account Management for SM. The SM Manager will also coordinate the following activities: physical plant design and reconstruction, including equipment procurement and installation; development of the CSITS; integration of existing Project samples and records into SM; development of all technical and administrative procedures; and training of SM staff.

4.2 SAMPLE MANAGEMENT FACILITY STAFF

4.2.1 Curator

The Curator shall assist in the establishment and implementation of the overall system at the SMF to ensure that samples and related records will support a successful license application. This goal will be achieved through the application of QA criteria and sample management techniques. The Curator shall be responsible for daily management of all aspects of the SMF, guided by policies developed in consultation with the SM Manager. The Curator shall manage SMF staff performing development of SMF procedures, sample handling, data compilation, photo documentation, records management, and specimen distribution. The Curator shall interact with Project Office QA department staff to ensure that applicable QA requirements are achieved through training, audits, and surveillances. The Curator shall act as primary developer of the CSITS in coordination with the computer programmers. The Curator will coordinate with the T&MSS Records Management to ensure that all records generated by SMF activities are distributed to and maintained by the appropriate organizations. The Curator shall prepare long-range projections and recommendations concerning requirements for SMF staff, facilities, equipment, sample storage, and visitor access. The Curator shall administer visitor use of the SMF to assure that policies and procedures are followed.

4.2.2 Technical Staff Assistant

The Technical Staff (TS) Assistant shall be responsible for coordination of sample traceability and sample status activities. The TS Assistant shall ensure that all requirements necessary to complete procedural activities are met in compliance with QA guidelines and shall report any nonconformance to these procedures.

4.2.3 Geologist

The SMF Geologist shall perform verification of geologic logging and documentation of samples acquired during field site activities. Other responsibilities shall include development of SMF administrative procedures and technical procedures. The SMF Geologist shall coordinate and participate

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in reprocessing, relogging, and documenting existing Project samples and in generation and processing of relogging records. The SMF Geologist shall supervise the SMF Geotechnician.

4.2.4 Geotechnician

The SMF Geotechnician shall perform sample handling and processing. The SMF Geotechnician shall assist the SMF Geologist in verification of all drill site sample collection and documentation activities, including marking and packaging core samples and collecting, documenting, and packaging exploratory shaft non-core samples. The SMF Geotechnician shall be responsible for sample processing and specimen removal, preparation, and distribution; reprocessing of existing samples; preparation of samples and specimens for examination by visitors; and construction of required geologic data logs. The SMF Geotechnician shall assist in the development of administrative procedures and technical procedures for logging, transport, processing, and storage of samples and for selection, processing, and distribution of specimens. The SMF Geotechnician shall supervise support staff.

4.2.5 Programmer/Analyst

The Programmer/Analyst shall develop, implement, and maintain the CSITS under the direction of the Curator and according to established Project procedures for software development and control.

4.2.6 Administrative Assistant

The SMF Administrative Assistant shall perform secretarial and administrative support activities. As records specialist, the SMF Administrative Assistant shall initiate and maintain technical and administrative records. The SMF Administrative Assistant shall supervise the Receptionist. The SMF Administrative Assistant shall also perform data entry.

4.2.7 Receptionist

The Receptionist shall control visitor access to the SMF and shall assist in records management, including data entry.

4.3 FIELD OPERATIONS STAFF

4.3.1 Manager

The FO Manager shall be responsible for management of all aspects of FO activities, guided by policies developed in consultation with the SM Manager. The FO Manager shall coordinate FO field site activities, including sample handling, data compilation, photo documentation, records management, specimen distribution, and scheduling. Other responsibilities will include interaction with participant drill site personnel to ensure acceptability of

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samples, documents, and records for curation at the SMF. The FO Manager shall supervise activities of the Shift Supervisors and coordinate training of FO staff. The FO Manager shall assist in the development of applicable technical and administrative procedures. The FO Manager shall assist the SM Manager in preparation and management of the FO budget. The FO Manager shall interact with Project QA department staff to ensure that applicable QA requirements are achieved through training, audits, and surveillances. The FO Manager will coordinate with the T&MSS Records Management to ensure that all records generated by FO activities are distributed to and maintained by the appropriate organizations. The FO Manager will prepare long-range projections and recommendations concerning requirements for FO staff, facilities, equipment, and sample storage.

4.3.2 Shift Supervisor

The Shift Supervisor is responsible for assuring that core and other geotechnical samples are collected, documented, logged, marked, packaged, and transferred to the SMF in a manner consistent with quality assurance requirements. These activities require coordinating personnel at all surface-based and underground drilling sites, at surface trenches (as applicable, at the exploratory shaft facility, and at any other Project sampling site. The Shift Supervisor shall oversee the activities of all FO personnel during the assigned shift and verify that the FO Geologist and the FO Geotechnician have followed applicable procedures. The Shift Supervisor shall coordinate with the Project Office representative to ensure that the support contractors meet the requirements of the drilling program and shall report shift activities to the FO Manager. The Shift Supervisor shall recommend suspension of any drill site activity that jeopardizes sample acquisition, quality, or documentation. The Shift Supervisor shall train FO staff. The Shift Supervisor shall supervise activities of the FO Geologist on the same work shift.

4.3.3 Geologist

The FO Geologist shall perform geologic logging and sample handling activities at the drill site. These activities include depth validation, sample marking, packaging, and completion of all required geologic field data logs and daily logs. The FO Geologist shall assist in the development of administrative and technical procedures. The FO Geologist shall assist the Shift Supervisor in training of FO staff. The FO Geologist will supervise the FO Geotechnician.

4.3.4 Geotechnician

The FO Geotechnician is responsible for assisting the FO Geologist in collecting, handling, marking, packaging, and preparing non-core geotechnical and environmental samples. The FO Geotechnician shall also prepare

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documentation and assist in the development and revision of technical procedures for sample handling and transport. The FO Geotechnician will coordinate the activities of the support staff.

4.3.5 Administrative Assistant

The FO Administrative Assistant shall perform secretarial and administrative support activities. As records specialist, the FO Administrative Assistant shall initiate and maintain technical and administrative records. The FO Administrative Assistant shall perform data entry.

4.4 REYNOLDS ELECTRICAL & ENGINEERING COMPANY, INC.

REECO Teamsters and Laborers shall assist SM in handling of samples and containers, load containers onto the transport vehicles, and operate all preparation and loading equipment, including banders and forklifts.

4.5 USER

The User is responsible for obtaining and submitting appropriate request forms, contracts, and other documents to the SMF as required by this procedure.

5.0 PROCEDURES

5.1 INTRODUCTION

SM has been established to assure that Project samples and related records are traceable, meet the quality requirements, and can support a U.S. Department of Energy license application to the U.S. Nuclear Regulatory Commission for a high-level nuclear waste geologic repository.

5.2 ORGANIZATIONAL STRUCTURE

SM is the responsibility of the T&MSS contractor (Figure 1), a participant of the Project. SM is part of Programs and Operations (Figure 2) and is responsible for the SMF and the FO. Staff of SM is shown in Figure 3. The overall organization of the Project is structured to ensure that samples collected during the various Project site characterization activities and data derived from these samples will support a license application through the use of effective management and stringent quality control.

5.3 REQUIREMENTS FOR SM STAFF

Each SM staff member shall meet minimum job qualifications for his or her position and receive training in compliance with Project Office Quality Management Procedure (QMP) QMP-02-01. Job descriptions for each position

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will be kept on file at the SMF Documents Center. The following information will be maintained and kept current for each SM employee: education, experience, training, and special skills. Project indoctrination shall be presented to all new SM staff. All SM staff shall complete the familiarization program prior to performing activities that affect quality. All SM staff performing applicable QA requirements tasks shall receive formal training in QA requirements, technical and administrative procedures, and the technical objectives of each activity. All staff will receive specialized training related to the activities they perform. Training sessions will be documented and maintained at the SMF Documents Center. The proficiency of all SM staff to perform assigned tasks will be evaluated by management on an annual basis.

5.4 SM POLICIES

It is the responsibility of SM to ensure that access to samples, documents, and records is strictly controlled. This control will facilitate traceability of samples in the support of a license application. SM will implement access restrictions and security controls.

5.4.1 SMF Access Restrictions

Potential users of the SMF shall apply for and secure authorization prior to visiting the facility. Access to the SMF will be limited to authorized persons who have valid scientific or regulatory needs to enter the facility for examination of samples, documents, and records. The Chief of the Site Investigations Branch (Chief-SIB) authorizes access to the SMF and examination of samples and specimens. Representatives of the Project Office who need to regularly visit the SMF will be placed on a permanent access list upon authorization. Access to the facility by representatives of commercial services, such as maintenance, repairs or vending, will be authorized by the Curator. Representatives of commercial services will be escorted as necessary in specific work areas. All visitors entering the facility shall sign the Facility Access Log (Figure 4). In addition to the requirements for access to the facility, all requests for examination of samples and records shall be authorized by the SOC chairman. A list of SM staff having authorization to enter specific work areas within the SMF and to gain access to samples, documents, and records shall be updated and submitted to the LRC on a seminannual basis.

5.4.2 FO Access Restrictions

All samples, documents, and records under control of FO staff in the field will be supervised or locked up to prohibit any unauthorized access.

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5.4.3 Security

The SMF will contain samples, records, and documents that represent significant information to be used as a basis for detailed site characterization and consequently crucial to license application. Therefore, the SMF shall be operated as a secured, controlled-access operation. Physical barriers, personal identification requirements, and electronic access devices will be used to preclude entry of unauthorized personnel into sample handling and records storage areas.

5.5 ORGANIZATIONAL INTERFACES

Because of the numerous Users, there are considerable demands on the SMF to provide assistance in various sample acquisition and curatorial activities. The SMF staff will coordinate activities of Users who interact with the SMF, including administrative services, specimen acquisition, access to records, and sample examination services.

5.5.1 SMF Activities

SMF activities may include visitation to the SMF; examination of samples; selection of specimens; submission of samples, documents, and records for curation; access to records and documentation; and deliveries by commercial vendors.

5.5.2 FO Activities

The FO staff will collect samples, perform geologic logging at various Project field sites, and interact with Project Office personnel, participating organizations, and Nevada Test Site Support Contractors.

5.5.3 Stop Work Authority

The Curator shall have stop work authority for SMF activities not being conducted in compliance with applicable Project, Project Office, or QA program requirements, plans, or procedures related to sample collection, control, or quality. The Curator shall follow procedures defined in QMP-01-02. The FO Manager shall recommend suspension of any drill site activity that jeopardizes sample acquisition, quality, or documentation.

5.6 RECORDS MANAGEMENT

Much of the information relative to Project samples is in the form of reports, logs, contracts, requests, records, and other documents completed in the field, at the facility, or by Users. Some of these documents and records provide evidence that the required QA level has been achieved for the overall operations of SM. Other documents and records supply evidence of the identity and validity of the samples or of SM's management of these samples.

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All signatures and initials of each SM staff member that may appear on any form that may support traceability of a sample or record shall be updated and submitted to the LRC on a semiannual basis.

5.6.1 SMF Documents Center

The SMF Documents Center contains related documents and records of samples under control of SM. Additionally, documents and records of selected samples under control of Users are maintained by SM.

5.6.2 T&MSS Local Records Center

The T&MSS Local Records Center (LRC) receives, inspects, and prepares for processing all Project records and handles requests for Project records from T&MSS personnel. All unique Project records generated or gathered by SM will be turned over to the LRC at least every 10 business days.

5.7 IDENTIFICATION AND RESOLUTION OF DISCREPANCIES

A discrepancy exists when there is incorrect information that significantly affects documentation or notation that is beyond the scope of the immediate activity or form being completed. Any discrepancies shall be resolved upon discovery by crossing through the error, correcting it on the original document, and initialing and dating the correction. If the correction is not self-explanatory, the individual shall assign a number to the correction and attach a sheet to the original that fully describes the correction performed.

5.8 NONCONFORMANCE REPORTING

A nonconformance exists when there is a deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate. The intent of nonconformance reporting is to assure the resolution of the conditions not meeting the requirements or to assure that undefined conditions are defined. If there are any nonconformances to this procedure noted during or after associated activities, SMF staff members shall report them to the Project Office Quality Manager or another individual in the Project Office QA organization. Segregation of a nonconforming item or termination of a nonconforming activity will be done according to QMP-15-01.

6.0 REFERENCES

QMP-01-02, Rev. 0, Stop Work

QMP-02-01, Rev. 1, Indoctrination and Training

QMP-15-01, Rev. 1, Control of Nonconformances

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7.0 FIGURES

Figure 1, Technical and Management Support Services Project Organization

Figure 2, Program and Operations

Figure 3, Sample Management Organization

Figure 4, Sample Management Facility Access Log

8.0 RECORDS

The SMF and FO Administrative Assistants shall ensure that the following QA records resulting from implementation of this procedure are turned over to the LRC at least every 10 business days. Copies of these QA records will be retained by the SMF and stored at the SMF Documents Center.

1. SMF Access Log
2. Corrected Copies of Original Records
3. SMF Staff Authorization List
4. SMF Staff Signature List

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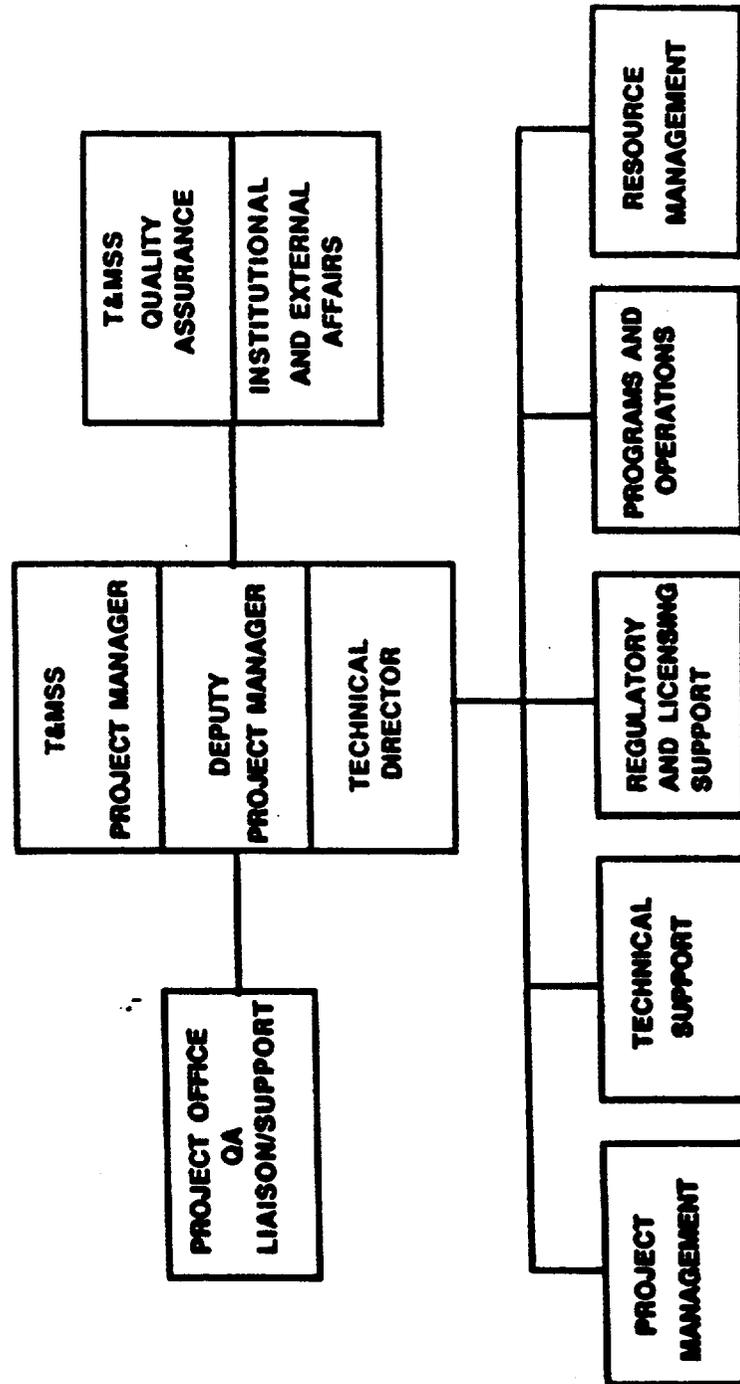


Figure 1 - Technical and Management Support Services Project Organization

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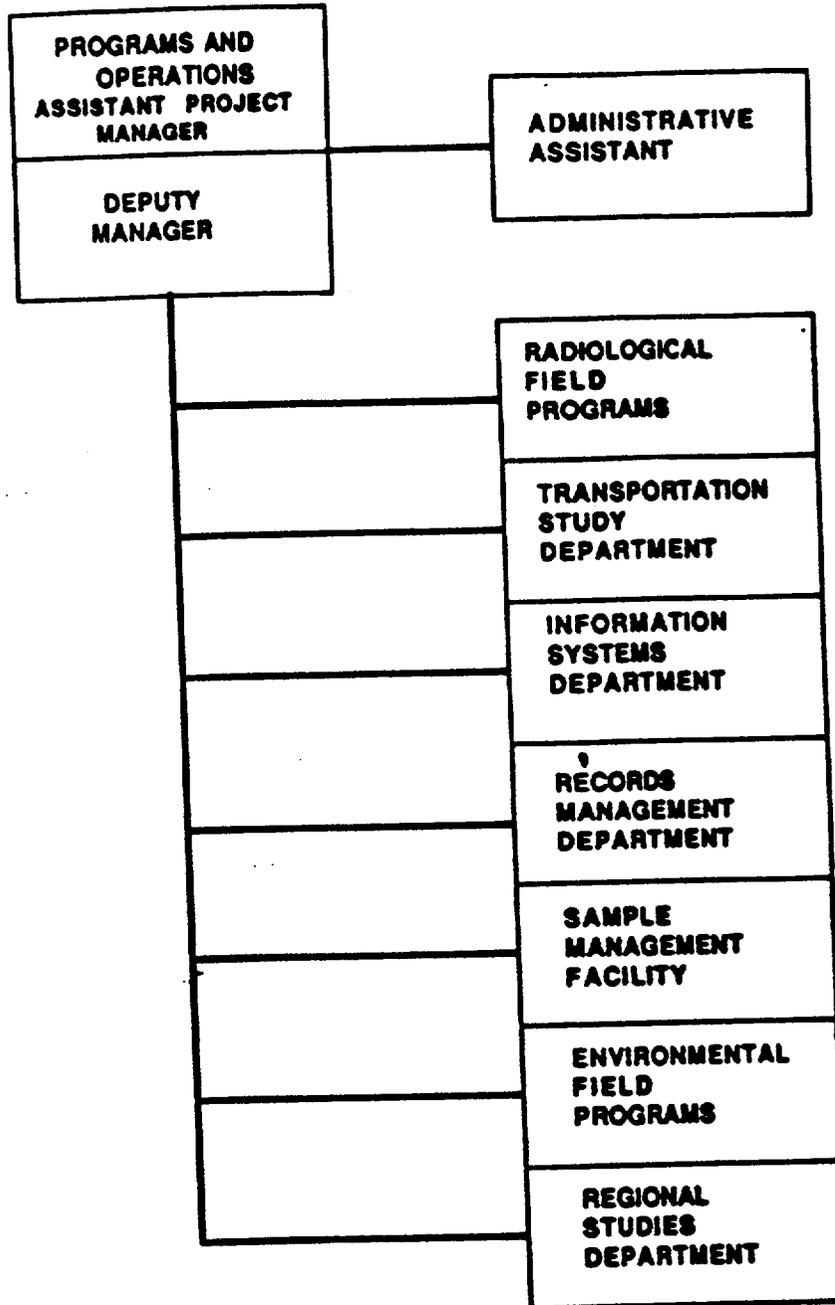


Figure 2 - Programs and Operations

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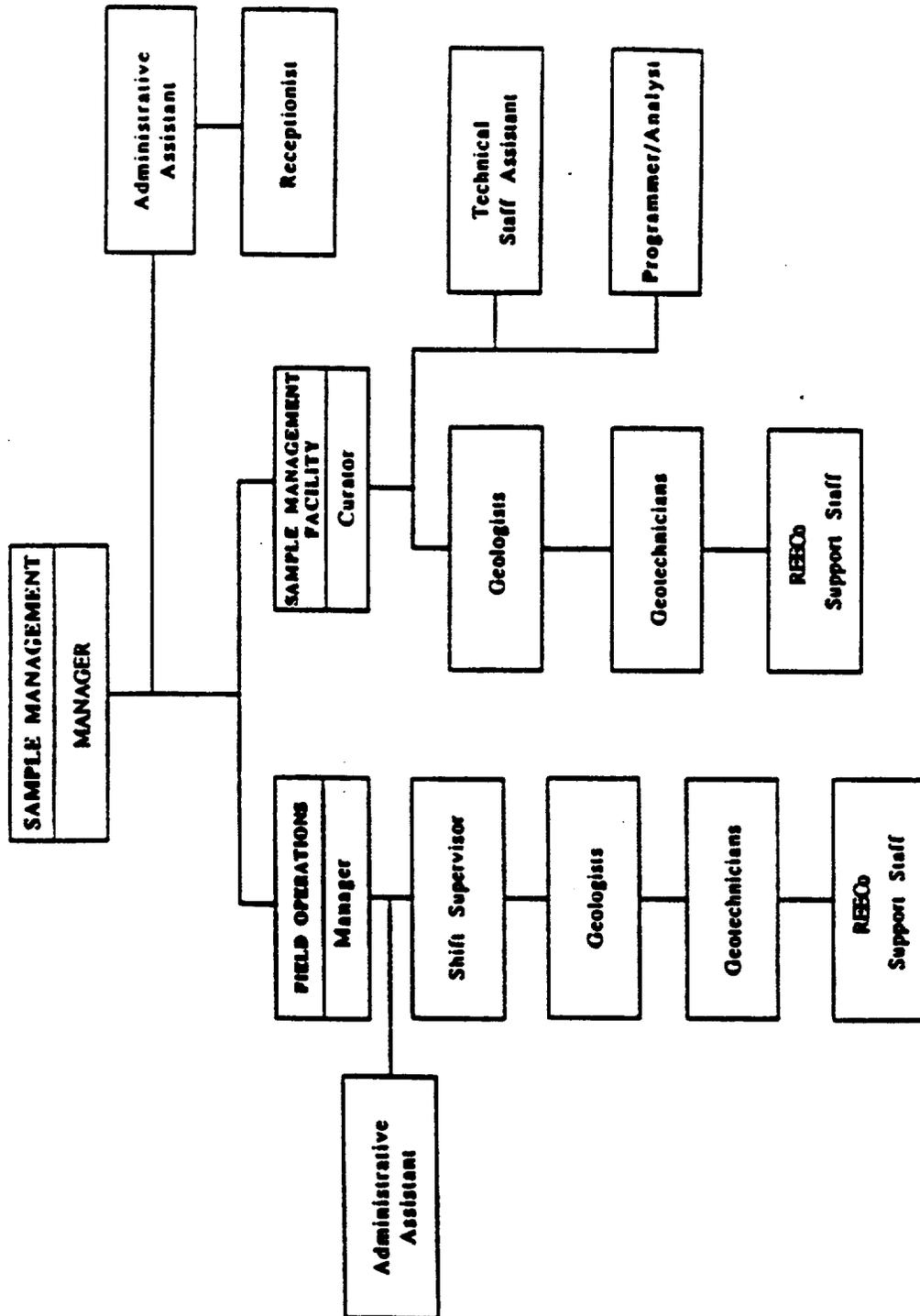


Figure 3 - Sample Management Organization

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YUCCA MOUNTAIN PROJECT SAMPLE MANAGEMENT FACILITY				
FACILITY ACCESS LOG				Y-AD-152 10/90
NAME	TIME	ORGANIZATION	PURPOSE OF ACCESS	SMF ONLY
Print -----	In			Initial -----
Sign -----	Out			Date -----
Print -----	In			Initial -----
Sign -----	Out			Date -----
Print -----	In			Initial -----
Sign -----	Out			Date -----
Print -----	In			Initial -----
Sign -----	Out			Date -----
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Sign -----	Out			Date -----

Figure 4 - Sample Management Facility Access Log