

26850

ENVIRONMENTAL MANAGEMENT DEPARTMENT



000032324

QUALITY ASSURANCE PLAN DESCRIPTION



CONCURRENCE

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Waste Management
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ADMIN RECORD

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

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By *George H. Schlock*

Date *1/29/92* *UNK*

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Policy Statement

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It is the Policy of the EG&G Rocky Flats Environmental Management Department to manage and implement the environmental protection, monitoring, and restoration programs at the Department of Energy's Rocky Flats Plant in such a manner as to provide the highest quality products, services, and scientific work in order to ensure compliance with applicable Federal, state, local, and Rocky Flats Plant environmental regulatory requirements. To implement this policy, the Environmental Management Department has developed a Quality Assurance Plan Description that defines the actions to be taken to adhere to this Policy.

The Environmental Management Department Director is responsible for the development, implementation, and maintenance of the quality assurance program described in the Quality Assurance Plan Description. The authority for defining the Environmental Management Department Quality Assurance program and verifying its implementation is delegated to the Environmental Management Department Quality Assurance Program Manager, who is organizationally independent of the activities being accomplished and who reports directly to the Department Director.

The achievement of quality is the responsibility of all personnel conducting Environmental Management Department program activities. Activities and actions that provide the highest standards of quality accomplishment will be supported at all levels within the Environmental Management Department.

J. E. Evered
Director
Environmental Management Department

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Date 1/29/92 UNU

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| | |
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| ALARA | As Low As Reasonable Achievable |
| AQCTD | Air Quality and Chemical Tracking Division |
| ASME | American Society of Mechanical Engineers |
| CAR | Corrective Action Report |
| CCR | Colorado Code of Regulations |
| CDH | Colorado Department of Health |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CLP | Contract Laboratory Program |
| DCN | Document Change Notice |
| DCSA | Document Control System Administrator |
| DOE | Department of Energy |
| DQOs | Data Quality Objectives |
| E&WM | Environmental and Waste Management |
| EM | Environmental Management |
| EOD | Environmental Operations Division |
| EPA | Environmental Protection Agency |
| ER | Environmental Restoration |
| ERD | Earth Resources Division |
| ERIM | Environmental Resource and Information Management |
| ERT | Environmental Research and Technology |
| FE | Facilities Engineering |
| FI | Facilities Inspections |
| FQA | Facility Quality Assurance |
| GRRASP | General Radiochemistry and Routine Analytical Services Protocol |
| HSC | Health and Safety Coordinator |
| IAG | Interagency Agreement |
| M&TE | Measuring and Test Equipment |
| NCR | Nonconformance Report |

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|---------|--|
| NEPA | National Environmental Policy Act |
| NESHAPS | National Emission Standards for Hazardous Air Pollutants |
| NIST | National Institute for Standards and Technology |
| OH&S | Occupational Health and Safety |
| PA | Performance Assurance |
| PQE | Procurement Quality Engineer |
| QA | Quality Assurance |
| QA/QC | Quality Assurance/Quality Control |
| QAPD | Quality Assurance Program Description |
| QAPjP | Quality Assurance Project Plan |
| QAPM | Quality Assurance Project Manager |
| QRs | Quality Requirements |
| RCRA | Resource Conservation and Recovery Act |
| RF QAM | Rocky Flats Quality Assurance Manual |
| RFEDS | Rocky Flats Environmental Data System |
| RFP | Rocky Flats Plant |
| RPD | Remediation Programs Division |
| SWD | Surface Water Division |

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EM Department Director

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1.0 PURPOSE

This document describes the Quality Assurance (QA) program of the EG&G Rocky Flats Environmental Management (EM) Department. It identifies the QA requirements that are applicable to the various programs implemented by the EM Department and describes the methods and assigns responsibilities for achieving and assuring quality for EM Department management, staff, and subcontractors.

2.0 SCOPE

This document selectively applies QA requirements to those items and activities that have the potential to impact:

- the health and safety of the public and Rocky Flats Plant (RFP) personnel;
- the environment;
- compliance with Federal, state, local, and RFP environmental regulations, permits, orders, and agreements; and
- other areas specifically designated by the EM Department Director.

The requirements in this Quality Assurance Plan Description (QAPD) apply to environmental management activities including planning, implementation, and reporting of (1) environmental restoration activities, which include those elements of work required to be performed to respond to all hazardous substance releases or threat of releases at or from the RFP that may cause harm to human health or the environment; (2) environmental effluent monitoring, including field sampling and analysis, sample handling, laboratory analysis and data reduction, verification, validation, and reporting; (3) environmental regulatory compliance activities, including applying for, maintaining, and complying with permits and agreements; (4) environmental protection activities including conducting impact assessments and human health and environmental risk assessments; and (5) areas specifically designated by responsible management.

This document consists of a Quality Assurance Plan Concurrence Sheet, a Table of Contents, a Policy Statement, this Introduction, Sections 1 through 20, and Appendices A, B, and C. Sections

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1 through 20 correspond to and address Quality Requirements (QRs) 1 through 20 of the Rocky Flats Quality Assurance Manual (RF QAM). QR 21 of the RF QAM is addressed here in Section 18. QR 22 of the RF QAM is not applicable to EM Department programs since it applies to direct costs associated with the production of weapons components and weapons-related materials.

The QAPD is organized so that each section, including this Introduction, and each Appendix, can be revised and approved independently. The Table of Contents will be revised each time a Section is revised to accurately reflect each section's revision and effective date. Each section must be approved by the EM Department Manager. Each time a section is revised, it shall be submitted to the Assistant General Managers identified on the Quality Assurance Concurrence Sheet for their review and approval. This document and any revised sections shall also be reviewed and concurred on by the EM Department Division Managers identified in Section 1.0.

3.0 ENVIRONMENTAL MANAGEMENT PROGRAM DESCRIPTION

The EM Department is responsible for planning, implementing, and reporting of the environmental programs identified in Appendix B of this QAPD. These environmental programs include corrective activities, the Environmental Restoration Program activities that are required by the Interagency Agreement (IAG), and the RFP Site Environmental Programs, which include Air Monitoring and Assessment, Water Monitoring and Assessment, National Environmental Policy Act (NEPA) Programs, Groundwater Monitoring and Assessment, Soil Monitoring and Assessment, Biota Sampling Programs, and EM Operations and Support Programs. Appendix B identifies the various work projects (identified by Work Package) that comprise the various EM Department administered programs. The responsibilities for these various programs and work projects are divided among the EM Department divisions discussed in Section 1.0, Organization and Responsibility, of this QAPD. Appendix B also identifies the EM division that has primary responsibility for each program or work project.

The various activities of each of these environmental management programs are, or will be, described in program management plans or project specific work plans. These work plans may consist of monitoring plans, operations plans, statements of work, or operational unit assessment and remediation work plans required by the IAG. These work plans shall be prepared to describe and control all EM work projects implemented at RFP.

4.0 CODES, STANDARDS, AND REGULATIONS

4.1 Quality Assurance Requirements

This QAPD addresses the applicable QA requirements contained in the 22 QRs of the RF QAM. The 22 QRs in the RF QAM are comprised of QA requirements from the following guidance documents:

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- American Society of Mechanical Engineers (ASME) NQA-1, Quality Assurance Program Requirements for Nuclear Facilities, which is invoked by Department of Energy (DOE) Order 5700.6B, Quality Assurance;
- Department of Energy Rocky Flats Office (DOE RFO) Quality Assurance Requirements for Rocky Flats Management and Operations; and
- DOE Rocky Flats Office Standard Operating Procedure 5700.6B, Quality Assurance.

In addition to the QRs of the RF QAM, this QAPD addresses the applicable QA requirements from the following DOE Orders:

- DOE Order 5400.1, General Environmental Protection Program;
- Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance, DOE 1GH-01735; and
- U. S. DOE, Office of the Assistant Secretary, Environmental Safety and Health, Office of Environmental Audit, The Environmental Survey Manual, Volumes 1 to 4, DOE/EH-0053.

Any of the requirements from the RF QAM and the above-referenced DOE Orders that are not applicable to the EM Department programs and activities are noted as such in this QAPD.

Since the QA requirements and methods of implementation identified in this QAPD may not all be applicable to individual EM Department programs or projects, project specific work plans shall contain a section that identifies the QA requirements that are applicable to the activities described in the work plan. The QA section of work plans shall also identify how each of the applicable requirements are met. Requirements that are not applicable to a specific project will be identified as such with a statement of why the requirement is not applicable.

The Rocky Flats Federal Facilities Agreement, also referred to as the Interagency Agreement, requires the DOE Rocky Flats Office to prepare a Quality Assurance Project Plan for Environmental Restoration (ER) program activities. The IAG specifies that the 16 quality assurance/quality control (QA/QC) elements of the U.S. Environmental Protection Agency's (EPA) QAMS/005/80, Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, be incorporated into the QAPJP. The Rocky Flats Plant Site-Wide Quality Assurance Project Plan for CERCLA Remedial Investigations/Feasibility Studies and RCRA Facility Investigations/Corrective Measures Studies Activities (the QAPJP) has been prepared to address DOE and EPA QA/QC requirements, including the 16 elements of QAMS/005/80, that are applicable to the ER program activities required by the IAG. Since the QA/QC

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requirements of QAMS/005/80 are applicable only to the IAG-related ER activities, they will not be addressed in this QAPD.

Those EM Department, EG&G Rocky Flats, and contractor personnel that are involved in conducting ER Program activities required by the IAG (see Appendix B for a listing of ER Program projects) should refer to the QAPjP for QA requirements, actions, and responsibilities that are applicable to their work. The requirements of the QAPjP are consistent with the requirements of this QAPD. It is the responsibility of the EM Department QA Program Manager to ensure consistency between the QAPjP and QAPD.

4.2 Programmatic Codes, Standards, Regulations

The Federal, state, local, and RFP codes, standards, and regulations that are applicable to the environmental management activities are listed in Table I-1. The codes, standards, and regulations that are applicable to each EM project or program shall also be referenced in individual project work plans and/or program management plans. For example, the RFP Air Quality Management Plan references all Federal, state, and local regulations, orders, interagency agreements, and ordinances that are applicable to the air quality and radioactive effluent and ambient air monitoring programs. The individual operable unit remedial investigation work plans prepared for the environmental restoration program activities also reference applicable Federal and state regulations and identify potentially applicable or relevant and appropriate requirements that set standards for remedial actions.

The EM Department division charters may also reference the Federal, state, local, and RFP regulations, orders, interagency agreements, ordinances, and standards that are applicable to the programs and tasks for which they are responsible. Division managers are responsible for updating division charters as division responsibilities change.

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Table I-1. Codes, Standards, and Regulations Applicable to EM Department Programs and Projects.

The following requirements and guidance documents are applicable to the environmental programs administered by the EG&G Rocky Flats Environmental Management Department at the Rocky Flats Plant. This list of codes, standards, and regulations should be consulted in preparing EM Department project work plans to determine applicable requirements to each work project.

I. DOE Orders and Manuals

DOE 1324.2A "Records Management"

DOE 1330.1B "Management of Automated Information Systems and Data Resources"

DOE 1330.1C "Computer Software Management"

DOE 4700.1 "Project Management System"

DOE 5000.3 "Unusual Occurrence Reporting System"

DOE 5400.1 "General Environmental Protection Program"

DOE 5400.2A "Environmental Compliance Issue Coordination"

DOE 5400.3 "Hazardous and Radioactive Mixed Waste Program"

DOE 5400.4 "Comprehensive Environmental Response, Compensation, and Liability Act Requirements"

DOE 5400.5 "Radiation Protection of the Public and the Environment"

DOE 5440.1C "National Environmental Policy Act"

DOE 5480.1B "Environment, Safety, and Health Program for Department of Energy Operations"

DOE 5480.3 "Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances and Hazardous Wastes"

DOE 5480.4 "Environmental Protection, Safety, and Health Protection Standards"

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Table I-1 (continued). Codes, Standards, and Regulations Applicable to EM Department Programs and Projects.

DOE 5480.5 "Safety of Nuclear Facilities"

DOE 5480.11 "Radiation Protection for Occupational Workers"

DOE 5481.1B "Safety Analysis and Review System"

DOE 5482.1B "Environment, Safety, and Health Appraisal Program"

DOE 5483.1A "Occupational Safety and Health Program for DOE Contractor Employees at Government-Owned Contractor-Operated Facilities"

DOE 5481.1 "Environmental Protection, Safety, and Health Protection Information Reporting Requirements"

DOE 5500.1A "Emergency Management System"

DOE 5500.2A "Emergency Notification, Reporting, and Response Levels"

DOE 5500.3A "Emergency Planning and Preparedness for Operational Emergencies"

DOE 5500.7A "Vital Records Protection Program"

DOE 5700.2C "Cost Estimating, Analysis, and Standardization"

DOE 5700.6B "Quality Assurance" or DOE 5700.6C "Quality Assurance"

DOE 5700.7B "Work Authorization System"

DOE 5820.2A "Radioactive Waste Management"

DOE 6430.1A "General Design Criteria"

DOE 1GH-01735, "Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance"

DOE/EH-0053, "The Environmental Survey Manual"

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Table I-1 (continued). Codes, Standards, and Regulations Applicable to EM Department Programs and Projects.

DOE/EV/1830-T5k, "A Guide to Reducing Radiation Exposure to As Low As Reasonably Achievable (ALARA)"

DOE/EV-1032, "Environmental Compliance Guide"

DOE Draft NEPA Compliance Guide, October 1988, "Guidance Manual for Department of Energy Compliance with the National Environmental Policy Act and Related Federal Environmental Statutes:

II. Legislation

Title 42 U.S.C. 2011, et seq., The Atomic Energy Act of 1954, as amended.

Title 42 U.S.C. 7101, et seq., The Department of Energy Organization Act.

Title 42, U.S.C. 4321, et seq., The National Environmental Policy Act of 1969, as amended.

Title 42 U.S.C. 7401, et seq., The Clean Air Act, as amended.

Title 33 U.S.C. et seq., The Federal Water Pollution Control Act, as amended.

Title 42 U.S.C. 6901, et seq., The Resource Conservation and Recovery Act (RCRA), as amended.

Title 40 U.S.C. 9601, et seq., The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986

Title 42 U.S.C. 300, et seq., The Safe Drinking Water Act, as amended.

Title 16 U.S.C. 1451, et seq., The Coastal Zone Management Act of 1972, as amended.

Title 16 U.S.C. 1531, et seq., The Endangered Species Act of 1973, as amended.

Title 16 U.S.C. 661, et seq., The Fish and Wildlife Coordination Act, as amended.

Title 16 U.S.C. 470, et seq., The National Historic Preservation Act of 1966, as amended.

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Table I-1 (continued). Codes, Standards, and Regulations Applicable to EM Department Programs and Projects.

Title 16 U.S.C. 431, et seq., The Antiquities Act

Title 15 U.S.C. 2601, et seq., Toxic Substances Control Act, as amended.

Title 42 U.S.C. 1996, et seq., The American Indian Religious Freedom Act, as amended.

Title 7 U.S.C. 136, et seq., The Federal Insecticide, Fungicide, and Rodenticide Act, as amended.

Title 7 U.S.C. 4201, et seq., The Farmland Protection Policy Act, as amended.

Title 49 U.S.C. 1801, et seq., The Hazardous Materials Transportation Act, as amended.

Title 25 Colorado Revised Statutes - Water Quality Control, Colorado Water Quality Control Act, as amended.

III. Executive Orders

Executive Order 12088, "Federal Compliance with Pollution Control Standards"

Executive Order 11988, "Floodplain Management," as amended by Executive Order 12148.

Executive Order 11990, "Protection of Wetlands"

Executive Order 12580, "Superfund Implementation"

Office of Management and Budget Circular No. A-106, "Reporting Requirements in Connection with the Prevention, Control, and Abatement of Environmental Pollution of Existing Federal Facilities"

IV. Regulations

Title 10 Code of Federal Regulations (CFR) 1021, 1500-1508 (NEPA)

Title 40 CFR 50-80 (Clean Air Act)

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Table I-1 (continued). Codes, Standards, and Regulations Applicable to EM Department Programs and Projects.

Title 40 CFR 100-140 and 400-470 (Clean Water Act)

Title 40 CFR 140-149 (Safe Drinking Water Act)

Title 40 CFR 260-280 (RCRA)

Title 6 Colorado Code of Regulations (CCR) 1007-3 (Colorado Hazardous Waste Regulations)

Title 40 CFR 700-799 (Toxic Substance Control Act)

Title 40 CFR 300-399 (CERCLA)

Title 29 CFR 1910.120 (Occupational Safety and Health)

Title 49 CFR 171-178 (Department of Transportation Regulations)

Title 50 CFR 13, 222, 226, 227, 402, 424, and 450-453 (Endangered Species)

Title 36 CFR 60-68 and 800 (Historic and Cultural Preservation)

Title 10 CFR 1022 (Floodplains and Wetlands)

Colorado Primary Drinking Water Regulations, Colorado Department of Health (CDH) October 30, 1981

Colorado Rules and Regulations Pertaining to Radiation Control, CDH, December 1985

Colorado Air Quality Control Commission Regulations No. 3, 7, and 8.

State of Colorado, Jefferson County, Beryllium Emission Regulation

V. Standards

Title 40 CFR 125, Criteria and Standards for the National Pollutant Discharge Elimination System.

Title 40 CFR 129, Toxic Effluent Standards

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Table I-1 (continued). Codes, Standards, and Regulations Applicable to EM Department Programs and Projects.

Title 40 CFR 131, Water Quality Standards

Title 40 CFR 133, Secondary Treatment Standards

Title 40 CFR 141, National Interim Primary Drinking Water Standards

Title 40 CFR 143, National Secondary Drinking Water Standards

Title 40 CFR 61, National Emission Standards for Hazardous Air Pollutants (NESHAPS) and National Emission Standards for Radionuclide Emissions for DOE Facilities

Title 40 CFR 50 Subchapter C, National Primary and Secondary Ambient Air Quality Standards

Title 40 CFR 60 Subpart H, AIRDOSE-EPA and NESHAPS Requirements

Colorado Site-Specific Standards for Rocky Flats, Colorado Water Quality Control Commission, February 1990

Title 5 CCR 1002, Colorado Water Quality Standards

Water Quality Control Commission, Article 8, Water Quality Standards and Stream Classification

VI. Federal Facility Compliance Agreements

Compliance Agreement of July 31, 1986, between DOE, EPA and the State of Colorado.

Agreement in Principle of June 16, 1989, between DOE and the State of Colorado.

Federal Facility Agreement and Consent Order, also known as the Interagency Agreement (IAG), between DOE, EPA, and the State of Colorado

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Organization and Responsibility

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1.0 SCOPE

This section describes the EM Department organizational structure, organization QA requirements, QA functional responsibilities, levels of authority, and lines of communication for activities affecting quality for the EG&G Rocky Flats EM Department.

2.0 ORGANIZATION

The EG&G Rocky Flats organization is shown in Figure 1-1. Environmental Management is a Department within the Environmental and Waste Management (E&WM) organization, as shown in Figure 1-2.

The EM Department is comprised of the eight divisions shown in Figure 1-3, and a Department Quality Assurance Program Manager (QAPM). Environmental management work activities are performed at the division level. The QAPM reports directly to the EM Department Manager and is independent of the activities being performed. Each of the division managers shown in Figure 1-3 will appoint a Quality Coordinator who is responsible for coordinating QA Program activities within their respective divisions.

The programmatic responsibilities of the EM Department are divided among the eight divisions shown in Figure 1-3. The functional responsibilities of each of the divisions are summarized below.

2.1 Air Quality and Chemical Tracking Division

At the RFP, the Air Quality and Chemical Tracking Division (AQCTD) is responsible for compliance and permitting actions required by Federal, state, and local Clean Air Act regulations. The division is responsible for development and implementation of air monitoring programs including radioactive effluent and ambient air monitoring. AQCTD is also responsible for implementation, maintenance, and reporting of the chemical tracking control system at the RFP. AQCTD provides continuous awareness of environmental conditions by air quality surveillance of plant activities and evaluating and reporting the results of an extensive sampling and analysis program. Air monitoring data are used to verify the effectiveness of environmental controls and to demonstrate compliance with applicable Federal, state and local regulations and to ensure that quality impacts from plant activities are as low as reasonably achievable.

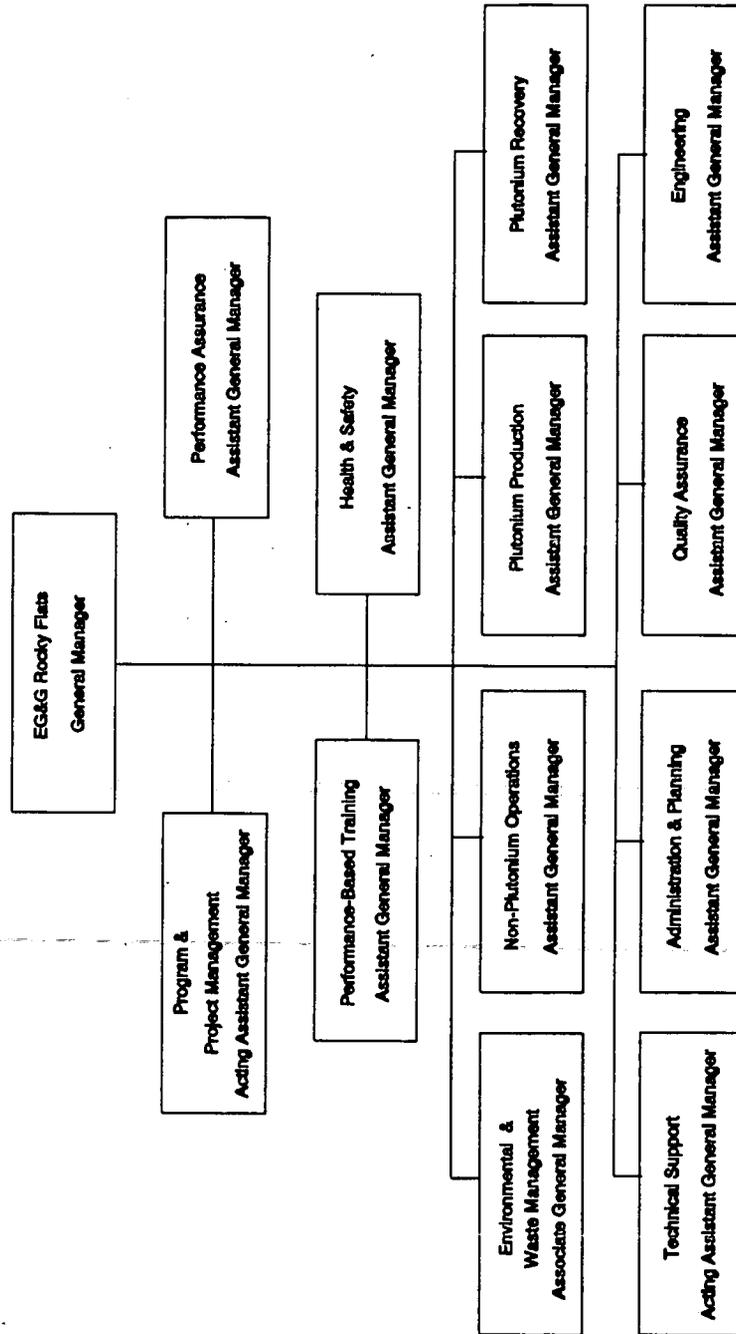
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Figure 1-1
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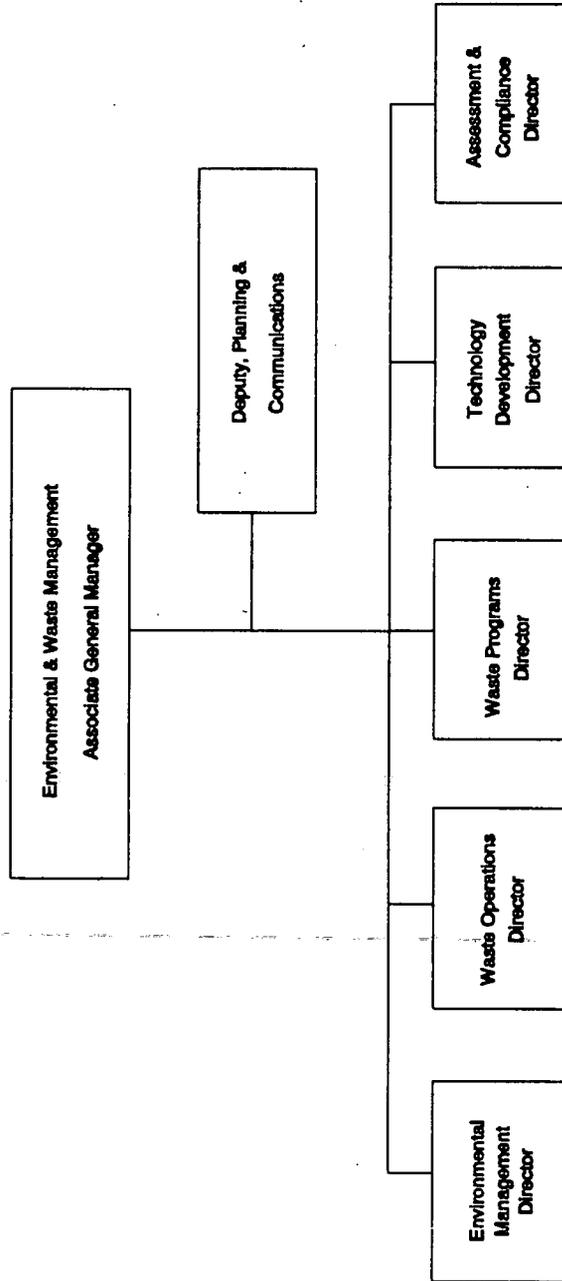
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Figure 1-2

ENVIRONMENTAL & WASTE MANAGEMENT



ORGANIZATION AND RESPONSIBILITY

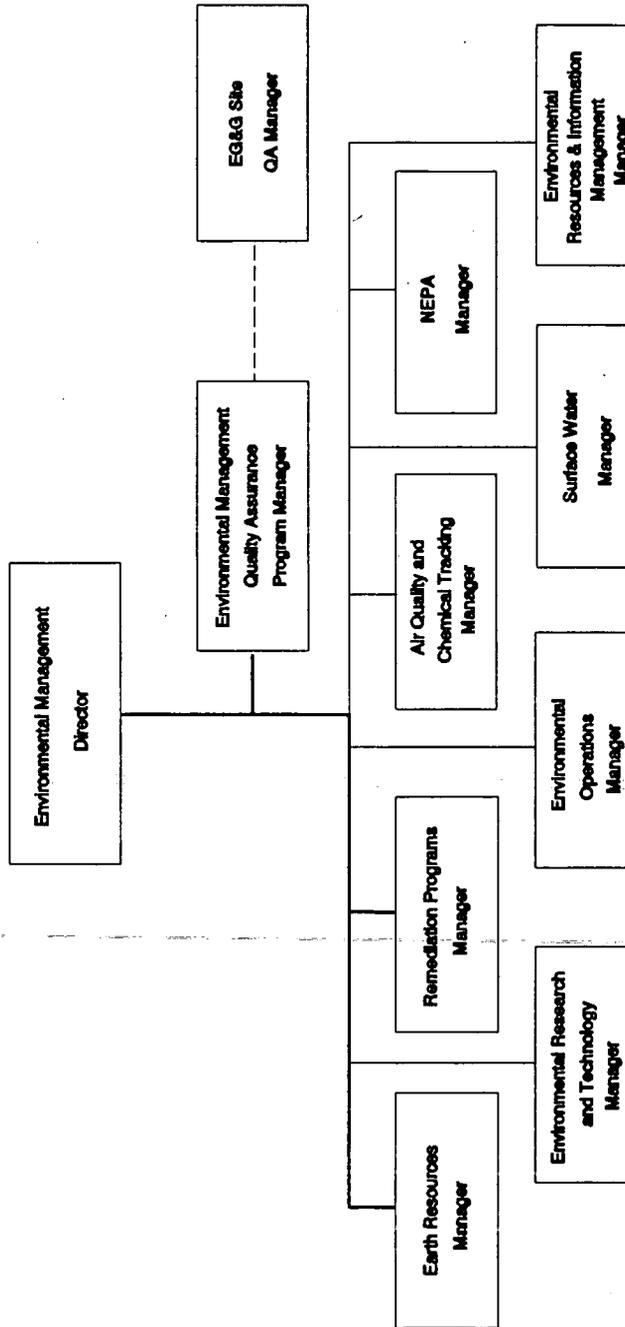
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Figure 1-3

ENVIRONMENTAL MANAGEMENT



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Air monitoring data are also used to identify concerns. These concerns are followed up to reduce emissions. Air monitoring data are used in emergency and unusual occurrence response. Results of air monitoring programs are reported to DOE management and Federal, state, and local regulatory agencies monthly. AQCTD staff also provide emergency response assessments of potential off-site impacts from accidental atmospheric releases of radioactive or other toxic materials. The organizational groups within the AQCTD include: (1) Clean Air Act, which is comprised of Air Surveillance Programs and Air Permitting and Compliance; (2) Air Programs; and (3) Chemical Tracking Control System.

2.2 Surface Water Division

The Surface Water Division (SWD) is responsible for planning and implementation of surface water programs at RFP. The division provides oversight of plant operations that could impact surface water quality; maintains water discharge permits; implements surface water monitoring activities to ensure compliance with applicable environmental water laws and regulations; supports upgrades to plant operations pertaining to surface water; and performs or supports developmental activities for improved control, monitoring and/or treatment of surface waters. Monitoring requirements are established to demonstrate compliance with applicable existing and proposed regulations and to ensure that environmental impacts from plant activities are as low as reasonable achievable. The organizational groups within SWD include: (1) Surface Water Upgrades; (2) Planning and Implementation; (3) Operations and Surveillance; and (4) Regulatory Programs.

2.3 Remediation Programs Division

The Remediation Programs Division (RPD) is responsible for planning, implementing and managing all environmental restoration projects at the RFP. The division is responsible for all activities associated with the ER Program required by the IAG. The ER Program is designed to investigate and remediate contaminated sites at RFP that have been grouped into 16 operable units. The goal of the ER Program is to ensure that risks to human health and the environment are either reduced to prescribed levels or eliminated. Tasks associated the ER Program include remedial investigations, feasibility studies, environmental and human health risk assessments, remedial design, and remedial action. Organizational groups within RPD include: (1) CERCLA Sitewide Projects; (2) RCRA Closure Projects; (3) IAG Program Management; and (4) Technical Resources, which includes Field Operations, Geological Science, Risk Management, and Feasibility Study and Design.

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2.4 Environmental Operations Division

The Environmental Operations Division (EOD) is responsible for developing EM Department operational procedures, developing guidelines for and implementing data verification and validation, developing and maintaining an environmental database (the Rocky Flats Environmental Data Base System), and interfacing with other EG&G Rocky Flats organizations and departments concerning operational issues. EOD personnel also provide support to other EM and EG&G Rocky Flats Departments (i.e., Assurance Audits) in evaluating and auditing analytical laboratories to assure that those laboratories meet the requirements of EPA's Contract Laboratory Program required for ER Program by the IAG, DOE Environmental Measurements Laboratory program requirements for analytical work in support of radiological monitoring programs (guidelines and procedures issued annually by DOE EH-1), and any other applicable certification requirements. The EOD is also involved in conducting research on sampling methodologies, remote techniques for contaminant identification and quantification, real-time monitoring, and innovative approaches to sampling and analysis.

2.5 Earth Resources Division

The Earth Resources Division (ERD) is responsible for comprehensive geologic and hydrologic, and soils investigations and modeling, including providing geologic and hydrologic investigation support for ER Program activities. The organizational groups within ERD include: (1) Hydrogeologic Programs, and (2) Geochemical Programs.

2.6 National Environmental Policy Act Division

The National Environmental Policy Act (NEPA) Division is responsible for reviewing all proposed activities at RFP and providing all necessary NEPA assessments and documentation for those activities. The NEPA Division is responsible for collection of plant-wide biota, soils, archeological and cultural resource, and socioeconomic data to determine impacts from plant operations and/or changes to plant operations. The division is also responsible for the Supplemental Environmental Impact Statement (EIS) to the 1980 RFP EIS. The NEPA organizational groups include: (1) Technical Support; (2) Remediation and Risk; (3) Plant Review; and (4) Management and Integration.

2.7 Environmental Research and Technology

Environmental Research and Technology (ERT) is responsible for evaluation, development, and demonstration of environmental research and technology for the EM Department. ERT will focus on the needs of all EM Department divisions and will be responsible for coordinating and integrating projects designed to meet environmental

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technology development requirements of the IAG, the Federal Facilities Compliance Agreement, and the Agreement in Principle.

2.8 Environmental Resources and Information Management Division

The Environmental Resources and Information Management (ERIM) Division is responsible for providing administrative and management support for EM Department functions. This support includes coordination of information resources, records management, preparation of Department publications, automated systems coordination, subcontractor monitoring and coordination, and planning and budget coordination. The organizational groups of the ERIM include: (1) Information Resources Management; (2) Management System Branch; (3) Environmental Publications and Communications; (4) Automated System Coordination; (5) Environmental Information Systems; and (6) Management Engineering.

3.0 REQUIREMENTS

- 3.1 EM Department and contractor personnel who have been assigned responsibility for performing the work shall be responsible for achieving and maintaining quality. This requirement shall be met by incorporating applicable QA/QC requirements into project- and operable unit-specific work plans.
- 3.2 Interfaces between organizations and contractors shall be documented and responsibilities for the management of these interfaces shall be established in writing. Interface requirements for organizations outside of EM shall be documented in EM by those individuals responsible for preparing work plans and procedures. In addition, upper level plans and procedures (e.g., Environmental Requirement procedures) shall document the interface with other RFP organizations.
- 3.3 Responsibilities for work may be delegated in part or in total to other organizations and/or contractors, but ultimate responsibility shall be retained by the organization originally assigned, unless specifically forbidden by the applicable document. Responsibilities for each position identified by the management plan or work plan organizational structure shall be described within the plan. EM Department procedures that specify how administrative and operational activities are to be performed shall include a Responsibilities section, which assigns responsibilities for implementing each step of the activity.
- 3.4 Verification of overall quality shall be performed by qualified persons or organizations not responsible for performing the work. Verification shall be accomplished by inspection, surveillance, and/or audit (discussed in later sections of this QAPD).

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- 3.5 Audits and surveillances conducted to verify compliance with the QA requirements of this QAPD shall be conducted by the EG&G Rocky Flats Assurance Audits organization, which is within the Quality Engineering Department of the Quality Assurance Organization. These individuals are independent of EM Department cost and scheduling and have organizational freedom with regard to quality issues. Audits and surveillances conducted by Quality Assurance shall be supplemented by internal surveillances conducted under the direction of the QAPM and by oversight technical and QA inspections. These surveillances and inspections shall be conducted by individuals independent of the activities being conducted.
- 3.6 Individuals conducting audits, surveillances, and inspections to verify compliance with established QA requirements shall have access to EM Department management and access to work areas to identify quality problems, initiate requests for corrective action, and verify implementation and effectiveness of solutions. (See 21000-QAPD Sections 15.0 and 16.0 for control of nonconformances and corrective actions.) For contractors providing items or services for the EM Department work activities, this right of access shall be specified in procurement documents.

4.0 RESPONSIBILITIES

Individual responsibilities with regard to QA are summarized below. These responsibilities are discussed in additional detail within each of the subsequent sections of this QAPD. Responsibilities stated herein may be delegated to other individuals or organizations.

4.1 Environmental Management Department Director

- 4.1.1 Directs overall Department activities, including the establishment and implementation of the EM Department QA Program.
- 4.1.2 Assures the development of administrative and operating procedures, as necessary, that specify how the QAPD requirements are to be implemented.
- 4.1.3 Provides resolution of differences of opinion between the QAPM and other personnel involved in EM activities.
- 4.1.4 Approves EM Department-level procedures, instructions, and plans.
- 4.1.5 Determines, in consultation with the QAPM and division managers, those documents that require control of distribution according to 21000-QAPD Section 6.0, Document Control.

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- 4.1.6 Assures internal verification of QA Program implementation through audits, surveillance, management assessments, internal reviews, and peer reviews.
 - 4.1.7 Assures that only properly trained and qualified/certified personnel are used (as applicable) to perform EM Department activities. This particularly applies to inspectors and auditors.
 - 4.1.8 Assures that significant conditions adverse to quality, which result in the issuance of a Corrective Action Report, are identified, evaluated, and properly dispositioned, including identification of root cause(s).
 - 4.1.9 Establishes, staffs, and directs a document control and records management system to implement the requirements of 21000-QAPD Section 6.0, Document Control, and 21000-QAPD Section 17.0, Quality Assurance Records.
 - 4.1.10 Performs and documents annual appraisals that assess the adequacy and effectiveness of the EM Department QA Program, including the requirements of this QAPD. Input to this annual appraisal will be provided by division managers.
- 4.2 Quality Assurance Program Manager
- 4.2.1 Provides guidance and consultation for developing, implementing, and maintaining the QA Program. This includes providing direct assistance in implementation, as necessary.
 - 4.2.2 Interfaces with the EG&G Quality Assurance Organization concerning development and approval of the EM QA Program and verification of compliance with QA requirements.
 - 4.2.3 Interfaces with EG&G Rocky Flats Performance Assurance (PA) Organization concerning development and approval of EM Department administrative and operational procedures.
 - 4.2.4 Directs the QA activities of the EM Department and ensures the maintenance and monitoring of the EM Department QA Program.
 - 4.2.5 Reviews procurement documents to ensure applicable QA Program elements have been passed on to suppliers and contractors.

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- 4.2.6 Verifies effective implementation and maintenance of a QA Records system.
- 4.2.7 Provides QA indoctrination and training in the requirements of this QAPD.
- 4.2.8 Assures that contractor/vendor surveillance and compliance audits are performed.
- 4.2.9 Provides independent internal or EM surveillance personnel for activity oversight surveillance scheduled by division quality coordinators, and verifies that inspections and tests are performed and that inspection/test personnel are independent and properly qualified/certified.
- 4.2.10 Arranges for QA inspection of EM Department activities. This includes establishing criteria and arranging for the implementation of such inspections.
- 4.2.11 Develops quality verification activity (i.e., surveillance, audit, inspection) schedules.
- 4.2.12 Concurs on all EM Department work plans, procedures, and instructions for those activities that affect quality.
- 4.2.13 Reports the results of quality verification activities to the EM Department Director and appropriate Division Managers and Project Managers.
- 4.2.14 Assigns Nonconformance Reports (NCR) to responsible EM Department division managers for disposition.
- 4.2.15 Concurs with NCR dispositions and maintains a system for tracking NCRs and evaluating trends in nonconformances.
- 4.2.16 Monitors corrective action documentation for conditions adverse to quality, evaluates Corrective Action Report (CAR) responses, verifies implementation of corrective actions, verifies effectiveness of corrective actions, tracks and evaluates trends in corrective action status, and performs closure of corrective action documentation upon satisfactory completion of corrective action.
- 4.2.17 Prepares and issues, on a monthly basis, an Information and Tracking Report for QA Program activities.

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4.3 Division Managers

- 4.3.1 Assign Group Managers and Program/Project Managers.
- 4.3.2 Develop and implement programmatic management plans.
- 4.3.3 Assure that division personnel are qualified according to EM Department procedure 3-21000-ADM-02.02, Personnel Qualification (Draft), and trained according to the requirements specified in 21000-QAPD Section 2.0 and EM Department procedure 3-21000-ADM-02.01, Indoctrination and Training (Draft).
- 4.3.4 Provide input to the EM Department Director at least annually or as requested regarding implementation and effectiveness of the QA program.
- 4.3.5 Designate a Technical Point-of-Contact for major procurement and subcontract activities.
- 4.3.6 Assign responsibility for development of, and approve division-level plans, procedures, instructions, and revisions.
- 4.3.7 Assign a Quality Coordinator for the Division.
- 4.3.8 Establish controls for analytical and monitoring processes to assure processes are maintained within acceptable operating limits and that valid data quality levels are maintained.
- 4.3.9 Assure the development and approval of test plans and overview testing activities, and ensure that test results are properly documented.
- 4.3.10 In conjunction with the QAPM, and Project Managers assure the QA inspections program is implemented.
- 4.3.11 Implement the required technical inspection programs necessary to assure legal compliance and a quality product.
- 4.3.12 Provide input into quality verification schedules, and assure the availability of personnel participating in these activities.
- 4.3.13 Assign personnel to evaluate root causes for nonconformances, perform technical evaluations, and recommend dispositions.

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- 4.3.14 Concur with the dispositions and corrective actions identified in NCRs and assure that nonconforming conditions are addressed in a timely manner.
 - 4.3.15 Assure that personnel generate, process, validate, maintain, classify, and disposition QA records in accordance with the requirements of this QAPD.
 - 4.3.16 Assure that the retention period of QA records is identified.
 - 4.3.17 Interface directly with DOE; other EG&G Rocky Flats organizations; and applicable Federal, state, and local regulatory agencies concerning programmatic requirements and management of environmental programs for which they are responsible (as defined in Division Charters).
- 4.4 Division Quality Coordinators
- 4.4.1 Coordinate QA Program activities within their respective EM Department divisions.
 - 4.4.2 Provide guidance to other personnel in meeting QA Program requirements.
 - 4.4.3 Assure that plans, procedures, and instructions specific to the division are developed, approved, and implemented.
 - 4.4.4 Maintain direct communication and liaison with the EM Department QAPM and direct line authority in conjunction with the division manager for the implementation of the QA Program within their division.
 - 4.4.5 Participate in procurement quality planning; supplier evaluation, selection, and approval at the Division level; and coordinate receipt and source inspection and verification activities.
 - 4.4.6 Verify that any special requirements for handling, shipping, and storage are specified on purchase requisitions and verify the special conditions that have been specified are being met during receipt inspections and at vendor's facilities, as appropriate.
 - 4.4.7 Coordinate with and support the EM Department ERIM in records management functions associated with QA records produced within their respective divisions.
 - 4.4.8 Schedule and coordinate oversight inspections for division activities.

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4.5 Program/Project Managers

- 4.5.1 Develop and assure approval of project/operable unit-specific work plans according to EM Department procedure 3-21000-ADM-05.09, EM Work Plan Development (in preparation, see Appendix C for status and milestone date for this procedure).
- 4.5.2 Assure operational procedures and instructions are developed and approved according to EM Department procedure 3-21000-ADM-05.01, Procedure Development, for all program/project-specific activities.
- 4.5.3 Coordinate implementation of all work activities addressed by the program/project work plan.
- 4.5.4 Assure that all quality-affecting activities are conducted using adequate and approved work plans and procedures.
- 4.5.5 Interface directly with DOE; other EG&G Rocky Flats organizations; contractors (as appropriate); and applicable Federal, state, and local regulatory agencies concerning implementation of program/project activities.
- 4.5.6 Assure that Measuring and Test Equipment (M&TE) used in the collection of data are properly calibrated and that measurements performed with out-of-calibration M&TE are documented through the NCR system.
- 4.5.7 Report to division managers; the Department Director; DOE; and applicable Federal, state, and local regulatory agencies regarding implementation and results of program/project activities.

4.6 Environmental Management Department and Division Personnel

- 4.6.1 Implement operational procedures for their assigned tasks and the requirements in this QAPD.
- 4.6.2 Promptly report any conditions adverse to quality to line management and the QAPM through implementation of the NCR system.
- 4.6.3 Provide recommendations for program improvements using the Controlled Document Revision Request or the Document Change Notice system. Such recommendations may also be transmitted informally to line management or the QAPM.

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4.6.4 As assigned by division managers, evaluate root cause, perform technical evaluation, and recommend disposition for nonconformances.

4.7 Other EG&G Rocky Flats Organizations and Departments

4.7.1 Site Quality Assurance Organization - reviews and approves EM Department QA Program plans including this QAPD and the QAPJP and conducts QA compliance and surveillances.

4.7.2 Assurance Audits - conducts QA compliance audits.

4.7.3 Site Procurement - procurement of all items and services for implementation of EM Department activities.

4.7.4 Engineering - provides engineering and design support to EM programs and projects.

4.7.5 Facilities Project Management - provides project administration and construction support to EM programs and projects.

4.7.6 Occupational Health and Safety (OH&S) - reviews and approves all EM Department and contractor project-specific Health and Safety Plans and assigns a Health and Safety Coordinator (HSC) to EM projects. The HSC is responsible for securing the services of health physicists, industrial hygienists, and safety engineers from within OH&S for each project. The HSC monitors construction for personnel protection and industrial safety considerations, conducts health and safety work-site inspections, documents health and safety audits, and reviews all health and safety-related submittals prior to issuance.

4.7.7 Waste Operations - collection, transport, storage, treatment, and disposal of solid and liquid wastes produced during implementation of EM Department activities. All wastes will be placed in appropriate containers provided by Waste Operations, EM Department, and contractor personnel.

4.7.8 Performance-Based Training - provide support in developing and implementing EM Department personnel training requirements.

4.7.9 Responsibilities other than those defined above may be assigned to other EG&G Rocky Flats organizations or departments as identified in program/project-specific work plans.

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TITLE:
Quality Assurance Program

Approved By:


EM Department Director

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1.0 SCOPE

This section establishes the QA Program requirements that govern EM Department quality-affecting activities. The QA Program identifies and addresses the 22 QRs of the EG&G Rocky Flats Site Quality Assurance Manual (RF QAM)(I). In addition to the QRs of the RF QAM, this QAPD also addresses the applicable requirements of DOE Order 5400.1, General Environmental Protection Program; DOE/EH-0173T, Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance; and DOE/EH 0053, The Environmental Survey Manual, Volumes 1 through 4. The Quality Assurance Manual includes the quality requirements contained in DOE Order 5600.6B, Quality Assurance; ASME NQA-1, Quality Assurance Program Requirements for Nuclear Facilities (including the supplemental requirements); DOE RFO, Quality Assurance Requirements for Rocky Flats Management and Operations (QAR); DOE RFO SOP 5700.6B, Quality Assurance. The requirements are applicable to all EM Department and contractor personnel involved in providing items and services for quality-affecting EM Department activities. The QA Program requirements applicable to the EM Department, and the resulting QA plans, are illustrated in Figure 2-1.

- 1.1 Requirements 2.4.3 of QR-2 of the RF QAM, Qualification of Nondestructive Examination (NDE) Personnel, is not applicable to the EM Department QA Program. This requirement provides amplified requirements for the qualification of personnel who perform radiographic, magnetic particle, ultrasonic, liquid penetrant, eddy current, neutron radiographic, and leak testing. Use of NDEs is not anticipated to determine quality of EM Department items and activities.

2.0 REQUIREMENTS

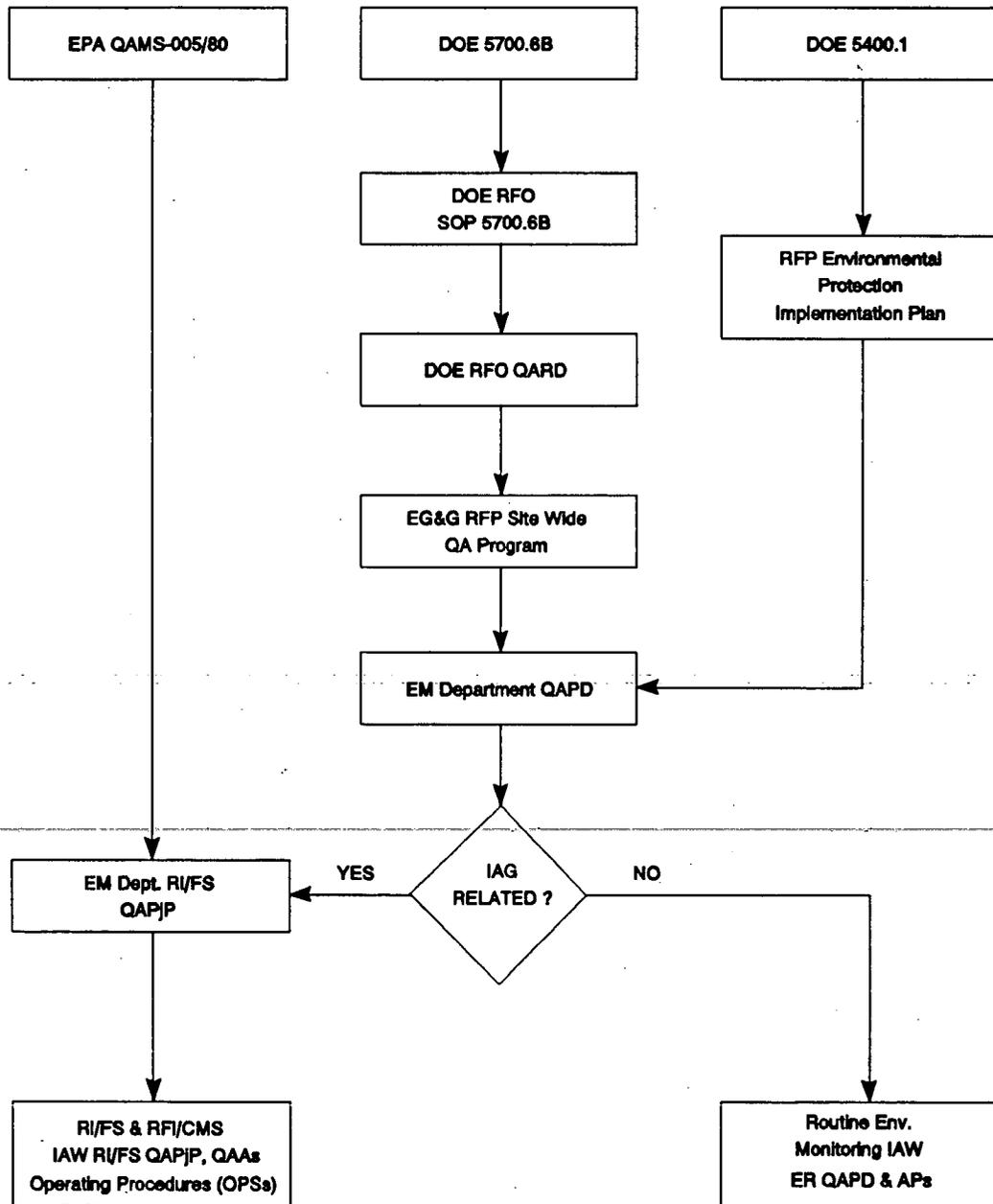
- 2.1 QA Program requirements shall be incorporated into EM Department activities through the preparation of project and operable unit-specific work plans, which describe the work activities to be implemented. QA Program planning shall provide for:
 - 2.1.1 Suitably controlled conditions, including the use of appropriate equipment, suitable environmental conditions for accomplishing the activity, and assurance that prerequisites for the activity have been satisfied.

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Figure 2-1 QA Requirements Applicable to the EM Department



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- 2.1.2 Any special controls, test equipment, tools, and skills needed to attain the required quality and for verification of that quality.
- 2.1.3 Consideration of technical aspects of activities affecting quality.
- 2.2 EG&G Rocky Flats contractors that provide items and/or services for quality-affecting EM Department activities shall conduct their work in accordance with QA Program requirements that govern EM Department quality-affecting activities. EM Department contractors shall

provide items and/or services in accordance with this QAPD, or in accordance with their own QA Plan that has been reviewed and concurred with by the EM Department Director, the QAPM, and the respective project manager. The contractor's QA Plan must be consistent with this QAPD for the item or service the contractor is providing to the EM Department.

- 2.3 Procedures shall be established to control the implementation of EM Department activities to the extent consistent with their importance to public and worker health and safety, environmental protection, and quality of products (e.g., data, compliance reports, remedial actions). These administrative and operating procedures shall be developed according to the requirements identified in 21000-QAPD Section 5.0 for planning, work accomplishment, sampling, testing, and analysis activities. The EM Department Director or delegate shall maintain an index of the EM Department QA Program procedures. This index is presented as Appendix C, and lists EM Department administrative and operational procedures that have been identified for implementing the EM QA Program.

The EM Department Procedures Index presented in Appendix C is a dynamic document that is subject to change as the need for additional procedures are recognized, or existing procedures are superseded. Many of the EM Department administrative and operational procedures listed on the index, and referenced in this QAPD, are still subject to review and approval. Therefore, the procedure numbering system and the procedure titles referenced may change. Once a procedure has been superseded and rendered non-applicable, its number will not be reissued.

- 2.4 This QAPD provides for the identification of required quality-related records produced from implementation of EM Department programs and projects and the administrative and operating procedures required to control work activities. The requirements for QA Records are identified in 21000-QAPD Section 17.0.
- 2.5 Readiness Reviews shall be performed according to EM Department procedure 3-21000-ADM-18.03, Readiness Review, for planned EM Department activities. Readiness Reviews are not applicable to ongoing activities. Readiness Reviews shall

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be performed prior to the initiation of planned work projects that have the potential to impact the environmental programs. Readiness reviews provide a structured method for determining if an activity is ready to proceed. If a particular project consists of multiple phases, that are conducted sequentially, a Readiness Review will be conducted prior to each phase. They shall include, as a minimum, review of functional readiness, personnel, procedures, and regulatory compliance.

2.5.1 Readiness Reviews shall be planned, performed, and documented in accordance with EM Department Procedure 3-21000-ADM-18.03.

2.5.2 Readiness Reviews shall be scheduled and completed in sufficient time to avoid delaying the scheduled startup of the activity.

2.5.3 Readiness Reviews shall provide evidence that:

1. Work activity prerequisites have been satisfied (e.g., applicable IAG Scope of Work deliverables have been developed and approved).
2. Detailed OPS have been submitted, reviewed, and approved.
3. Personnel have been suitably trained and qualified.

2.6 The selective application of management controls and the amount of effort assigned to each item and activity shall be commensurate with the following factors:

1. Consequence of failure,
2. Importance of data,
3. Complexity of function,
4. Reliability of process,
5. Reproducibility of results,
6. Uniqueness of product,
7. Degree of functional product demonstration,
8. Degree of standardization,

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9. Quality history (i.e., previous difficulty in conducting an activity, known failure rates, history of producing non-verified or validated data, etc.),
 10. Impact on schedule and cost, and
 11. Necessity of special controls or processes.
- 2.7 The EM Department shall develop and implement procedures that establish the requirements for the selection, indoctrination, and training of personnel performing, verifying, or managing activities affecting quality. Draft EM Department procedures 3-21000-ADM-2.01, Indoctrination and Training, and 3-21000-ADM-2.02, Personnel Qualification, have been prepared. These procedures establish requirements for position descriptions, set forth minimum personnel qualifications, and provide for appropriate indoctrination and/or training prior to initiation of activities that affect quality. Personnel to be indoctrinated or trained, and the level of training and indoctrination required, shall be identified by Project, Group, and/or Division Managers:
- 2.7.1 The extent of indoctrination and training shall be commensurate with the following:
 1. The scope, complexity, and nature of the activity, and
 2. The education, experience, and proficiency of the person.
 - 2.7.2 Personnel shall be indoctrinated as to the purpose, scope, methods of implementation, and applicability of the following subjects as they relate to a particular function:
 1. General criteria, including applicable procedures, regulations, codes, standards, and instructions;
 2. Applicable QA Program elements, including this QAPD and implementing procedures applicable to the individual's job functions; and
 3. Job responsibilities and authorities.
 - 2.7.3 Training shall be provided as determined necessary by specified job requirements and/or the individual's immediate supervisor in order to:
 1. Achieve initial proficiency,
 2. Maintain proficiency, and
 3. Adapt to changes in technology, methods, or job responsibilities.

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- 2.7.4 Records of personnel qualification evaluations, indoctrination, and training shall be retained as QA records and maintained according to 21000-QAPD Section 17.0 and the Training User's Manual 1-10000 - TUM, Section 02.13.
- 2.8 EM activities requiring verification by qualified inspection and test personnel shall be identified in work plans and/or by Division, Group, or Project Managers. A procedure or procedures that specify the requirements for the qualification of inspection and test personnel shall be developed by the QAPM and added to the EM Department Administrative Procedures Manual. This procedure(s) shall contain specifications that ensure only those personnel who meet the requirements are permitted to perform inspection and test activities. The minimum requirements for inspection and test personnel are discussed in 21000-QAPD Section 10.0.
- 2.9 Audits of EM activities shall be conducted by EG&G Rocky Flats Assurance Audits Group. Since this function will be performed by Assurance Audits, the qualifications of audit personnel and the requirements for the use of technical and regulatory specialists to accomplish the audits of EM activities are not applicable to the EM QA Program.
- 2.10 An internal EM Department management appraisal shall be performed annually to assess the adequacy and effectiveness of the EM QA Program. This appraisal, conducted under the direction of the Department Manager, should include an evaluation of the following program aspects as a minimum:
1. Adequacy of planning and procedural controls,
 2. Effectiveness of the corrective actions,
 3. Adequacy of organization and staffing to implement the QA Program,
 4. Adequacy of the indoctrination and training program, and
 5. Adequacy of the quality assurance information tracking, evaluation, and reporting system.
- 2.11 An EM QA Program information tracking and evaluation report shall be prepared and issued monthly to the EM Department Director by the QAPM. The report shall contain, as appropriate:
1. Status of development and implementation of the QA Program,

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2. Status of resolution of significant conditions adverse to quality issues and trends, and
 3. Summary of Quality Assurance and EM Department management overview results (audits, surveillance, etc.), including both adverse conditions and exemplary practices.
- 2.12 Disputes involving the quality of items or activities within the EM Department, which arise from a difference of opinion, shall be documented by those individuals involved in the dispute and submitted to their respective managers, the QAPM, and the Department Director.
- 2.12.1 Such disputes shall be progressively elevated to higher organizational levels until resolved.
- 2.12.2 The resolution of a dispute shall be documented.

3.0 RESPONSIBILITIES

The assignment of responsibilities for QA program management, implementation, control, and verification is established in 21000-QAPD Section 1.0. In addition to those assignments, the specific responsibilities for implementing the QA criteria discussed in 21000-QAPD Sections 3.0 to 18.0 are established within those sections. The following responsibilities are limited to Readiness Reviews: Personnel Selection, Indoctrination, Training, and Qualification; Management Assessment; and Information Reporting and Tracking.

- 3.1 The EM Department Director is responsible for the development and implementation of the EM Department QA Program. The Department Director, or designee, shall perform annual management assessments of the EM Department QA Program.
- 3.2 The QAPM or designee, shall plan, conduct, and document a Readiness Review for planned EM activities, including one for each new phase or significant modification according to EM Department procedure 3-21000-ADM-18.03, Readiness Review. The QAPM, or designee, shall provide for key elements in each Readiness Review, including selection of a Readiness Review Team Leader and knowledgeable members and appropriate detailed Readiness Review checklists.
- 3.3 The QAPM shall interface with Assurance Audits and division managers to monitor the implementation and effectiveness of QA training through audits and surveillances. The QAPM shall prepare and issue the monthly Information and Tracking Report.

QUALITY ASSURANCE PROGRAM

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- 3.4 The Division Managers shall be responsible for establishing the qualification and proficiency training needs for personnel within their Divisions and determining the necessary QA Program training required. This includes, but is not limited to:
1. Determining the training and experience requirements of personnel within their division (specific programmatic, project and/or operable unit training requirements may be identified by Group or Project Managers).
 2. Planning recommended training.
 3. Assigning a required reading list.
 4. Documenting that an employee has an adequate understanding of the requirements, procedures, and activities required to perform anticipated tasks according to EM Department procedure 3-21000-ADM-02.02, Personnel Qualification.
 5. Transmitting to the Division Training Coordinator a copy of each employee's training records, including updates.

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TITLE:
Design Control and Control of
Scientific Investigations

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes EM Department quality-related requirements and responsibilities to ensure that design controls applicable to design of facilities, structures, items, software, and scientific investigations are selected, verified, and approved. The extent of application of quality requirements shall be specified in design control procedures, work plans, sampling and analysis plans, and/or Quality Assurance Addenda specific to each planned activity or project. These requirements are applicable to EM Department personnel and EM Department contractors.

2.0 REQUIREMENTS

There is no engineering design or facilities construction function within the EM Department. Design and construction of facilities, structures, and items used to implement EM activities are performed by the EG&G Rocky Flats Engineering Organization and Facilities Project Management (FPM) Department. Operational requirements for EM Facilities and structures are provided to Engineering by EM Project Managers. Performance specifications and/or requirements (referred to herein as design inputs) for the design and construction of facilities, structures, and items needed for implementation of EM activities are then provided to EM by Engineering according to established Engineering procedures. Design packages, which include design specifications and drawings, that are prepared by Engineering based on the Operational Requirements Document (ORD) provided by EM Project Managers are reviewed for concurrence by EM Project Managers and other involved EG&G Rocky Flats organizations according to established Engineering procedures, prior to initiation of construction of the facility, structure, or item. The design control requirements applicable to providing design specifications/requirements and concurrence of design specifications and drawings are identified and addressed below in Subsection 2.1.

The majority of work performed by the EM Department involves the collection, analysis, verification/validation, and reporting of environmental data to demonstrate compliance with Federal, state, and local environmental protection and public health and safety laws and regulations. The QA requirements for Scientific Investigations contained in the RF QAM are applicable to the environmental investigations performed by the EM Department divisions. Therefore, the environmental investigation and regulatory compliance activities performed by EM are referred to in this QAPD as Scientific

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Investigations. The scientific investigation requirements applicable to environmental investigation and compliance activities are identified and addressed below in Subsection 2.2.

2.1 Design control requirements for facilities, structures, and items

- 2.1.1 For those EM projects that require engineering design for construction and/or manufacture of a facility, structure, or item to implement the work activities associated with the project, the cognizant EM Project Manager shall initiate the design process by preparing an Engineering Job Order of the facility, structure, or item according to Engineering Procedure No. FAC-12, Rev. 4, Engineering Job Order. The Engineering Job Order and Operational Requirements Document (see 2.1.3) shall identify the preliminary scope of the project and known performance and regulatory requirements.
- 2.1.2 The EM Project Manager shall submit the Engineering Job Order to FPM for preparation of a preliminary scope and estimate of the task by FPM and Engineering according to Procedure No. FAC-3, Rev. 0.
- 2.1.3 The EM Project Manager shall prepare an Operation Requirements Document as an attachment to the Engineering Job Order according to Engineering Procedure No. DES-27, Rev. 2, which describes the operational needs (i.e., electrical power and heating and cooling control requirements) of the proposed facility, structure, or item.
- 2.1.4 Engineering shall prepare the Specifications and Drawings Package for the facility, structure, or item and submit this package for review and concurrence to the EM Project Manager and other affected RFP organizations.
- 2.1.5 Applicable design inputs (i.e., performance specifications and/or requirements) shall be specified as early as possible in the planning stage by the EM Project Manager and submitted to Engineering for translation into design documents.
- 2.1.6 Design inputs are established by Engineering based on the ORD provided by EM. The ORD shall be specified to a level of detail necessary to permit the design activity to be carried out in a correct manner and to provide a consistent basis for making design decisions, accomplishing design verification measures, and evaluating proposed design changes. Changes to the approved ORD design inputs shall be identified and justified by the

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responsible EM Project Manager and submitted to Engineering and FPM for inclusion into the design package.

- 2.1.7 Design specification and drawing packages produced by Engineering shall meet the following requirements:
- 2.1.7.1 Applicable design specifications, including design bases, performance requirements, operational requirements, safety requirements, security requirements, and regulatory codes and standards shall be identified and documented by Engineering according to the conduct of Engineering Manual. Design specifications shall be reviewed and concurred on in writing, by the responsible EM Project Manager.
 - 2.1.7.2 The design package shall be verified and approved in writing according to Engineering and FPM design control procedures and submitted to FPM for control and distribution.
 - 2.1.7.3 Design changes shall be governed by the same control measures as those applied to the original design with the exception of field changes. Field changes shall be documented and approved according to the requirements of the Conduct of Engineering Manual.
- 2.1.8 Individuals, departments, facilities, agencies, and contractors shall have defined interfaces. These interfaces shall be identified in work plans or Project Management Plans that are prepared for projects that require the acquisition, design and construction of DOE facilities and structures by DOE Order 4700.1, Project Management.
- 2.1.9 The extent of the design control program shall depend on safety factors, standard vs. experimental design, degree of design development needed (i.e., conceptual, preliminary, detailed, field engineering, facility modification), interfaces between design and construction activities, and effect of design changes on the safe operation of the planned facility or the RFP as a whole.

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2.2 Design control requirements for scientific investigation activities and services

2.2.1 The EM Department and/or contractors shall develop work planning documents. These work planning documents (referred to herein as work plans) shall be developed for each EM work project and ER Program remedial investigation, treatability study, and remedial action. Work plans shall be developed according to EM Department Procedures 3-21000-ADM-05.03, Work Plan Development for Remedial Investigations, and 3-21000-ADM-05.09, EM Work Plan Development. Work plans shall contain the following, as a minimum:

- 2.2.1.1 A description of the work to be performed.
- 2.2.1.2 Scope and objectives of the work to be performed. The rationale and justification for the information to be obtained should also be discussed.
- 2.2.1.3 Reference to approved sampling and analysis procedures proposed for use, and identification of sampling and analysis procedures that may need to be developed.
- 2.2.1.4 Identification of applicable regulations, codes, and standards.
- 2.2.1.5 Field and laboratory quality control (QC) measures, including types and frequencies of QC samples and analyses that are appropriate for the project, investigation, study, or action.
- 2.2.1.6 Data validation, reduction, and reporting.
- 2.2.1.7 References to applicable documents and/or data.
- 2.2.1.8 Description of the application of the results.
- 2.2.1.9 Description of equipment, materials, and instrumentation to be used, or reference to operational procedures that describe equipment, materials, and instrumentation to be used to implement the applicable procedure.

2.2.2 EM Department work plans shall be prepared, reviewed, approved, and revised according to the requirements of 21000-QAPD Section 5.0, Instructions, Procedures, Plans, and Drawings. EM Department planning

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documents developed, approved, and utilized prior to the implementation of this QAPD may be used in lieu of developing replacements.

- 2.2.3 Data Quality Objectives (DQOs) are required to be developed for ER Program remedial investigations and studies by EPA-QAMS/80. DQOs shall be established in ER Program work plans prior to the initiation of field or laboratory work. The process for developing DQOs is outlined in Appendix A of the QAPjP.
- 2.2.4 For non-ER Program related project work plans, specific objectives of the data collection program shall be specified and the type of data to be collected identified. Any data quality requirements that are specified in project requirements should be addressed. The DQO development process outlined in Appendix A of the QAPjP may be used but is not a requirement.
- 2.2.5 Specific sampling procedures for EM Department activities shall be outlined in approved operating procedures, which shall be specified in work plans.
- 2.2.6 Analytical methods used to generate sample data shall be specified in work plans. Standard EPA analytical methods (i.e., EPA Contract Laboratory Program [CLP] methods or SW-846, EPA Methods for Chemical Analysis of Water and Wastes) are the preferred methods for analyses and should be used whenever possible. The EG&G Rocky Flats General Radiochemistry and Routine Analytical Services Protocol (GRRASP), Parts A and B, identifies the preferred methods for sample analysis for environmental samples. The methods in the GRRASP shall be used by analytical laboratories unless other methods are specified in the project-specific work plan.
- 2.2.7 Field sampling QC methods that should be considered for use to ensure data quality include the collection/preparation of duplicate samples, field blanks, trip blanks, sampling equipment rinsate blanks, replicate samples, and replicate field measurements. QC of Radiological Ambient Air Monitoring Program sample analysis shall be accomplished through submittal of independent blind samples to the analytical laboratories by EG&G. Oversight inspections of field sampling activities by independent individuals shall also be performed.

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- 2.2.8 Laboratory QC measures shall be incorporated into the analysis of environmental samples. Laboratory QC techniques that should be considered for use to ensure consistency and validity of analytical results include using reagent blanks, field blanks, internal standard reference samples, analytical replicates, matrix duplicates, and matrix spike duplicates. The GRRASP specifies the requirements for the type and frequency of laboratory QC samples for each method of analysis that analytical laboratories must comply with. For methods of analysis that are different from those specified in the GRRASP, the laboratory QC techniques that should be used shall be specified or referenced in work plans.
- 2.2.9 Analytical parameters of interest and required detection limits are specified in Parts A and B of the GRRASP and shall also be specified in work plans.
- 2.2.10 Reduction of field and laboratory data shall be controlled using the following methods:
- 2.2.10.1 Field measurements, data, and observations shall be recorded in appropriate logbooks or data sheets, as specified in the field sampling procedure. The data shall be legible and in indelible ink. Entries, including changes, shall be signed and dated by the originator. Field data records shall be organized and retained in a QA records system. The reduced data records will be sufficiently detailed to provide a complete and accurate history of data gathering and results.
- 2.2.10.2 Laboratory data will be generated by sample analysis, and a raw data set prepared through computerized or manual algorithms. The raw data sets shall be compared to known or expected values. A second verification of laboratory data reduction shall occur during the data validation process.
- 2.2.10.3 Data reduction activities/calculations shall be subject to documented formal review according to EM Department Procedure No. 21000-ADM-03.07, Control of Calculation and Analysis, prior to final issuance.
- 2.2.11 All field and laboratory data shall be verified, validated and evaluated for quality using the following methods:

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- 2.2.11.1 Field data shall be validated through periodic internal surveillance and oversight inspections during field collection. A complete review by the EM division responsible for collecting the field data or a field data validation contractor shall be conducted as specified in Operating Procedure 5-21000-OPS-FO.14, Field Data Management, to ensure that correct codes and units have been used and flag anomalous data have been flagged.
- 2.2.11.2 EG&G or a laboratory validation contractor shall review and validate laboratory data in accordance with data validation guidelines established by EPA in Laboratory Data Validation Functional Guidelines for Evaluating Organic and Inorganic Analyses and the following EG&G Rocky Flats data validation guidelines:
1. Water Quality Parameter Data Validation Guidelines (9/89 and Rev. 3/90)
 2. Radiochemical Data Validation Guidelines - Tritium Analyses by Liquid Scintillation (9/89 and Rev. 5/90)
 3. Radiochemical Data Validation Guidelines - Isotopic Analyses by Gamma Spectrometry (Draft 1/91)
 4. Radiochemical Data Validation Guidelines - Gross Alpha/Beta by Gas Proportional Counters (9/89 and Rev 5/90)
 5. Radiochemical Data Validation Guidelines - Isotopic Analyses by Alpha Spectrometry (9/89 and Rev. 5.90)
- 2.2.11.3 The AQCTD shall review, verify, and validate ambient air and stack effluent data prior to input into the RFP Monthly Data Exchange Report. Field and laboratory air quality data shall be compiled into regulatory reports by the AQCTD.
- 2.2.11.4 The quality of air monitoring programs that are under the jurisdiction of the Federal Clean Air Act shall be verified by the AQCTD by performing internal surveillance, which are defined as system audits by EPA.

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2.2.11.5 Source operational, through-put, flowrate, and other data required for the Colorado Department of Health Air Pollution Emission Notice Reports and/or Air Emissions Permits shall be verified through peer review according to AQCTD-approved procedures.

2.2.12 Results of data validation shall be reported in EM Department Data Assessment Summary reports. These reports shall be considered QA records and handled according to requirements described in 21000-QAPD Section 17.0, Quality Assurance Records.

2.2.13 Data assessment shall be conducted by the data end user to determine data usability and validity for the particular end product. The quality, validity, and appropriate use of the data shall be determined by the data users prior to use. Calculations shall be documented so that the steps, assumptions, and reasoning behind the calculations can be understood. An independent scientist or engineer with qualifications necessary to conduct the work, who is not directly involved with the work, shall check the accuracy of calculations. Both the originator and reviewer are responsible for the completeness and accuracy of the calculations and shall sign their name and date to certify that the methodology is technically valid.

2.2.14 Data validation criteria have been established for EM data. Data validation criteria include:

1. Following specified analytical methods
2. Collection and analysis of specified QC samples
3. Achieving acceptance for analysis of QC samples
4. Meeting required detection limits
5. Correct identification of compounds and analytes
6. Meeting equipment/instrumentation calibration criteria
7. Meeting sample holding times

The process for evaluating whether the above criteria have been met are described in the validation guidelines referenced in 2.2.11.2 Data that meet validation criteria shall be considered valid and usable for their intended purpose. Data that meet some, but not all, validation criteria may be considered acceptable with qualifications, and shall be flagged and/or documented as such. Data that fail to meet validation criteria shall be considered unusable and shall be flagged and/or documented as rejected data and segregated from usable data whenever possible.

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- 2.2.15 Independent peer reviews shall be conducted for state-of-the-art criteria, principles, and practices. Peer reviews shall be documented and approved by the EM Department management representative. When data require technical evaluation for applicability, correctness, adequacy, completeness, and assurance that established requirements are satisfied, a technical review shall be performed. The reviewers shall have adequate technical knowledge of the area under review to be able to provide a substantive opinion. The original document and resultant changes to the document shall be included in the document package and forwarded to the QA records management system. Independent reviews shall be performed and documented in accordance with approved procedures.
- 2.2.16 Technical reports shall be reviewed prior to issuance by the QAPM, a peer, and the responsible manager.

3.0 RESPONSIBILITIES

- 3.1 The EM Department Director shall have overall responsibility for the development and implementation of approved procedural methods for design controls as specified in this section.
- 3.2 Division Managers shall be responsible for reviewing and approving scientific investigation plans and technical reports developed within their divisions.
- 3.3 All EM Department organizations, personnel, and their contractors shall be responsible for adherence to and compliance with design control, computer software control, and scientific investigation control plans and procedures.
- 3.4 The QAPM shall be responsible for verifying adherence to approved procedures and requirements.
- 3.5 EOD shall be responsible for validating laboratory analytical data.
- 3.6 The AQCTD shall review, verify, and report air monitoring data.
- 3.7 The ERIM shall be responsible for verifying adherence to QA requirements for software.

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TITLE:
Procurement Document Control

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the requirements and responsibilities to assure that applicable design bases and other requirements/specifications necessary to assure adequate quality of purchased items and services for EM Department activities have been included or referenced in procurement documents. These requirements are applicable to all EM Department personnel who are involved in the procurement of items or services. The extent of QA requirements applied to the purchase of items and services are based on several factors, including:

1. The importance of the item or service to the quality of data;
2. The complexity or uniqueness of the item or service;
3. The importance of the item or service to public health and safety and environmental protection;
4. The potential for environmental impact(s); and
5. The quality history of the supplier.

The majority of EM Department procurements are for services, with some capital equipment and supplies purchases. Procurement of engineered items and structures shall be performed by Engineering according to Engineering procurement procedures.

2.0 REQUIREMENTS

- 2.1 Procurement documents shall be prepared, reviewed, approved, and revised in accordance with approved EM Department and EG&G Rocky Flats Site Procurement procedures. An EM Department procedure for Procurement Document Control (3-21000-ADM-04.01) shall be prepared under the direction of the QAPM to implement the requirements of this section. This procedure shall outline the actions and responsibilities for procurement of items and services necessary for implementing EM activities, such that applicable regulatory requirements, performance standards, and design bases are included or referenced in procurement documents. This procedure

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shall be consistent with and interface with Procurement Quality Engineering procedures that define safety and non-safety related functional classifications for facilities/systems and design packages, describe the development of graded safety categories, and specify the level of quality control to assure a purchased item/service meets its intended function. The procedure shall also identify interfaces with the Site Procurement Department and Procurement Quality Engineering. The following requirements shall be incorporated into Procedure No. 3-21000-ADM-04.01.

- 2.2 Procurement of services and items for conducting EM activities shall be initiated through preparation of purchase requisitions according to Procurement Procedure No. 201, Purchase Requisition, and EM Procedure No. 3-21000-ADM-04.01. Procurement of new installations and facilities for use by EM, which constitute a modification to the RFP, shall adhere to procurement procedures in the Rocky Flats Configuration Change Control Program (CCCP) Manual and the Engineering Control Manual.
- 2.3 Procurement document packages (i.e., purchase requisitions) shall include provisions for the following, as applicable.
 - 2.3.1 A statement of supplier scope of work, including expected performance standards, technical specifications and requirements, and deliverables.
 - 2.3.2 Technical, regulatory, and documentation requirements, including those specified through licensing, permits, agreements, etc. The acceptance requirements for items and services shall also be included.
 - 2.3.3 QA/QC requirements, including the need to maintain and implement a documented QA/QC program meeting the applicable requirements of the EM Department QA Program. QA/QC requirements that are applicable to the item or service being procured shall be specified in the procurement document or accompanying documentation.
 - 2.3.4 Right of access to supplier's plant facilities and records.
 - 2.3.5 Supplier reporting of and disposition by EM Department of nonconformances and corrective actions.
 - 2.3.6 Technical and QA data specifications for spare parts, replacement parts, and assemblies.
- 2.4 The initiator of the purchase requisition shall identify the appropriate safety or non-safety functional classification and safety category as defined in Section 3.04.1 of the CCCP Manual for facilities/systems and Procedure 6.3.6 of the Conduct of Engineering

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Manual for design packages. The initiator shall also identify the applicable procurement level(s), which specify the level of quality control for procurement of items and services, as defined in Procedure 6.5.14 of the Conduct of Engineering Manual (COEM).

- 2.5 Preparation of procurement documents shall specify the intended method(s) of acceptance as described in 21000-QAPD Section 7.0, Control of Purchased Items and Services.
- 2.6 EM Department procurement document packages shall be reviewed by EM Department personnel, including the cognizant Project Manager and the Division Quality Coordinator, prior to submittal to purchasing to ensure that technical, regulatory, and QA requirements are incorporated. Procurement document packages for facilities, installations, and engineered items, where design input is provided by Engineering, shall be reviewed in accordance with the COEM to ensure technical specifications and requirements are met. Purchase requisitions shall be approved by the cognizant Division Manager and the Requisition Coordinator from the Site Procurement Department prior to submitting the purchase requisition to the Environmental Services section of the Site Procurement Department.
- 2.7 Purchase requisitions prepared for EM activities shall be submitted to Site Procurement Environmental Services along with a suggested supplier/vendor list. Procurement shall submit all purchase requisitions to Procurement Quality Engineering (PQE) for review and concurrence prior to processing the purchase requisition. PQE shall ensure that the safety or non-safety functional classification has been appropriately identified and that the correct safety category has been assigned to each purchase requisition. The PQE shall also ensure that the appropriate procurement level(s) is identified and included in the purchase requisition.
- 2.8 Procurement document changes shall be subject to the same controls as the original package.
- 2.9 Copies of procurement packages, including changes, shall be maintained by the EM Department as Quality Records as specified in 21000 QAPD-17.0, Quality Assurance Records.

3.0 RESPONSIBILITY

- 3.1 The Requisitioner, in conjunction with ERIM, shall prepare the procurement package by incorporating the requirements of paragraph 2.3. The Requisitioner shall approve all changes in the procurement package related to technical and QA requirements.

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- 3.2 The cognizant Division Quality Coordinator shall review procurement document packages generated within their respective Divisions to assure that QA requirements have been incorporated.
- 3.3 The appropriate EM Department Division Manager shall review and approve changes to procurement packages.
- 3.4 The Resource and Information Management Division Manager, or designee, shall assist in the preparation of procurement packages, review and approve EM Department procurements, and forward the procurement packages to EG&G RFP Procurement for awarding the procurement contract.
- 3.5 EG&G RFP Procurement shall process purchase requisitions and award the procurement contract to an approved supplier (21000-QAPD Section 7.0) and prepare purchase orders. Procurement personnel shall distribute copies of the purchase order to the EM Department for record keeping.

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TITLE:
Plans, Procedures,
Instructions, and Drawings

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the Environmental Management (EM) Department Quality Assurance (QA) requirements and responsibilities to assure that EM activities are prescribed and performed in accordance with documented work plans, procedures, instructions, and/or drawings. These requirements address the initiation, preparation, review, approval, and revision of work plans, procedures, quality-related instructions, and quality-related drawings for all EM Department quality-related activities.

The requirements herein apply to all EM Department personnel, contractors, and vendors involved in the generation, review, and approval of work plans, procedures, quality-related instructions, and quality-related drawings associated with EM Department activities.

2.0 REQUIREMENTS

- 2.1 EM Department activities shall be performed in accordance with documented and approved work plans, procedures, instructions, and/or drawings. EM Department projects, investigations, studies, and actions shall be conducted according to work plans, as required by 21000-QAPD Section 3.0. Administrative and operational tasks and activities shall be performed according to EM Department procedures or instructions. Contractors may provide items and/or services according to their internal operating procedures provided those procedures are submitted to EG&G for review and concurrence prior to initiating work.

The controls for the development, change or revision of plans, procedures, instructions and drawings associated with the design or modification of plant items and systems shall be performed in accordance with the Rocky Flats Configuration Change Control Program (CCCP) Manual and the Engineering Control Manual.

- 2.1.1 EM project work plans shall be prepared and approved according to EM Department procedure 3-21000-ADM-05.09, EM Work Plan Development; 3-21000-ADM-05.03, RFI/RI Work Plan Development, and other procedures specifically addressing work plan development. ER Program work plans required by the IAG shall be prepared, reviewed, and approved according to EM Department procedure 3-21000-ADM-05.03, RFI/RI Work Plan Development.

INSTRUCTIONS, PROCEDURES, PLANS, AND DRAWINGS

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- 2.1.2 EM Department administrative and operational procedures shall be prepared and approved according to EM Department procedure 3-21000-ADM-05.01, Procedure Development. This procedure is consistent with Performance Assurance procedures 1-11000-PAPG-001, Technical Procedure Preparation Process; 1-11000-PAPG-002, Administrative Procedures Preparation Process; and 1-11000-PAPG-003, Procedure Writers Guide for Technical and Administrative Procedures, and the EM Department plan for implementing these procedures.
- 2.1.3 For those EM activities that include tasks that will be implemented only once (e.g., a one-time sampling event, such as collecting a bulk soil sample), single-use instructions shall be developed. Single-use instructions shall be developed according to EM Department procedure 3-21000-ADM-05.10, Preparation of Instructions. Note: Procedure 3-21000-ADM-05.10 also addresses preparation of non-quality-related instructions (Desk Instruction).
- 2.2 All EM Department work plans, procedures, and quality-related instructions that prescribe work shall be reviewed. The review process shall be documented according to EM Department procedure 3-21000-ADM-05.05, Document Review.
- 2.3 In the event that compliance with approved work plans, procedures, and instructions is not feasible or appears to be unreasonable, the person making such a determination shall initiate action according to approved procedures using a Procedure Revision Request (PRR) (see 3-21000-ADM-05.05), Document Review or an approved Document Change Notice (DCN). The procedure for preparation, review, and approval of a DCN is described in EM Department procedure 3-21000-ADM-05.07, Document Change Notice. Under no circumstances shall a documented work plan, procedure, instruction, or drawing be bypassed or voided without documentation.
- 2.4 Instructions, procedures, plans, and/or drawings shall be prepared as appropriate to the circumstances (e.g., operating monitoring equipment in accordance with approved instructions). Instructions or procedures shall be prepared for each activity to the level of detail required to ensure that the activity can be consistently performed as required. Instructions and procedures for activities described in work plans shall be referenced in work plans.
- 2.5 Instructions, procedures, plans, and/or drawings shall include or reference appropriate quantitative or qualitative acceptance criteria and/or specifications for determining that prescribed activities have been completed as specified. If plans are used in lieu of, or in addition to, procedures (e.g., monitoring plans and work plans/field sampling plans), then these plans shall also include or reference appropriate acceptance criteria.

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- 2.6 Technical accuracy and QA requirements (e.g., tolerance, plus or minus acceptable criteria) shall be included, as appropriate, in instructions, procedures, plans, and/or drawings. When instructions, procedures, plans, and drawings direct activities involving interfaces between organizations, those interfaces shall be identified, defined, and the organization shall participate in the review.
- 2.7 Quality assurance and independent peer reviews (i.e., performed by person(s) other than the original author) of all quality-related instructions, procedures, plans, and quality-related drawings shall be performed to assure technical adequacy, inclusion of QA requirements, and compliance with applicable Federal, state, and local regulations, codes, and standards. All reviews and approvals shall be documented according to the requirements contained in 21000-QAPD-6.
- 2.8 EM Department operational procedures and instructions shall be submitted to EG&G Rocky Flats Health and Safety, Site Quality Assurance Organization, and Nuclear Safety for review and concurrence, as appropriate, prior to issue.
- 2.9 Changes or revisions to written instructions, procedures, plans, and/or drawings shall be reviewed and approved in the same manner as the original document. Changes to approved work plans, procedures, instructions, and drawings that have been issued as EM Department Controlled Documents (see 21000-QAPD Section 6.0) shall be initiated with a Document Control Number or a Procedure Revision Request (PRR). The procedure for preparation of CDRRs is described in EM Department procedure 3-21000-ADM-05.05.
- 2.10 Instructions, procedures, plans, and drawings developed for implementation of environmental restoration activities as required by the IAG shall be reviewed and approved according to EM Department procedure 3-21000-ADM-05.01. Following this approval, the instructions, procedures, plans, and drawings will be submitted to and approved by the DOE, EPA, and CDH prior to use. Subsequent revisions, cancellations, or major changes (i.e., changes other than inconsequential editorial corrections and temporary changes) shall also be approved by these agencies; although, this approval (pending agreement with the agencies) may occur after implementation.
- 2.11 Instructions, procedures, plans, and drawings shall be controlled as required by 21000-QAPD Section 6.0 and procedure 1-11000-PADC-004, Procedures Document Control Process.

3.0 RESPONSIBILITIES

- 3.1 The Originator and/or the appropriate originating division manager shall ensure technical accuracy and inclusion of QA requirements in quality-related instructions, procedures, plans, and/or quality-related drawings and shall prepare instructions, procedures, plans,

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and/or drawings in accordance with approved EM Department procedures. The originator shall identify and define interfaces between organizations.

- 3.2 The cognizant Division Quality Coordinator (i.e., the Quality Coordinator within the originating division) shall review quality-related instructions, procedures, plans, and drawings to assure that QA requirements specified in this section have been met and shall assign an independent reviewer(s) knowledgeable in the technical discipline and appropriate administrative details, to assure that instructions, procedures, plans, and/or drawings meet technical adequacy and regulatory compliance requirements.
- 3.3 The Department Director, or designee shall review and approve, except as noted in 3.4, all EM Department level 3 procedures (procedures levels are defined in E&WM procedure 2-20000-ADM-05.01. The QAPM shall review all quality-related EM Department level 3 procedures.
- 3.4 The cognizant Division Manager, or the EM Department Director, shall approve work plans, level 4 procedures, drawings, and Division-specific level 3 procedures and instructions. The QAPM is authorized to approve QA program-related instructions.
- 3.5 All level 1 and 2 procedures prepared by the EM Department shall be reviewed by the Department Director, QAPM, and the responsible Division Manager prior to submitting to affected EG&G organizations for review.
- 3.6 At a minimum, the cognizant Project Manager, the QAPM, and the cognizant Quality Coordinator shall review and concur on work plans, level 5 procedures, drawings, and one-time instructions.
- 3.7 All EM Department personnel and contractors, and vendors shall comply with applicable work plans, procedures, instructions, and/or drawings.

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TITLE:
Document Control

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the requirements and responsibilities for identification and control of controlled EM documents and assuring that correct/current documents are being used for specifying requirements/specifications and for prescribing work. Controlled documents include this QAPD, the QAPJP, EM project work plans and ER Program work plans required by the IAG, administrative and operational procedures, instructions, FE produced design specification and drawing packages, and any essential supporting documents that prescribe work subject to revision. These requirements apply to all EM Department and contractor personnel that use, receive, or identify controlled documents. The document control system may also be used to control non-quality-related documents at the discretion of the responsible manager.

2.0 REQUIREMENTS

- 2.1 EM Department Procedure No. 3-21000-ADM-06.01, Document Control, has been established to define the requirements, responsibilities, and instructions for identifying and controlling EM Department controlled documents. This procedure addresses the following document control requirements:
1. Defining and identifying EM Department controlled documents.
 2. Creating and maintaining an index of EM Department controlled documents.
 3. Providing for the recall or cancellation of controlled documents when they are canceled, superseded, or determined to be obsolete.
- 2.2 Procedure No. 3-21000-ADM-06.01, Document Control, describes the implementation of the EM Department controlled document system that provides for the distribution of controlled documents to ensure correct and current documents are available for use at the location where the prescribed activities are performed. The EM Department document control facility is considered a satellite of the RFP Site Document Control Facility operated by the EG&G Performance Assurance Group. The EM Department document control system provides controls for the following requirements:

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1. Identifying and uniquely marking controlled documents. A red stamp is used to mark documents as being EG&G Rocky Flats EM Department Controlled Documents.
 2. Identifying an effective date for each controlled document.
 3. Specifying and maintaining a distribution list of each controlled document.
 4. Identifying the individual responsible for the release of each controlled document.
 5. Maintaining an index of the revision status for each controlled document.
- 2.3 All EM Department quality-related controlled documents shall be reviewed for adequacy, completeness, and correctness prior to approval and issuance in accordance with EM Department Procedure No. 3-21000-ADM-05.05, Document Review (or other procedures specifically developed for the document type. Note: Engineering Design documents are not EM Department controlled documents but are documents controlled by Engineering in accordance with the CCCP Manual and the Conduct of Engineering Manual. Procedure No. 3-21000-ADM-05.05 provides for the following:
- 2.3.1 Document review by independent qualified personnel for technical adequacy, completeness, correctness, and inclusion of appropriate quality, technical, and regulatory requirements prior to approval and issuance. The reviewing organizations shall have access to pertinent background information and data to assure a complete review.
 - 2.3.2 Recording document review comments and resolution of comments prior to approval. Review comments and resolutions shall be maintained as QA Records.
- 2.4 Changes to quality-related controlled documents shall be controlled to ensure that the changes or revisions are reviewed and approved by the same organizations that performed the original review and approval unless designated otherwise. Changes or revisions to controlled documents are made through the use of Controlled Document Revision Requests (see Attachment 1 of EM Procedure No. 3-21000-ADM-05.01, Procedure Development) and Document Change Notices (see EM Procedure No. 3-21000-ADM-05.07, Preparation of Document Change Notices).

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3.0 RESPONSIBILITIES

- 3.1 The EM Department Director shall be responsible for the overall development of the EM Department document control system and shall appoint a Document Control System Administrator (DCSA). The DCSA and the EM Department control system are within the ERIM.
- 3.2 Division Managers, or their designees (specifically Project Managers) are responsible for the following:
1. Identifying documents to be controlled and their specified distribution.
 2. Ensuring that quality-related controlled documents are reviewed for adequacy, completeness, and correctness prior to approval and issuance in accordance with 3-21000-ADM-05.05, Document Review (or other applicable procedure).
 3. Identifying individuals to receive controlled documents.
- 3.3 The DCSA and ERIM Manager are responsible for the following:
1. Assigning document control numbers to documents approved for issuance.
 2. Issuing approved controlled documents to the authorized distribution.
 3. Maintaining distribution lists for controlled documents so that updates and revisions may be properly distributed.
 4. Maintaining completed receipt acknowledgements of controlled documents.
 5. Recall and management of obsolete or superseded documents.
- 3.4 The EM Department QAPM or designee shall be responsible for ensuring that the controlled document index is maintained by the DCSA and providing input and oversight on the index maintained by the DCSA.
- 3.5 All controlled document users are responsible for assuring the current status of documents within their possession prior to their use.

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TITLE:
Control of Purchased
Items and Services

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes requirements and responsibilities for the control of purchased items and services, including the selection of contractors and vendors. It assures that procured items and services conform to technical, regulatory, QA, and documentation requirements specified in procurement document packages (21000-QAPD Section 4.0, Procurement Document Control).

The requirements of this section apply to EM Department personnel involved in requesting the procurement of items (e.g., monitoring equipment and materials used in the collection of environmental restoration and compliance-related data, software, analytical instrumentation, etc.) and services (e.g., collection and analysis of data and preparation of regulatory compliance reports).

2.0 REQUIREMENTS

- 2.1 Control of purchased items and services is accomplished through effective and timely procurement planning, which provides for the integration of evaluation and selection of procurement sources, bid evaluation, control of supplier performance and associated verification activities, and acceptance of items and services.
- 2.2 Suppliers of EM Department items and services, are required to have been evaluated and approved by EG&G Rocky Flats Procurement, POE, and Engineering and FPM for facilities, structures and items requiring design input prior to the subcontract being awarded.
- 2.3 The evaluation and selection of suppliers (which includes subcontractors and vendors) shall be based on their capability to provide items and services in accordance with the requirements specified in the procurement documents (21000-QAPD Section 4.0, Procurement Document Control) prior to award of the subcontract. Measures of evaluation and selection of suppliers shall include:
 1. Evaluation of the suppliers' history of providing identical or similar products.
 2. Current quality records.

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3. Current certifications, including acceptance for participation in programs that signify a prescribed level of quality such as laboratories that participate in the EPA Contract Laboratory Program and the DOE interlaboratory quality assurance program for radiological monitoring.
 4. Assessment of the technical and quality capabilities of facilities and personnel.
- 2.4 An EM Department procedure shall be prepared to describe the requirements, responsibilities, and instructions for controlling purchased items and services for implementing EM Department program activities. This procedure will be designated as Procedure No. 3-21000-ADM-07.01.
- 2.5 Procedure No. 3-21000-ADM-07.01 shall address the requirements for and describe methods of supplier selection, and supplier evaluation. The procedure shall address the requirements for supplier selection and evaluation as detailed in Rocky Flat's procurement policies and procedures. The procedure shall also specify the controls required for supplier documentation and supplier nonconformances. The methods of acceptance of items and services shall be identified and described. The procedure shall identify interfaces with other EG&G Rocky Flats organizations, including Procurement, PQE, Health and Safety, Engineering, and FPM. Procedure No. 3-21000-ADM-07.01 shall incorporate the quality requirements for the control of purchased items and services, as described in the following paragraphs.
- 2.6 The extent of control and verification of supplier performance shall be a function of the relative importance, complexity, and quantity of the item or services procured. Control and verification measures may include the following:
1. Establishing interfaces with the supplier.
 2. Reviewing and approving supplier procedures and methods to be used in fulfilling procurement document requirements prior to initiating the services requested.
 3. Reviewing supplier documents generated while fulfilling requirements.
 4. Identifying and processing necessary change information.
 5. Establishing a method of document information exchange.
 6. Reviewing past performance of suppliers through documented audits conducted by other organizations.

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7. Performing source inspection audit, approving supplier-generated nonconformance reports, and trending of receipt inspection results.
 8. Verifying that work is performed in compliance with the subcontract terms and conditions.
- 2.7 The methods of acceptance of an item or service (21000-QAPD Section 4.0, Procurement Document Control) are as follows:
1. Supplier Certificates of Conformance,
 2. Source verification,
 3. Receipt inspection,
 4. Post installation testing,
 5. Technical or peer review of data or information produced,
 6. Surveillance or audit of the activity,
 7. Technical verification and validation of data produced,
 8. Review of objective evidence for conformance to the procurement document requirements.
 9. Verification that the work was performed in compliance with the subcontract terms and conditions.
- 2.8 Suppliers may be required to submit any nonconformances or corrective actions generated during the development of the item or service to the EM Department for review and disposition. For engineered items, EM shall forward nonconformance or corrective action on to Engineering for review and disposition.
- 2.9 Where the design process, including design of scientific investigations, calls for the use of a commercial grade item (see Appendix A for definition) the following requirements are an acceptable alternative to other requirements of this document.
- 2.9.1 The commercial grade item is identified in an approved design output document.

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- 2.9.2 The commercial grade item(s) shall be identified in the purchase order by the manufacturer's published product description.
 - 2.9.3 If an equivalent commercial grade item(s) is identified in the procurement process and the requisitioner concurs that this is an equivalent commercial grade item (see 2.8.1), this item may be substituted for the original item identified.
 - 2.9.4 After receipt, the EM initiator shall determine that damage was not sustained, the item received was the item ordered, inspection and/or testing is accomplished, and documentation is acceptable.
- 2.10 Records generated by the procurement process for quality-affecting activities shall be considered QA records and shall be maintained in accordance with 21000-QAPD Section 17.0, Quality Assurance Records, and the 3-21000-ADM-ERIMD administrative procedures associated with records management.

3.0 RESPONSIBILITIES

- 3.1 The EM Department Director shall approve selection of suppliers or may delegate approval of certain items and services to the appropriate Division Manager.
- 3.2 EG&G RFP Procurement shall develop and maintain systems and procedures for planning coordinating, conducting, and documenting procurement activities. Procurement shall participate in and coordinate procurement source evaluations, supplier selections, and bid evaluations in accordance with approved procedures. (These responsibilities are specified in the RFP Site-Wide Quality Assurance Manual, QR-7, Section 3.1.).
- 3.3 Requisitioner and the ERIMD support staff shall coordinate procurement activities with Purchasing; develop and document the technical and/or regulatory requirements associated with items or services being procured; determine the method(s) of acceptance; identify any commercial grade items to be used; perform evaluations of suppliers' technical capabilities; and evaluate supplier proposed exceptions to specified requirements. The requisitioner shall approve any changes affecting technical or quality requirements. Engineering shall approve any changes affecting design and technical specifications of engineered items.
- 3.4 The cognizant Division Quality Coordinator (the Quality Coordinator within the Division for which the service or item is being purchased) shall participate in procurement quality planning, supplier evaluation, selection, and approval and coordinate receipt and source inspections and verification activities.

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- 3.5 The responsible Division Manager shall participate in the supplier evaluation process, as necessary, and concur on supplier selection and on all supplier nonconformances and corrective actions.
- 3.6 The EM Department QAPM shall coordinate with Procurement in the development of procedures and systems for EM Department procurement activities (21000-QAPD Section 4.0, Procurement Document Control); direct receipt inspection and source inspection and verification activities; approve the disposition of offsite supplier-related nonconformance reports; participate in the supplier selection and approval process as requested; evaluate new suppliers; and review and concur in preparation of purchase requisitions and changes to purchase requisitions.
- 3.7 Users and handlers of materials shall assure that quality-related items are properly identified and the identification is maintained while the items are in their possession.

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TITLE:
Identification and Control of
Items, Samples, and Data

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

The requirements of this section apply to all EM Department and contractor personnel involved in conducting environmental investigations and actions where the use of engineered items and/or manufactured materials and substances are required to successfully implement the activity. These requirements apply to environmental activities that require the collection and analysis of samples and/or data, including routine environmental monitoring, impact assessments, environmental evaluations, remedial investigations and actions, treatability studies, and regulatory compliance data collection and reporting.

2.0 REQUIREMENTS

- 2.1 Identification and Control of Items. These requirements apply to engineered and/or manufactured items, parts, and components that are used to conduct environmental investigations and actions. If the use of an engineered and/or manufactured item, part, or component has the potential to adversely impact the results of an environmental investigation and action, that item, part, or component must be identified according to the requirements stated herein. Materials such as field rinsates, reagents, and calibration standards are also considered items that could affect the results of investigations and actions.

- 2.1.2 Items that are used for the construction or assembly of structures or facilities used to implement EM investigations or actions shall be identified during the generation of design specification and drawings packages produced by Engineering. The selection of items shall be based on the potential impact of the activity on plant and public safety, potential health and safety and/or environmental hazards, and regulatory compliance. Where specific items are required by regulatory or performance requirements, the EM Project Manager shall specify the item by serial or part number as part of the Engineering Job Order (Procedure No. FAC-12, Rev. 4) or the Operational Requirements Document (Procedure No. DES-27, Rev. 2).

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- 2.1.3 Items shall be identified by unique identification codes, such as heat number, batch number, serial number, part number, lot number, or other specified means.
- 2.1.4 Methods of item identification that are considered acceptable for quality control purposes include physically marking the item, the item's container, or through records directly and readily traceable to the item.
- 2.1.5 The location, method, and type of identification shall not adversely affect the fit, form, function, or quality of the item.
- 2.1.6 The means of marking shall be clear and unambiguous.
- 2.1.7 Items to be subdivided shall have the identification marking transferred to the intended part, container, or records prior to subdividing.
- 2.1.8 Original markings that are used to identify items shall not be obliterated or hidden by installation, surface treatment, or coatings unless other approved means of traceability have been established and verified.
- 2.1.9 Identification markings and/or records shall be protected during periods of storage, use, or operation.
- 2.1.9 Identification of consumed materials shall be maintained through installation, fabrication, assembly, or other process documentation.
- 2.1.10 Items having a limited shelf or operating life shall be controlled so as to prevent use after expiration; formal procedures shall be established for control, removal, and disposals. Manufacturers' instructions (such as disposal instructions provided on Material Safety Data Sheets) shall be adhered to when disposing of items with expired shelf lives.
- 2.1.11 Materials considered hazardous, such as chemicals, solvents, and radioactive materials, shall be controlled according to manufacturer's instructions and/or RFP Health and Safety Procedures to preclude damage or contamination to equipment, personnel, and the environment. Health and safety labels should not be removed and should be complied with. Disposal of hazardous materials and or containers shall be done in accordance with waste disposal procedures prepared by EG&G Rocky Flats Waste Programs.

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2.1.12 In the event that an item cannot be traced or clearly identified, the item shall be considered nonconforming and shall be identified as such in accordance with approved EM Department Procedure No. 3-21000-ADM-15.01.

2.2 Identification and Control of Samples. Samples are considered evidence of conditions existing in the environment or a facility at a given point in time. An essential part of the EM Department QA Program is the control of this evidence. To successfully implement a sample control program, sample identification, chain-of-custody, and sample handling requirements for environmental samples collected at RFP are established and are described in operational procedure 5-21000-OPS-FO.13, Containerizing, Preserving, Handling, and Shipping Environmental Samples.

2.2.1 In order to ensure the representativeness, comparability, validity, and proper documentation of samples, a body of operational procedures has been developed by the various divisions within the EM Department that are responsible for sample collection. All environmental samples collected at or in connection with RFP operations by EM Department and contractor personnel shall be collected according to established operational procedures. These procedures are contained in EM Department Manual 5-21000-OPS, Volumes I through VI (other volumes will be added as necessary). If a particular type of sampling is required for a particular investigation that is not addressed by any of these existing operational procedures, a new procedure shall be developed according to Procedure No. 3-21000-ADM-05.01, Procedure Development. Where a revision, change, or addenda (either temporary or permanent) to an existing operational procedure is needed to adequately address sampling, the revision, change, or addenda shall be documented by preparation of a document change notice according to Procedure No. 3-21000-ADM-05.07.

2.2.2 All samples shall be uniquely identified by a sample identification number that traces the sample to the source(s) and indicates the method(s), date, and conditions prevailing at the time of sampling. Additional sample identification requirements are identified in operational procedure 5-21200-OPS-FO.13. The EG&G sample numbering system is maintained by the Environmental Operations Division. The numbering system includes a project description ID, a sample number, and a subcontractor ID. The EM Project Manager for a project requiring sample collection shall request a Project ID prefix, a block of sequential sample numbers, and a subcontractor ID suffix. Sequential sample numbers for a particular project are assigned on a daily basis by the subcontractor's sample manager.

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Sample numbers shall be written on sample labels or tags that are attached to the sample in indelible ink.

- 2.2.3 The requirements for the use proper sample containers, sample packaging, sample preservation, shipment, and storage are identified in operational procedure 5-21000-OPS-FO.13.
- 2.2.4 All environmental samples shall be screened for radiological contamination according to operational procedure 5-21000-OPS-FO.16, Field Radiological Measurements.
- 2.2.5 The history of each sample and its handling shall be documented from its collection through all transfers of custody until it is transferred to an analytical laboratory using an EG&G RFP Chain-of-Custody form. When transferring the possession of samples, the individuals relinquishing and receiving the sample(s) shall sign, date, and note the time on the form. Internal laboratory custody records shall document the custody of the sample through its final disposition. The EG&G RFP Chain-of-Custody form is presented, along with requirements and instructions for use, in operational procedure 5-21000-OPS-FO.13. Internal laboratory procedures for sample custody shall be submitted to the EG&G Project Laboratory Task Leader(s) by each laboratory selected to analyze samples for review and approval prior to shipping samples to the laboratory.

NOTE

Development and approval of interlaboratory procedures is a requirement of the EG&G RFP General Routine and Radiochemistry Analytical Services Protocol (GRRASP) that each analytical laboratory is required to comply with in order to provide analytical services to EG&G Rocky Flats.

- 2.2.6 While samples are in storage, the proper environmental conditions shall be maintained to avoid degradation of the samples. Holding time and preservation requirements for samples are specified in operational procedure 5-21000-OPS-FO.13. Sample holding time is defined as the duration between sample collection and dates of sample preparation (extraction/distillation) and analysis. Chain-of-custody of samples shall be maintained during storage.
- 2.2.7 Shipping containers used to transport samples from the field to the laboratory or storage location shall be padlocked or sealed with custody tape that will allow the detection of tampering.

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- 2.2.8 Field operations procedures that shall be adhered to during field sampling are contained in operational procedures manual 5-21000-OPS, Volume I. These procedures address activities such as wind-blown contaminant dispersion control, general equipment decontamination, heavy equipment decontamination, handling of purge and development water, handling of personal protective equipment, handling of decontamination water and wash water, handling of drilling fluids and cuttings, handling of residual samples, handling of waste containers, field communications, and decontamination facility operations.
- 2.2.9 Sampling shall be documented on sample collection forms provided in each sampling procedure and/or in sampling contractor's logbooks. Sample forms and field data collection forms are controlled according to the requirements of operational procedure 5-21000-OPS-FO.02, Field Document Control. Both the forms and logbooks are considered QA records and will be handled as required in Section 17.0 of this QAPD and as described in EM Administrative Procedure 3-21000-ADM-17.01, Records Management.
- 2.3 Identification and Control of Data. Data reduction, verification, validation, assessment, and reporting requirements and responsibilities were identified and discussed in 21000-QAPD Section 3.0.
- 2.3.1 All environmental data generated at or in association with RFP environmental investigations and actions shall be entered into the Rocky Flats Environmental Data System (RFEDS).
- 2.3.2 Management of data collected in the field at the time of sampling shall be controlled prior to entry into RFEDS according to operational procedure 5-21000-OPS-FO.14, Field Data Management.
- 2.3.3 Analytical laboratories shall prepare sample data packages for each sample delivery batch. Separate data packages shall be developed for organics, inorganics, water quality parameters, radionuclides, and biota tissue samples. The sample data package shall consist of a cover sheet/transmittal letter, case narrative, and data summary forms. Data results shall be matched to the unique sample ID number assigned by EG&G sample contract personnel at the time of sampling. Electronic data shall also be supplied for each sample batch in a format compatible with RFEDS (i.e., flat ASCII files).

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2.3.4 RFEDS has been designed to screen data to identify and reject outliers or errors and prepare, sort, and enter all data into data storage files. Data stored in RFEDS shall be traceable and retrievable, and shall be protected from damage, loss, or tampering.

2.4 Qualification of Existing Data. The need to qualify existing environmental investigation data has not yet been determined, nor is there any pending action to do so. However, if at some time in the future it is determined that environmental data collected at RFP needs to be qualified according to the requirements of this 21000-QAPD, the following requirements shall be applicable.

2.4.1 Existing environmental investigation data, which were initially generated prior to implementation of the EM Department QA Program, described in this QAPD, may be qualified (i.e., deemed usable for its intended purpose) using one or a combination of the following four methods:

1. By execution of the peer review process.
2. By use of corroborating data, which is defined as existing data used to support or substantiate other existing data. Inferences drawn to corroborate the existing data shall be clearly identified, justified, and documented. The level of confidence associated with corroborating data is related to the quality of the program under which it was developed and the number of independent data sets. The amount of corroborating data needed shall be dealt with on a case-by-case basis in the documented reviews for qualification.
3. By use of confirmatory testing, which is defined as testing conducted under requirements of this QA Program that investigates the properties of interest (e.g., physical, chemical, geologic, mechanical) of an existing database. One example of confirmatory testing is testing conducted under the same environmental conditions and with similar or the same procedures, test material, and equipment as the original test that generated the existing data. Another type of confirmatory testing is testing conducted by different test methods and equipment, but which still investigates the same parameter of interest. The amount of confirmatory testing required shall be dealt with on a case-by-case basis in the documented reviews for qualification.

IDENTIFICATION AND CONTROL OF ITEMS, SAMPLES, AND DATA

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4. By demonstrating that the existing data was collected under a QA program or system of controls, which are equivalent to the EM Department QA Program.
- 2.4.2 When the methods indicated in Items 2, 3, and 4 above are utilized to qualify existing data, a technical review shall be conducted to support the quality of the data.
- 2.4.3 Documentation of the decision process shall provide an auditable trail of all factors used in arriving at the choice of the qualification method(s), and the decision as to the qualification of the existing data. The level of confidence in the existing data shall be commensurate with the intended use of the data. Attributes to be considered in the qualification process are identified below.
1. Qualifications of personnel or organizations generating the data are comparable to qualification requirements of personnel generating similar data under the approved EM Department QA Program.
 2. The technical adequacy of equipment and procedures used to collect and analyze the data.
 3. The extent to which the data demonstrate the properties of interest (e.g., physical, chemical, geologic, mechanical).
 4. The environmental conditions under which the data were obtained if germane to the quality of data.
 5. The quality and reliability of the measurement control program under which the data were generated.
 6. The extent to which conditions under which the data were generated may partially meet the requirements of the EM Department QA Program.
 7. Prior data verification processes.
 8. Prior peer or other professional reviews of the data and their results.
 9. Extent and reliability of the documentation associated with the data.

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10. Extent and quality of corroborating data or confirmatory testing results.
11. The degree to which independent audits of the process that generated the data were conducted.
12. Replication of test results.

3.0 RESPONSIBILITIES

- 3.1 The EM Department Director shall have overall responsibility for the development and implementation of approved procedural methods for the identification and control of items, samples, and data. Specific responsibility for development, review, and approval of operational procedures to control the collection of samples and data shall be delegated to the Division Managers responsible for specific environmental projects.
- 3.2 All EM Department and personnel shall be responsible for adherence to and compliance with material, sample, and data identification and control procedures.
- 3.3 The QAPM shall be responsible for verifying adherence to approved procedures and requirements.
- 3.4 The EM Department Document Custodian shall receive, maintain, and process quality-related records, which include sample collection forms, logbooks, data sheets, and analytical data packages per the requirements of this QAPD and approved implementing procedures.
- 3.5 The ERIMD Manager, or designee, is responsible for the development and maintenance of the RFEDS.

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Organization: EMD

TITLE:
Control of Processes

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

The purpose of this section is to establish the requirements and responsibilities for the control of processes and special processes affecting the quality of items or services.

The items and services associated with EM Department activities (environmental investigations) do not include processes that require control in the sense of this QR. The methods for controlling processes within the EM Department that affect the quality of items and services or the validity of data are an integral part of implementing procedures and other sections of this QAPD, such as Section 3.0, Design Control; Section 4.0, Procurement Document Control; Section 8.0, Identification and Control of Items, Samples, and Data; Section 12.0, Control of Measuring and Test Equipment; and Section 13.0, Handling, Storage, and Shipping of Samples and Items.

2.0 REQUIREMENTS

Not applicable.

3.0 RESPONSIBILITIES

Not applicable.

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Organization: EMD

TITLE:
Inspection

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the EM Department requirements and responsibilities for inspections (i.e., examinations or measurements) conducted to provide assurance that items and activities and services conform to EM Department quality requirements and/or procedures. Included are requirements and responsibilities for performing inspections of quality affecting items and services, documenting inspection results, and documenting the qualifications of inspectors. This section applies to EM Department personnel and contractors who plan or conduct inspections of items and activities and services.

2.0 REQUIREMENTS

2.1 Qualification and Independence of Inspectors

- 2.1.1 Inspections shall be performed only by technically qualified personnel who are also qualified as inspectors using approved procedures. Documentation of qualifications for inspectors shall be maintained as a QA record.
- 2.1.2 Personnel who perform inspections that verify conformance of an item and activity or service to prescribed standards shall be independent of the activity whose items, systems, components, or activity and/or services are being inspected. Inspection results shall be communicated to the responsible EM Department Project Manager or other manager directing the inspection of the activity, and shall be monitored by the QAPM. The term "independent" as used in this section is not assumed to preclude inspectors from being in the Division responsible for the activity.
- 2.1.3 Inspections of engineered items, structures, facilities, or components that are used to implement EM activities shall be conducted by EG&G Rocky Flats Facilities Inspections (FI), which is a Department within the Site Quality Assurance Organization. These inspections shall be conducted in accordance with Quality Verification procedures developed for inspections of design and construction activities at RFP by FI. These inspections may be monitored by

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EM Department personnel at the discretion of the QAPM. Records of these inspections shall be forwarded to the QAPM by FI.

2.1.4 Oversight and technical inspections of sampling, testing, installation, and analysis activities that are performed in the field are conducted by FI and EM Department or contractor personnel who are independent of the activity being performed. These inspections are conducted according to EM Department Administrative Procedure 3-21000-14.02, Inspections.

2.2 Inspection Planning

2.2.1 Items, systems, or components requiring inspection shall be designated by the Engineering Project Engineer. Services requiring oversight inspections shall be designated by the cognizant EM Division Manager or Project Manager.

2.2.2 Planning for inspections that are performed by EM Department personnel is addressed in Administrative Procedure 3-21000-ADM-10.01, Field Inspections. The following items shall be documented by an inspection checklist, prepared by those conducting the inspection.

1. Identification of required procedures, drawings, specifications, and revisions relating to the item, system, or component to be inspected.
2. Specification of necessary measuring and test equipment, including accuracy and precision requirements.
3. Specification of inspection methods, acceptance criteria, and inspection criteria.

2.2.3 Inspections conducted by the EM Department may be implemented using a Single Use Instruction, prepared according to EM Administrative Procedure 3-21000-ADM-05.11, Preparation of Instructions, rather than as described in Administrative Procedure 3-21000-ADM-10.01. Single Use Instructions are typically used when implementation of the inspection requires detailed directions that are available in existing procedures.

2.3 Inspection Process

2.3.1 Inspections shall be performed in a systematic manner. Inspections shall be planned, coordinated and sequenced to take place at specific times during successive stages of an activity. Inspections shall be performed on items prior to their certification, in process, or while under construction, as

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necessary to verify quality. Oversight inspections of services shall be conducted in the field or laboratory during conduct of the particular activity being inspected. Inspection conducted by EM Department shall be conducted as described in Administrative Procedure 3-21000-ADM-10.01, Inspections. Alternatively, inspections may be conducted using a Single Use Instruction prepared per 3-21000-ADM-05.11, Preparation of Instructions.

- 2.3.2 Sampling techniques shall be used for inspecting a group of homogeneous items provided that the sampling plan is based on a recognized sampling standard.
- 2.3.3 Inspection records shall provide the following:
1. Identification of activities and/or characteristics to be inspected.
 2. Method of inspection (e.g., physical measurement, sample collection and analysis, examination of item, etc.).
 3. Inspectors identification and date.
 4. Acceptance and rejection criteria.
 5. Required procedures, drawings, and specifications.
 6. Specifications for measuring and test equipment used, including range, accuracy, and precision requirements.
 7. Documentation of what was inspected, when it was inspected, identification of M&TE and the results of the inspection.
 8. Documentation of nonconformance and reference to corrective action taken.
- 2.3.4 The final inspection for acceptance shall determine if the item, activity, system, or component conforms to the specified requirements.
- 2.3.5 Reinspection or retesting shall be required when modifications, repairs, rework, or replacement of items is performed following the final and/or acceptance inspection.
- 2.3.6 Final inspections for acceptance shall include a records review of the results and resolution of nonconformances identified by prior inspections. The final

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inspection for acceptance shall determine if the item or service conforms to the specified requirements.

- 2.3.7 Modifications, repairs, rework or replacements of items performed subsequent to final and/or acceptance inspection shall require reinspection.

3.0 RESPONSIBILITIES

- 3.1 Engineering is responsible for scheduling and conducting inspections of engineered items, structures, components, or facilities according to FE procedures.
- 3.2 The QAPM is responsible for providing support for the preparation of written procedures for oversight inspection and acceptance activities. The QAPM or designee shall review project work plans and applicable operational and administrative procedures and develop inspection checklists for environmental activities and assign hold points, as appropriate, to assure work cannot proceed without the specific consent of the designated representative. The QAPM may conduct inspections of Division activities, as necessary, to assure quality of a program, with QAPM concurrence, if not established by the EM Divisions.
- 3.3 The cognizant Project Manager is responsible for ensuring that inspections are conducted of items and services associated with the project for which they are responsible. The cognizant Quality Coordinator shall support Project Managers in ensuring that inspections are conducted.
- 3.4 Inspection personnel shall plan and perform inspections, document the inspection results, and forward records of the result to the QAPM and the appropriate Project Manager and file for maintenance as a QA record in accordance with QAPD-17, Quality Assurance Records.
- 3.5 EM Division Managers may schedule internal inspections of Division activities and external inspections of activities within the Division's responsibilities, as necessary to assure compliance with applicable requirements.

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TITLE:
Test Control

Approved By:



EM Department Director

1/23/92

1.0 SCOPE

This section establishes the EM Department quality requirements and responsibilities for controlling tests required to verify conformance of an item or activity to specific requirements, and to demonstrate that items tested will perform satisfactorily in service. Testing of engineered items is conducted by the responsible design organization (Responsibility 3.1 of RF QAM, QR-11). Since the EM Department does not perform design functions, testing of engineered items used in conducting environmental activities will be performed for the EM Department by Engineering. Examples of testing to be conducted by Engineering to verify conformance of an engineered item to specific requirements by subjecting the item to a set of physical, chemical, environmental, or operating conditions include nondestructive testing, testing for the purpose of vendor product acceptance, computer software testing, and alarm testing.

Testing that is conducted by the EM Department and contractor personnel includes laboratory-scale, bench-scale, and field treatability tests conducted to evaluate remediation action alternatives; and prototype qualification and pre-operational tests of systems, parts, and components used in remedial actions and to control and/or limit the level of pollutants released to the environment. The requirements of this section do not apply to equipment calibration, as this is addressed in EM QAPD Section 12.0, nor do these requirements apply to analysis of environmental samples, which is addressed in EM QAPD Section 3.0. The requirements of this section apply to all EM Department and contractor personnel involved in test planning, approval, performance, documentation, evaluation, and disposition of final test results.

2.0 REQUIREMENTS

- 2.1 Testing shall be accomplished by qualified personnel using written and approved test procedures. Test procedures shall include, as a minimum, the following elements:
1. Reference to, or inclusion of, acceptance criteria or test requirements established by design or technical documents.
 2. Specification of equipment needed to perform tests, including equipment calibration requirements, allowable measurement uncertainty, use of certified

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measurement standards, requirements for control and certification of testing equipment, and criteria for substitution of replacement or alternate equipment.

3. Identification of the prerequisites that must be met prior to the start of testing, including physical parameters (such as temperature or wind velocity) and safety measures.
 4. Identification, when applicable, of inspection hold points for witnessing of tests by inspectors.
- 2.2 Modified, repaired, or replaced items or components shall be tested using original written and approved test requirements and acceptance criteria, or approved changes.
 - 2.3 Test requirements and acceptance criteria shall be provided or approved by the organization responsible for the design or acquisition of the item to be tested. All tests shall be controlled. Product acceptance testing shall be performed, to the extent necessary, to assure compliance with applicable drawings and specifications.
 - 2.4 All test results shall be documented and the test records maintained as Quality Records as specified in 21000-QAPD-17, Quality Assurance Records, of this document. As a minimum, test records shall include an identification of the item tested, date of the test, the name of the individual performing the test, equipment used, calibration data for testing equipment, test parameters, as found results and acceptability, corrective actions regarding deviations, record of observation, and the name of the individual evaluating the test. Test results shall be evaluated by qualified personnel to verify that all test requirements have been satisfied.
 - 2.5 Testing of computer programs (including software for automated monitoring and data reduction) shall be accomplished by physical measurements, comparison with the results of other computer models, and/or hand calculations that are independent of the computer program. Test requirements and acceptance criteria shall be based upon applicable design or other pertinent technical documents.

3.0 RESPONSIBILITIES

- 3.1 EM Department Division Managers, or their designees, shall be responsible for:
 1. Establishing the requirements and acceptance criteria for testing and verification of testing,
 2. Preparing, reviewing, approving, and controlling test procedures,

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3. Directing the evaluation of test results.
 - 3.2 The EM Department QAPM or designee, shall be responsible for reviewing and approving all test procedures in order to assure that the necessary quality concerns have been addressed.
 - 3.3 All EM Department staff and contractors are responsible for compliance with this section.

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TITLE:
Control of Measuring and
Test Equipment

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the EM Department requirements, methods, and responsibilities for the control of measuring and test equipment (M&TE) used in EM Program activities. M&TE subject to the requirements of this section include field and laboratory analytical and measurement instruments used to generate measurement data.

Specific field instruments used to generate measurement data in the field are described in the field sampling operational procedures that are applicable to the particular field sampling activity being conducted (see the operational procedures contained in EM Procedures Manual 3-21000-OPS Volumes II through IV and future volumes).

Specific laboratory analytical instruments that are used to generate laboratory analytical measurement data shall be referenced in the laboratory-specific OPS that are required to be developed by laboratories selected to perform analysis of RFP environmental samples. Development of laboratory-specific OPS, and submittal to and approval by EM Laboratory Task Leaders, is a requirement of the GRRASP. All laboratories analyzing RFP environmental samples are required to adhere to GRRASP.

The requirements of this section apply to EM Department and subcontractor equipment used to make measurements associated with protection of worker and public health and safety and the environment. These requirements are also applicable to equipment used to make measurements associated with demonstrating compliance with applicable equipment, health, and safety requirements and regulations. The environmental, safety, and health protection equipment, which is maintained by other RFP organizations, is exempted from these requirements if it is maintained using a program approved by the RFP QA organization.

The requirements of this section apply to all EM and contractor personnel that use M&TE that are subject to the requirements of this section.

Since the EM Department does not conduct tests on engineered items (see 21000-QAPD Section 11.0), controls for M&TE that are used to test such items as tools and gauges are not applicable to EM. Also, since the M&TE utilized to generate environmental measurement data are considered commercial grade instruments, the requirement that RFP Metrology Laboratories establish a system to identify and control M&TE requiring calibration (RFP QAM QR-12) does not apply.

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2.0 REQUIREMENTS

- 2.1 All M&TE used for the purpose of documenting compliance to specified requirements shall be calibrated and used in an environment controlled to the extent necessary to ensure continued measurements of required accuracy.
- 2.2 M&TE to be used for the determination of measurement data shall be selected such that the accuracy and precision of the M&TE meets the accuracy and precision requirements for the parameter being measured. Accuracy and precision requirements shall be established in project-specific work plans as part of the DQO development process referenced in 21000-QAPD Section 3.0, or based on required detection limits as specified by regulatory requirements including permit and/or applicable or relevant and appropriate requirement (ARAR) standards.
- 2.3 M&TE shall be uniquely identified on both the specific instrument and in accompanying records. This is accomplished by physically marking the equipment with a unique identification number (e.g., serial number). The identifier shall be recorded on data sheet along with the calibration and sample measurement data.
- 2.4 M&TE shall be calibrated and adjusted, if necessary, based on calibration results, at prescribed intervals or at a minimum of daily prior to use. M&TE shall be calibrated against certified equipment or standards having known traceable relationships to nationally recognized standards such as the National Institute for Standards and Technology (NIST). Measurement standards used in the calibration of M&TE shall be supported by certificates, reports, or data sheets attesting to the description or identification of the item; the calibration source; date of calibration; assigned value; statement of uncertainty; and environmental or other conditions under which the calibration results were obtained.
 - 2.4.1 The calibration of field M&TE, including in situ monitoring equipment and field test probes and kits shall be completed according to manufacturer's specifications and at frequencies specified in sampling procedures.
 - 2.4.2 The calibration of laboratory M&TE shall be completed at the frequency specified in the procedures/instructions of the analytical method or according to the manufacturer's instructions if the method does not specify the required frequency.
- 2.5 All M&TE used for radiological protection and other critical health, safety, and environmental protection measurements shall be routinely checked for accuracy consistent with applicable standards (e.g., ANSI N323-1983, Radiation Protection Instrumentation Test and Calibration). This typically involves verifying instrument

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response in a known environment. Accuracy checking may allow extension of the period for which a calibration is valid.

2.6 Calibration results shall be recorded on field data sheets for field M&TE and on laboratory data sheets for laboratory instruments. Calibration data records shall be controlled in the same manner as measurement data (see 21000-QAPD Section 8.0). Calibration records shall include the following at a minimum:

1. Instrument description and model number,
2. Unique identification (e.g., serial number),
3. Traceability information (e.g., value of standard),
4. Environmental conditions such as temperature,
5. Calibration value,
6. Date and time,
7. Name or initials of individual conducting the calibration.

2.7 Each M&TE instrument shall have a file that contains the following information:

1. Operating instructions;
2. Routine preventive maintenance procedures, including a list of critical spare parts to be provided or available, and the maintenance frequency; and
3. Calibration procedures, frequency, and description of the calibration standards.

The above information shall conform to the manufacturer's recommended operating instructions or an explanation and justification of any deviations from said instructions shall be included in the file.

2.8 M&TE that is found to be out of tolerance during the calibration process shall be tagged and taken out of service to prevent further use in the collection of measurement data. The instrument shall be sent back to a qualified facility for repair/rework and calibration, such as the manufacturer for recalibration. The instrument shall only be allowed to be used after the qualified repair/rework and calibration facility, such as the manufacturer, has certified the accuracy and precision of the instrument.

2.9 Preventive maintenance of M&TE shall be implemented according to the manufacturer's instructions or as specified in a specific sampling/analytical procedure/instruction. Each preventive maintenance shall be recorded on a maintenance log in each instrument's file. Prior to use, personnel shall verify that the maintenance due date has not expired. If the maintenance due date has expired, the item shall be tagged and removed from service until the preventive maintenance is performed.

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- 2.10 Proper protection, storage, and handling of M&TE shall be maintained.
- 2.11 Limitations on the handling, use, and storage of M&TE shall be defined in the applicable calibration and/or maintenance procedure.
- 2.12 M&TE calibration and maintenance records shall be considered QA records and shall be maintained in accordance with the requirements of 21000-QAPD Section 17.0.

3.0 RESPONSIBILITIES

- 3.1 EM Project Managers are responsible for verifying that personnel using M&TE have been trained in the use of the M&TE (this may consist of verifying that personnel have received training in procedures pertaining to the use of M&TE). Project Managers are also responsible for ensuring that appropriate M&TE are being utilized to obtain measurement data.
- 3.2 M&TE users are responsible for:
 - 3.2.1 Ensuring that M&TE in their possession is handled in a manner consistent with maintaining its function and accuracy.
 - 3.2.2 Verifying before use that M&TE used for quality-related activities are currently calibrated and functioning properly, and that the M&TE selected for use have sufficient accuracy and precision to meet the requirements of the specific application.
 - 3.2.3 Documenting the use of M&TE on items or activities affecting quality on records traceable to those items, activities, or data.
 - 3.2.4 Ensuring that M&TE that are due for calibration, or are damaged, defective, or suspect, are removed from use, segregated, tagged, and immediately returned for calibration or repair; that potentially impacted data is flagged and evaluated; and that nonconformances are documented per the requirements of 21000-QAPD-15, Control of Nonconforming Items/Activities.
- 3.3 The QAPM is responsible for reviewing and approving response to inspection and surveillance findings and deviation reports concerning M&TE.

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TITLE:
Handling, Storage, and Shipping

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the requirements and responsibilities for the packaging, handling, shipping, storage, cleaning, and preservation of items that have the potential to adversely affect the quality of EM products and/or data. These requirements do not apply to the handling, storage, chain-of-custody, and shipping of samples and data, as the control requirements for samples and data were identified and discussed in 21000-QAPD Section 8.0. The requirements and methods discussed in this section are intended to ensure that the items that have the potential to adversely affect quality are controlled to prevent damage or loss and stored to minimize their deterioration. The requirements of this section apply to all EM and contractor personnel that handle and use the items subject to these requirements.

The handling, storage, and shipping of hazardous material, radioactive material, and hazardous wastes at RFP is not the responsibility of the EM Department. Therefore, requirements for handling, storage, and shipping of these materials are not applicable. EG&G Rocky Flats Waste Operations, Health and Safety Operations, and the Shipping Department are responsible for this function. ER Program operational procedures that deal with decontamination and handling of potentially contaminated equipment, wash water, drilling fluids and cuttings, and residual core and laboratory samples are contained in operation procedures manual 5-21200-OPS, Volume I.

These requirements apply to all EM Department activities in which personnel (including contractors) handle, store, package, ship, or receive items that, if damaged, lost, or deteriorated, could affect quality. Examples of items for which these requirements apply include chemical reagents for sample preservation, calibration standards, continuous data recorders, special sampling equipment, and well/borehole casing.

The requirements for packing, shipping, handling and storage for items provided by Engineering are outlined in Rocky Flats Plant standard No. SX-135 "Standard for Packing, Shipping, Handling and Storage Requirements."

2.0 REQUIREMENTS

- 2.1 Manufacturer's instructions shall be adhered to for handling, shipping, storage, packaging, and/or preservation of critical, sensitive, perishable, or high-value items that have the potential to adversely impact the results of environmental data or actions.

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Where manufacturer's instructions do not exist, or do not meet the following minimum requirements below, procedures or instructions shall be developed by those responsible for handling, storing, or packaging those items.

- 2.2 When procedures or instructions need to be developed for handling, shipping, storage, or packaging items important to quality, the following shall be included at a minimum:
1. Identification of the item or category of items to be controlled;
 2. Reference to any applicable Federal, state, local, and plant shipping requirements, including safety codes and standards;
 3. Indication of the degree of cleanliness, preservation, and packaging requirements;
 4. The step-by-step sequence of operations to be followed in handling, shipping, and storing the item or class of items;
 5. The level of experience and training required to perform the handling, storage, and shipping activities required;
 6. Any specific special handling tools or equipment required;
 7. Special identification or marking requirements;
 8. Maximum storage and retention times and necessary disposal requirements; and,
 9. Specific audit, surveillance, and/or inspection requirements.
- 2.3 Additional requirements for handling, storage, and shipping of quality affecting items include the following:
1. Shipping documentation shall accurately reflect tag and serial numbers for tagged items.
 2. A maintenance program, including a schedule of activities, shall be established and applied to specific materials and equipment in storage, when such maintenance is required.
 3. When necessary, materials, parts, and components shall be marked and labeled so as to adequately identify, maintain, and preserve them, including identifying the need for special environments and controls.
- 2.4 In the event that items are identified that do not comply with the prescribed requirements, those items shall be considered nonconforming and shall be identified and controlled in accordance with the requirements of 21000-QAPD Section 15.0, Control of Nonconforming Items/Activities.

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3.0 RESPONSIBILITIES

- 3.1 The EM Department personnel or contractor personnel that use any critical, sensitive, perishable, or high-value items, material, or equipment are responsible for identifying those that need to be controlled and, if necessary, preparing specific procedures or instructions for handling, storage, packaging, shipping, and/or preservation.
- 3.2 The cognizant Division Quality Coordinator shall verify that any special handling, shipping, and storage requirements are specified on purchase requests and that these requirements have been met during receiving inspection; verify that any special conditions that have been specified are being met; and perform specified verification activities at vendor facilities relative to packaging, handling, cleaning, and maintenance activities to verify compliance with purchase document stipulations.
- 3.3 The EM Department QAPM, or designee, shall perform surveillance and inspections of groups having responsibilities for item packaging, handling, cleaning, maintenance, shipping, and storage to assure that all established requirements are met.
- 3.4 Material handlers and users shall assure that the quality-related items are controlled in accordance with established instructions, drawings, specifications, or other pertinent documents or procedures specified for use in conducting the activity.

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EM DEPARTMENT QUALITY ASSURANCE
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Organization: EMD

TITLE:
Status of Inspection, Test,
and Operations

Approved By:


EM Department Director 1/23/92

1.0 SCOPE

This section establishes the EM Department requirements and responsibilities for attaching, maintaining, and removing physical status indicators for items, products, structures, systems, or equipment. Items, products, structures, systems, or equipment that are subject to the requirements of this section include M&TE used to obtain measurement data and any other items, structures, and materials that are subject to specified performance requirements and/or standards or otherwise have the potential to adversely impact environmental data or actions. When attachment of physical status indicators is not appropriate, inspection, test, and operations status shall be recorded in documents traceable to the specific items. Nonconforming items shall be identified with physical status indicators and documented with a Nonconformance Report (see 21000-QAPD Section 15.0) and, when practical, segregated to ensure that those items are not inadvertently installed, used, or operated until properly dispositioned. These requirements do not apply to identifying the status (usability) and/or validity of data, as this was addressed in 21000-QAPD Section 3.0.

2.0 REQUIREMENTS

- 2.1 EM Department administrative procedures (3-21000-ADM-14.01, Internal Surveillance Program and 3-21000-ADM-15.01, Control of Nonconforming Items and Activities) shall be developed to describe the requirements and instructions for identifying the status of items, products, structures, systems, or equipment. The procedure shall address the QA requirements identified in this section.
- 2.2 The status of items, products, structures, systems, or equipment shall be identified through physical indicators such as tags, markings, stamps, inspection records, or other suitable means. Indicators must remain in place until deemed unnecessary and removed by the appropriate Division Quality Coordinator or their designee.
- 2.3 The indicator shall include the operating status of the item, process, product, structure, system, component or equipment; for example, "Nonconforming Material," "Accept," or "Do Not Operate."
- 2.4 Identification, test, and operations shall be uniquely identified to provide for traceability.

STATUS OF INSPECTION, TEST, AND OPERATIONS

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- 2.5 Out-of-service conditions shall be identified by a status indicator and documented to prevent the inadvertent use or installation of such items, processes, products, equipment, components, systems, or structures.
- 2.6 Physical status indicators shall not impair or impede the function of the item, process, product, structure, system, or equipment to which it is affixed.
- 2.7 Documents generated for inspection, test, and operating status shall be considered QA Records and controlled as specified in 21000-QAPD Section 17.0.

3.0 RESPONSIBILITIES

- 3.1 The QAPM is responsible for the development of the administrative procedure describing the requirements and instructions for identifying the status of items, products, materials, and structures.
- 3.2 The cognizant Project Manager and Division Quality Coordinator are responsible for identifying items for which the operation status needs to be identified, based on specifications in work plans and/or specifications and drawings packages, and for performing the tasks necessary to inspect, test, and determine operating status on the those items.
- 3.3 Personnel involved in using items, processes, products, structures, systems, components, or equipment or entering areas with status indicators shall be responsible for being aware of the status associated with such items or areas.

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Organization: EMD

TITLE:
Control of Nonconforming
Items/Activities

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the EM Department requirements, methods, and responsibilities for controlling nonconforming items, activities, and conditions. A nonconformance consists of a deficiency in the characteristics, documentation, or procedure followed that renders the quality of an item or activity unacceptable or indeterminate. A nonconformance occurs when controlled items, samples, or data (see 21000-QAPD Section 8.0 for control of items, samples, and data) do not conform to requirements, specifications, standards, codes, and prevailing practices established in EM Department project specific work plans, health and safety plans, project management plans, specifications and drawings packages and applicable procedures, quality-related instructions, this QAPD, and the QAPJP for ER Program activities required by the IAG.

For the purposes of this document, reference to nonconforming conditions or items includes an activity, item, service, sample, data, material, equipment, structure, or condition. The following requirements include provisions for identification, documentation, evaluation, segregation, and disposition of nonconforming items and activities, and for notification of affected parties. These requirements are applicable to all EM Department and contractor personnel involved in providing items and services to the EM Department, who discover, evaluate, and/or provide dispositions to nonconformances.

Nonconformances related to items and activities associated with engineered items and systems shall be processed in accordance with Rocky Flats QA procedure No. 1-50000-ADM 15.01.

2.0 REQUIREMENTS

- 2.1 EM Department Administrative Procedure No. 3-21000-ADM-15.01, Rev. 0, Draft A, Control of Nonconforming Items and Activities, has been developed to provide the methods and controls necessary for reporting, evaluating, documenting, and dispositioning items, samples, or data that do not conform to requirements, specifications, standards, codes, and prevailing practices. The requirements and instructions of 3-21000-ADM-15.01 are applicable to all EM Department and contractor personnel that supply or provide services for controlled items, samples, or data or conduct control activities.

CONTROL OF NONCONFORMING ITEMS/ACTIVITIES

EG&G ROCKY FLATS PLANT
EM DEPARTMENT QUALITY ASSURANCE
PLAN DESCRIPTION

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- 2.2 EM Department Procedure No. 3-21000-ADM-15.01, shall be reviewed and approved according to EM Department Administrative Procedure No. 3-21000-ADM-05.01, Procedures Development. A review by Quality Assurance shall also be conducted to ensure that the requirements and instructions for reporting EM Department nonconformances, as addressed in 3-21000-ADM-15.01 are consistent with the RFP site-wide nonconformance reporting program.
- 2.3 The following QA requirements for controlling nonconforming items and conditions, and instructions for addressing these requirements, have been incorporated into Procedure No. 3-21000-ADM-15.01,.
- 2.3.1 Identification of nonconforming items and/or activities by marking, tagging, flagging, or other suitable methods. The identification shall be required to be legible and easily recognizable and the method of identification shall not adversely affect the end use or product of the item or activity.
- 2.3.2 Documentation of the nonconformance through preparation of an NCR upon discovering a nonconformance. The individual discovering the nonconforming item or condition shall prepare the NCR (and is thus referred to as the initiator), which shall identify the requirements, the actual nonconforming condition, and any immediate actions needed or taken to correct the condition. The NCR shall be provided to affected parties in order to control the nonconforming items or activities. NCRs shall be considered controlled documents and QA records and shall adhere to the requirements of 21000-QAPD Section 6.0.
- 2.3.3 Segregation of nonconforming items or conditions, when practical, by placement in a clearly identified and designated hold area, or tagged/flagged to indicate the nonconforming condition, until properly dispositioned (i.e., until the NCR has been resolved). When segregation or tagging/flagging is impractical or impossible, other precautions shall be taken to preclude inadvertent use of the nonconforming item, service, sample, or data including stopping work on or associated with the items, samples, or data.
- 2.3.4 Review and disposition of the nonconforming item or condition. The recommended disposition shall include a statement of the root cause of the condition, the recommended action required to correct the nonconformance, and applicable measures to prevent recurrence of the condition.
- 2.3.5 Assignment of responsibility and authority for evaluation and disposition of nonconforming items and conditions.

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- 2.3.6 Conditional releases that allow continuation of work. Conditional releases are granted only after consideration of the potential impact to the quality of the item, sample, or data; public and worker health and safety; and the environment. Justification for the conditional release is required to be documented.
- 2.3.7 Implementation of the disposition actions and documentation of the completed actions.
- 2.4 Personnel performing evaluations to determine a disposition shall have demonstrated competence in the specific area they are evaluating, have an adequate understanding of the requirements, and have access to pertinent background information.
- 2.5 The disposition of nonconforming items or conditions that is identified and documented on the NCR shall be categorized as one of, or a combination of, the following:
- 2.5.1 Use-as-is, which requires technical justification for this deviation from the original requirements.
- 2.5.2 Rework, which requires items or activities to be restored to conform to original requirements and to be retested and/or verified using original acceptance criteria.
- 2.5.3 Repair, which requires restoration of items to acceptable conditions, even though they do not conform to the original requirements. Technical justification for deviation from the original requirements shall be provided in the NCR.
- 2.5.4 Reject, which requires the item, service, sample, or data to be scrapped or returned to the contractor/supplier.
- 2.6 The status of NCRs shall be tracked and monitored until closure. The timely implementation and effectiveness of disposition actions shall be verified by personnel independent of the condition and actions being verified.
- 2.7 In order to assure effective corrective action, the root cause of the problem identified and documented on the NCR shall be evaluated as part of the trend analysis system required by 21000-QAPD Section 16.0.
- 2.8 NCRs and any other documentation related to the generation, evaluation, disposition, justification, and closure of nonconformances shall be maintained as QA records in accordance with 21000-QAPD-17, Quality Assurance Records.

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- 2.9 The reporting and tracking of abnormal events that occur during the implementation of EM activities, which do not require reporting to the DOE and other external agencies, shall be implemented according to EM Administrative Procedure No. 3-21000-ADM-15.02 (proposed), Response to Abnormal Events. This procedure shall address the requirements for implementing Rocky Flats Instruction 5000.3 and DOE Order 5000.3A. The procedure shall identify and define interfaces with upper level EG&G procedures for implementing Rocky Flats Instruction 5000.3. The procedure shall address the internal EM Department documentation, identification, and resolution of DOE reportable events; events that impact safety, health, and environmental protection; and events that have the potential to impact the quality of environmental data and actions.

3.0 RESPONSIBILITY

- 3.1 The EM Department Director shall be responsible for establishing and maintaining a nonconformance program for the EM Department that is consistent with the RFP site-wide program and the requirements of this section.
- 3.2 EM Department personnel, and contractor personnel providing items and services to the EM Department, shall be responsible for identifying nonconforming items or activities, and for initiating an NCR. The initiator shall forward the NCR to the QAPM for further disposition.
- 3.3 The QAPM shall interface with FOA concerning EM Department NCRs, and shall assign the NCR to the responsible Division Manager for disposition. The QAPM is responsible for reviewing nonconformances for adverse and chronic trends and verifying the implementation and effectiveness of disposition actions prior to closure of the NCR.
- 3.4 The cognizant Division Manager shall select the personnel for evaluating root cause, performing technical evaluations, and recommending dispositions.
- 3.5 Recommended dispositions of nonconformances shall be approved by the cognizant Division Manager and the QAPM.
- 3.6 The cognizant Division Quality Coordinator shall verify and assure nonconformances have been identified and segregated, and track and monitor the status of open NCRs until closure.
- 3.7 Engineering shall be responsible for the disposition of NCR's related to engineering projects as outlined in Rocky Flats QA procedure No. 1-50000-ADM 15.01.

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Organization: EMD

TITLE:
Corrective Action

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the EM Department requirements, methods, and responsibilities for identifying, documenting, reporting, and verifying implementation of corrective actions for significant or recurring conditions considered to be adverse to quality. Conditions adverse to quality include failures, malfunctions, deficiencies, defective items, and nonconformances (see 21000-QAPD Section 15.0 for definitions of nonconformances). A significant condition adverse to quality is one which, if not corrected, could have a serious effect on safety or effective implementation of EM Department programs and projects. Corrective action includes measures taken to rectify conditions that are adverse to quality and, where necessary, to preclude recurrence.

The requirements for determining the cause of adverse conditions and for corrective action taken to preclude recurrence are also discussed. These requirements are applicable to EM Department and contractor personnel involved in identifying, documenting, reporting, and implementing corrective actions resulting from audits, surveillance, assessments, inspections, investigations, NCRs, unplanned events, or other activities.

2.0 REQUIREMENTS

- 2.1 EM Department Administrative Procedure No. 3-21000-ADM-16.01, Rev. 0, Draft A, Control of Corrective Action Reports, has been developed to describe the requirements, instructions, and responsibilities for establishing a system within the EM Department for identifying, determining the root cause, and providing corrective action for significant or recurring conditions adverse to quality, or potentially adverse to quality.
- 2.2 EM Department Procedure No. 3-21000-ADM-16.01, Rev. 0, shall be prepared, reviewed, and approved according to EM Administrative Procedure No. 3-12000-ADM-05.01, Procedures Development. A review by FQA shall also be conducted to ensure that the requirements and instructions for EM Department Corrective Action Reports (CARs) are consistent with the site-wide corrective action reporting system.
- 2.3 EM Department Procedure No. 3-21000-ADM-16.01 describes the requirements, instructions, and responsibilities for CAR preparation and issuance, CAR status tracking, and reissuance of CARs, when necessary.

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- 2.4 CARs shall identify the adverse condition(s), the implication(s) of the condition, the root cause, the corrective action(s) to be taken, and the preventive action to be performed to preclude recurrence of the condition.
- 2.4.1 Copies of CARs prepared at the Division level shall be provided to the Department Director and QAPM. Copies of CARs prepared at the Department level shall be provided to the Associate Manager of the E&WM organization and the E&WM QA organization.
- 2.4.2 The original CAR shall be forwarded to the FQA Department for entry into the Commitment Management Data Base and for assignment to the appropriate division for resolution.
- 2.5 Follow-up action shall be taken to verify timely implementation of corrective action(s) identified in the CAR.
- 2.5.1 Following satisfactory verification of implementation, the CAR shall be closed in accordance with 3-21000-ADM-16.01.
- 2.5.2 Unsatisfactory verifications shall result in the issuance of a new or revised CAR, which is subject to the same requirements as the original CAR.
- 2.5.3 The FQA Department shall be notified of CAR status following verification activities.
- 2.6 Quality-related information, including audit reports, surveillance reports, inspection reports, NCRs, CARS, and related documents, shall be analyzed to identify both favorable and adverse quality trends. A documented system shall be established and implemented to track these trends (3-21000-ADM-18.04, Trend Analysis). Trend analysis reports shall be prepared and issued periodically to the EM Department Director, with distribution to division managers.
- 2.7 CARs and Trend Analysis Reports, and associated documentation, are considered QA Records and shall be maintained per the requirements of 21000-QAPD-17, Quality Assurance Records.

3.0 RESPONSIBILITY

- 3.1 The QAPM or designee shall:
- 3.1.1 Interface with FQA concerning preparation, issuance, tracking, and closure of EM Department CARs.

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- 3.1.2 Prepare CARs as needed based on review of Nonconformance Reports (3-21000-ADM-15.01, Control of Nonconforming Items and Activities), trend analysis (3-21000-ADM-18.04, Trend Analysis) and other sources.
 - 3.1.3 Establish and maintain an EM Department CAR system that is consistent and compatible with the RFP site-wide CAR program.
 - 3.1.4 Recommend assignment of CARs to responsible division managers or to the Department Director for response via the FQA Department, or provide response to CARs limited to QA activities.
 - 3.1.5 Evaluate CAR responses to assure that the requirements and specific deficiencies have been addressed.
 - 3.1.6 Provide for the final verification of implementation of corrective and preventive actions to correct the CAR conditions. For CARs prepared during audits, the lead auditor shall evaluate the response and verification of the corrective action(s) and obtain the QAPM's concurrence.
 - 3.1.7 Closeout CARs and notify FQA, the EM Department Director and/or cognizant division manager.
 - 3.1.8 Coordinate with the EG&G FQA to track trends and prepare and issue EM Department Trend Analysis Reports.
- 3.2 The EM Department Director or cognizant Division Manager, or designee(s), shall:
- 3.2.1 Determine, report, and document corrective and preventive action(s) and forward to the QAPM.
 - 3.2.2 Establish and maintain an EM Department CAR system that is consistent and compatible with the RFP site-wide CAR program.
 - 3.2.3 Perform root cause analysis for the condition adverse to quality and document on the CAR.
 - 3.2.4 Describe the immediate remedial actions taken and document them on the CAR.
 - 3.2.5 Complete corrective action(s) and implement action(s) to prevent recurrence for the identified problem condition(s).

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Organization: EMD

TITLE:
Quality Assurance Records

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the EM Department quality-related requirements, methods, and responsibilities for the specification, preparation, maintenance, and disposition of QA records that furnish documentary evidence of quality. Records that furnish evidence of the quality of items and activities applicable to this QAPD are considered QA records. The requirements of this section are intended to assure that records are complete, legible, identifiable, available, traceable, and retrievable when needed for their intended purpose. These requirements shall be addressed and implemented in accordance with the EG&G Rocky Flats Records Management Manual.

The term "records" used throughout this Section is to be interpreted as QA Records. QA Records shall include: (1) individual documents that have been executed, completed, and approved and that furnish evidence of the quality and completeness of data (including raw data) and of activities affecting quality; (2) documents prepared and maintained to demonstrate implementation of QA programs (e.g., audit, surveillance, and inspection reports); (3) procurement documents, as specified in approved procedures; (4) other documents as specified in this QAPD or implementing procedures, such as plans, correspondence, documentation of telephone conversations, specifications, technical data, books, maps, papers, photographs, and data sheets; (5) magnetic media; and (6) other materials that provide data and document quality, regardless of the physical form or characteristic. A completed record is a document that will either receive no more entries or whose revision would normally consist of the reissuance of the document and is signed and dated by the originator and, as applicable, by personnel authorized to approve the document. Field records are not considered completed QA records until they have been reviewed, verified, approved, authorized and submitted to the EM Department records system.

2.0 REQUIREMENTS

2.1 Specific EM Department QA records shall be identified in project work plans, administrative and operating procedures, this QAPD, and the QAPjP for ER Program activities required by the IAG. QA records to be generated during implementation of EM activities include, but are not limited to the following:

1. Field sampling and measurement data sheets and field logbooks.
2. Laboratory analytical data packages and data completeness checklists (required by the GRRASP).

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3. Field and laboratory M&TE calibration records (these will typically be included with field and laboratory data records).
 4. Data validation records.
 5. Drilling/borehole logs.
 6. Procurement/contracting documentation.
 7. Training/Qualification records.
 8. Nonconformance reports.
 9. Corrective action reports.
 10. Audit, surveillance, and inspection reports.
 11. Work plans, and accompanying documentation.
 12. Data summary reports.
 13. Permit compliance reports.
 14. Specification and drawings packages.
 15. Survey reports.
 16. As-built drawings of facilities and structures.
- 2.2 EM Department records shall be distributed, handled, and controlled in accordance with EM Department Administrative Procedure 3-21000-ADM-17.01, Records Management (in preparation) and the ERIM administrative procedures in the ERIM section of the 3-21000-ADM EM Department Administrative Procedures Manual. These procedures shall address the requirements of this section and the Training Users Manual 1-10000-TUM, Section 02.13. They shall describe the instructions and responsibilities for meeting these requirements. Typically, the procedures in the ERIM section of 3-21000-ADM address the activities associated with handling and maintenance of records after receipt from the generator.
- 2.3 All quality-related records, including superseded records, shall be retained.
- 2.4 The records system shall be defined, implemented, and enforced in accordance with approved procedures issued by the EM Department. Requirements and responsibilities for record transmittal, retention, and maintenance of QA records are established and documented per the requirements of approved procedures.
- 2.5 Documents that are designated to become records shall be legible, accurate, complete, and appropriate to the work accomplished. Records may be originals or legible copies. Microfilm, magnetic disk, or optical disk reproductions may also be utilized to maximize the effectiveness and efficiency of the records system.
- 2.6 The records shall be indexed and uniquely identified. The indexing system shall include as a minimum: type of media (e.g., paper or electronic), record retention times, and location of the record within the system. Index systems used for retention of records

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in temporary files shall include sufficient identifying information to be compatible with the index system used for final storage.

- 2.7 Documents shall be stamped, initialed, or signed and dated by authorized personnel, or otherwise authenticated. These records may be originals or reproduced copies. Authentication may take the form of a statement by the responsible individual or organization. Handwritten signatures are not required if the document is clearly identified in a statement by the reporting individual or organization.
- 2.8 Records and/or indexing systems shall provide sufficient information to permit identification and coordination between the record and the item(s) or activity(ies) to which they apply.
- 2.9 For purposes of record retention, all EM Department quality-related records shall be classified as lifetime records, and shall be retained for the lifetime of EM activities, since such records directly demonstrate capability for ensuring safety of the public and the environment. Documents and records that relate in any way to the presence of hazardous substances, pollutants, or contaminants at the RFP, or to the implementation of the IAG, are to be classified as lifetime records to be retained for the life of IAG-related ER Program activities, and at a minimum will be preserved for 10 years after termination of the IAG. This includes all documents identified as being in the possession of the DOE or its divisions, employees, agents, accountants, or contractors. After the minimum 10-year period, DOE is required to notify the EPA and the State of Colorado at least 45 days prior to destruction or disposal of any such documents or records. ER Program records maintained by the EM Department shall comply with this requirement.
- 2.10 Individuals responsible for receiving or maintaining records shall provide protection from damage, deterioration, or loss during the time that the records are in their possession.
- 2.11 The EM Department Director shall designate a responsible Document Custodian for receiving records. The designee shall be responsible for organizing and implementing a system of receipt control of records for permanent and temporary storage in accordance with the provisions of Procedure No. 3-21000-ADM-17.01, Records Management. The receipt control system shall be structured to permit a current and accurate assessment of the status of records during the receiving process. As a minimum, the receipt control system shall include the following:
 1. A method for identifying the records received.
 2. Instructions for receipt and inspection of incoming records.

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3. A method for submittal of completed records to the storage facility without unnecessary delay.
 4. A method for document correction and enhancement of records, when necessary.
- 2.12 Records shall be stored in predetermined locations in accordance with written instructions that include, as a minimum:
1. Assignment of responsibility for records storage.
 2. Description of the storage facility and the filing system to be used.
 3. Method for verifying that records received are legible and in agreement with the transmittal documents and that the records are those designated.
 4. Rules governing access to and control of the files, and for maintaining control of and accountability for records removed from the storage facility.
 5. Method for filing supplemental information.
- 2.13 Records shall be stored according to the procedures in the ERIM section of 3-21000-ADM, EM Department Administrative Procedures, which shall include the following as a minimum:
1. Provisions made in the storage arrangement to prevent damage from moisture, temperature, and pressure.
 2. Firmly attaching records in binders or in folders or envelopes for storage in steel file cabinets or on shelving in containers.
 3. Provisions for special processed records (e.g., radiographs, photographs, negatives, microfilm, magnetic material, etc.) in order to prevent damage from excessive light, stacking, electromagnetic field, temperature, and humidity.
 4. Methods shall be established to preclude entry of unauthorized personnel into the storage area.
 5. Methods shall be established to provide for replacement, restoration, or substitution of lost or damaged records.

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- 2.14 Records shall be stored in facilities constructed and maintained to minimize damage or destruction from:
1. Natural disaster such as winds, floods, or fires.
 2. Environmental conditions such as high or low temperatures and humidity.
 3. Infestation of insects, mold, or rodents.
- 2.15 EM Department records storage facilities shall be single, but will not preclude the dual storage options, if determined necessary in the future.
- 2.16 Records may be stored in temporary storage (such as for processing, review, or use) when allowed by procedures that specify, as a minimum, containers are certified one (1) hour fire rated, and maximum allowable time limit is specified.
- 2.17 The records system shall provide for retrieval of information as required.
- 2.18 The records system shall provide a listing of authorized personnel having access to the record files.
- 2.19 The records system shall provide for the disposition of records generated, supplied, or maintained by or for the owner.
- 2.20 The records system shall identify requirements and responsibilities for records transmittal, distribution, retention, maintenance, and disposition.

3.0 RESPONSIBILITIES

- 3.1 The EM Department Director shall be responsible for assuring that a QA Records System is developed and maintained.
- 3.2 The ERM Division Manager or designee shall be responsible for developing, implementing, and maintaining a centralized QA Records System, and shall inventory QA records submittal, acknowledge receipt, and process records per the requirements of this QAPD and approved administrative procedure No. 3-21000-ADM-17.01, Records Management and the procedures in the ERIM section of 3-21000-ADM, EM Department Administrative Procedures Manual.
- 3.3 All EM Department organizations and personnel shall be responsible for adherence to and compliance with the Records System for their areas of responsibility.

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- 3.4 The QAPM shall be responsible for maintaining a list of individuals authorized to make changes to specific quality records.

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Effective Date: January 23, 1992
Organization: EMD

TITLE:
Quality Verification

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the EM Department quality requirements, methods, and responsibilities for verification of quality to determine the adequacy, effectiveness, and program compliance of an operation, task, process, or activity. Methods for verifying the quality of EM activities include conducting quality audits, surveillance, and oversight and technical inspections.

The purpose of the EM Department quality verification program is to provide independent verification of compliance with the QA program. The field operations and laboratory analysis activities associated with ER Program activities required by the IAG are subject to quality verification activities that are defined by the EPA as system and performance audits. System and performance audits are a requirement of QAMS-005/80. System audits are defined as an evaluation of all components of a measurement system, including sampling, analysis, and reporting. System audits will objectively examine each part of the measurement system to determine deviations from required procedures or recommended practice. Performance audits are defined as independent checks made to evaluate the quality of an item or data produced by the system. Performance audits typically assess the results and do not usually examine the intermediate steps conducted to achieve the results. The quality verification activities to be implemented by the EM Department, as addressed in this section of the QAPD shall meet the EPA's requirements for system and performance audits.

Audits and surveillance independent of EM Department activities shall be conducted by the Quality Assurance organization. It is expected that the requirements and procedures for audits and surveillance, qualifications of lead auditors and audit and surveillance personnel, audit and surveillance scheduling, and audit and surveillance reports for the Quality Assurance organization will apply to the audits and surveillance conducted on EM programs and activities. The requirements, methods, and responsibilities for quality verification described in this section are not intended to be imposed on the Quality Assurance Audits and Site Quality Engineering Surveillance Groups in lieu of their own requirements.

The EM Department reserves the right to conduct internal surveillance and oversight and technical inspections of EM Department programs and activities with qualified personnel that are independent of the activities being performed. The requirements, method, and responsibilities of this section are applicable to those quality verification activities. Even though EM does not intend to conduct QA audits of its own programs and activities at the present time, requirements for audits and

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audit personnel, including lead auditors, are presented here in the event that audits are conducted internally.

2.0 REQUIREMENTS

- 2.1 Audits. The following requirements shall be applicable to any audits conducted internally by the EM Department of EM programs and activities. These requirements are not meant to be applicable to independent audits conducted by the EG&G Rocky Flats Assurance Audits Group.
- 2.1.1 Quality-related audits shall be scheduled by the EM Department QAPM on an annual basis to provide coverage and coordination with ongoing QA activities. Audits shall be scheduled at a frequency commensurate with the status and importance of the activity.
- 2.1.2 Audits shall be conducted per established procedures which shall include, as a minimum, methods for planning, scheduling, notification, conducting, reporting, and follow-up activities, including verification of implementation of corrective actions. All such procedures shall comply with the requirements of QR-18 of the RF QAM.
- 2.1.3 Indoctrination, training, and qualification of audit personnel shall be in accordance with RFP QA procedures approved by the Assurance Audits Manager. Audit teams shall consist of one or more auditors, and shall have an individual appointed to lead the team, to organize and direct the audit, coordinate the preparation and issuance of the audit report, and evaluate responses. Technical experts, or other audit team members, shall have experience and training commensurate with the scope and complexity of the activities to be audited, and their qualifications shall be evaluated per the requirements of approved procedures.
- 2.1.4 Plans shall be developed, documented, and approved for each audit per the requirements of approved procedures. The plan shall identify the audit scope, applicable standards or requirements, Lead Auditor and audit team members, activities to be audited, organizations and individuals to be notified, applicable documents, schedule, reference to written procedures, and checklists.
- 2.1.5 The Lead Auditor shall provide orientation to the audit team, per approved procedures, on pertinent information including policies, procedures, specifications, interfaces and responsibilities of the organization being audited, and prior audit findings. The Lead Auditor shall ensure that the auditors are prepared prior to the initiation of the audit.

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- 2.1.6 Auditors shall be independent of any direct responsibility for performance of the activities that they audit. Individuals with direct responsibility for the performance of the area to be audited shall not participate in the selection of audit team members. Audit team personnel shall have authority and organizational freedom to make the audit process meaningful and effective.
- 2.1.7 EM program elements selected for audit shall be evaluated against specified, applicable requirements. Methods and checklists for conducting audits shall be derived from national consensus standards; DOE Orders; applicable Federal, state, and local regulations; applicable site-wide RFP requirements; internal procedures and governing documents; and previous audit findings.
- 2.1.8 Groups and organizations to be audited shall be notified according to approved procedures that a scheduled audit is planned. The notification shall be in writing, and include such information as the scope and schedule of the audit and the name of the Lead Auditor.
- 2.1.9 Regularly scheduled audits shall be supplemented by special audits whenever required by conditions such as significant changes to a QA program, suspected significant QA program deficiencies, or when an independent program assessment is deemed necessary. Special audits shall also be conducted as required to verify implementation of corrective actions.
- 2.1.10 Audit findings shall be formally documented by the audit team per the requirements of approved procedures. Audit results shall be provided to the audited organization and reviewed by management having responsibility for the area audited. Conditions requiring prompt corrective action shall be reported immediately to the audited organization's management by the Lead Auditor.
- 2.1.11 Management of the audited organization or activity shall initiate corrective actions for deficiencies identified during the audit, including measures to prevent recurrence, and notify the Lead Auditor of actions taken or planned. Follow-up action shall be performed by the audit organization to confirm that corrective/preventive actions are effective and completed as scheduled. All such activities shall be accomplished according to approved procedures, and in compliance with the RF QAM.
- 2.1.12 Audit records shall include audit plans and checklists, audit reports, written records of resolution of audit findings and the implementation of corresponding corrective actions. Records shall be maintained as Quality

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Records per the requirements of 21000-QAPD-17, Quality Assurance Records, and applicable approved procedures.

- 2.2 Surveillance. The following surveillance requirements and methods are only applicable to internal EM Department surveillance and are not meant to supersede surveillance requirements contained in QR-21 of the RF QAM or the EG&G Rocky Flats procedures for surveillance conducted by the Surveillance Group.
- 2.2.1 EM Department Administrative Procedure No. 3-21000-ADM-18.02, Rev.0, Surveillance, describes the requirements and responsibilities for planning and performing EM Department surveillance of EM programs and activities. The requirements of Procedure No. 3-21000-ADM-18.02 apply to all EM activities that have the potential to impact environmental products and data. The requirements identified below are addressed in Procedure No. 3-21000-ADM-18.02.
 - 2.2.2 Surveillance personnel shall be designated by the QAPM. Surveillance personnel shall be independent (i.e., personnel participating in surveillance shall not report directly to immediate supervisors who are responsible for the work being assessed).
 - 2.2.3 Surveillance shall be scheduled and conducted based on the activity's relative impact or importance to the mission of the EM Department.
 - 2.2.4 All deficiencies, nonconformances, and potential quality-related problems identified during surveillance shall be documented and monitored in accordance with approved procedures for NCRs (3-21000-ADM-15.01, Control of Nonconforming Items and Activities) or CARs (3-21000-ADM-16.01, Control of Corrective Action).
 - 2.2.5 Surveillance shall be performed to written checklists or surveillance plans whenever practical. Documentation of surveillance plans shall identify the characteristics, methods, or acceptance criteria to be assessed; provide for recording objective evidence of results; and specify the accuracy of any equipment necessary to perform surveillance. Specification of the purpose of the surveillance shall be documented, and may include such criteria as "verification of proper implementation of procedures," or "verification of conformance to requirements."
 - 2.2.6 At a minimum, surveillance records shall identify the item or activity under surveillance; the date of the surveillance; name(s) of participants; identification of the organization, activities, or items covered; surveillance

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criteria; equipment used to perform the surveillance; and the names of all personnel contacted. A description of any deficiencies, nonconformances, and potential quality-related problems; any additional surveillance results; and an acceptance statement shall be included.

- 2.3 Oversight and technical inspections are considered quality verification activities that shall be conducted according to the requirements of 21000-QAPD Section 10.0.

3.0 RESPONSIBILITIES

- 3.1 The EM Department Director, or designee, shall be responsible for establishing and maintaining an EM Department quality verification function per the requirements of this section.
- 3.2 The EM Department QAPM shall be responsible for:
- 3.2.1 Interfacing with Assurance Audits and Surveillance Groups concerning independent audits of EM Department programs and activities by the Rocky Flats Quality Assurance organization.
 - 3.2.2 Developing, publishing, and ensuring adherence to an annual schedule of audits, if deemed necessary to supplement Assurance Audits, and surveillance.
 - 3.2.3 Coordinating with the EM Department Director to specify audit team members, a Lead Auditor, Surveillance Team Leaders, and personnel for surveillance.
 - 3.2.4 Verifying that oversight and technical inspections are being scheduled and implemented for EM project activities.
 - 3.2.5 Ensuring that audits, surveillance, and inspections are performed by qualified personnel according to approved procedures that comply with the requirements of the RF QAM and the requirements of this section.
 - 3.2.4 Establishing and maintaining a Lead Auditor certification program for the EM Department, if deemed necessary, in coordination with the EG&G Manager of Assurance Audits.

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- 3.3 EM Department Division Managers, or their designees, shall be responsible for:
- 3.3.1 Performing thorough investigations of identified deficiencies to ensure the scope and root cause of problems are identified,
 - 3.3.2 Implementing, documenting, and approving corrective actions taken to correct deficiencies identified in their organizational areas and preclude their recurrence,
 - 3.3.3 Providing qualified technical personnel for team audits (including those conducted by Assurance Audits), surveillance, and inspections at the request of Quality Assurance, the QAPM, and/or the Lead Auditor.
- 3.4 The cognizant EM Project Managers shall be responsible for ensuring that oversight and technical audits are scheduled and implemented. The cognizant Quality Coordinator shall schedule and coordinate the implementation of oversight and technical inspections of EM projects.

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TITLE:
Software Quality Assurance

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the requirements, methods, and responsibilities for the procurement and/or development of computer software, including computer programs and computer models, for use in EM Department activities. The requirements of this section are intended to ensure that computer software is developed, controlled, and maintained to reduce the likelihood of defects entering executable codes during development, modification, and operation, and to ensure that the end product satisfies the requirements of its intended application. The requirements of this section are applicable to the following general software types:

1. Software that is identified as a Quality Level item, according to QR-2 of the RF QAM;
2. Software that provides command and control of manufacturing, measuring, testing, or inspection equipment;
3. Data files that provide manufacturing, measuring, inspection, test, or acceptance parameters for a product or process;
4. Modifiable software embedded within firmware, (e.g., programmable read only memory chips);
5. Non-ADP turnkey systems (e.g., quality-related alarms),
6. Mathematical models used to determine material, product, process, or system acceptability or composition;
7. Shared software.

The term software does not include electronic calculations. An electronic calculation typically has less than 100 executable steps, limited usage, and a single user. Control and documentation of electronic calculations is the same as other calculations and as addressed in Section 3.0 as part of scientific investigation control.

This section specifically applies to computer software used by EM Department and contractor personnel to generate or manipulate data that is reported to Federal, state, or local regulatory agencies.

2.0 REQUIREMENTS

- 2.1 The development of computer software, including computer programs and computer models, for use in EM Department activities shall be accomplished in a traceable,

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planned, and orderly manner. The number of phases and relative emphasis placed on each phase of software development will depend on the nature and complexity of the software. Software development may be performed in an iterative or sequential manner.

- 2.2 Software requirements relating to functionality, performance, design constraints, attributes, and external interfaces shall be specified, documented, and reviewed. The requirements shall define the response of the software to input data, and shall provide the detail and information necessary to design the software.
- 2.3 Software design shall be developed based on software requirements. The design will be documented, reviewed, and approved. The design shall specify the overall structure (control and data flow) and the reduction of the overall structure into physical solutions (algorithms, equations, control logic, and data structures).
- 2.4 Software design shall be translated into a programming language and the software shall be analyzed to identify and correct errors. Software verification shall consist of examination of source code listings to assure adherence to internal coding standards and conventions.
- 2.5 Testing of the software design shall be conducted prior to acceptance of the design by executing test cases. Failure to successfully execute the test cases shall result in a review of the design to determine if modifications of the requirements, design, implementation, or test plans and test cases are required. The code shall not be used until the cause of failure is found.
- 2.6 Testing of the software design consists of validating the code to assure adherence to the requirements and to assure that the software produces correct results for the test case. Evaluation of the technical adequacy of the software design consists of comparing the test case results with alternative methods, including:
 1. Analysis without computer assistance,
 2. Other validated computer programs,
 3. Experiments and tests,
 4. Standard problems with known solutions, and
 5. Confirmed published data and correlations.
- 2.7 Once the software becomes part of a system by incorporating applicable software components, hardware, and data, and verifying that all system components have been included, the software installation phase shall be performed. The software installation phase shall consist of installation, integration, checkout, and documenting the approval of the software for operation use.

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- 2.8 Where commercial off-the-shelf software is used, available documentation from the software supplier shall be obtained in order to evaluate the software's adequacy to meet its intended application. Examples of this type of software include mathematical/numerical data reduction software, models, data management software, and computer language compilers. Source code is generally not available and controls are limited to unique version identification and user-related manuals for such software. Documented validation is required to demonstrate that the software performs its stated capabilities and functions.
- 2.9 Acquired software is considered non-commercial software, acquired from organizations outside the EM Department. Acquired software requires documented validation to demonstrate that it performs its stated capabilities and functions. EM Department or subcontractor personnel shall test the software in accordance with written test plans to validate the software. The specific form of the test plan is up to the tester but must identify the software options to be tested, the data to be used as input, the expected results, and the acceptance criteria.
- 2.10 Software verification and validation shall be planned and performed for each system configuration that may impact the system to ensure that the software adequately and correctly performs all intended functions and that the software does not perform any unintended function that either by itself or in combination with other functions can degrade the entire system.
- 2.11 Computer software may be utilized without individual verification and validation for each application provided:
1. The computer program has been verified to show that it performs all intended functions; and
 2. The model has been shown to produce a valid solution to the physical problem associated with the particular application.
- 2.12 Computer models shall be validated to demonstrate that models, as embodied in computer software, are correct representations of the process or system for which they are intended. Model demonstrations are commonly achieved by comparing data produced by the model with data taken from the real world process or system. Specific sets of data used in the validation process shall be identified and justification shall be made for their use. Acceptable alternative approaches to model validation include peer review and comparisons with the results of similar analyses performed with other validated models and verified software.

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- 2.13 Computer software shall be controlled to assure that changes are documented and approved by authorized personnel. Where changes to previously verified computer software are made or the hardware processing environment has changed (e.g., computer codes and reconfiguration of the hardware components that directly affect software performance), verification shall be required for the change, including evaluation of the effects of these changes.
- 2.14 Software documentation shall be maintained as a QA record according to the requirements of 21000-QAPD Section 17.0.
- 2.15 Deficiencies in software shall be documented through preparation of an NCR and dispositioned in accordance with EM Administrative Procedure No. 3-21000-ADM-15.01.

3.0 RESPONSIBILITIES

- 3.1 The EM Department Director shall have overall responsibility for administrative maintenance, coordination, and support of a software QA program for the EM Department.
- 3.2 The QAPM shall interface with Quality Assurance concerning software QA, and shall review and approve appropriate EM Department software documentation as required by these software QA requirements.
- 3.3 The ERIMD Manager, or designee, shall be responsible for controlling EM Department software subject to the requirements of this section.
- 3.4 Division Managers and Project Managers shall be responsible for assuring that all quality-affecting software used in connection with EM programs and projects are evaluated to determine control status using the criteria outlined in these requirements, and for assuring compliance with the software verification/validation requirements of this section.
- 3.5 All EM Department and contractor personnel involved with the use of software shall comply with the software QA requirements of this section.

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TITLE:
Quality Improvement

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This section establishes the requirements, methods, and responsibilities for establishing and implementing a program of preventing problems and improving quality of EM Department activities. Quality improvement strategies and methodologies, which have been identified throughout this QAPD, are used to implement the EM Department quality improvement program. The focus of quality improvement within the EM Department is on reducing the variability of tasks that influence the quality of EM program and project actions and data. The requirements of this section are applicable to all EM Department and contractor personnel.

2.0 REQUIREMENTS

- 2.1 EM Department quality improvement shall begin with project planning and problem prevention. As required in 21000-QAPD Section 3.0, project work plans shall be prepared to describe environmental work activities. Also, all work will be conducted according to operational procedures. Work plans and operational procedures receive peer reviews by EM Department and contractor staff and in many cases by Federal, state, and local regulatory agencies prior to approval of work plans and procedures. These reviews reduce the chances for problems resulting in noncompliance with requirements and standards once work is initiated. Adherence to operational procedures also reduces the variability in sampling and analysis.
- 2.2 Trends that adversely affect the quality of EM Department data and actions shall be identified by examining data validation reports (see 21000-QAPD Section 3.0) and by implementing quality verification actions described in 21000-QAPD Section 18.0. Inspections, (21000-QAPD Section 10.0), NCRs (21000-QAPD Section 15.0), and CARs (21000-QAPD Section 16.0) shall also be reviewed to establish trends that may adversely affect quality.
- 2.3 Quality improvement shall be the responsibility of all EM Department and contractor personnel. All personnel are required to identify and report nonconforming items and activities and to identify conditions adverse to quality.
- 2.4 Management at all levels shall foster a no-fault attitude to encourage the identification of nonconforming items and activities and conditions adverse to quality.

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3.0 RESPONSIBILITIES

- 3.1 The EM Department Director shall ensure that proper focus is given and adequate resources are available to resolve difficult issues that impact quality of EM Department work.
- 3.2 The QAPM shall be responsible for evaluating and tracking the trend of quality improvement within the EM Department.
- 3.3 All EM Department and contractor personnel are responsible for identifying meaningful quality performance indicators and adhering to established quality requirements.

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TITLE:
Appendix A -- Terms and Definitions

Approved By:


EM Department Director

1/23/92

1.0 SCOPE

This appendix contains definitions of certain quality-related terms used in this QAPD.

2.0 TERMS AND DEFINITIONS

ACCEPTANCE CRITERIA: Specified limits as defined in codes, standards, or other requirement documents placed on characteristics of an item, process, data, or service.

ACTIVITY: Any effort (operation, task, function, or service) which influences or affects the achievement or verification of the objectives of the EM Department mission.

ACTIVITIES THAT AFFECT QUALITY: Deeds, actions, work, or performance of a specific function or task affecting the quality of all systems, structures, and components that have the potential to impact the health and safety of personnel, the public, and the environment, and to the design and conduct of scientific investigations required to protect, monitor, restore, and enhance the natural environment at and around the Rocky Flats Plant (RFP). These activities include (1) environmental restoration activities, which include those elements or work required to be performed to respond to all hazardous substance releases or threat of releases at or from the RFP that may cause harm to human health or the environment; (2) environmental media monitoring, including field sampling and analysis, sample handling, laboratory analysis and data reduction, verification, validation, and reporting; and (3) environmental regulatory compliance actions, including application for and maintenance of permits and impact assessment plans and reports. Activities affecting quality include, but are not limited to, designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, and modifying. Any items or services that are required to support activities affecting quality are considered quality affecting items or services. Examples of quality affecting items and services are sampling and use of analytical instruments/equipment, borehole drilling, and monitoring station installation.

ADMINISTRATIVE PROCEDURE: A procedure that provides administrative controls and direction for the performance of a program (e.g., document control, procurement, training) or an activity (e.g., readiness review, audits and surveillances, inspections).

AUDIT: A planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures,

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instructions, drawings, and other applicable documents, and the effectiveness of implementation. An audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance.

AUTHENTICATION (QA RECORDS): The act of attesting in writing that the information contained within a document is accurate, complete, and appropriate to the work accomplished. Authentication is accomplished by one of the following methods: (1) a stamped, initialed, or signed and dated document; (2) a statement by the responsible individual or organization; or (3) issuing a document which is clearly identified as a statement by the reporting individual or organization. A document cannot become a Quality Assurance record until it has become authenticated.

CERTIFICATE OF CONFORMANCE: A document signed or otherwise authenticated by an authorized individual certifying the degree to which items or services meet specified requirements.

CERTIFICATION: The act of determining, verifying, and attesting in writing to the qualifications of personnel, processes, procedures, or items in accordance with specified requirements.

CHARACTERISTIC: Any property or attribute of an item, process, or service that is distinct, describable, and measurable.

COMMERCIAL GRADE ITEM: An item satisfying (a), (b), and (c) below:

- (a) not subject to design or specification requirements that are unique to nuclear facilities;
- (b) used in applications other than nuclear facilities;
- (c) is to be ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description (for example, catalog).

CONDITION ADVERSE TO QUALITY: An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and indeterminate quality of an item, service, or data. A significant condition adverse to quality is one which, if uncorrected, could have a serious effect on safety, operability, or usability of data.

CONTRACTOR: Any person or entity that provides products or services via contract to EG&G Rocky Flats either directly or through a second party (i.e., another contractor).

CORRECTIVE ACTION: Measures taken to rectify conditions adverse to quality and, where necessary, to preclude repetition.

CORRECTIVE ACTION REPORT (CAR): A report which identifies conditions adverse to quality and describes the implications of the adverse condition(s). The CAR also provides documentation of the

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root cause of the adverse condition, corrective action(s) taken, and preventive action performed to preclude recurrence of the root cause.

DATA QUALITY OBJECTIVES: Qualitative and quantitative statements developed by data users to specify the quality of data needed from a particular data collection activity (U.S. EPA 1987a). DQOs must address five data characteristics: precision, accuracy, representativeness, completeness, and comparability (these characteristics are referred to as PARCC parameters).

DESIGN: The act of developing designs for construction or of analyzing the performance of repository engineered structures, systems, components, and natural barriers. Design documentation includes, but is not limited to, drawings, specifications, test plans, design reports, test reports, system design descriptions, configuration status listings, design manuals, and manuals describing computer programs used for design or performance analysis.

DESIGN CHANGE: Any revision or alteration of the technical requirements defined by approved and issued design output documents and approved and issued changes thereto.

DESIGN INPUT: Those criteria, parameters, bases, or other design requirements upon which detailed final design is based.

DESIGN OUTPUT: Documents such as drawings, specifications, work plans, and other documents defining technical requirements for structures, systems, components, and scientific investigations.

DESIGN PROCESS: Technical and management processes that commence with identification of design input and that lead to and include the issuance of design output documents.

DEVIATION: A departure from specified requirements.

DOCUMENT: Any written or pictorial information describing, defining, specifying, reporting, or certifying activities, requirements, procedures, or results. A document is not considered to be a Quality Assurance Record until it satisfies the definition of a Quality Assurance Record as defined herein.

EXISTING DATA: Scientific data generated prior to the implementation of the EM Department QA Program or equivalent QA Program by EG&G Rocky Flats and its contractors. Existing data does not include information that is accepted by the scientific and engineering community as established fact.

EXTERNAL AUDIT: An audit of those portions of another organization's quality assurance program not under the direct control or within the organizational structure of the auditing organization.

FINAL DESIGN: Approved design output documents and their approved changes.

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GUIDELINE: A suggested practice that is not mandatory in programs intended to comply with a standard. The word *should* denotes a guideline; the word *shall* denotes a requirement.

INDOCTRINATION: Instruction provided to personnel for familiarization with programmatic and work-oriented documents applicable to the assigned activity.

INSPECTOR: A qualified person who performs inspection activities to verify conformance to specific requirements.

INSPECTION: Examination, observation, or measurement to verify whether an item conforms to specified requirements.

INTERNAL AUDIT: An audit of those portions of an organization's quality assurance program retained under its direct control and within its organizational structure.

ITEM: An all-inclusive term used in place of any of the following: appurtenance, assembly, component, data, equipment, material, module, part, structure, subassembly, subsystem, system, or unit.

MEASURING AND TEST EQUIPMENT (M&TE): Instruments, devices or systems used to calibrate, measure, gauge, test, or inspect in order to control or acquire data or verify conformance to specified requirements.

NONCONFORMANCE: A deficiency in characteristic, documentation, or data that renders the quality of an item or activity unacceptable or indeterminate.

OBJECTIVE EVIDENCE: Any documented statement of fact, other information, or record, either quantitative or qualitative, pertaining to the quality of an item or activity, based on observations, measurements, or tests which can be verified.

OPERATING PROCEDURE (also referred to as Standard Operating Procedures and Implementing Procedures): Procedures that are used for gathering data (e.g., sampling and analytical procedures) or for the performance of routine operations that do not require step-by-step instructions.

PARCC PARAMETERS: Precision, accuracy, representativeness, completeness, and comparability parameters, which are indicators of data quality. Definitions of each of these parameters are as follows:

| | | |
|-----------|---|---|
| Precision | - | a quantitative measure of the reproducibility under a given set of conditions. |
| Accuracy | - | a quantitative measure which refers to the degree of difference between measured or calculated values and the true value. |

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- Representativeness - a qualitative measure of the degree to which the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition.
- Completeness - a quantitative measure expressed as the percentage of valid or acceptable data obtained from a measurement system.
- Comparability - a qualitative measure defined by the confidence with which one data set can be compared to another.

PEER: A person having technical expertise in the subject matter to be reviewed (or a critical subset of the subject matter to be reviewed) to a degree at least equivalent to that needed for the original work.

PEER REVIEW: A documented, critical review performed by peers who are independent of the work being reviewed. The peer's independence from the work being reviewed means that the peer (a) was not involved as a participant, supervisor, technical reviewer, or advisor in the work being performed; and (b) to the extent practical, has sufficient freedom from funding considerations to assure the work is impartially reviewed. A peer review is an in-depth critique of assumptions, calculations, extrapolations, alternate interpretations, methodology, and acceptance criteria employed, and of conclusions drawn in the original work. Peer reviews confirm the adequacy of work. In contrast to peer review, the term *Technical Review* refers to a review to verify compliance to predetermined requirements; industry standards; or common scientific, engineering, and industry practice.

PROCEDURE: A document that specifies or describes how an activity is to be performed.

PROCUREMENT DOCUMENT: Purchase requisitions, purchase orders, drawings, contracts, specifications, or instructions used to define requirements for procurement.

PROJECT MANAGEMENT PLAN: A document that summarizes the scope of a project to be executed, including an objective statement, schedule, resources, priority, milestones, and organization. The Plan serves as the initial overall project baseline which project progress can be measured.

PURCHASER: The organization responsible for establishing procurement requirements and for issuance, administration, or both of procurement documents.

QUALIFICATION (PERSONNEL): The characteristics or abilities gained through education, training, or experience, as measured against established requirements, such as standards or tests, that qualify an individual to perform a required function.

QUALIFIED PROCEDURES: An approved procedure that has been demonstrated to meet the specified requirements for its intended purpose.

APPENDIX A -- TERMS AND DEFINITIONS

EG&G ROCKY FLATS PLANT
EM DEPARTMENT QUALITY ASSURANCE
PLAN DESCRIPTION

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QUALITY ASSURANCE (QA): All those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service.

QUALITY ASSURANCE RECORD: A completed and authenticated document that furnishes evidence of the quality of items and/or activities affecting quality.

READINESS REVIEW: An independent, systematic, documented review to determine and inform management of the readiness to advance from one phase, process, or activity into another. Readiness Reviews are used to coordinate many elements, to provide attention to detail, and to assure that the project is ready to proceed to the comprehensive review of a total project or a particular segment of the project.

RECEIVING: Taking delivery of an item at a designated location.

REPAIR: The process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement.

REWORK: The process by which an item is made to conform to original requirements by completion or correction.

RIGHT OF ACCESS: The right of a Purchaser or designated representative to enter the premises of a Supplier for the purpose of inspection, surveillance, or quality assurance audit.

SERVICE: The performance of activities such as design, fabrication, inspection, nondestructive examination, repair, or installation.

SOFTWARE: Computer programs (codes), procedures, rules, and possibly associated documentation and data pertaining to the operation of a computer system (NQA-2, Part 2.7).

SPECIAL PROCESS: A process of which the results are highly dependent on the control of the process or the skill of the operators, or both, and in which the specified quality cannot be readily determined by inspection or test of the product.

SUPPLIER: Any individual or organization who furnishes items or services in accordance with a procurement document. An all-inclusive term used in place of any of the following: vendor, seller, contractor, fabricator, consultant, and their subtier levels.

SURVEILLANCE: The act of monitoring or observing to verify whether an item or activity conforms to specified requirements.

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TECHNICAL REVIEW: A documented, traceable review performed by qualified personnel who are independent of those who performed the work but who have technical expertise at least equivalent to those who performed the original work. Technical reviews are in-depth, critical reviews, analyses, and evaluation of documents, material, or data that require technical verification and/or validation for applicability, correctness, adequacy, and completeness.

TESTING: An element of verification for the determination of the capability of an item to meet specified requirements by subjecting the item to a set of physical, chemical, environmental, or operating conditions.

TRACEABILITY: The ability to trace the history, application, or location of an item, like items, data, or activity by means of recorded information.

USE-AS-IS: A disposition permitted for a nonconforming item when it can be established that the item that does not meet the original requirements or specifications is satisfactory for its intended use.

VERIFICATION: The act of reviewing, inspecting, testing, checking, auditing, or otherwise determining and documenting whether items, processes, services, or documents conform to specified requirements.

WAIVER: Documented authorization to depart from specified requirements.

WORK PLAN: A document that describes the elements of work to be performed, including a definition of the objectives and scope of the work and identification of the codes, standards, and regulations that are applicable to the work. Work plans may be developed for projects, tasks, investigations, and studies conducted by the EM Department. Work plan is a generic term that includes monitoring plans, statements of work, mitigation plans, compliance plans, and sampling/analysis plans.

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TITLE:
Appendix B -- Environmental Management Department
Programs and Work Projects

Approved By:


EM Department Director

1/23/92

ENVIRONMENTAL MANAGEMENT DEPARTMENT PROGRAMS

Corrective Activities

I. Air (AQCTD)

1. Volatile Organic Compounds
2. Upgrade Radioactive Stock Sampling
3. Air Pollution Emission Notices
4. NESHAPS Emissions Survey
5. TRAC Model Development and Validation

Environmental Restoration Program

I. CERCLA Assessments (RPD)

1. OU#1 - 881 Hillside
2. OU#2 - 903 Pad
3. OU#3 - Off-Site Releases
4. OU#5 - Woman Creek
5. OU#6 - Walnut Creek
6. Oxnard Facility (?)
7. OU#8 - 700 Area
8. OU#12 - 400/800 Area
9. OU#13 - 100 Area
10. OU#14 - Radioactive Sites
11. OU#16 - Low Priority Sites

II. CERCLA Remediations (RPD)

1. OU#1 - 881 Hillside
2. OU#2 - 903 Pad
3. OU#5 - Woman Creek
4. OU#6 - Walnut Creek
5. Oxnard Facility (?)
6. OU#8 - 700 Area
7. OU#12 - 400/800 Area
8. OU#13 - 100 Area
9. OU#14 - Radioactive Sites

III. RCRA Assessments (RPD)

1. OU#4 - Solar Ponds
2. OU#7 - Present Landfill
3. OU#9 - Original Process Waste Lines
4. OU#10 - Other Outside Closures
5. OU#11 - West Sprayfield

Site Environmental Programs

I. Air Monitoring and Assessment (AQCTD)

1. Air Emission Sampling - New NESHAPS
2. Meteorological Monitoring
3. Radiological Effluent Air Monitoring
4. Non-Radiological Air Monitoring
5. Air Monitoring
6. Environmental Reporting (ERIMD)
7. Clean Air Act Implementation and Permitting
8. Clean Air Program Upgrades
9. Radiological Ambient Air Monitoring

II. Water Monitoring and Assessment (SWD)

1. Surface Water Monitoring and Control Enhancements
2. Environmental Engineering Program
3. Surface Water Quality Characterization/Assurance
4. Sewage Treatment Plan Upgrade
5. Surface Water Monitoring & Upgrades
6. Dam Reinforcement at Ponds
7. Water Management Initiative

Review for Classification/UCNI
By George H. Setlock
Date 1/29/92 UNU

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6. OU#15 - Inside Building Closures

IV. RCRA Remediations (RPD)

1. OU#4 - Solar Ponds
2. OU#9 - Original Process Waste Lines
3. OU#10 - Other Outside Closures
4. OU#11 - West Sprayfield
5. OU#15 - Inside Building Closures

V. Other RCRA/CERCLA Programs

1. Treatability Studies (ERTD)
2. Integrated Demonstrations (ERTD)
3. Site Characterization Methods (ERTD)
4. Sitewide Programs (RPD)

8. Effluent Water Treatment
9. Surface Water Regulations and Permits Compliance, including NPDES, FFCA, Clean Water Act

III. Other Environmental Monitoring & Assessment

1. Groundwater Monitoring/Assessment (ERD)
2. Soil Monitoring and Assessment (ERD)
3. Biota Sampling Program (NEPA)
4. Environmental Support to Plant Operations (EOD)

IV. NEPA Programs (NEPA Division)

1. Sitewide EIS Support
2. NEPA Baseline Studies

V. EM Operations and Support

1. Rocky Flats Environmental Data Base System (ERIMD)
2. Chemical Tracking & Control System (AQCTD)

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TITLE:
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Approved By:


EM Department Director

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| MANUAL | PROC. NUMBER | TITLE | RESP. ORG. |
|-------------|--------------|--|------------|
| 3-21000-ADM | 02.01 | INDOCTRINATION AND TRAINING | DEPT |
| 3-21000-ADM | 02.02 | PERSONNEL QUALIFICATIONS | DEPT |
| 3-21000-ADM | 02.03 | QUALIFICATION OF AUDIT PERSONNEL | DEPT |
| 3-21000-ADM | 03.04 | PREPARATION OF QAAs | DEPT |
| 3-21000-ADM | 03.07 | CONTROL OF CALCULATION AND ANALYSIS | DEPT |
| 3-21000-ADM | 03.08 | VERIFICATION OF ANALYSES AND CALCULATION | DEPT |
| 3-21000-ADM | 04.01 | PROCUREMENT DOCUMENT CONTROL | DEPT |
| 3-21000-ADM | 05.01 | PROCEDURE DEVELOPMENT | DEPT |
| 3-21000-ADM | 05.03 | RI/FS WORK PLAN DEVELOPMENT | DEPT |
| 3-21000-ADM | 05.05 | DOCUMENT REVIEW | DEPT |
| 3-21000-ADM | 05.06 | QAPM/PCC PROCEDURE REVIEW | DEPT |
| 3-21000-ADM | 05.07 | PREPARATION OF DOCUMENT CHANGE NOTICES | DEPT |
| 3-21000-ADM | 05.08 | FORMS CONTROL | DEPT |
| 3-21000-ADM | 05.09 | EM WORK PLAN DEVELOPMENT | DEPT |
| 3-21000-ADM | 05.11 | PREPARATION OF INSTRUCTIONS | DEPT |

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| 3-21000-ADM | 06.01 | DOCUMENT CONTROL | DEPT |
| 3-21000-ADM | 07.01 | CONTROL OF PURCHASED ITEMS AND SERVICES | DEPT |
| 3-21000-ADM | 07.02 | VENDOR QUALIFICATIONS | DEPT |
| 3-21000-ADM | 08.01 | CONTROL AND IDENTIFICATION OF ITEMS, SAMPLES AND DATA | DEPT |
| 3-21000-ADM | 10.01 | FIELD INSPECTIONS | DEPT |
| 3-21000-ADM | 12.01 | CONTROL OF MEASURING AND TEST EQUIPMENT | DEPT |
| 3-21000-ADM | 13.01 | HANDLING, SHIPPING AND STORAGE | DEPT |
| 3-21000-ADM | 15.01 | CONTROL OF NONCONFORMING ITEMS | DEPT |
| 3-21000-ADM | 15.02 | RESPONSE TO ABNORMAL EVENTS | DEPT |
| 3-21000-ADM | 16.01 | CONTROL OF CORRECTIVE ACTION | DEPT |
| 3-21000-ADM | 17.01 | RECORDS MANAGEMENT | DEPT |
| 3-21000-ADM | 18.01 | AUDITS | DEPT |
| 3-21000-ADM | 18.02 | SURVEILLANCE | DEPT |
| 3-21000-ADM | 18.03 | READINESS REVIEW | DEPT |
| 3-21000-ADM | 18.04 | TRENDING ANALYSIS | DEPT |
| 3-21000-ADM | 19.01 | SOFTWARE DEVELOPMENT AND CONTROL | DEPT |
| 3-21000-ADM | 19.02 | SOFTWARE VERIFICATION AND ANALYSIS | DEPT |
| 3-21000-ADM | 19.03 | SOFTWARE CONFIGURATION MANAGEMENT | DEPT |

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| 3-21000-ADM | 20.01 | SCHEDULE REQUIREMENTS FOR ER SUBCONTRACTOR INVOICING | DEPT |
| 3-21000-ADM | AQ.01 | RESPONSE PLAN FOR DENVER METRO AIR POLLUTION EPISODES | AQ&CT |
| 3-21000-ADM | AQ.02 | MONTHLY ENVIRONMENTAL MONITORING REPORT | AQ&CT |
| 3-21000-ADM | AQ.04 | RADIATION DOSE ASSESSMENT TO THE PUBLIC FROM ROUTINE OPERATIONS | AQ&CT |
| 3-21000-ADM | AQ.05 | RADIATION DOSE ASSESSMENT TO THE PUBLIC FROM ACCIDENTAL RELEASES | AQ&CT |
| 3-21000-ADM | AQ.06 | EIS/ODIS REPORT | AQ&CT |
| 3-21000-ADM | AQ.07 | AIR POLLUTION EMISSION NOTICES (APEN) | AQ&CT |
| 3-21000-ADM | AQ.08 | PREPARATION OF EPA FORM RS | AQ&CT |
| 3-21000-ADM | AQ.09 | IMPLEMENTATION OF CHEMICAL TRACKING PROCESS | AQ&CT |
| 3-21000-ADM | NEPA.01 | NEPA REVIEW OF DESIGN PACKAGES | NEPA |
| 3-21000-ADM | NEPA.02 | NEPA COMPLIANCE COMMITTEE | NEPA |
| 3-21000-ADM | NEPA.03 | PREPARATION OF ROUTINE NEPA PROCESS DOCUMENTATION | NEPA |
| 3-21000-ADM | NEPA.04 | PREPARATION OF AN ADM | NEPA |
| 3-21000-ADM | NEPA.05 | ADM REVIEW | NEPA |
| 3-21000-ADM | NEPA.06 | PREPARING RECOMMENDATIONS TO DOE, RFO | NEPA |
| 3-21000-ADM | NEPA.07 | DRAFTING CATEGORICAL EXCLUSIONS FOR DOE, RFO | NEPA |

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| 3-21000-ADM | NEPA.08 | ENVIRONMENTAL ASSESSMENT PROCESS | NEPA |
| 3-21000-ADM | NEPA.09 | PREPARATION OF AN ENVIRONMENTAL ASSESSMENT | NEPA |
| 3-21000-ADM | NEPA.10 | PREPARATION OF A MITIGATION ACTION PLAN | NEPA |
| 3-21000-ADM | NEPA.11 | NEPA RECORDS MAINTENANCE | NEPA |
| 3-21000-ADM | RPD.01 | PREPARATION OF CLOSURE PLANS | RPD |
| 3-21000-ADM | SWD.01 | MONTHLY DISCHARGE MONITORING REPORTS FOR NPDES | SWD |
| 3-21000-ADM | SWD.02 | IMPLEMENTATION OF THE CONTROL AND DISPOSITION OF INCIDENTAL WATERS | SWD |
| 3-21000-ADM | SWD.20 | MONITORING AUDITS | SWD |
| 1-21000-ERM | AQ.01 | CHEMICAL TRACKING | AQ&CT |
| 1-21000-ERM | AQ.03 | RESPONSE PLAN FOR DENVER METRO AIR POLLUTION EPISODES | AQ&CT |
| 1-21000-ERM | NEPA.01 | IMPLEMENTATION OF NEPA DOCUMENTATION | NEPA |
| 1-21000-ERM | SW.01 | CONTROL AND DISPOSITION OF INCIDENTAL WATERS | SWD |
| 1-21000-ERM | SW.02 | RESPONSIBILITIES FOR CONTROL OF RF FLOOD WATERS | SWD |
| 1-21000-ERM | SW.03 | RESPONSIBILITIES FOR THE CONTAINMENT OF SPILLS WITHIN THE ROCKY FLATS DRAINAGE | SWD |
| 2-20000-ADM | 03.01 | ADMINISTRATION OF E&WM DESIGN REVIEW | NEPA |

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| 5-21000-OPS | AMG.01 | DATA VERIFICATION OF KEYBOARD ENTRY | RPD |
| 5-21000-OPS | AMG.02 | COMPUTER SYSTEM SECURITY | RPD |
| 5-21000-OPS | AMG.03 | VERIFICATION OF RFEDs ELECTRONIC DATA LOAD | RPD |
| 5-21000-OPS | AP.01 | EFFLUENT TRITIUM SAMPLE COLLECTION | AQ&CT |
| 5-21000-OPS | AP.02 | TRITIUM SAMPLER CALIBRATION | AQ&CT |
| 5-21000-OPS | AP.03 | EFFLUENT AIR RADIOPARTICULATE SAMPLE COLLECTION | AQ&CT |
| 5-21000-OPS | AP.04 | EFFLUENT AIR RADIOPARTICULATE SAMPLE CALIBRATION | AQ&CT |
| 5-21000-OPS | AP.05 | RESPONSE TO AN EFFLUENT SAAM ALARM | AQ&CT |
| 5-21000-OPS | AP.06 | EFFLUENT AIR PITOT TUBE INSPECTION AND REPLACEMENT | AQ&CT |
| 5-21000-OPS | AP.07 | EFFLUENT AIR SAMPLE DATA REDUCTION | AQ&CT |
| 5-21000-OPS | AP.08 | AMBIENT AIR TOTAL SUSPENDED PARTICULATES (TSP) SAMPLING AND PM-10 SAMPLING | AQ&CT |
| 5-21000-OPS | AP.09 | RADIOACTIVE AMBIENT AIR SAMPLING | AQ&CT |
| 5-21000-OPS | AP.10 | RADIOACTIVE AMBIENT AIR DATA REDUCTION | AQ&CT |
| 5-21000-OPS | AP.11 | METEOROLOGY SITE INSPECTIONS | AQ&CT |
| 5-21000-OPS | AP.12 | PLACEMENT, DESIGN INSTALLATION AND OPERATION OF METEOROLOGICAL | AQ&CT |

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MONITORING STATIONS

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| 5-21000-OPS | AP.13 | RADIOACTIVE AMBIENT AIR MONITORING PROGRAM | AQ&CT |
| 5-21000-OPS | AP.14 | METEOROLOGY DATA DOWNLOADING | AQ&CT |
| 5-21000-OPS | AP.15 | PREVENTIVE MAINTENANCE PROCEDURE FOR RFP TSP HIVOL AIR SAMPLER | AQ&CT |
| 5-21000-OPS | AP.16 | PLACEMENT, DESIGN, INSTALLATION AND OPERATION OF PARTICULATE & AIR TOXIC MONITORING STATIONS | AQ&CT |
| 5-21000-OPS | AP.17 | SITE-SPECIFIC PARTICULATE AND AIR TOXIC MONITORING AT ACTIVE INVESTIGATION SITES | AQ&CT |
| 5-21000-OPS | AP.18 | CALIBRATION AND OPERATION OF METEOROLOGICAL STATIONS | AQ&CT |
| 5-21000-OPS | AP.19 | VOC SAMPLING | AQ&CT |
| 5-21000-OPS | AP.20 | SVOC SAMPLING | AQ&CT |
| 5-21000-OPS | AP.21 | PARTICULATE SUSPENDED METALS SAMPLING | AQ&CT |
| 5-21000-OPS | EE.01 | SAMPLING OF PERIPHYTON | NEPA |
| 5-21000-OPS | EE.02 | SAMPLING OF BENTHIC MACROINVERTEBRATES | NEPA |
| 5-21000-OPS | EE.03 | SAMPLING OF PLANKTON | NEPA |
| 5-21000-OPS | EE.04 | SAMPLING OF FISHES | NEPA |
| 5-21000-OPS | EE.05 | SAMPLING OF LARGE MAMMALS | NEPA |
| 5-21000-OPS | EE.06 | SAMPLING OF SMALL MAMMALS | NEPA |

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| 5-21000-OPS | EE.07 | SAMPLING OF BIRDS | NEPA |
| 5-21000-OPS | EE.08 | SAMPLING OF REPTILES AND AMPHIBIANS | NEPA |
| 5-21000-OPS | EE.09 | SAMPLING OF TERRESTRIAL ARTHROPODS | NEPA |
| 5-21000-OPS | EE.10 | SAMPLING OF VEGETATION | NEPA |
| 5-21000-OPS | EE.11 | IDENTIFICATION OF HABITAT TYPES | NEPA |
| 5-21000-OPS | EE.12 | SAMPLING OF SOIL FOR SOIL DESCRIPTION | NEPA |
| 5-21000-OPS | EE.13 | DEVELOPMENT OF ECOLOGY FIELD SAMPLING PLANS | NEPA |
| 5-21000-OPS | EE.14 | ASSIGNMENT OF SPECIES CODES | NEPA |
| 5-21000-OPS | EE.15 | ASSIGNMENT OF WILDLIFE HABITAT CODES | NEPA |
| 5-21000-OPS | EE.16 | IDENTIFICATION AND REPORTING OF THREATENED AND ENDANGERED SPECIES AND SPECIAL CONCERN SPECIES | NEPA |
| 5-21000-OPS | FO.01 | WIND BLOWN CONTAMINANT DISPERSION CONTROL | RPD |
| 5-21000-OPS | FO.02 | FIELD DOCUMENT CONTROL | RPD |
| 5-21000-OPS | FO.03 | GENERAL EQUIPMENT DECONTAMINATION | RPD |
| 5-21000-OPS | FO.04 | HEAVY EQUIPMENT DECONTAMINATION | RPD |
| 5-21000-OPS | FO.05 | HANDLING OF PURGE AND DEVELOPMENT WATER | RPD |

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| 5-21000-OPS | FO.06 | HANDLING OF PERSONAL PROTECTIVE EQUIPMENT | RPD |
| 5-21000-OPS | FO.07 | HANDLING OF DECONTAMINATION WATER AND WASH WATER | RPD |
| 5-21000-OPS | FO.08 | HANDLING OF DRILLING FLUIDS AND CUTTINGS | RPD |
| 5-21000-OPS | FO.09 | HANDLING OF RESIDUAL SAMPLES | RPD |
| 5-21000-OPS | FO.10 | RECEIVING, LABELING AND HANDLING WASTE CONTAINERS | RPD |
| 5-21000-OPS | FO.11 | FIELD COMMUNICATIONS | RPD |
| 5-21000-OPS | FO.12 | DECONTAMINATION FACILITY OPERATIONS | RPD |
| 5-21000-OPS | FO.13 | CONTAINERIZING, PRESERVING, HANDLING & SHIPPING OF SOIL AND WATER SAMPLES | RPD |
| 5-21000-OPS | FO.14 | DATA BASE MANAGEMENT | RPD |
| 5-21000-OPS | FO.15 | USE OF PHOTOIONIZATION DETECTORS (PIDs) AND FLAME IONIZATION DETECTORS (FIDs) | RPD |
| 5-21000-OPS | FO.16 | FIELD RADIOLOGICAL MEASUREMENTS | RPD |
| 5-21000-OPS | FO.17 | DETERMINING OUT-OF-SPECIFICATION ANALYTICAL RESULTS FOR ENVIRONMENTAL SAMPLES | RPD |
| 5-21000-OPS | FO.18 | ENVIRONMENTAL SAMPLE RADIOACTIVITY CONTENT SCREENING | RPD |
| 5-21000-OPS | FO.19 | BASE LABORATORY WORK | RPD |

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| 5-21000-OPS | FO.20 | SAMPLING PERSONNEL PROTECTIVE EQUIPMENT FOR CONTAMINANT CHARACTERIZATION | RPD |
| 5-21000-OPS | FO.21 | PROTECTION OF THREATENED AND ENDANGERED AND SPECIAL CONCERN SPECIES | NEPA |
| 5-21000-OPS | FO.22 | EM FIELD ACTIVITY AUTHORIZATION REQUIREMENTS | EOM |
| 5-21000-OPS | GT.01 | LOGGING ALLUVIAL AND BEDROCK MATERIAL | ESD |
| 5-21000-OPS | GT.02 | DRILLING AND SAMPLING USING HOLLOW STEM AUGER TECHNIQUES | ESD |
| 5-21000-OPS | GT.03 | ISOLATING BEDROCK FROM THE ALLUVIUM WITH GROUTED SURFACE CASING | ESD |
| 5-21000-OPS | GT.04 | ROTARY DRILLING AND ROCK CORING | ESD |
| 5-21000-OPS | GT.05 | PLUGGING AND ABANDONMENT OF BOREHOLES | ESD |
| 5-21000-OPS | GT.06 | MONITORING WELLS AND PIEZOMETER INSTALLATION | ESD |
| 5-21000-OPS | GT.07 | LOGGING OF TEST PITS AND TRENCHES | ESD |
| 5-21000-OPS | GT.08 | SURFACE SOIL SAMPLING | ESD |
| 5-21000-OPS | GT.09 | SOIL GAS SAMPLING AND FIELD ANALYSIS | ESD |
| 5-21000-OPS | GT.10 | BOREHOLE CLEARING | ESD |
| 5-21000-OPS | GT.11 | PLUGGING AND ABANDONMENT OF WELLS | ESD |

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| 5-21000-OPS | GT.12 | SAMPLING FOOTING DRAINS, CLEANOUT AND MANHOLES | ESD |
| 5-21000-OPS | GT.15 | GEOPHYSICAL BOREHOLE LOGGING | ESD |
| 5-21000-OPS | GT.17 | SURVEYING AND MAPPING OF SAMPLE POINTS | ESD |
| 5-21000-OPS | GT.18 | SURFACE GEOPHYSICAL SURVEYS | ESD |
| 5-21000-OPS | GT.19 | USE OF PORTABLE GAS CHROMATOGRAPHS | ESD |
| 5-21000-OPS | GT.20 | SOIL INTERSTITIAL WATER SAMPLES AND SAMPLER INSTALLATION | ESD |
| 5-21000-OPS | GT.21 | CONE PENETROMETER TESTING | ESD |
| 5-21000-OPS | GT.22 | IN SITU SAMPLING WITH BAT SYSTEM | ESD |
| 5-21000-OPS | GT.23 | IN SITU HYDRAULIC CONDUCTIVITY TEST | ESD |
| 5-21000-OPS | GT.24 | CONSTRUCTION ON OR NEAR INDIVIDUAL HAZARDOUS SUBSTANCE SITES | ESD |
| 5-21000-OPS | GW.01 | WATER LEVEL MEASUREMENTS IN WELLS AND PIEZOMETERS | ESD |
| 5-21000-OPS | GW.02 | WELL DEVELOPMENT | ESD |
| 5-21000-OPS | GW.03 | PUMP-IN BOREHOLE PACKER TESTING | ESD |
| 5-21000-OPS | GW.04 | SLUG TESTS | ESD |
| 5-21000-OPS | GW.05 | FIELD MEASUREMENT OF GROUNDWATER FIELD PARAMETERS | ESD |
| 5-21000-OPS | GW.06 | GROUNDWATER SAMPLING | ESD |

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| 5-21000-OPS | SW.01 | SURFACE WATER DATA COLLECTION ACTIVITIES | SWD |
| 5-21000-OPS | SW.02 | FIELD MEASUREMENT OF SURFACE WATER FIELD PARAMETERS | SWD |
| 5-21000-OPS | SW.03 | SURFACE WATER SAMPLING | SWD |
| 5-21000-OPS | SW.04 | DISCHARGE MEASUREMENTS | SWD |
| 5-21000-OPS | SW.05 | BASE LABORATORY WORK | SWD |
| 5-21000-OPS | SW.06 | SEDIMENT SAMPLING | SWD |
| 5-21000-OPS | SW.07 | COLLECTION OF TAP WATER SAMPLES | SWD |
| 5-21000-OPS | SW.08 | POND SAMPLING | SWD |
| 5-21000-OPS | SW.09 | INDUSTRIAL EFFLUENT AND POND DISCHARGE SAMPLING | SWD |
| 5-21000-OPS | SW.10 | EVENT-RELATED SURFACE WATER SAMPLING | SWD |
| 5-21000-OPS | SW.11 | OPERATION AND MAINTENANCE OF STREAM-GAUGING AND SAMPLING STATIONS | SWD |
| 5-21000-OPS | SW.12 | SITE DESCRIPTION (SURFACE WATER) | SWD |
| 5-21000-OPS | SW.13 | BACTERIOLOGICAL WATER SAMPLING | SWD |
| 5-21000-OPS | SW.14 | AUTOMATIC SAMPLING | SWD |
| 5-21000-OPS | SW.15 | RIVER AND DITCH SAMPLING | SWD |

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| 5-21000-OPS | SW.17 | SURFACE WATER OPERATIONS | SWD |
| 5-21000-OPS | SW.18 | CONTROL PROCEDURE FOR WATER DISCHARGE FROM 1-3 & SPRAY IRRIGATION, OR WATER DISCHARGED FROM B-3 | SWD |
| 5-21000-OPS | SW.19 | CONTROL PROCEDURE FOR WATER DISCHARGES FROM SURFACE WATER CONTROL POND A-4, B-5, & C-2 | SWD |
| 5-21000-OPS | SW.20 | CONTROL PROCEDURES FOR WATER SPRAYING FROM THE LANDFILL POND AND POND A-2 | SWD |
| 5-21000-OPS | SW.21 | PROCEDURE FOR THE CONTAINMENT OF SPILLS WITHIN ROCKY FLATS DRAINAGES | SWD |
| 5-21000-OPS | SW.22 | RESPIROMETER OPERATION | SWD |
| 5-21000-OPS | SW.23 | MICROTOX OPERATIONS | SWD |
| 5-21000-OPS | SW.24 | DISCHARGE AND MONITORING | SWD |
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| 5-21000-OPS | TRS.01 | GRANULAR ACTIVATED CARBON UNIT REPLACEMENT | RPD |
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| 5-21000-OPS | TRS.04 | CALIBRATION OF TREATABILITY STUDIES EQUIPMENT | RPD |
| 5-21000-OPS | TRS.05 | PARTICULATE FILTER VESSEL REPLACEMENT | RPD |