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**DOE NEVADA OPERATIONS OFFICE
ENVIRONMENTAL PROTECTION
IMPLEMENTATION PLAN**

NOVEMBER 9, 1993, TO NOVEMBER 9, 1994

**United States Department of Energy
Nevada Operations Office
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List of Acronyms and Expressions

ALARA	As Low As Reasonably Achievable
AMEM	Assistant Manager for Environmental Restoration and Waste Management, DOE/NV
AMESSH	Assistant Manager for Environment, Safety, Security, and Health, DOE/NV
AMO	Assistant Manager for Operations, DOE/NV
ANSI/ASME	American National Standards Institute/American Society of Mechanical Engineers
ASER	Annual Site Environmental Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
CFR	Code of Federal Regulations
CSC	Computer Sciences Corporation
DNA	Defense Nuclear Agency
D-1	The day preceding a test detonation
DOE	Department of Energy
DOE/ECD	Engineering and Construction Management Division, DOE/NV
DOE/EMD	Emergency Management Division, DOE/NV
DOE/HQ	Headquarters, Department of Energy
DOELAP	Department of Energy Laboratory Accreditation Program
DOE/NV	Department of Energy Nevada Operations Office
DRI	Desert Research Institute
EEMWG	Effluent and Environmental Monitoring Working Group
EG&G/EM	EG&G Energy Measurements
EH-1	Assistant Secretary for Environment, Safety and Health
EIC	REECo Environmental Information Center
EIS/ODIS	Effluent Information System Onsite Discharge Information System
EM EIS	Environmental Management Environmental Impact Statement
EMD	Environmental Management Division, REECo
EMP	Environmental Monitoring Plan
EMSL-LV	Environmental Monitoring Systems Laboratory-Las Vegas, EPA
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
EPD	Environmental Protection Division, DOE/NV
EPID	Environmental Protection Implementation Plan
ERD	Environmental Restoration Division, DOE/NV
ERWM	Environmental Restoration and Waste Management
ESHD	Environment, Safety, and Health Division, REECo
ES&H	Environment, Safety & Health
FCNV	Field Command Nevada Operations, DNA
FOAV	Finding of Alleged Violation
FRMAC	Federal Radiological Monitoring and Assessment Center
GCP	Groundwater Characterization Project
HPD	Health Protection Division, DOE/NV
HSE-1	Health, Safety, and Environment Division, LANL
INEL	Idaho National Engineering Laboratory
IT	International Technology Corporation
JAB	URS/John A. Blume & Associates
LLNL	Lawrence Livermore National Laboratory
LANL	Los Alamos National Laboratory

List of Acronyms and Expressions, cont.

LGSTF	Liquified Gaseous Fuels Spill Test Facility
NAFBR	Nellis Air Force Base Range Complex
NERP	National Environmental Research Park
NESD	Nuclear Explosive Safety Division
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOAA	National Oceanic and Atmospheric Administration
NORS	Nevada Occurrence Reporting System
NORSOC	Nevada Occurrence Reporting System Operations Center
NQA-1	Document Nuclear Quality Assurance-1 issued by ANSI/ASME
NRD	Nuclear Radiation Assessment Division, EPA/EMSL-LV
NTO	Nuclear Test Organization
NTOD	Nuclear Test Operations Department
NTS	Nevada Test Site
NTSO	Nevada Test Site Office, DOE/NV
NVTC	Nevada Technical Compliance Office, DNA
NWS	National Weather Service
OMB	Office of Management and Budget
OQP	Office of Quality Performance
ORPS	Occurrence Reporting and Processing System
PAI	Professional Analysis, Inc.
PASO	Pacific Area Support Office
PEIS	Preliminary Environmental Impact Statement
QAMS	EPA Quality Assurance Management System
QAP	Quality Assurance Program
QCAR	Quarterly Compliance Action Report
QIP	Quality Implementation Plan
RAP	Radiological Assistance Program
RCRA	Resource Conservation and Recovery Act
REECo	Reynolds Electrical & Engineering Company, Inc.
RSN	Raytheon Services Nevada
SDWA	Safe Drinking Water Act
SOP	Standard Operating Procedure
SNL	Sandia National Laboratories
SWAC	Site-Wide ALARA Committee
TDD	Technology Development and Program Management Division
TGD	LANL Test Group Director
TLD	Thermoluminescent Dosimetry
TOD	Test Operations Division, DOE/NV
USGS	U.S. Geological Survey
WMD	Waste Management Division, DOE/NV
WOB	Waste Operations Branch, DOE/NV
WOD	Waste Operations Department
WSI	Wackenhut Services, Inc.
WSNSO	Weather Service Nuclear Support Office

1.0 General Description of DOE Nevada Operations Office Environmental Protection Program

DOE Order 5400.1, "General Environmental Protection Program," established environmental protection program requirements, authorities, and responsibilities to assure that the Department of Energy (DOE) operations are in compliance with applicable federal, state, and local environmental protection laws and regulations, executive orders, and internal department policies. Chapter III of DOE Order 5400.1 required that each field organization prepare a plan for implementing the requirements of this order by no later than November 9, 1989, and update the plan annually. Therefore, the Department of Energy/Nevada Operations Office (DOE/NV) has prepared this fourth annual update of its Environmental Protection Implementation Plan (EPIP). The Order and corresponding guidances also require estimated budgetary resources necessary for implementation of the Order be identified in the Environmental Protection Implementation Plan. To satisfy this requirement, the estimated costs to effectuate necessary changes in existing programs or processes and to institute new programs or processes for compliance with the Order are provided in the following sections of this plan. The DOE/NV Assistant Manager for Environment, Safety, Security, & Health (AMESSH), in consultation with other organizations responsible for line management of plan implementation, is responsible for annual plan revisions.

1.1 Goals and Objectives

In accordance with the following DOE/NV Environmental Protection Policy Statement, protection of the public, the environment, and employees is a responsibility of paramount importance to the DOE/NV. This EPIP has been developed to clearly identify the separation of management direction from oversight responsibilities within DOE/NV to ensure implementation of sound environmental practices in the conduct of DOE/NV operations. It is recognized that fulfillment of the DOE/NV mission to conduct underground testing of nuclear devices imposes significant impacts on the local environment. It remains the policy of the DOE/NV to evaluate the potential environmental impacts of each test and testing program to ensure these impacts are identified and minimized.

Accordingly, it is the DOE/NV practice to conduct its operations in compliance with the letter and spirit of environmental statutes, regulations, and standards. The DOE/NV is firmly committed to ensuring incorporation of national and DOE environmental protection goals in the formulation and implementation of DOE/NV programs. It has an equal commitment to advance the goals of restoring and enhancing environmental quality and ensuring public health and welfare.

In addition, the DOE/NV is committed to the objective of good environmental management of all its programs and to correct existing environmental problems, minimize risks to the environment or public health, and anticipate and address potential environmental problems before they pose a threat to the public welfare or the environment at all of its facilities. Finally, it is the DOE/NV's policy that efforts to meet environmental obligations be carried out consistently across all operations and among all field organizations and programs.

1.2 DOE Nevada Operations Office Environmental Protection Policy Statement

The policy of the U.S. Department of Energy (DOE) is to conduct its operations safely and to minimize the impact on the environment. It is clear that protection of the public, the environment, and the employees at DOE facilities are responsibilities of paramount importance. The Secretary of Energy has identified compliance with the letter and spirit of environmental, safety, and health laws and regulations as being critical to accomplishing national missions. The DOE Nevada Operations Office (DOE/NV) fully recognizes and endorses the importance of environmental protection and expects full compliance with requirements.

The policy of DOE/NV is to conduct all operations in compliance with the letter and spirit of international agreements, environmental statutes, regulations, and standards. In addition, DOE/NV is committed to excellence in environmental management of all programs and to identifying and correcting existing problems before they pose a threat to the public welfare or the environment. DOE/NV's policy is to prevent, when possible, hazardous materials from reaching the atmosphere or the groundwater. DOE/NV is working with the appropriate offices of the state of Nevada, the U.S. Environmental Protection Agency (EPA), and other regulatory entities to implement the Five-Year Plan to achieve environmental compliance and characterize, monitor, mitigate, and clean up sites for which DOE/NV is responsible.

The responsibilities of DOE/NV include the underground testing of nuclear devices and their components at the Nevada Test Site, an activity unique among DOE operations. Fulfillment of this mission imposes adverse impacts on the local environment. The policy of DOE/NV is to evaluate the potential environmental impacts of each test and testing programs to ensure that the impacts of testing are identified and minimized, and to ensure incorporation of national and international environmental protection goals in the formulation and implementation of testing programs.

A principal objective of the DOE/NV policy is to assure the minimization of potential impacts on the environment, including groundwater, from underground testing. To ensure minimization of impacts, while fulfilling the requirements of the testing program, the location and construction of tests will be optimized in order to maximize environmental protection while minimizing adverse impacts on the testing mission of DOE/NV. An ongoing program to monitor and assess the effectiveness of groundwater protection efforts will be enhanced so that resources are allocated based on current understanding of the effectiveness of groundwater protection programs. DOE/NV's policy is to support DOE and national initiatives relating to waste minimization and pollution prevention. To this end, DOE/NV is committed to eliminate or reduce the total amount of hazardous, mixed, radioactive, and nonhazardous waste generated in operations for which DOE/NV is responsible. As part of this program, it is expected that all levels of facility management within DOE/NV, its contractors, and users shall encourage employee initiatives in pollution prevention and waste minimization and shall instill a pollution prevention ethic within the work place.

DOE/NV, its contractors, NTS users, and associated agencies must share responsibilities for good environmental management. Operations and facilities are required to be managed in a manner that protects the public and employee health and limits risks to the environment now and for the future. Reaching the goals that have been established by DOE and by DOE/NV depends upon each and every employee's contribution in achieving environmental excellence at DOE/NV facilities.

1.3 Program Summary

The primary mission of the DOE/NV is the testing of nuclear devices and their components at the Nevada Test Site (NTS). The NTS is a land mass covering 3497 km² (1350 mi²) located 105 km (65 mi) northwest of Las Vegas, Nevada, in the high desert (altitudes range from 762 m [2500 ft] to over 2286 m [7500 ft]). The NTS is surrounded on three sides by the Nellis Air Force Base Range Complex (NAFBR), an additional area of 10,671 km² (4120 mi²). Both the NTS and the NAFBR are isolated and unpopulated areas. For these and technical reasons, the NTS has been assigned secondary missions which include (1) disposal of defense-related, low-level radioactive and mixed waste; (2) execution of tests involving spills of large quantities of hazardous liquified gases (e.g., natural gas, hydrogen fluoride); and, (3) conducting specialized tests involving radiation and radioactive materials.

Environmental programs managed by the DOE/NV focus principally on the testing of nuclear devices on the NTS. Other programs of environmental significance beyond nuclear device testing managed by the DOE/NV include the defense low-level radioactive waste management operation and other special tests involving radioactivity. These activities are executed on the NTS and at other locations in the U.S. Developmental tests for peaceful uses of nuclear explosives, as well as weapons-related tests, have been conducted off the NTS both in the atmosphere and underground. The DOE retains caretaker responsibility for these sites at locations in the U.S. and Amchitka Island, Alaska.

Nonradiological NTS testing activity includes the Liquified Gaseous Fuels Program. A site on the Frenchman Flat area of the NTS has been designated the Liquified Gaseous Fuels Spill Test Facility (LGFSTF). This site is used to conduct spills of toxic and hazardous liquids or gases under controlled conditions to study dispersal patterns, control measures, and other aspects of spills.

Environmental protection activities for the DOE/NV include monitoring and compliance programs as well as programs for corrective and restorative actions. Monitoring activities include both nuclear device detonation-time monitoring and routine continuous surveillance monitoring. These monitoring activities are performed both on the NTS and in the neighboring offsite areas to ensure that operations are conducted in compliance with environmental and public health protection requirements and guidelines.

1.4 DOE Organization and Responsibilities

DOE Headquarters (DOE/HQ) has assigned DOE/NV the responsibility and authority for management of the NTS, including responsibility for the NTS environmental activities. The DOE/NV prepares budget submittals necessary to meet environmental requirements. The DOE/NV also reviews and approves all environmentally-related submittals to agencies and organizations outside of the NTS community of contractors and users. The DOE/NV's organizational structure is shown in Exhibit 1-1.

1.4.1 Office of the DOE/NV Manager

The manager directs and manages the overall DOE radiological field responsibility for offsite response to major radiological emergencies. The manager also ensures that all operations are conducted in accordance with applicable federal and state laws and DOE-prescribed environment, safety, and health (ES&H) policies, Orders, standards and guidelines. All

Exhibit 1-1 Organizational Chart for the U.S. Department of Energy Nevada Operations Office

DOE/NV staff provide environmental safety and analysis for the approval and coordination of the manager.

1.4.1.1 Office of Quality Performance

Under the supervision of a Director who reports to the DOE/NV Manager, the Office of Quality Performance (OQP) develops and implements a Total Quality Management Program which strives for improving quality work products at DOE/NV and serves as a focal point in developing, implementing, and overseeing the DOE/NV Quality Assurance Programs (QAP).

1.4.1.2 Pacific Area Support Office

Under the supervision of a Director who reports to the DOE/NV Deputy Manager, the Pacific Area Support Office (PASO) directs activities in support of environmental research and experiments, and environmental radiation monitoring and safety, which include development and implementation of procedures to ensure compliance with environmental policies and standards. The PASO also implements policy relating to the Marshall Islands for radiological safety, environmental monitoring, research, and other related activities.

1.4.1.3 Public Affairs

Within DOE/NV, the Office of External Affairs is the official point of contact with the public, news media, congressional and intergovernmental offices, and Tribal organizations. The Office of External Affairs also coordinates tours and visits to the Nevada Test Site and other DOE facilities. The Office also manages DOE/NV public participation, educational outreach, Freedom of Information, and classification/declassification programs.

1.4.2 Assistant Manager for Operations

Within the DOE/NV, the Assistant Manager for Operations (AMO) is responsible for operational control of NTS activities. The AMO provides support of construction and common services. These responsibilities are delegated to organizations reporting to the AMO, which include the Nevada Test Site Office (NTSO), the Test Operations Division (TOD), Emergency Management Division (EMD), Nuclear Explosive Safety Division (NESD), and Engineering and Construction Management Division (ECD). Both NTSO and TOD are responsible for the day-to-day operational surveillance to ensure compliance with environmental protection requirements. The AMO develops and administers the Emergency Management System, the Federal Radiological Monitoring and Assessment Center (FRMAC), and Radiological Assistance Program (RAP) for DOE/NV.

1.4.2.1 Emergency Management Division

Under the direction of the AMO, the EMD develops, maintains, and oversees the daily operation and implementation of DOE Order 5000.3B, "Occurrence Reporting and Processing of Operations Information", of January 19, 1993. The Division provides a contracting officer representative for the Nevada Occurrence Reporting System Operation Center (NORSOC) support services contractor. The EMD plans, develops, and directs the FRMAC and the RAP program. As part of the RAP, EMD manages, supports, and coordinates the DOE/NV Radiological Assistance Team. The Division manages and directs

all DOE/NV radiological and nonradiological emergency response training programs and those sponsored by various DOE/HQ program elements. The EMD also provides follow-up in support of DOE/NV emergency exercises. The EMD provides DOE/NV emergency management expertise relative to issues involving hazardous materials.

1.4.2.2 Engineering and Construction Management Division

Under the direction of AMO, ECD ensures that all assigned construction projects comply with environmental protection requirements and standards.

1.4.2.3 Nevada Test Site Office

Under the direction of the AMO, the NTSO manages NTS activities concerned with construction, engineering, and common services. The office also oversees contractor operations which provide engineering, construction, and logistics support to the Tonopah Test Range users. The NTSO is responsible for ensuring all operations are conducted in accordance with applicable federal and state laws and DOE-prescribed ES&H policies, orders, standards, and guidelines.

1.4.2.4 Test Operations Division

Under the direction of the AMO, the TOD oversees operational activities associated with DOE/NV test programs. TOD controls activities at test locations before, during, and after test execution and provides direct test-related operational and air support. The TOD manages an operational oversight program involving DOE/NV contractors, with emphasis on safety and environmentally acceptable operations. The TOD also maintains overview of offsite radiological safety and hydrological, geological, and meteorological contractors.

1.4.2.5 Nuclear Explosive Safety Division

Under the direction of the AMO, the NESD conducts investigations of accidents, incidents, and unusual occurrences associated with nuclear explosive and criticality safety operations performed by NTS users and DOE/NV contractors. The Division ensures that the criticality safety program for the NTS is conducted in accordance with standards and Orders and any other applicable regulations and requirements that pertain to the program.

1.4.3 Assistant Manager for Environmental Restoration and Waste Management

Within the DOE/NV, the Assistant Manager for Environmental Restoration and Waste Management (AMEM) is responsible for the development of policies and procedures and provides the programmatic planning and centralized management for environmental restoration and waste management activities, including assessments, remediations, and facility transitions at formerly used operational locations, both on and off the NTS. Principal AMEM program functions are management of low level radioactive and mixed waste disposal programs and facilities; planning and implementation of environmental assessment and remediation technology development and demonstration programs. The AMEM plans, coordinates and directs an integrated DOE/NV hydrology program to assess the effects, monitor the conditions, and minimize the potential adverse impacts to groundwater systems from the past and ongoing NTS activities.

1.4.3.1 Waste Management Division

Under the direction of the AMEM, Waste Management Division (WMD) manages the radioactive, hazardous, and mixed waste treatment, storage and disposal operations at the NTS in compliance with all regulations, requirements and policies. The operations that WMD manages are special projects for waste treatment, storage and disposal at the NTS; the centralized waste services for NTS generated hazardous and sanitary wastes; and closure activities for the AMEM designated waste management units. The WMD also operates the treatment, storage and disposal facilities for program waste streams.

1.4.3.2 Environmental Restoration Division

Under the direction of the AMEM, Environmental Restoration Division (ERD) schedules and prioritizes environmental restoration projects and operations under the auspices of DOE/NV and conducts surveillance of operations within ERD's area of responsibility to ensure compliance with environmental requirements. The ERD also manages the groundwater characterization project (GCP). The Division manages the preparation of the DOE Environmental Management Environmental Impact Statement (EM EIS) and coordinates DOE/NV aspects of the Preliminary Environmental Impact Statement (PEIS) for Environmental Restoration and Waste Management (ERWM).

1.4.3.3 Technology Development and Program Management

Under the direction of the AMEM, Technology Development and Program Management (TDD) develops and evaluates environmental assessment, environmental measurement, and environmental remediation technologies. The TDD develops strategies and plans for the DOE/NV to reduce the volume of radioactive and hazardous waste handled and generated at the NTS. The TDD also develops the strategies and plans and manages contractor efforts to develop a wide range of remote sensing technologies to assess the nature and extent of near surface chemical and radiological contamination at the NTS and other sites throughout the DOE complex. The Division manages all aspects of revegetation studies including preparation and land surface restoration work associated with radiological clean-up of surface soils on and around the NTS.

1.4.4 Assistant Manager of Environment, Safety, Security, and Health

The Assistant Manager of Environment, Safety, Security, and Health (AMESSH) provides oversight of DOE/NV operations to assure compliance with environmental, health and safety policies, regulations, and standards. These responsibilities are delegated to divisions reporting to the AMESSH, which include the Environmental Protection Division (EPD) and the Health Protection Division (HPD). The EPD provides oversight for environmental compliance and the HPD provides industrial hygiene and health oversight. The AMESSH also develops policies and procedures for implementation of radiological and environmental science programs. Institutional ES&H programs include, radiological protection, NTS environmental monitoring, and safeguards and security programs.

1.4.4.1 Environmental Protection Division

Under the direction of AMESSH, EPD develops policies, programs, and procedures related to protection of the environment; ensures compliance with environmental laws, regulations, and requirements; and oversees execution of environmental research. The director of EPD

serves as the DOE/NV National Environmental Policy Act Compliance Officer for all matters under the authority of DOE/NV. This Division conducts appraisals, reviews, surveillances, and inspections of DOE/NV contractors and tenant contractors for compliance with environmental laws and regulations. The Division also serves as the formal interface with state and federal environmental regulatory agencies for establishing agreements to achieve compliance. The EPD ensures that exposure of personnel, the general public, and the environment to radiation resulting from all DOE/NV operations is kept in compliance with applicable regulations; and ensures that occurrence reporting requirements are met for radiological incidents at the NTS. EPD is responsible for: (1) the direction of activities of the onsite and offsite NTS environmental surveillance programs, community monitoring program, National Environmental Research Park (NERP), other environmental monitoring activities, and develops the Environmental Information Management system; (2) the preparation, approval, and distribution of the Annual Site Environmental Report (ASER), Environmental Monitoring Plan (EMP), EPIP, Effluent Information Systems Onsite Discharge Information System (EIS/ODIS), and the DOE/NV Annual National Emission Standards for Hazardous Air Pollutants (NESHAP) Report (40 CFR 61.94); and (3) for providing advice and guidance to DOE/NV organizations to ensure widespread and consistent application of DOE Orders 5400.1, "General Environmental Protection Program" and 5400.5, "Radiation Protection of the Public and the Environment". The EPD monitors and maintains environmental data bases regarding the inventory of radionuclides on and around the NTS, and the development of human dose assessment models for use and reporting statistical analysis and special studies. In close coordination with the Hydrology Program, EPD administers programs of the Hydrologic Resources Management Program related to testing and coordinates the data from all monitoring wells.

1.4.4.2 Health Protection Division

Under the direction of AMESSH, HPD develops policy and procedural requirements for protection of the DOE/NV work force from radiological and industrial hygiene hazards. Program management and oversight is provided in the consolidation and retention of technical information related to the protection of public health, worker health, and the environment associated with the DOE/NV mission. The director of HPD serves as chairperson of an analytical laboratory users committee to ensure productive, quality, prioritized use of the analytical laboratory capability. At the present time, HPD is managing the community radiological monitoring systems for EPD.

1.5 NTS User and Testing Organizations

The primary mission of the NTS has been the testing of nuclear devices. Maintenance of that capability remains of prime importance. While the responsibility for operations at the NTS belongs to DOE/NV, the technical execution of device testing is performed by four principal NTS users or testing organizations: Lawrence Livermore National Laboratory (LLNL), Los Alamos National Laboratory (LANL), Sandia National Laboratories (SNL), and the Defense Nuclear Agency (DNA). The headquarters of each of these organizations is elsewhere, but each maintains a staff in Nevada to direct the execution of nuclear tests. Test activity and facility managers have first-line responsibility to operate their facilities in a safe, environmentally sound manner. Each of these organizations is responsible for the sound environmental management of all of its programs, and each is specifically responsible for complying with the requirements of DOE Order 5400.1.

1.5.1 Lawrence Livermore National Laboratory

The primary mission of the LLNL at the NTS has been to conduct underground nuclear explosive tests and experiments as part of the Laboratories Weapons Research and Development Program; emphasis is currently shifting to device safety and reliability testing. Most of these activities have some environmental impact. LLNL directs or performs radiation and effluent monitoring for nuclear explosions, postshot drilling activities, and other LLNL activities having environmental impact potential.

LLNL's Environmental, Safety, and Health Program is administered through the Associate Director for Nuclear Test-Experimental Science. Responsibility for LLNL activities is categorized as event or non-event. This distinction identifies the person who exercises authority, i.e., the LLNL Test Director (event) or the LLNL Department Head (non-event, device assembly activities, and all other LLNL activities at the NTS). In both cases, the LLNL Nuclear Test Operations Department (NTOD) Environment, Safety, and Health Group (resident at NTS) implements the Environmental, Safety, and Health Program. This group is responsible for the measurement, calculation, and reporting of effluents generated by LLNL activities at NTS.

1.5.2 Los Alamos National Laboratory

The mission of the LANL at the NTS has been to plan and safely execute tests of underground nuclear explosives and to conduct other scientific and engineering experiments in support of LANL's nuclear device research and development program; this mission is currently shifting to one focusing on device safety and reliability testing. This involves providing field support, fielding performance diagnostics, and ensuring that all radioactive products from underground nuclear tests are completely contained. LANL performs or directs effluent monitoring for nuclear explosions and postshot drilling activities.

The responsibility for LANL's environmental protection program rests with the Test Group Director (TGD) and has been delegated to the Field Health Physics Section of the Radiation Protection Group within the LANL Health, Safety, and Environment Division (HSE-1).

1.5.3 Defense Nuclear Agency

As a tenant on the NTS, the DNA is responsible for conducting underground nuclear-effects testing in tunnels through a management agreement with the DOE. Almost all of DNA's activities are conducted in Area 12 of the NTS. The DNA coordinates and manages the engineering, logistical, and administrative support for all Department of Defense- and DNA-sponsored agencies involved in weapons effects test operations and exercises at NTS and for DNA operations and exercises off the NTS. The DNA Nevada Technical Compliance Office (NVTC) is responsible for the Field Command Nevada Operation's (FCNV's) environmental protection program and for ensuring that all DNA activities are in compliance with applicable environmental laws, regulations, and orders. The NVTC provides guidance to DNA personnel and Department of Defense- and DNA-sponsored agencies involved in nuclear weapons effects tests.

1.5.4 Sandia National Laboratories

The primary mission of the SNL at the NTS is to support the Laboratories' underground test needs and, in limited areas, the test programs of other weapons laboratories. Specifically,

the SNL (1) carries out experiments to determine effects on SNL-designed nuclear device components, (2) provides hardware and support for the arming and firing requirements of nuclear weapons, and (3) provides general support for the DOE's underground test program through test safety, ground motion studies, and containment and special instrumentation capabilities. The SNL Health Physics Department has operational responsibility for environmental protection activities. Environmental compliance oversight is the responsibility of the SNL Environmental Programs Department.

1.6 Contractor and Support Agency Organization and Responsibilities

Serving under the direct oversight of DOE/NV, the principal NTS contractors include: Reynolds Electrical & Engineering Co., Inc. (REECo), the NTS prime contractor for site operations and maintenance; Raytheon Services Nevada (RSN), the architectural and engineering contractor; EG&G Energy Measurements (EG&G/EM), which is principally concerned with fielding diagnostic instrumentation systems and timing and firing systems for nuclear tests; Professional Analysis, Inc. (PAI), which provides technical, management, and administrative services to the DOE/NV; Computer Sciences Corporation (CSC); Wackenhut Services, Inc. (WSI); International Technology Corporation (IT); URS/John A. Blume & Associates (JAB); and the Desert Research Institute (DRI) of the University of Nevada System. The U.S. Environmental Protection Agency's (EPA's) Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV); the U.S. Department of the Interior; U.S. Geological Survey (USGS); and the U.S. Department of Commerce's National Oceanic and Atmospheric Administration's (NOAA's) Weather Service Nuclear Support Office (WSNSO) supports NTS operations through management agreements or Interagency Agreements with DOE/NV. Each contractor and support agency or organization is responsible for the safe, environmentally sound maintenance and operation of its designated facilities, specific facility upgrades, operational support, waste management, and monitoring of operations and effluents for environmental compliance. Test activity and facility managers have first-line responsibility to operate their facilities in a safe, environmentally sound manner. The manager of each organization is specifically responsible for complying with DOE Order 5400.1.

1.6.1 Reynolds Electrical & Engineering Co., Inc.

REECo is the maintenance and operations support contractor at the NTS and provides construction support as well as large-diameter drilling and mining, food services, housing, industrial safety, medical services, purchasing, fire protection, warehousing, transportation, and engineering services. REECo also provides services to NTS users and contractors, upon request and under the oversight of DOE/NV, for environmental monitoring, protection, and compliance.

The Environment, Safety, & Health Division (ESHD) within REECo is responsible for assessing environmental compliance and providing health physics, industrial hygiene, and occupational medicine for the DOE/NV, weapons testing laboratories, support agencies, and other contractors who use the facilities of the NTS and its related offsite projects. The Environmental Management Division (EMD) within REECo is responsible for waste operations (radioactive and nonradioactive), analytical services including environmental and ecological monitoring and surveillance, and environmental restoration and technology development. The ESHD and EMD act under direction from the DOE to ensure compliance

of NTS activities with all federal, state, and local environmental laws. The organization of the REECO ESHD and EMD is outlined in Exhibits 1-2 and 1-3. The EMD's Waste Operations Department (WOD) prepares applications for permits to comply with relevant federal, state, and local environmental statutes. The WOD also monitors compliance with existing permits for activities performed by the DOE/NV, REECO, LLNL, LANL, DNA, SNL, and other DOE/NV and NTS organizations. The EMD has the principal responsibility, under direction from the DOE/NV, for conducting NTS onsite radiological and nonradiological environmental surveillance. The EMD performs effluent monitoring at the request of NTS users. The EMD's Waste Operations Department also performs management and disposal of defense-related mixed wastes and low-level radioactive wastes, and it oversees waste management site environmental monitoring.

1.6.2 EG&G Energy Measurements, Inc.

EG&G/EM provides electronics and instrumentation support for the Nuclear Weapons Development Program, which includes timing and firing services and scientific diagnostic equipment for nuclear tests. The company performs mechanical engineering for vacuum systems and provides support in physics, mathematics, special photography, and data reduction for experiments. EG&G/EM also has major responsibilities in the Environmental Research and Development and Aerial Measurements System Programs at the DOE/NV. EG&G/EM operates the LGFSTF for the DOE/NV. The ES&H Director provides guidance and review oversight of EG&G/EM day-to-day operations through its Environmental Compliance Section and Safety Officers at outlying facilities. This oversight is coordinated when applicable with the state and local regulatory authorities through DOE/NV/EPD.

1.6.3 Raytheon Services Nevada

RSN is the architect/engineer contractor for the NTS. The company's primary responsibilities are the design of facilities required for NTS operations and engineering services for drilling and mining activities at the NTS. These responsibilities include design, research, inspection, and procurement. RSN provides master planning, engineering, surveying, and support services at the NTS and other off-NTS locations, including support to the Safeguard C Program. RSN is involved with development of new drilling tools and techniques for the drilling and casing of large-diameter emplacement holes, and consults with user agencies regarding the drilling fluids to be used. RSN conducts routine limited environmental monitoring at Johnston Atoll in the Pacific and limited compliance monitoring at its facilities on the NTS and in Las Vegas. The Environmental, Safety, and Health Division within the RSN provides overall guidance and direction on all RSN activities related to environmental protection. The RSN Environmental, Safety, and Health Division Manager and staff are responsible for maintaining up-to-date knowledge of the EPA and state regulations and laws and DOE Orders concerning environmental compliance. The RSN Environmental, Safety, and Health Division Manager has overall responsibility for the RSN environmental protection program.

1.6.4 The Desert Research Institute

DRI performs technical studies and model development for both radioactive and nonradioactive environmental characterizations related to NTS operations. DRI is a nonprofit division of the University of Nevada system engaged in full-time basic research in the earth and environmental sciences. Work performed by DRI on contract with the DOE/NV includes archaeological studies and the development of site mitigation plans,

Exhibit 1-2 Organizational Chart for the REECo Environment, Safety, and Health Division

Exhibit 1-3 Organizational Chart for the REECO Environmental Management Division

offsite community radiation monitoring support, environmental compliance activities related to state and federal regulations, hydrologic assessment of containment of underground nuclear detonations, hydrology/radionuclide investigations designed to better understand and predict the possible subsurface movement of radionuclides at the NTS, and support of various statistical and data management and design activities.

1.6.5 Professional Analysis, Inc.

PAI provides technical and management services to the DOE/NV in support of the environment, safety, health, quality assurance, and defense waste management functions. Areas of general support include planning and evaluation of environmental studies and programs; development of scopes of work for inclusion in requests for proposal; development of planning and self assessment programs; technical assistance in hydrological and other investigative programs; participation in audits, appraisals, inspections, technical reviews, and surveillances; and assistance in occupational safety, industrial hygiene, and fire protection oversight.

1.6.6 Computer Sciences Corporation

CSC operates the DOE/NV Computer and Communications facilities in addition to a User Support Center for Automated Office Systems. CSC also provides staff support for automated data processing management, computer security, and related activities involving DOE contractors and federal support agencies.

1.6.7 Wackenhut Services, Inc.

WSI provides security services at the NTS and at selected Las Vegas facilities. Their services include physical and plant security and providing a personnel access and control system.

1.6.8 International Technology Corporation

IT Corporation is the prime Environmental Support Services Contractor for DOE/NV's Environmental Restoration (ER) Program. IT provides contaminated sites and facility assessments and remediation according to applicable standards of state and federal law. IT task assignments include: program management support, including the development of long-term strategic plans; characterization of geologic, hydrogeologic and geochemical environments of the NTS; and remedial investigations/feasibility studies.

1.6.9 U.S. Environmental Protection Agency

EPA is responsible for the off-NTS Radiological Surveillance and Population Protection Program through an interagency agreement with DOE/NV. The EPA, using both fixed and mobile monitoring equipment, collects environmental samples to measure for radioactivity under the Community Radiation Monitoring Program. EPA personnel are also responsible for making personal contact with residents around the NTS providing those residents with public information on environmental radiation monitoring activities, and implementing protective action measures that might be required in the event of an accidental release of radioactivity. Nonradiological monitoring is performed in support of the LGFSTF.

The Environmental Protection Program of the EMSL-LV has three objectives: (1) to document radiation exposures to the offsite population and radioactive contamination of the offsite environment from routine and accidental releases of radioactivity related to nuclear device testing activities at the NTS, (2) to maintain a continuous radiation surveillance program in order to document background radiation exposure rates for monitoring trends and incremental changes that can be quantitatively detected, and (3) to maintain a hydrological monitoring program around and upon the NTS and at sites in other states where nuclear devices have been tested. The EMSL-LV is responsible for areas outside the boundaries of the NTS and extending as far as 483 km (300 mi) from the NTS for routine radiation surveillance and monitoring.

The Director of EMSL-LV has the overall responsibility for offsite radiation monitoring and surveillance activities. The organization of the EMSL-LV is shown in Exhibit 1-4. Radiation monitoring and surveillance activities are carried out by the Nuclear Radiation Assessment Division (NRD) and most of the NTS offsite monitoring program management responsibilities of the Director, EMSL-LV, have been delegated to the Director, NRD.

1.6.10 Weather Service Nuclear Support Office

WSNSO provides all meteorological services required in support of the programs at the NTS and elsewhere, as necessary. WSNSO activities in support of DOE/NV programs are conducted under the authority of an Interagency Agreement between the National Weather Service (NWS) and the DOE/NV.

The WSNSO is responsible for conducting a broad meteorological program in support of both nuclear and non-nuclear projects, with particular emphasis on those facets of meteorology having direct bearing upon the safety of underground nuclear testing, and relating to the transport, dispersion, and fallout of airborne radioactive materials. Although primary efforts are directed in support of nuclear device testing, support is also provided to a variety of other projects, e.g., the Offsite Radiation Exposure Review Project and activities conducted at the LGFSTF.

1.6.11 U.S. Geological Survey

USGS provides information on the geologic and hydrologic environment of the NTS and other event sites, documents and analyzes the effects of nuclear explosions on the geologic and hydrologic environment, and operates the core library at the NTS.

1.7 Head of Operations Office Assigned Responsibilities

DOE Order 5400.1 lists 13 responsibilities and authorities assigned to Heads of Field Organizations. This section describes the manner in which each of these 13 responsibilities will be met by the Manager, DOE/NV.

Requirement (1):

Issue and update, as required, a general environmental statement that reflects the policy of this Order and contains broad environmental protection goals for all facilities and activities for which he or she is responsible.

Environmental Monitoring Systems Laboratory - Las Vegas

Co-Located Units

Office of Radiation
Programs-Las Vegas
Facility

Office of
Civil Rights

Human Resources
Office-Las Vegas

Financial
Management
Office

Region 9
Las Vegas

Implementation (1):

A general environmental statement appears in Section 1.1 of this EPIP. The statement emphasizes the commitment to environmental protection, adherence to all environmental laws and regulations, and the need for increased environmental awareness across all facilities, contractors, and programs.

Requirement (2):

Ensure that all operations under their authority comply with applicable environmental protection laws, regulations, and directives.

Implementation (2):

Through the AMO, the NTSO has line management responsibility to ensure that all NTS operations and contractors comply with applicable environmental protection laws, regulations, and directives. Through the AMEM, the WMD and the ERD ensure all environmental restoration and waste management activities are in compliance with environmental requirements. Through the AMESSH, the EPD provides oversight to ensure environmental compliance by all operations under the purview of the DOE/NV.

Requirement (3):

Identify significant environmental compliance issues that require resolution and coordination and advise the Assistant Secretary for Environment, Safety and Health (EH-1) and DOE/HQ program elements in a timely manner.

Implementation (3):

Through the AMESSH, the DOE/NV divisions identify significant environmental compliance issues that require resolution and coordination and prepare the "DOE/NV Quarterly Compliance Action Report (QCAR)." Issues requiring involvement of EH-1 or other DOE/HQ elements receive high priority and are coordinated with the DOE/HQ environmental guidance and compliance staff. The EPD distributes the QCAR to appropriate internal and external agencies.

Requirement (4):

Ensure that all required environmental permits are secured from the appropriate regulatory agency in a timely fashion. Consistent with the requirements of DOE Order 5400.2A, in negotiating the terms and conditions of permits, settlements, consent orders, consent decrees, or other legal or administrative documents, every effort shall be made to ensure that permits reflect the requirements of environmental regulations, are consistent with national security interests, and are cost-effective.

Implementation (4):

The AMEM, AMO, and AMESSH ensure that all required environmental permits are secured from the appropriate regulatory agency in a timely fashion. The EPD, together with the Office of Chief Counsel, negotiates the terms and conditions of permits, consent orders, consent decrees, and other necessary legal or administrative documents.

Requirement (5):

Conduct environmental appraisals of programs, projects, and facilities in accordance with DOE Order 5482.1B and other ES&H requirements and provide copies of appraisal reports to EH-1 and the appropriate program office.

Implementation (5):

Through the AMESSH appraisal programs, all programs, projects, and facilities are reviewed in accordance with DOE Order 5482.1B and other ES&H requirements. Copies of all appraisal reports are supplied to EH-1 and the appropriate program office.

Requirement (6):

Establish and maintain liaison and cooperative programs with appropriate federal, regional, state, and local environmental officials so as to facilitate effective environmental management.

Implementation (6):

The EPD maintains liaison with appropriate federal, state, and environmental regulatory agencies concerning environmental protection and compliance issues.

Requirement (7):

Develop and implement programs that (1) direct contractors to execute environmental protection compliance programs and policies, and (2) provide for oversight, confirmation, and independent verification of those contractor programs.

Implementation (7):

The DOE/NV, under the AMO and AMEM, develops and implements programs requiring contractors to develop and execute their own environmental compliance programs and policies. The AMESSH conducts surveillances and appraisals for oversight, confirmation, and independent verification of those contractor programs.

Requirement (8):

Prepare long-range environmental protection plans in accordance with guidance issued by EH-1.

Implementation (8):

Through the AMO, long-range environmental protection plans are prepared in accordance with guidance from EH-1.

Requirement (9):

Ensure that budget requests provide for required environmental protection upgrades and corrective action, that they are timely, and that they are consistent with pollution abatement plans prepared as required by Office of Management and Budget (OMB) Circular A-106.

Implementation (9):

Requirements associated with environmental upgrades and compliance activities which have been identified by DOE/NV contractors and concurred upon by the AMESSH and AMO and/or AMEM are submitted to the appropriate program assistant secretary, consistent with their budget submittal requests for that fiscal year. The EPD and TDD ensure that these requests are consistent with pollution abatement plans prepared as required by OMB Circular A-106.

Requirement (10):

EPD and TDD prepare biannual pollution abatement plans as required by OMB Circular A-106 and submit them to EH-1 on a schedule provided by that office.

Implementation (10):

EPD and TDD prepare biannual pollution abatement plans required by OMB Circular A-106, with assistance and concurrence from the Budget Branch as directed by the schedule from EH-1, and submits them to EH-1.

Requirement (11):

Provide EH-1 all requested environmental information and documentation.

Implementation (11):

The EPD is responsible for providing EH-1 with the environmental information and documentation requested.

Requirement (12):

Curtail or suspend any operation that poses a clear and present danger to the environment or to members of the public.

Implementation (12):

The AMO, AMESSH, and AMEM have been delegated the authority to immediately suspend any DOE/NV operation that poses a clear and present threat to members of the public or to the environment.

Requirement (13):

Provide for community public information and education programs concerning DOE environmental protection programs consistent with the requirements of environmental regulations and national security interests.

Implementation (13):

The DOE/NV Office of External Affairs develops and implements community public information and education programs concerning DOE/NV environmental protection programs. The EPA EMSL-LV, through an Interagency Agreement with DOE/NV, also

conducts community public information and education programs concerning offsite radiological monitoring programs and maintains Community Radiation Monitoring Stations at 19 communities around the NTS.

1.8 Compliance to Documentation Requirements of DOE Order 5400.1

Exhibit 1-5 shows the major supporting documents for the DOE/NV EPIP, which are required by DOE Order 5400.1, together with the responsible organization and the delivery date specified by the Order.

Exhibit 1-5 EPIP and Supporting Documents for DOE Order 5400.1 "General Environmental Protection Program"

2.0 Notification of Environmental Occurrences

Environmental occurrences are reported to DOE/NV by, NTS users, contractors, support agencies, and DOE/NV Operations Offices, and then by DOE/NV to appropriate regulatory authorities. Environmental occurrences of nonradioactive chemical wastes are reported to other federal and state agencies as required by law. The specific agencies that are notified depend on the type, amount, and location of the individual occurrences.

2.1 Notification Procedures for DOE/NV

Upon discovery of an environmental occurrence by a contractor organization, contractor personnel categorize and document the event, notify the appropriate organizations within DOE/NV and submit a Notification Report within 24 hours after categorization of the occurrence. DOE/NV personnel notify the DOE/HQ Emergency Operations Center (EOC) concurrently with the appropriate regulatory agencies and response centers. The information is transmitted electronically to the Occurrence Reporting and Processing System (ORPS). A written follow-up occurrence report is sent within 10 working days to ORPS, followed by a final occurrence report when occurrence cause analysis and corrective action planning and scheduling are completed.

The notification process required by DOE Orders 5000.3B, "Occurrence Reporting and Processing of Operations Information;" DOE/NV 5500.2B, "Emergency Categories, Classes and Notification and Reporting Requirements;" and 5484.1, "Environmental Protection, Safety and Health Protection Information Reporting Requirements," is outlined schematically in Exhibit 2-1. In addition to the above requirements, other reporting requirements are in place, such as the Secretary's Memorandum, "Guidance on Reporting Procedures for Enforcement Actions Related to Violations of Environmental Requirements", dated August 18, 1993, that refers to Notice of Violation or similar enforcement notice. A Finding of Alleged Violation (FOAV) must also be reported to the Environmental Protection Division.

2.1.1 Routine (Non-Test) Operations

DOE/NV procedures for notification, investigation, and reporting of significant environmental, safety, and health concerns are prescribed in NTS-SOP-5404 for occurrences during routine operations (i.e., operations which are not directly related to test events). Occurrences which are directly test-related are reported by the Test Controller in accordance with his delegated authority (Section 2.1.2, below). DOE/NV Order 5484.1 outlines DOE/NV reporting requirements for environmental protection, safety, and health protection. DOE/NV Order 5000.3B implements DOE/NV occurrence reporting and processing of operations information at DOE/NV. Responsibilities of the DOE operations offices for notifications regarding emergency management are set forth in DOE Orders 5500.1B, and 5500.3A. DOE Order 5500.1B specifically requires field organizations to notify the DOE/HQ EOC and the federal National Response Center immediately upon discovery of a hazardous materials spill or release to the environment exceeding reportable quantities as defined in 40 CFR 302.

Responsibilities and authorities for preliminary notification of ES&H concerns have been assigned as noted in the following statements. DOE and DOE/NV orders, notices, and standard operating procedures dealing with environmental occurrences will be periodically reviewed by the EPD with the intent of issuing new guidance to eliminate overlaps and obscurities in the authorities of the several pertinent documents. NTS-SOP-5404, "Notification, Investigation, and Reporting of Significant Environment, Safety, and Health Concerns," establishes as DOE/NV policy the requirement to investigate and to report

Exhibit 2-1 Environmental Occurrence Reporting Procedures

Types A, B, and C accidents and incidents defined in DOE and DOE/NV Orders 5484.1 as well as significant ES&H concerns which may occur in its operations. NTS-SOP-5404 establishes procedures and assigns responsibility (1) for prompt notification, investigation, and evaluation of occurrences involving accidents, loss of property, radiation or toxic substance exposures or incidents which had, or could have had, serious consequences and (2) to provide a basis for prevention of recurrences through the improvement of codes, guides, or standards for accident prevention or for radiation and toxic substance exposure. Under NTS-SOP-5404 the Manager, DOE/NV, appoints a board to investigate occurrences involving any NTS organization as required by DOE Order 5484.1 and submits formal reports of such investigations to DOE/HQ. The Director of the EPD administers the DOE/NV system for preliminary notification of ES&H occurrences involving the environment. The Director of the EPD obtains necessary information on all environmental occurrences, provides this information to the Manager, DOE/NV, and to the Director of DOE/NV Office of Environment, Safety, Security, and Health, advises the Manager, DOE/NV, in the appointment of any necessary investigative board, and assures notification of DOE/HQ as required by DOE Order 5484.1.

2.1.2 Test Execution Period Operations

NTS-SOP-1102, "The Nuclear Test Organization (NTO)," sets forth the organization, authorities, and responsibilities of the NTO. The NTO was formed for the purpose of conducting NTS nuclear tests, the composition of which may be readily changed to respond to the needs of the DOE nuclear test program. While the NTO operates under authority of the Manager, DOE/NV, and reports to him, the Test Controller assumes operational control of the NTS and the NTO during the test execution period when test-related activities have priority over all other NTS matters. (The test execution period is normally the period of time following the completion of D-1 Readiness Briefing through the time the Test Controller permits all work forces to return to normal work areas and all operational coordination is returned to the Operations Coordination Center.)

The investigation, immediate notification, and public information concerning test-related environmental occurrences during the test execution period are therefore the responsibility of the Test Controller. In general the Test Controller will utilize existing management structures to deal with his responsibilities, but specific test circumstances may require other procedures.

2.2 Occurrence Reporting

Under the auspices of DOE Order 5000.3B, DOE/NV has issued supplemental Order NV 5000.3B providing additional policies and procedures.

2.2.1 Policy

Line management shall be responsible for the implementation of the occurrence reporting system at DOE/NV, DOE/NV contractors, and NTS user organization levels, as appropriate. The DOE/NV Emergency Management Division shall provide program oversight, support, and mechanisms for line management to accomplish the requirements and intent of DOE Order 5000.3B and NV 5000.3B. Specifically, it is the policy of DOE/NV to:

- Fully comply with the intent of DOE Order 5000.3B

- Ensure that the Nevada Occurrence Reporting System (NORS) does not subvert other reporting requirements. However, every occurrence that meets the criteria of NV 5000.3B and DOE Order 5000.3B shall be reported to NORSOC, as well as through the Occurrence Reporting and Processing System (ORPS)

2.2.2 Summary of Occurrence Reporting

Written notification reports will be transmitted to NORSOC as soon as practical, but in all cases, before the close of the next business day, not to exceed 80 hours from categorization for any reportable occurrence. This will occur prior to entry into ORPS. Entry of notification reports into ORPS will be accomplished after review from NORSOC, but within stated time limits. This is the same information that will be orally transmitted to NORSOC upon discovery of a reportable occurrence which requires verbal notification to Headquarters. All occurrences are reported to NORSOC, which will track each occurrence for DOE/NV.

2.3 Radioactive Effluent and Onsite Discharge Data Reports

The yearly summaries for air and liquid releases are tallied on standard DOE Effluent Discharge Forms (DOE F 5821.1) by four NTS organizations: the Analytical Services Department of REEC Co EMD, Group HSE-1 of LANL, the Health Physics Division (3212) of SNL, and by the LLNL Environment, Health and Safety Group. These forms are sent by the four compiling organizations to the EPD. The EPD then sends the forms to the Waste Information Systems Branch of EG&G Idaho, Inc., with notification to EH-1 through a copy of the transmittal letter. This information is summarized in the NTS Annual Site Environmental Report by the Analytical Services Department of REEC Co EMD (see section 5.2.2.2).

3.0 General Planning and Reporting

DOE Order 5400.1 requires that field organizations implement specified programs and plans and prepare and deliver specific reports as part of their environmental protection programs. This section describes the DOE/NV implementation actions to meet these requirements for a Long-Range Environmental Protection Plan, an NTS Annual Site Environmental Report, and the semiannual reports required by the OMB Circular A-106. The assigned responsibilities for these activities are specified.

3.1 Long-Range Environmental Protection Plan

Long-range environmental protection planning for the DOE/NV is included in the latest revision of the "Environmental Restoration and Waste Management 5-Year Site Specific Plan," and the "ES&H Long Range Plan". These plans address facilities and waste-related activities under the responsibilities of the DOE Assistant Secretaries for Defense Programs, ERWM and the Director of the Office of Energy Research.

3.2 NTS Annual Site Environmental Report

Testing laboratories, support agencies, and contractor organizations conduct environmental monitoring and effluent monitoring at DOE/NV facilities and test sites under the direction of the DOE/NV. Results are reported to regulatory agencies and to the public to demonstrate compliance with applicable orders and regulations. (Classified data concerning effluent monitoring are not made public.)

NTS environmental monitoring results from all of these organizations will be reported in the NTS Annual Site Environmental Report. Each of the monitoring organizations is responsible for providing a summary of its results to the REEC Co EMD. REEC Co EMD is responsible for integrating, assembling, and editing a comprehensive report for the NTS under the direction of the EPD. Tonopah Test Range monitoring results will be provided to the U.S. Air Force. Postoperational monitoring results for the non-NTS U.S. test sites are also published annually in the NTS Annual Site Environmental Report. Effluent monitoring results at off-NTS contractor support facilities will be reported by those contractors to the DOE/NV.

3.3 Office of Management and Budget Circular A-106

Executive Order 12088, "Federal Compliance with Pollution Control Standards," as amended by Executive Order 12580, requires each executive branch agency to submit a plan for the control of environmental pollution to the Director, OMB, through the Administrator of the EPA. Per headquarters direction (DP-651) the reports are submitted annually. The responsibility for the preparation of these reports for the DOE/NV is assigned to the TDD and EPD. Data for these reports are gathered from the Activity Data Sheets prepared for the DOE/NV Site Specific Plan for Environmental Restoration and Waste Management and its updates.

3.4 Budgetary Resources

To effectuate the new programs or increases to the existing programs discussed above and to operate the Effluent and Environment Monitoring Work Group (EEMWG) discussed in 5.1.1

has required \$1,995,000 from the date of implementation of DOE Order 5400.1 through FY 93. Estimated costs for FY 94 are \$411,000. Implementation costs for projects delineated in the "Environmental Restoration and Waste Management Site Specific Plan," cited above may be found in that report.

4.0 Special Programs and Plans

4.1 Groundwater Protection Management Program Plan

A major consideration in developing a comprehensive groundwater protection policy is the underground testing of nuclear devices. This testing is the primary mission of the NTS and involves detonating devices near or below the groundwater table. This results in placing radioactive and hazardous materials near or within groundwater on the NTS. NTS-SOP-5417, "Protection of Groundwaters at Nuclear Test Locations," requires Nuclear Test Organizations to adhere to criteria that minimize the impact of testing on NTS groundwater.

DOE Order 5400.1, Chapter III, Section 4.a, requires the head of each DOE field organization to prepare a plan for a Groundwater Protection Management Program which includes (1) documentation of the groundwater regime with respect to quantity and quality; (2) design and implementation of a groundwater monitoring program to support resource management and comply with applicable environmental laws and regulations; (3) a management program for groundwater protection and remediation, including specific Safe Drinking Water Act (SDWA), Resource Conservation and Recovery Act (RCRA), and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) actions; (4) a summary and identification of areas that may be contaminated with hazardous substances; (5) strategies for controlling sources of these contaminants; (6) a remedial action program that is part of the site CERCLA program required by DOE Order 5400.4; and (7) decontamination, decommissioning, and other remedial programs contained in DOE directives. The plan was completed and approved on May 17, 1993. A multi-year well drilling program began and is ongoing in 1994 to acquire the supplemental characterization information.

The AMEM has the responsibility for drafting the Groundwater Protection Management Program Plan. The AMEM will coordinate a review of the proposed plan by the DOE/NV NTSO and other concerned DOE/NV organizations. The AMEM will be responsible for the annual review of this plan. The plan will be reviewed annually and revised every three years, as required by DOE Order 5400.1.

The NTS Groundwater Protection Management Program Plan identifies a specific organization to be responsible for reviewing the impacts to the groundwater from underground testing and will focus on protecting the quality of groundwater leaving the NTS. Activities on the NTS that might affect the quality of this groundwater can be divided into surface and subsurface activities. The surface activities include waste trenches, ponds and sumps, the low-level radioactive waste disposal facility, the ponds for water from the tunnels, wastes from chemical and munitions testing, etc. The subsurface activities include underground tests whether in shafts or tunnels.

DRI has been assigned the responsibility for drafting a proposed groundwater monitoring plan for the NTS which is expected to be approved by FY 94. The groundwater monitoring plan is an element of the DOE/NV Environmental Monitoring Plan. Any groundwater monitoring plans that may be required for off-NTS support facilities will be prepared by the responsible contractor or supporting agency (see Section 5.1).

Budget resources required for these activities since the implementation of DOE Order 5400.1 are estimated to be \$5,918,000. For fiscal year 1994, it is expected that \$2,517,000 will be required.

4.2 Waste Minimization Program

Waste minimization programs are implemented through various directives such as, but not limited to, DOE Orders 5400.1, 5400.3 and 5820.2A, Executive Orders 12856 and 12780, RCRA, PPA, and CERCLA mandate that the management of radioactive wastes and other potential pollutants shall be accomplished in a manner that minimizes the generation of such wastes.

DOE Order 5400.1, Chapter III, Section 4.b, requires that the head of each DOE field organization establishes a plan for a waste minimization program which will contain goals for minimizing the volume and toxicity of all wastes that are generated with annual reductions if programmatic requirements allow. The DOE/NV Waste Management Division (WMD) has this responsibility at DOE/NV. Amounts in waste quantity and volume are to be compared with quantities generated in the previous year. Proposed methods of treatment, storage, and disposal that accomplish waste minimization and are technically and economically practicable are to be reported when appropriate. The DOE/NV Waste Minimization Pollution and Prevention Awareness Plan dated June 1991 outlines the scope, goals, and objectives of the DOE/NV program. Additionally it provides direction for all DOE/NV waste-generator facilities and activities and guidance for pollution prevention awareness activities. The WMD has the responsibility for reviewing the plan annually and for revising it, if necessary, every three years.

The Waste Minimization Program Plan is based on the following strategies: (1) material and process substitution; (2) procurement and inventory tracking; (3) recycle, recovery, and segregation activities; (4) reporting; (5) employee training; and (6) a company suggestion and incentive program.

Budget resources required for these activities since the implementation of DOE Order 5400.1 are estimated to be \$2,108,000. For fiscal year 1994, it is expected that \$588,000 will be required.

4.3 Pollution Prevention Awareness Program

DOE Order 5400.1, Chapter III, Section 4.c, requires the establishment of a Pollution Prevention Awareness Program. The DOE/NV WMD has this responsibility at the DOE/NV. The WMD has assigned to REECo the responsibility for incorporating the elements of this plan into the DOE/NV Waste Minimization Program Plan, and REECo has assigned the task to the REECo Environmental Management Division. All DOE/NV and support group mission statements and project plans shall recognize a requirement for pollution prevention where appropriate. The NTS program includes elements for employee awareness through specific training, special awareness campaigns, and incentives and awards programs. The plan for this program was completed by June 1991, as a component of the Waste Minimization Plan. The DOE/NV Waste Management and Pollution Prevention Awareness Plan dated June 1991 updated this program. Estimated costs for this element incurred to date are \$1,257,000; projected cost for FY 94 is \$170,000.

5.0 Environmental Monitoring Programs

The environmental monitoring programs under DOE/NV purview are designed to cover three basic areas of operation:

- (1) Onsite (NTS) operations, including support of operations at the adjacent Tonopah Test Range that are conducted by the DOE Albuquerque Operations Office and the U.S. Air Force**
- (2) Offsite support facilities in the vicinity of Las Vegas and other cities**
- (3) Postoperational surveillance at other U.S. nuclear explosive test/experiment sites**

The primary responsibility for conducting NTS nonradiological effluent monitoring (air emissions and discharges to surface and ground waters and the subsurface) is held by the maintenance and operations contractor, REECO. NTS user organizations and support agencies also conduct test-related nonradiological effluent monitoring, such as during chemical spill testing at the LGFSTF.

The responsibility for radiological effluent monitoring is shared by REECO (for operational support facilities) and NTS user organizations (during test events at testing facilities). The major user organizations include the LLNL, LANL, and DNA (supported by SNL). Sandia National Laboratories provides effluent monitoring support for the DOE/NV and the U.S. Air Force operations at the Tonopah Test Range.

NTS onsite environmental surveillance (i.e., ambient environmental media sampling and measurements) is the responsibility of REECO. REECO presently conducts onsite air and surface and ground water environmental surveillance. DRI is responsible for preparing the Groundwater Monitoring Plan as an element of the Environmental Monitoring Plan. The EPA/EMSL-LV will implement the offsite portion of the plan. The NOAA WSNNO is responsible for the Meteorological Monitoring Program and preparation of the Meteorological Monitoring Plan as the second major element of the Environmental Monitoring Plan for NTS onsite and offsite surveillance activities.

Offsite environmental surveillance is the responsibility of the EPA under an Interagency Agreement between the DOE/NV and the EPA. The EPA is also responsible for postoperational environmental surveillance (groundwater monitoring) at various locations on the NTS and at the other non-NTS U.S. test sites.

The relationship of responsibilities among the NTS support contractors and user organizations, the three basic areas of operation (above), and the four monitoring program elements (radiological, nonradiological, meteorological, and groundwater) is presented in Exhibit 5-1. The environmental monitoring activities of the DOE/NV, its support contractors, supporting federal agencies, and NTS user organizations has been integrated through preparation and integration of an umbrella Environmental Monitoring Plan to support the environmental protection requirements of DOE Order 5400.1 and applicable federal, state, and local statutes and regulations.

Exhibit 5-1 DOE/NV Environmental Monitoring Program Responsibilities

5.1 Environmental Monitoring Plans

5.1.1 Plan Preparation

The Effluent and Environmental Monitoring Work Group (EEMWG) operates under the aegis of the AMESSH to provide guidance for implementation of DOE Order 5400.1, including preparation and implementation of the Environmental Monitoring Plan (See Appendix A). The REECo EMD has responsibility for preparation and maintenance of the overall Environmental Monitoring Plan for the NTS, Tonopah Test Range support, and other U.S. test sites based on individual operational area monitoring plans prepared by the responsible organizations outlined in Exhibit 5-2. REECo EMD submitted the Environmental Monitoring Plan (EMP) to DOE/NV in August, 1991. It was approved and implemented, as required, by November 9, 1991.

The individual Operational Area Monitoring Plans which form the basis of the EMP are reviewed annually or as necessary by each contractor or user organization. Individual Operational Area Monitoring Plans prepared for NTS offsite support facilities in Las Vegas and at other locations by the facility operator (support contractor) are reviewed in a like manner. Each group addresses its particular facilities or processes that use, generate, release, or discharge "significant" pollutants or hazardous materials to the environment. These individual Operational Area Monitoring Plan reviews are coordinated and incorporated into the EMP according to DOE Order 5400.1 and related guidelines.

Each organization has based its individual Operating Area Monitoring Plan preparation on its historical, current, and planned activities associated with six general operational categories: (1) underground nuclear testing areas; (2) historical surface/atmospheric nuclear testing areas; (3) non-nuclear testing areas; (4) waste treatment and disposal; (5) manufacturing or test/research facilities; and (6) feeding, housing, maintenance and other operations support facilities. A list of operational areas and the responsible organization for each is provided in Exhibit 5-2.

A Groundwater Monitoring Plan for NTS and vicinity groundwater monitoring has been developed by the DRI as a coordinated and integrated part of the Environmental Monitoring Plan. Groundwater sampling, sample analysis, and data management and reporting will be designed to provide key support for development and implementation of effluent monitoring and environmental surveillance activities at the NTS in view of the subsurface testing activities conducted at the Site. The Groundwater Monitoring Plan addresses groundwater monitoring at the other non-NTS U.S. subsurface nuclear test and experiment sites under DOE/NV postoperational control. Any groundwater monitoring required for off-NTS support facilities will be prepared by the individual contractors, supporting agencies, or organizations responsible for those facilities.

A Meteorological Monitoring Plan for monitoring the NTS and vicinity has been developed and implemented by the NOAA WNSO to provide meteorological information required in support of NTS environmental monitoring and surveillance activities. Data acquisition, analysis, and data management procedures specified in the plan are developed as an integral part of onsite and offsite environmental surveillance activities conducted by REECo and the EPA, respectively.

<u>Responsible Organizations</u>	<u>Operational Monitoring Plan Area</u>
LLNL	LLNL NTS Testing Facilities/Areas
LANL	LANL NTS Testing Facilities/Areas
DNA/Sandia	DNA/Sandia NTS Testing Facilities (Nuclear and Non-Nuclear)
LANL } LLNL }	Device Assembly Areas
EG&G/EM	Liquified Gaseous Fuels Spill Test Facility
REECo	NTS Operations and Maintenance Support Facilities/Areas
REECo	NTS Waste Disposal and Waste Management Facilities/Areas
REECo	Historical Surface/Atmospheric Nuclear Testing Areas
EPA/EMSL-LV	Off-Site Radiological Surveillance Program-NTS
EPA/EMSL-LV	Post-Operational Surveillance: Non-NTS U.S. Test Sites
REECo	Drilling Operations (Exploratory and Emplacement)
REECo	Other Short-Term NTS Users
REECo	Tonopah Test Range Environmental Monitoring Support
EG&G/EM	Off-NTS Support Facilities
RSN	Area 6 and Well 3 Yard Facilities

Exhibit 5-2 Operational Monitoring Plan Areas, DOE/NV

The Ecological Monitoring Plan for the NTS is implemented by the Basic Environmental Compliance and Monitoring Program (BECAMP). BECAMP was implemented to assess, evaluate and monitor changes over time in the radiological, ecological and biological conditions on the NTS and to comply with applicable laws and regulations. The ecological monitoring provided by BECAMP characterizes ecological changes caused by DOE activities, measures trends in biological populations, identifies and monitors causes of ecological problems, and notifies DOE of any ecological problems.

5.1.1.1 Existing Programs/Plans

Existing environmental monitoring programs, plans and procedures of the DOE/NV contractors, NTS users, and supporting government agencies have been reviewed by the respective organizations. The EEMWG evaluates each program, plan, or procedure for compliance with DOE Order 5400.1 requirements and submits recommendations to the EPD on any needed revisions. This guidance is designed to develop an integrated monitoring system covering both effluent monitoring and environmental surveillance as documented in the Environmental Monitoring Plan.

5.1.1.2 Responsible Organizational Units

The AMESSH has overall policy responsibility for development and maintenance of the DOE/NV Environmental Monitoring Plan. The Director of the EPD shall prepare the plan. The Director, EPD, also serves as Chairman of the EEMWG, which has responsibility to review the plan to assure all DOE/NV monitoring operations are integrated and that all requirements and operational areas are addressed. The Office of the AMO, AMEM, and AMESSH are responsible for implementing the Environmental Monitoring Plan.

Key personnel from each contractor, support agency, and user organization serve as members of the working group and have lead responsibility for preparation of the individual Operational Area Monitoring Plans that constitute the overall DOE/NV Environmental Monitoring Plan, along with the Groundwater Monitoring Plan and the Meteorological Monitoring Plan. The REEC Co EMD is responsible for preparation of the overall Environmental Monitoring Plan in accordance with working group and DOE/NV guidance.

5.1.1.3 Monitoring Initiatives

Externally generated (from outside DOE/NV) or internally generated (from within the DOE/NV "community" of contractors and user organizations) initiatives have been integrated into a coordinated Environmental Monitoring Program via the EEMWG. DOE directives emanating from new or changing statutes and regulations or DOE policy will be implemented via the structure described in Section 5.1.1.2. Internally generated initiatives will be brought to the EEMWG for evaluation and potential recommendation to DOE/NV management for implementation. Resulting adjustments in the DOE/NV Environmental Monitoring Program will be directed by the DOE/NV and included in annual update addenda and/or the three-year revisions to the Environmental Monitoring Plan.

5.1.1.4 Plan Review and Approval

Plan review and approval begins with review by the EEMWG. As individual organizations prepare plans for effluent monitoring and/or environmental surveillance for their area of responsibility, these shall be reviewed by the EPD and EEMWG for adequacy and compliance

to DOE Order 5400.1 requirements. These individual plan elements are integrated into an overall DOE/NV Environmental Monitoring Plan by the REEC Co EMD, submitted for EEMWG review, and then forwarded to DOE/NV managers for review and approval. The final approval authority shall be the Manager, DOE/NV, via the management chain described in Section 5.1.1.2.

5.1.2 Data Collection, Analysis, Maintenance, and Reporting

Methods and procedures for these four elements shall be identified, developed, and documented in the individual Operational Area Monitoring Plans for review by the EEMWG. These methods and procedures shall be reviewed and approved by DOE/NV management to ensure demonstration of compliance with applicable federal, state, and local regulatory requirements and DOE environmental protection policies.

5.1.2.1 Data Collection Procedures

Effluent sampling or measurement procedures and environmental surveillance network design and data collection procedures shall be designed to achieve data quality objectives defined in the Operational Area Monitoring Plans. Data collection by complementary monitoring programs, such as the Meteorological Monitoring Program, shall be designed (or modified) for integration with environmental monitoring data to develop estimates of environmental and population exposure as required by DOE Order 5400.1.

5.1.2.2 Data Analysis and Maintenance

Responsibility for data analysis and maintenance shall be that of the pertinent operational area monitoring organizations. These data shall be provided to the Environmental Information Center (EIC) to support DOE/NV information needs. This Center provides support in compiling and integrating data from the various NTS environmental data collection groups and thereby provides a comprehensive and structured database for preparation of the NTS Annual Site Environmental Report, associated NTS dose assessments, and other environmental information needs. Data analysis and maintenance responsibility of this center includes establishment of an Environmental Information Management System. Data management guidelines shall be developed by REEC Co EMD and submitted to the EEMWG for review and forwarding to the DOE/NV for approval and distribution to data collection organizations to help ensure data quality and consistency. The information management system shall be designed to provide the information needed to demonstrate environmental compliance.

5.1.2.3 Quality Assurance and Data Verification

Each individual Operational Area Monitoring Plan comprising the Environmental Monitoring Plan shall document its quality assurance procedures by citing the appropriate elements and/or procedures from their organization's DOE approved Quality Assurance Program (See Section 6.0). This citation shall be in the form of a "matrix road map" approved by the EPD which will enable the reader to unambiguously tie the specific monitoring, surveillance, or data collection and handling tasks directly to the appropriate quality assurance elements or procedures as found in the cognizant organization's Quality Assurance Program plan.

Data verification procedures will be established as an integral part of the quality assurance program as outlined in Section 6.4.

5.1.3 Budgetary Resources

The estimate of the cost of Environmental Monitoring plan development from implementation of DOE Order 5400.1 to date is \$950,000. Projected costs for FY 94 are \$179,000.

5.2 Environmental Monitoring Activities

Preoperational Monitoring - A preoperational monitoring plan has been designed and submitted to Sandia National Laboratories for their proposed experimental facility in the Midvalley area of the NTS proposed for construction in 1993.

The only new facility or process currently under construction at the NTS is the Device Assembly Facility. A draft preoperational monitoring plan for ecological and radiological monitoring has yet been prepared, and is being implemented. Preoperational ecological monitoring has been completed, and radiological monitoring is in progress. Preoperational monitoring will be planned and implemented for future (currently unscheduled) large-scale environmental cleanup operations such as plutonium contaminated soil cleanup. Preoperational monitoring will consist of radiological, and/or nonradiological environmental surveillance in conjunction with the ongoing meteorological and groundwater monitoring programs. No new sites, facilities, or processes requiring preoperational monitoring are planned at other U.S. locations.

Operational Monitoring - Operational monitoring (effluent monitoring and environmental surveillance) integrated with the meteorological and groundwater monitoring programs will be conducted as appropriate for all of the operations described in Section 5.1 and Exhibit 5-2.

Post-Operational Monitoring - Post-operational monitoring (environmental surveillance) will be continued at all non-NTS U.S. (including Alaska) test sites.

5.2.1 Monitoring Implementation

Environmental effluent monitoring will be implemented according to effluent monitoring guidance and where possible through extension and adjustment of existing monitoring plans, emphasizing standardization of collection, analysis, and data management methods, according to uniform guidance developed by the EEMWG. This includes radiological and nonradiological effluent monitoring. Radiological effluent monitoring guidance will be based on the specific requirements of DOE Order 5400.5 and DOE/EH-0173T, Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance. Existing monitoring activities will be adjusted and augmented to ensure collection of proper and adequate data to accomplish specific monitoring goals and determine compliance status. The EEMWG will review and evaluate implementation on a quarterly schedule, according to evaluation criteria developed by the EEMWG to ensure compliance with DOE Order 5400.1 requirements and policies.

Environmental surveillance activities will also be implemented through extension of existing surveillance programs, with emphasis on integration with the Meteorological Monitoring Program and the Groundwater Monitoring Program, to ensure that sampling and measurement networks are designed to collect statistically valid data for determining compliance with laws and regulations. The NTS environmental surveillance program includes:

- Onsite air, groundwater, and surface water contamination radiological monitoring
- Onsite and offsite wildlife resource radiological surveillance and ecological impact monitoring
- Offsite air (including radiation dosimetry), groundwater, and milk surveillance
- Onsite and offsite human surveillance
- Onsite drinking water sampling
- Onsite nonradiological air, groundwater, and surface water monitoring
- Onsite and offsite soil and vegetation sampling

Environmental surveillance at non-NTS U.S. testing sites consists of postoperational groundwater radiological monitoring.

Data collection and maintenance responsibilities will be as described in Sections 5.1.2.1 and 5.1.2.2. Field work and laboratory analysis responsibilities and the responsible organizational units for implementation will be those described in Section 5.1.1.2 and Exhibit 5-2. Radiological environmental surveillance requirements will be in accordance with DOE Order 5400.5 and DOE/EH-0173T.

5.2.2 Environmental Monitoring and Occurrence Reporting

5.2.2.1 Occurrence Reporting

In addition to existing requirements for NTS user organization and support contractor reporting of non-routine releases to the DOE/NV, monitoring data from the monitoring activities by contractors and NTS users and support agencies will also be reported to the EIC (see Section 5.1.2.2). Environmental occurrences identified by NTS users and contractors will be reported immediately to the DOE/NV via established DOE/NV environmental notification and reporting procedures. DOE/NV will be responsible for notifying the DOE/HQ EOC as well as EH-1 and will provide copies of the information to the EIC for addition to the environmental information data base used in preparation of the NTS Annual Site Environmental Report.

5.2.2.2 Radioactive Effluent and Onsite Discharge Data Report

The DOE requirement to report radioactive effluent onsite discharge data and unplanned releases to the Idaho National Engineering Laboratory (INEL) will be met through submittal of the Effluent Information System Onsite Discharge Information System (EIS/ODIS) report in April of each year. These data will be collated and transmitted by the Director, TOD, to the

EOC, INEL, and the state environmental protection agency involved. The DOE/NV will provide copies of these data to the EIC. The contractor will be responsible for the written follow-up and resolution reports required by DOE Order 5484.1 and DOE Order 5000.3.

Annual effluent discharge release reports will be prepared by the TOD, integrating the input from REECO environmental monitoring activities and the effluent monitoring of other contractors, NTS user organizations, and supporting federal agencies.

5.2.2.3 Annual Site Environmental Report

The REECO EMD will be responsible for preparing the NTS Annual Site Environmental Report for DOE/NV delivery to EH-1 by June 1 of each year. Effluent monitoring and environmental surveillance data collected by NTS user organizations and by other DOE/NV contractors and support agencies will be compiled and integrated into the data records of the REECO EIC. Supplemental relevant information and records collected by the DOE/NV as part of operational and postoperational environmental monitoring programs will also be retained in the Center.

EPA's offsite surveillance data will be incorporated into the NTS Annual Site Environmental Report. Additionally, offsite data and other significant information will be published by the EPA, and copies will be distributed to Community Radiation Monitoring Program Station Managers, Nevada State Health and Environmental Departments, and several libraries. This distribution covers reporting to that part of the public which is most likely to be affected by NTS activities.

5.2.2.4 Pollution Abatement (Circular A-106) Reports

The EPD and TDD will be responsible for preparing the semi-annual A-106 summary reports for delivery to DOE/HQ on May 1 and December 15 of each year.

PAI reviews submitted activity data sheets for environmental restoration programs, prepares A-106 reports, and submits them to EPD and TDD for analysis, reviews, and submission to Headquarters.

5.2.3 Data Maintenance and Routine Reporting

Data maintenance and reporting responsibilities for onsite effluent monitoring and environmental surveillance will be centralized in the REECO EMD. Scheduled periodic reports and environmental occurrence reports will be prepared by the REECO EMD for review and delivery to the DOE/NV which will distribute the reports to DOE offices, the state, and the public. At the end of each calendar year all unclassified monitoring data will be made available to the public through publication of the NTS Annual Site Environmental Report for the NTS. Compliance with environmental standards and requirements, program highlights, and other relevant compliance issues are summarized in chapter three of this report.

5.2.4 Budgetary Resources

The estimated cost for increases in existing monitoring activities and for additional new monitoring activities to meet the requirements of DOE Order 5400.1 from its date of implementation through FY 93 is \$9,645,000. Projected costs for FY 94 are \$2,500,000.

6.0 Quality Assurance and Data Verification

6.1 Quality Assurance Program

The quality assurance program for the DOE/NV Environmental Protection Program conducted by DOE/NV, its contractors, support agencies, and NTS user organizations shall be conducted in accordance with the Quality Assurance Programs (QAPs) developed by these entities in response to DOE Order 5700.6C and approved by DOE Headquarters. DOE Order 5700.6C requires that each QAP establish quality assurance requirements to ensure that risks and environmental impacts are minimized and that safety, reliability, and performance are maximized through the application of effective management systems commensurate with the risks posed by the facility and its work.

6.1.1 Quality Assurance Procedures and Program Plans

Support contractors and Site user organizations collecting environmental data as part of the environmental monitoring program required by DOE Order 5400.1 (see Section 5.0) are required to prepare quality assurance procedures for environmental monitoring data collection in accordance with the DOE Order 5700.6C and, as appropriate, the most recent editions of the supplemental guidelines: American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME) Document Nuclear Quality Assurance-1 (NQA-1), Quality Assurance Program Requirements for Nuclear Facilities, ANSI/ASME NQA-2, Quality Assurance Requirements for Nuclear Facility Applications, ANSI/ASME NQA-3, Quality Assurance Program Requirements for the Collection of Scientific and Technical Information for Site Characterization of High-Level Nuclear Waste Repositories, EPA/QAMS-004, Interim Guidelines and Specifications for Preparing Quality Assurance Program Plans, and EPA/QAMS-005, Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans.

Development of expanded quality assurance program policies, requirements, and procedures for environmental monitoring activities by support agencies will be the responsibility of those agencies with the requirement that the plans and procedures be in accordance with DOE Orders 5400.1 and 5700.6C. These plans and procedures shall be submitted for review and approval as set out in DOE Order 5700.6C.

6.1.2 Environmental Measurements and Data Quality Assurance Evaluation Program

Under an existing agreement between DOE/NV and the EPA/EMSL-LV, the EPA/EMSL-LV will provide quality assurance oversight for defense and mixed waste environmental monitoring activities at the NTS. The findings and recommendations of the EPA will serve as a basis for modification and enhancement of these defense waste environmental quality assurance programs and procedures.

The OQP, in its independent overview capacity, will perform periodic audits and surveillance of participating organizations in addition to surveillance activities by the EPD.

6.1.3 Budgetary Resources

The estimated increased resource costs for existing quality assurance programs and for the introduction of new additional programs to meet the requirements of DOE Order 5400.1 from date of implementation to this date are \$2,909,000. Projected costs for FY 94 are \$769,000.

6.2 Laboratory Certifications

DOE Order 5400.1 requires DOE and DOE contractor laboratories to confirm the need and apply for any certification required with appropriate federal, state, or local agencies. Where DOE operations secure the support of outside contractor laboratories, the Order requires that this work be conducted by appropriately certified laboratories.

The thermoluminescent dosimetry (TLD) laboratories operated by REEC Co and the EPA are certified under the DOE Laboratory Accreditation Program (DOELAP).

The environmental sample analyses support (other than drinking water supply analyses) performed by REEC Co in support of overall DOE/NV operations at the NTS do not require use of certified laboratories. However, the REEC Co analytical laboratories maintain laboratory accreditations and approvals available through national organizations or federal and state agencies for radioactive and nonradioactive environmental analyses in order to assure the quality of their analytical procedures.

Compliance with the requirements of DOE Order 5400.1 from date of implementation through FY 93 have increased costs of laboratory certification by \$497,000. Projected cost increases for FY 94 are \$119,000.

6.3 Quality Assurance Program for Radioactive Material Analysis

The EPD will be responsible for ensuring that the DOE/NV contractors and user organizations conducting environmental radiological analysis are participants in the DOE Laboratory Quality Assessment Program for Radioactive Material. The REEC Co ESHD will also maintain its EPA qualification for drinking water radioanalysis. User organizations collecting radiological environmental monitoring data for purposes of satisfying DOE Order 5400.1 criteria and not participating in the DOE's Interlaboratory Quality Assessment Program by November 9, 1991, will be required to obtain analytical services from a "certified" laboratory.

Increased costs for the quality assurance program for radioactive material analysis required for compliance with DOE Order 5400.1 from its implementation to this date are estimated to be \$170,000. Projected costs estimated for FY 94 are \$30,000.

6.4 Independent Data Verification

An independent data verification program covering DOE/NV field and laboratory environmental monitoring activities supporting NTS and Tonopah Test Range operations will be developed as an integral part of updating and expanding of the quality assurance plans and procedures described above. The data verification procedures will be developed by the EPD on the basis of planned guidance from EH-1 and in consultation with DOE/NV support contractor and user

organizations responsible for collecting environmental monitoring data. The independent data verification program was not in place by November 1, 1991, as required by DOE Order 5400.1, because DOE/HQ had not yet issued guidance for this program.

Estimated costs associated with this element to date are \$41,000 with an additional \$32,000 estimate for FY 1994.

7.0 ALARA Program and Program Plan

An as low as reasonably achievable (ALARA) program and program plan for the DOE/NV Environmental Protection Program conducted by DOE/NV and its contractors, support agencies, and NTS user organizations shall be developed and implemented as required by DOE Order 5400.5 and DOE Guidance on Procedures in Applying the ALARA Process for Compliance with DOE 5400.5 dated March 8, 1991. The EPD shall be responsible for preparing the ALARA program and plan in accordance with DOE Order 5400.5 and its collateral guidance. The DOE/NV plan shall serve as a development guide for each individual organization. The DOE/NV plan and the organization-issued plans shall be reviewed and approved by EPD to assure consistency and compliance with DOE Order 5400.5 and to assure that all activities at DOE facilities that provide or potentially provide a dose to the public or release or potentially release radioactive material to the environment are performed in such a manner that all exposures are kept as low as is reasonably achievable, economic and social factors being taken into account.

7.1 Contractor and Site User Requirements

7.1.1 ALARA Program and Plans

Support contractors and Site user organizations operating under the auspices of the Environmental Monitoring Program required by DOE Order 5400.1 (See Section 5.0) shall be required to prepare an organization-issued ALARA program plan in accordance with the requirements in DOE Order 5400.5 and its collateral guidance dated March 8, 1991. This plan, together with the organization's worker ALARA plan required by DOE Order 5480.11, shall be the organization's overall ALARA program plan. Organization ALARA plans shall be submitted in draft to the Site-Wide ALARA Committee (SWAC) for review. The SWAC shall review and forward the plan, with revisions, to the EPD for final review and approval.

7.1.2 The Site-Wide ALARA Committee

To ensure that the ALARA program and plans receive adequate attention and coordination at the NTS, a Site-Wide ALARA committee has been formed. All NTS contractor/user organizations must appoint an ALARA Coordinator who has specific ALARA responsibilities and who shall represent the contractor/user organization on the SWAC. The SWAC shall meet quarterly or as frequently as necessary to perform its mission.

7.2 ALARA Plan Elements

The ALARA plan shall identify general areas which should be considered in making ALARA decisions: societal, technological, economic, and public policy considerations. A checklist of more specific factors to be considered should include, at a minimum:

- the dose to the maximally exposed member of the general public
- the collective effective dose commitment to the population within 80km (50 mi) of the site

- the alternative processes (such as alternative treatments of discharge streams, operating methods, or controls)
- the individual and collective doses for each process alternative
- the costs for each process alternative
- the changes in costs and impacts among process alternatives
- radiological impacts related to new construction and modifications of existing facilities
- the anticipated changes in doses to workers for each process alternative, new construction event, or facility modification
- non-radiological impacts

In addition, the plan shall specify procedures by which ALARA decisions and activity records will be kept current, be readily available for use, and be organized so that appropriate records may be readily located to demonstrate compliance with the ALARA program. The plan shall encourage coordination and cooperation with DOE and other organizations in sharing of information on analyses, costs, operations, maintenance, technical evaluations of alternatives, etc. To assure that staff maintain requisite disciplinary and cross disciplinary skills sufficient to provide the necessary analyses and evaluations for a successful ALARA program, an appropriate training and employee incentive program shall be available and described.

7.3 ALARA Program Plan Reviews and Updates

The ALARA Program and program plan shall be reviewed by DOE/NV and the operating organizations as necessary, but at least every 3 years, to identify:

- changes which have occurred in the facility, operations, or activities which may have altered the relative importance of the release or exposures
- alternatives to the operations or activities which were not considered previously
- operational information on the performance of the selected equipment or process that could alter the decision or choice among alternatives

Appendix A

Effluent and Environmental Monitoring Working Group Charter

Introduction

The EEMWG functions under the AMO. The EEMWG reviews effluent monitoring and environmental surveillance programs under the purview of the DOE Nevada Operations Office to make recommendations for compliance of these programs with applicable federal, state, and Department of Energy regulations, standards, and policies. By achieving this objective, the working group will perform a beneficial service directed toward protecting the public and the environment. The working group also provides a coordinating service to DOE/NV to ensure that environmental programs within its scope receive appropriate review and are appropriately designed.

Scope

The objective of the EEMWG is accomplished through the following tasks:

- Coordinating the creation, publication, and implementation of environmental monitoring requirements in applicable regulations, standards, and policies
- Coordinating the production, review, and periodic revision of the DOE/NV Environmental Monitoring Plan required by DOE Order 5400.1
- Coordinating the production of the annual National Emission Standards for Hazardous Air Pollutants (NESHAP) compliance report
- Coordinating the production of the DOE/NV Annual Site Environmental Report required by DOE Order 5400.1
- Coordinating the annual revision and production of the DOE/NV Environmental Protection Implementation Plan, Quality Implementation Plan (QIP), Groundwater Monitoring Plan, and similar plans required under DOE Order 5400.1
- Review of the overall environmental program to ensure that it meets the requirements of the Series 5400 DOE Orders and Regulatory Guide DOE/EH-0173T
- Coordinating the establishment of a DOE/NV Environmental Information Management Program and an appropriate data base
- Evaluating the technical basis for environmental program design and operation
- Reviewing the adequacy of models and data used to quantify source-term estimates and to perform dose estimates
- Coordination of formal and informal investigations into all aspects of the DOE/NV environmental protection program

- Reviewing the need and the plans for preoperational surveys and monitoring
- Reviewing and recommending changes to environmental regulations to the AMO

Membership

The EEMWG is chaired by the Director of the Environmental Protection Division who may delegate the chair to any qualified member of the EPD. Additional DOE/NV membership includes appropriate programmatic personnel in line and oversight positions. The EEMWG also includes the principal delegate from each DOE/NV client organization, including: the Defense Nuclear Agency, the Los Alamos National Laboratory, the Lawrence Livermore National Laboratory, Sandia National Laboratories, the EPA's Environmental Monitoring Systems Laboratory-Las Vegas, Raytheon Services Nevada, the Reynolds Electrical & Engineering Company, the Desert Research Institute of the University of Nevada, the Weather Service Nuclear Support Office, EG&G/EM, and the U.S. Geological Survey.

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Miscellaneous

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Others Upon Request

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