

3.0 COMPLIANCE SUMMARY

Environmental compliance activities at the Nevada Test Site (NTS) during calendar year 1996 (CY96) involved the permitting and monitoring requirements of numerous state of Nevada and federal regulations. Primary activities included the following: (1) National Environmental Policy Act (NEPA) documentation preparation; (2) Clean Air Act (CAA) compliance for asbestos renovation projects, radionuclide emissions, and state air quality permits; (3) Clean Water Act (CWA) compliance involving state wastewater permits; (4) Safe Drinking Water Act (SDWA) compliance involving monitoring of drinking water distribution systems; (5) Resource Conservation and Recovery Act (RCRA) management of hazardous wastes; (6) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) reporting; and (7) TSCA management of polychlorinated biphenyls. Also included were pre-activity surveys to detect and document archaeological and historic sites on the NTS. Compliance with the Endangered Species Act (ESA) involved conducting pre-operation surveys to document the status of state of Nevada and federally listed endangered or threatened plant and animal species. There were no activities requiring compliance with Executive Orders on Flood Plain Management or Protection of Wetlands.

Throughout 1996, the NTS was subject to several formal compliance agreements with regulatory agencies, including: a Programmatic Agreement with the Nevada Division of Historic Preservation and Archaeology and the Advisory Council on Historic Preservation; the U. S. Fish and Wildlife Service (USFWS) for protection of the desert tortoise; a Memorandum of Understanding with Nevada covering releases of radioactivity; a Federal Facilities Agreement and Consent Order (FFACO) with Nevada; Agreements in Principle with Nevada and Mississippi covering environment, safety, and health activities; and a Settlement Agreement to manage mixed transuranic (TRU) waste. Emphasis on waste control and minimization at the NTS continued in 1996.

In June 1994, the state of Nevada filed a Complaint for Declaratory Judgement and Injunction against the U.S. Department of Energy (DOE). This action seeks a judgement that DOE has failed to comply with NEPA requirements at the NTS. In January 1995, three of the claims in this case were dismissed by the U.S. District Court, the remainder are yet unresolved.

Compliance activities at the DOE Nevada Operations Office (DOE/NV) non-NTS facilities involved the permitting and monitoring requirements of (1) the CAA for airborne emissions, (2) the CWA for wastewater discharges, (3) SDWA regulations, (4) RCRA disposal of hazardous wastes, and (5) hazardous substance reporting. Waste minimization efforts continued at all locations.

3.1 COMPLIANCE STATUS

NATIONAL ENVIRONMENTAL POLICY ACT

Section 102 of the NEPA of 1969 requires all federal agencies to consider environmental effects and values and reasonable alternatives before making a decision to implement any major federal action which may have a significant impact on the human environment.

Since November 1994, DOE/NV has had full delegation of authority from DOE Headquarters (DOE/HQ) for Environmental Assessments (EAs), issuing Findings of No Significant Impact and associated floodplain and wetland action documentation relating to DOE/NV proposed actions.

Within DOE, three levels of documentation are used to demonstrate compliance with NEPA: (1) An Environmental Impact Statement (EIS) is a full disclosure of the potential environmental effects of proposed actions and the reasonable alternatives to those actions; (2) An EA is a concise discussion of a proposed action and alternatives and the potential environmental effects to determine if an EIS is necessary; and (3) A Categorical Exclusion (CX) is used for classes of activities which have been found to have no adverse environmental impacts, based on similar, previous activities. During 1996, DOE/NV was involved in activities under all three of these categories.

A Notice of Intent to prepare a sitewide EIS for the NTS and other test locations within the state of Nevada, including the Tonopah Test Range (TTR), portions of Nellis Air Force Range Complex, the Project SHOAL site, and the Central Nevada Test Area, was published in the Federal Register on August 10, 1994. The draft EIS was issued for public review and comment in February 1996. Public hearings and workshops were held to take oral and written comments, and

a toll free number and post office box were established to receive comments. The public comment period closed on May 3, 1996. Public comments were addressed, and the draft EIS revised and approval to publish the final EIS was granted in August 1996. The final EIS distribution occurred in October 1996. The Record of Decision was published in December 1996.

Some effort was also expended on the following EISs or Programmatic EISs (PEIS) during 1996:

- (1) Waste Management PEIS.
- (2) Stockpile Stewardship and Management PEIS.
- (3) Storage and Disposition of Weapons-Usable Fissile Materials PEIS.
- (4) Disposition of Highly Enriched Uranium EIS.
- (5) Los Alamos National Laboratory Sitewide EIS.
- (6) Medical Isotopes Production Project: Molybdenum-99 and Related Isotopes EIS.
- (7) Pantex Sitewide EIS.
- (8) Yucca Mountain EIS.

There are no other EISs expected to be required within the next 24 months. However, involvement as a cooperating agency in supporting the preparation of a new Department of Air Force EIS on the renewal of the Nellis Air Force Range Complex withdrawal is anticipated.

Work was conducted on seven EAs during 1996. They include:

- (1) Liquid Waste Treatment System, NTS, Area 6 (DOE/EA-1115).
- (2) Sandia National Laboratories/New Mexico, Offsite Transportation of Low-Level Radioactive Waste (SNA92-059).
- (3) DOUBLE TRACKS Site Remediation, Nellis Air Force Range Complex (DOE/EA-1136).
- (4) NTS, Area 5, Radioactive Waste Management Site Access Improvement Project (DOE/EA-1144).
- (5) Navy Thermal Treatment Unit Test, NTS, Area 5--Completed.

- (6) Waste Examination Facility, Area 5, NTS--Canceled.
- (7) Mixed Waste Disposal Units, Area 5, NTS--Canceled.

Items (6) and (7) were assessed in the sitewide EIS noted above.

Thirty-four CX documents were prepared during 1996.

Throughout CY96, the staff of the DOE/NV Environmental Protection Division (EPD) continued to maintain and update the NEPA Compliance Guide (Volume III), a quick reference handbook containing procedures, formats, and guidelines for those personnel responsible for DOE/NV's NEPA compliance activities. As noted in last year's annual summary, more than 70 controlled copies of the DOE/NV NEPA Compliance Guide have been distributed for use within the DOE/NV organization. The staff of the DOE/NV EPD prepared Volume III to supplement the NEPA Compliance Guides, Volumes I and II, prepared and distributed by the Office of NEPA Policy and Assistance, DOE/HQ.

CLEAN AIR ACT

The CAA and the state of Nevada air quality control compliance activities were limited to asbestos abatement, radionuclide monitoring, and reporting under the National Emission Standards for Hazardous Air Pollutants (NESHAP), and air quality permit compliance requirements. There was no criteria pollutant or prevention of significant deterioration monitoring requirements for NTS operations.

NTS NESHAP ASBESTOS COMPLIANCE

The state of Nevada Division of Occupational Safety and Health regulations (Nevada Revised Statutes [NRS] 618.760-805) requires that all asbestos abatement projects in Nevada, involving friable asbestos in quantities greater than or equal to three linear feet or three square feet, submit a Notification Form. Notifications are also required to be made to the U.S.

Environmental Protection Agency (EPA) Region 9 for projects which disturb greater than 260 linear ft or 160 ft² of asbestos-containing material in accordance with Title 40 Code of Federal Regulations (C.F.R.) 61.145-146.

During 1996, there were no projects that required state of Nevada notifications be made. The annual estimate for non-scheduled asbestos demolition/renovation for fiscal year (FY) 1997 was sent to EPA Region 9 in December 1996.

RADIOACTIVE EMISSIONS ON THE NTS

NTS operations were conducted in compliance with the NESHAP radioactive air emission standards of Subpart H, of Title 40 C.F.R. 61. In compliance with those requirements, reports on airborne radioactive effluents are provided to DOE/HQ for submission to EPA.

There are two locations on the NTS where airborne radioactive effluents may be emitted from permanent stacks: (1) the tunnels in Rainier Mesa, and (2) the analytical laboratory hoods in the community of Mercury. Based on the amount of radioactivity handled, the exhaust from the analytical laboratories is considered negligible compared to other sources on the NTS and the tunnels have been sealed (although water still seeps from one). Present sources are gases from the ground caused by barometric pressure variations, evaporation of tritiated water (HTO) from containment ponds, diffusion of HTO vapor from the Area 5 Radioactive Waste Management Site (RWMS-5), and resuspension of plutonium contaminated soil from nuclear safety test and atmospheric test locations.

In the 1996 NTS NESHAP report for airborne radioactive effluents (Black 1997), airborne emission of HTO vapor from the containment ponds was conservatively reported as if all the liquid discharge into the ponds had evaporated and become

airborne. For HTO vapor diffusing from the RWMS-5, plutonium particulate resuspension from Areas 3 and 9, and various other areas on and near the NTS, the airborne effluents were conservatively estimated as follows. The monitoring station with the maximum annual average concentration for the radionuclide in question was selected from among the surrounding sampling stations. An effective dose equivalent (EDE) was then calculated for that concentration. EPA's Clean Air Package 1988 (CAP88)-PC software program was used to determine what total activity would have to have been emitted from the geometric center of the region in question in order to produce that EDE. Resuspended radioactivity was estimated by employing a published formula and checking with offsite data.

Using these conservative estimates of air emissions in 1996 as input to the CAP88-PC computer model, the EDE would have been only 0.11 mrem, much less than the 10-mrem limit that is specified in Title 40 C.F.R. 61.

NTS AIR QUALITY PERMIT COMPLIANCE

Compliance with air quality permits is accomplished through permit reporting and renewals, and ongoing verification of operational compliance with permit specified limitations. (See Chapter 4, Table 4.3, for a listing of active permits.) Common air pollution sources at the NTS include aggregate production, stemming activities, surface disturbances, fugitive dust from unpaved roads, fuel burning equipment, open burning, and fuel storage facilities. The 1995 Air Quality Permit Data Report was sent to the state of Nevada on February 20, 1996. This report includes aggregate production, operating hours of permitted equipment, and a report of all surface disturbances of five acres or greater. In order to provide consistency in responses, the state provided forms, to be completed, which also included calculation of actual emissions. Hourly production rates were within permit specifications for 11 facilities.

NTS air quality permits limit particulate emissions to 20 percent opacity, with the exception of one permit which limits opacity to 10 percent. Certification of personnel to perform visible emission opacity evaluations is required by the state, with recertification required every six months. During 1996, two Bechtel Nevada (BN) Environmental Compliance Department personnel and operational personnel were certified and/or recertified. In 1996, these personnel performed, at a minimum, semiannual visible emission evaluations of permitted air quality point sources. When visual evaluations determine that an emission exceeds the opacity requirement, corrective action is initiated. With the completion of modifications to the Area 1 Rotary Dryer, all NTS-permitted facilities are in full compliance with opacity limits specified in the Nevada Administrative Code.

During 1996, the state of Nevada personnel conducted three inspections of NTS equipment permitted under air quality operating permits or permits to construct. A Notice of Alleged Violation was issued during a June 1996 inspection of a cement blending/holding tank at the Area 6 Cementing Services for modifying the configuration of the facility without prior approval. In July 1996, two inspections were conducted of the bulk unleaded gasoline tanks in Areas 6 and 23. The interiors of both tanks were examined in July, while empty, to inspect the new internal floating roofs and to assess the general condition of the tanks. On July 10, 1996, a state inspector returned to Area 6 to observe refilling of the tank. No problems were noted on either of the inspections.

NON-NTS OPERATIONS

Under normal conditions, the operations at the six non-NTS facilities operated by DOE/NV do not produce radioactive effluents. The six are (1) the North Las Vegas Facility (NLVF), (2) the Remote Sensing Laboratory (RSL), (3) the Special Technologies Laboratory (STL), (4) the Amador Valley Operation (AVO), (5) the Los

Alamos Operation (LAO), and (6) the Washington Aerial Measurements Operation (WAMO).

Air quality operating permits were required for three of the six non-NTS operations. There were no effluent monitoring requirements associated with these permits. Compliance for each of these specific permits is discussed below. Nineteen emission units at the Las Vegas Area Operation (LVAO), which includes the NLVF and the RSL, were regulated during 1996 under conditions of 15 permits issued by the Clark County Health District in Las Vegas, Nevada.

The STL of Santa Barbara, California, holds a permit, issued by the County of Santa Barbara, to operate a vapor degreaser. The Air Pollution Control District Permit conditions include throughput limitations and record keeping requirements.

No air permits were held or required for the AVO, LAO, or WAMO facilities in 1996.

CLEAN WATER ACT

The Federal Water Pollution Control Act, as amended by the CWA, establishes ambient water quality standards and effluent discharge limitations which are generally applicable to facilities which discharge any materials into the waters of the United States. Discharges from DOE/NV facilities are primarily regulated under the laws and regulations of the facility host states. Monitoring and reporting requirements are typically included under state or local permit requirements. A complete listing of applicable permits appears in Section 4.3. There are no National Pollutant Discharge Elimination System (NPDES) permits for the NTS, as there are no wastewater discharges to onsite or offsite surface waters.

NTS OPERATIONS

Discharges of wastewater are regulated by the state of Nevada under the Nevada Water

Pollution Control Act (NRS 445.131 - 354). The state of Nevada also regulates the design, construction, and operation of wastewater collection systems and treatment works. Wastewater monitoring at the NTS was limited to sampling wastewater influents to sewage lagoons and containment ponds.

State general permit GNEV93001, which regulates the ten usable sewage treatment facilities on the NTS, was issued by the Nevada Division of Environmental Protection (NDEP), and became effective on February 1, 1994. Hydrogeological modeling utilizing site-specific soil characteristics, vadose zone monitoring, groundwater monitoring, or lining an adequate portion of the impoundments at a specific facility were all accepted by NDEP as methods to comply with the permit requirements for protection of the groundwater.

Compliance with sewage lagoon discharge permit requirements was achieved with the following exceptions:

- The organic loading limits listed in the permit were exceeded only once throughout the year. High influent flow rates were recorded for the month of February along with a higher than normal biochemical oxygen demand (BOD) concentration at the Yucca Lake facility. The organic loading limit of 8.6 kg per day was exceeded by 1.02 kg per day. Depressed areas upgradient and downgradient of the parshall flume accumulated solids. The flume was also in a submerged condition which resulted in the recording of erroneous and elevated flows with the continuous flow measuring device. An insert for the flume was installed in April, and the depressed areas were filled to resolve this problem.
- An unauthorized discharge of approximately 8,000 gal. (30 m³) of sewage from the Area 12 Camp collection system was discovered on

September 3, 1996, by BN Nonradioactive Waste Section staff. Sewage was found flowing from a manhole located downgradient and northeast of Building 12-5 at an approximate rate of one gallon per minute. The discharge extended around 1,500 ft (457 m) from the manhole, crossing an unpaved road twice before dissipating on its north side. The partial blockage was probably caused when recent flows, containing excessive solids and previously deposited solids within the system were transported to an area in the collection system which was constructed with turns greater than 45 degrees within 100 ft (30 m). This collection system, which is intermittently used, will be flushed before future sewage flows are initiated in an attempt to prevent blockages and discharges.

Two of six primary aerated sewage lagoons at the Area 23 facility were taken out of service on February 21, 1996, to reduce operation and maintenance costs. A review of the influent flow rates for the previous CY revealed that less than 100,000 gal (379 m³) per day as 30-day averages were being received. This facility still has supplemental capacity for existing flows, since it has a design flow of 227,000 gal. (860 m³) per day with all six aerated ponds in service. A third aerated pond was taken out of service in July 1996, as average flow rates less than 90,000 gal (341 m³) per day were recorded for the first and second calendar quarters of 1996.

Permanent closure of the Area 2 Camp sewage lagoons was completed on May 8, 1996. This activity was performed in accordance with directions contained in a June 9, 1995, letter from the NDEP and an outline submitted to the NDEP on May 31, 1995. A request to remove the facility from the existing state general water pollution control permit was made in a June 6, 1996, letter to the NDEP.

An insert was installed within the three-inch parshall flume at the Area 6 Yucca Lake

facility on April 11, 1996. This installation eliminated inaccurate influent flow measurements and BOD sampling. An elevation drop was furnished at the downgradient edge of the flume to prevent submerged conditions. Depressed areas immediately upgradient and downgradient of the flume were filled to prevent accumulation of solids.

An evaluation to determine the best method of influent flow measuring and sampling at the Area 6 Los Alamos National Laboratory (LANL) Camp raw sewage lift station was initiated on June 10, 1996, and completed on September 11, 1996. Flow measuring with pump timers and constant volume sampling every two hours during a ten-hour work day was recommended to obtain accurate data at this site. Five samples will be taken beginning at 7:30 a.m. and ending at 3:30 p.m. to satisfy permit requirements. The NDEP approval for these methods was received on November 8, 1996.

State NDEP certification of as-built engineering drawings for the RWMS-5 sewage lagoons was received on August 27, 1996. This facility was incorporated into the state general water pollution control permit on that date and is now subject to all permit requirements and conditions.

Attempts to terminate the surface discharge from the U-12e Tunnel portal by the Defense Special Weapons Agency were unsuccessful. The flow rate is still averaging approximately seven gallons per minute and is directed to infiltration ponds via an above ground pipeline for disposal.

The NDEP issued an initial draft permit in July 1996, which was sent to permittees for a preliminary review.

The state of Nevada compliance personnel inspected the NTS sewage lagoons on February 12, 1996. No alleged notices of violation or administrative orders were issued for noncompliance at these facilities.

Arsenic at a concentration of 0.91 mg/L was found within the Area 6 Yucca Lake

infiltration basins in June of 1995. The general permit requires that an investigation be performed to determine the cause of any exceedance which is ten times the Nevada drinking water standard for specific inorganic constituents of infiltration basin liquids. In January 1996, a composite sample was taken and the result suggested that the 1995 sample be classified a false positive.

NON-NTS OPERATIONS

Four permits for wastewater discharges were held by non-NTS facilities. Monitoring and reporting were performed according to specific local requirements. The NLVF self-monitoring report was submitted in October 1996. Two outfalls and the burn pit batch discharge were monitored.

The Clark County, Nevada Sanitation District wastewater permit for the RSL required biannual monitoring of two outfalls, quarterly pH and monthly septage reports. RSL monitoring reports were submitted in May and December of 1996.

The STL holds wastewater permits for the Botello Road and Ekwil Street locations. There is no required self monitoring.

No wastewater permits were held for the AVO, LAO, or WAMO facilities in 1996.

SAFE DRINKING WATER ACT

NTS OPERATIONS

The SDWA primarily addresses quality of potable water supplies through sampling and monitoring requirements for drinking water systems. The state of Nevada has enacted and enforces SDWA regulations including system operations such as operation and maintenance, water haulage, operator certification, permitting, and sampling requirements. A list of state potable water permits is shown in Table 4.4, Chapter 4.

As required under state health regulations (NAC 445.244 ff.), potable water distribution systems at the NTS are monitored for

residual chlorine content and coliform bacteria. Monitoring results for 1996 are discussed in Section 7.1; there were no incidents of positive coliform.

NTS potable water distribution systems are also monitored for volatile organic compounds, inorganic compounds, synthetic organic compounds, and other water quality parameters. These monitoring results are discussed in Section 7.1. Organic compounds were not detected in any NTS potable water distribution system. Nitrate, nitrite, and fluoride samples were also collected during 1996, with all of the results being below their maximum contaminant levels.

NTS WATER HAULAGE

To accommodate the diverse and often transient field work locations at the NTS, a (substantial) water haulage program is used. To ensure potability of hauled water, water is obtained from potable water fill stands and chlorinated to obtain a residual of at least one ppm in the hauling tank. Water in the hauling tank is sampled periodically for coliform bacteria. The state of Nevada decided in 1994 that water hauling trucks should be permitted as water distribution systems. Permits were obtained again in 1996 for the three trucks listed in Chapter 4, Table 4.4. There were no positive coliform sample results in 1996.

NON-NTS OPERATIONS

All non-NTS operations are on municipal water systems and have no compliance activities under the SDWA.

RCRA

The RCRA of 1976 and the Hazardous and Solid Waste Amendments of 1984 (Title 40 C.F.R. 260-281) constitute the statutory basis for the regulation of hazardous waste and underground storage tanks.

Under Section 3006 of RCRA, the EPA may authorize states to administer and enforce hazardous waste regulations. Nevada has received such authorization and acts as the primary regulator for many DOE/NV facilities. The Federal Facilities Compliance Act (FFCA) of 1992 extends the full range of enforcement authorities in federal, state, and local laws for management of hazardous wastes to federal facilities, including the NTS. A discussion of actions regarding the FFCA at the NTS is given in Section 3.1.

NTS RCRA COMPLIANCE

In 1995, DOE/NV received a RCRA Hazardous Waste Operating Permit for operating the Area 5 Hazardous Waste Storage Unit (HWSU) and the Area 11 Explosive Ordnance Disposal (EOD) Unit. In addition, the Part B Permit application was revised to include the Mixed Waste Storage Pad (now under interim status) and updated information concerning general facility conditions. During 1996, the permit was modified to include the change in Contractor and operational changes concerning the EOD and HWSU. The permit application for the Pit 3 Mixed Waste Disposal Unit is being developed.

On January 5, 1994, the state of Nevada and DOE/NV entered into a Mutual Consent Agreement, which allowed low-level radioactive mixed wastes generated on the NTS to be moved into storage at the RWMS-5 TRU pad. This was amended in June 1994 to include environmental restoration mixed waste generated in Nevada. Waste was already in storage at this facility and will continue to be held in storage until a final determination of the proper treatment and disposal technology is established by the EPA. Under the FFCA, these mixed wastes were exempt from storage prohibitions in the Land Disposal Restrictions until October 6, 1995. The NDEP specified that this exemption would be extended through February 1996, pending negotiations towards a signed FFCA Consent Order. A Consent Order was signed, effective March 27, 1996, requiring compliance with a Site Treatment Plan (DOE 1996a), which was

also finalized in March 1996. Compliance with the Consent Order exempts the NTS from potential enforcement action resulting from the mixed waste storage prohibition under RCRA.

The NDEP conducted its annual Compliance Evaluation Inspection (CEI) from May-June 1996. Several minor potential violations were identified. In its cover letter transmitting the 1996 CEI report dated September 27, 1996, the NDEP stated that it would not pursue formal enforcement proceedings against DOE or BN with respect to these potential violations.

HAZARDOUS WASTE REPORTING FOR NON-NTS OPERATIONS

LVAO submitted to DOE/NV, in February 1996 for submission to the state of Nevada, the Hazardous Waste Generator biennial report for hazardous wastes generated at the NLVF under EPA Identification Number NVD097868731. No additional reports were required in 1996. At contract transition, the existing EPA ID numbers for the AVO, STL, and LAO locations were terminated. BN obtained new numbers for AVO and STL and will operate the LAO facility as a conditionally exempt small quantity generator.

UNDERGROUND STORAGE TANKS NTS OPERATIONS

The NTS underground storage tank (UST) program continues to meet regulatory compliance schedules for the reporting, upgrading, or removal of documented USTs. Efforts are continuing to identify undocumented USTs at the NTS. Once identified, undocumented USTs are reported to the NDEP to satisfy state regulatory reporting requirements.

During 1996, nine USTs were removed in accordance with state and federal regulations (see Table 3.1). Reportable releases were discovered with the removal of tanks at the Area 2 Bunker 300, Area 9 Bunker 300, and Area 12 B Tunnel sites.

Remedial activities are planned at each site during 1997 if funding is available.

During segmentation activities of the tank removed from the Area 26 Disassembly Building (Tank 26-2201-2), a small quantity of sludge containing radionuclides was released to the concrete pad and a small area of the adjacent soil. A minor cleanup was initiated and completed. The waste is pending disposal at the Area 6 Decontamination Facility and the Area 5 TRU Pad.

NON-NTS OPERATIONS

There were no issues involving USTs at non-NTS locations during 1996.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA)

In April 1996, the DOE/NV, Department of Defense, and the NDEP entered into a FFACO pursuant to Section 120(a)(4) of CERCLA and Sections 6001 and 3004(u) of RCRA to address the environmental restoration of historic contaminated sites at the NTS, parts of TTR, parts of the Nellis Air Force Range Complex, the Central Nevada Test Area, and the Project SHOAL Area. Appendix VI of the FFACO describes the strategy that will be employed to plan, implement, and complete environmental corrective action at facilities where nuclear-related operations were conducted.

EMERGENCY REPORTING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA)

Compliance with this Act is discussed in the paragraphs below and summarized in the following checklist:

SARA Title III Reports	NTS Compliance		
	Yes	No	Not Required
<u>EPCRA</u>			
302-302:			
Planning Notification	x		
304:			
EHS Release Notification			x
311-312:			
MSDS/Chemical Inventory	x		
313:			
TRI Reporting		x	

Additional compliance activities under CERCLA/SARA for 1996 included SARA Section 312, Tier II reporting, and SARA Section 313 reporting to the state of Nevada.

In 1992, the state of Nevada combined reporting requirements for the SARA Title III, Sections 301-312 Tier II report to include information for the "Nevada Fire Marshall Division, Uniform Fire Code Materials Report." The state renamed the document the "Nevada Combined Agency Hazardous Substances Report." The 1995 Nevada Combined Agency Hazardous Substances Report for the NTS was submitted to the state on February 23, 1996, and contained information on 37 different chemicals which were above the reporting threshold.

The combined SARA Section 312, Tier II Report for the Area 5 Hazardous Materials Spill Center and Areas 5 and 6 was submitted to DOE/NV in April 1996. Ammonia and sulfur dioxide exceeded the SARA Extremely Hazardous Substances (EHS) threshold planning quantity.

In compliance with Executive Order 12856, a Toxic Release Inventory Report required by Section 313 of the SARA Title III must be provided. In calendar year 1995, no chemicals over the reporting threshold were handled so no report was required in 1996.

NON-NTS TIER II REPORTING UNDER SARA TITLE III

The Nevada Combined Agency Reports for the RSL and NLVF were submitted to

DOE/NV in April 1996. There were no reportable EHS at either facility.

STATE OF NEVADA CHEMICAL CATASTROPHE PREVENTION ACT

The state of Nevada Chemical Catastrophe Prevention Act of 1992 contains regulations for facilities defined as Highly Hazardous Substance Regulated Facilities. This law requires the registration of highly hazardous substances above predetermined thresholds. There were no reportable chemicals for 1995, and therefore no reports were submitted to the state in 1996.

TOXIC SUBSTANCES CONTROL ACT

State of Nevada regulations implementing the TSCA require submittal of an annual report describing polychlorinated biphenyl (PCB) control activities. The 1995 NTS PCB annual report was transmitted to EPA and the state of Nevada on May 15, 1996. The report included the quantity and status of PCB and PCB-contaminated transformers and electrical equipment at the NTS. Also reported were the number of shipments of PCBs and PCB-contaminated items from the NTS to an EPA-approved disposal facility. Fifty-two large and five small low volume PCB capacitors remain under the management of the LANL in Area 27 of the NTS. One PCB-containing transformer was repaired and put in service at the NTS in 1996, but was later found to still contain PCBs so it was removed from service again.

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

Pesticide usage included insecticides, herbicides, and rodenticides. Insecticides were applied twice a month at the food service and storage areas. Herbicides were applied once or twice a year at NTS sewage lagoons berms. All other pesticide applications were on an as-requested basis.

General-use pesticides were preferred, although restricted-use herbicides and rodenticides were used. Contract companies applied pesticides at all non-NTS facilities in 1996.

Records were maintained on all pesticides used, both general and restricted. These records will be held for at least three years. State-sponsored training materials are available for all applicators. No unusual environmental activities occurred in 1996 at the NTS relating to the Federal Insecticide, Fungicide, and Rodenticide Act.

HISTORIC PRESERVATION

The National Historic Preservation Act (NHPA) requires federal agencies to consider any impact of their actions on cultural resources (archaeological sites, historic sites, historic structures, and traditional cultural properties) eligible for listing in the National Register (NR) of Historic Places. Accordingly, cultural resource surveys and other studies are conducted to assess any impacts NTS operations may have on such resources. When cultural resources eligible for the NR are found in a project area, and they cannot be avoided, plans are written for programs to recover data to mitigate the effects of the projects on these sites. Technical reports contain the results of these data recovery programs. One such report for archaeological data recovery at a site in Area 29 was completed and distributed in 1996.

The NHPA also requires that federal agencies inventory the cultural resources under their jurisdiction. In 1994, a survey of archaeological sites near four springs on the NTS was conducted. The results of this inventory were presented in a 1996 draft technical report that is in review. Additional inventory activities were conducted at rock art locations in Fortymile Canyon during May and December of 1996.

The American Indian Religious Freedom Act (AIRFA) directs federal agencies to consult

with Native Americans to protect their right to exercise their traditional religions. In 1989, the NTS AIRFA Compliance Program was established as an aid in the development and implementation of a consultation plan, designed to solicit Native American comments regarding the effects of DOE/NV activities on Native American historic properties and Native American religions. The Native American Graves Protection and Repatriation Act (NAGPRA) requires federal agencies to consult with Native Americans regarding items in their artifact collections which may be associated funerary items, human remains, sacred objects, or objects of cultural patrimony. After conducting interviews with tribal elders, a report on the NAGPRA consultation was issued and used to guide decisions regarding the appropriate items to return to the tribal groups. In 1996, more than 200 archaeological items were returned to 17 Native American tribal groups. Several other items have been removed from the collection and, at the request of the tribes, temporarily left in storage.

As part of the Programmatic Agreement with the Nevada State Historic Preservation Office (NSHPO) and the Advisory Council on Historic Preservation, work continued on the Long Range Study Plan for Pahute and Rainier Mesas. The objective of the plan is to study a geographically representative sample of all cultural resources on Pahute and Rainier Mesas. A modification of this plan, known as Attachment A, requires a summary and synthesis of existing archaeological data from the Mesas and the preparation of three professional papers over a two-to three-year period. In 1995, a draft of the first paper on Cultural Chronology was completed. A draft of the Adaptive Strategies paper was completed in 1996 and reviewed externally. A paper on Environmental Change is in preparation. In 1996, one cultural resources survey was conducted on Pahute Mesa that located one archaeological site which was determined to be eligible for the NR. During the tenure of this agreement, no data recovery will be undertaken on the Mesas.

THREATENED AND ENDANGERED SPECIES PROTECTION

The ESA (Title 50 C.F.R. 17.11) requires federal agencies to insure that their actions do not jeopardize the continued existence of federally listed endangered or threatened species or their critical habitat. The American peregrine falcon is the only endangered species and the desert tortoise and bald eagle are the only threatened species which occur on the NTS. No threatened or endangered plants are known to occur on the site. Consultation with the USFWS resulted in receipt of a non-jeopardy Biological Opinion in April 1991 for planned activities at Fortymile Canyon on the NTS for a nine-year period and in May 1992 for planned activities at the NTS for a five-year period. Another non-jeopardy Biological Opinion was issued in August 1996 for planned activities at the NTS for a ten-year period.

The Desert Tortoise Compliance Program implemented the terms and conditions of the USFWS Biological Opinion and documented compliance actions taken by DOE/NV. The terms and conditions which were implemented in 1996 included the following: (1) tortoise clearance surveys for six projects (conducted within 24 hours from the start of project construction), (2) onsite monitoring of construction for three projects when heavy equipment was being used, (3) quarterly monitoring of tortoise-proof fencing around the Mercury grenade range and around sewage treatment and sanitary landfill facilities, (4) transect surveys around one project site believed to be outside suitable tortoise habitat, and (5) preparation of an annual compliance report for NTS activities that were conducted between August 1, 1996, and August 31, 1996, and submitted to USFWS in September.

From April through October, over 180 sample transects were surveyed on the NTS for the presence of desert tortoises or their sign in areas of unknown tortoise density. Areas of "none to very low" tortoise abundance will be identified by the sample

transect data. These areas will not need to be surveyed prior to land-disturbing activities according to the new 1996 USFWS Biological Opinion. Results of these surveys will be analyzed and presented to the USFWS for their concurrence in 1997.

There is one bird (mountain plover [*Charadrius montanus*]) and two plant species (Clokey's eggvetch [*Astragalus oophorus* var. *clokeyanus*]), and Blue Diamond cholla [*Opuntia whipplei* var. *multigeniculata*]) which are known or expected to exist on the NTS that are candidates for listing by the USFWS under the ESA. In 1996, ten preconstruction biological surveys were conducted at proposed construction sites to determine the presence of these species. Survey results and mitigation recommendations were documented in survey reports. Field surveys to determine the presence and distribution of the two plant species on the NTS were also conducted in the spring and specimens of these plants were collected for positive identification. It was not possible in 1996 to determine these plants' distribution on the NTS because growing conditions were poor. Plants were either absent, or if they were present, no flowers or fruits were produced. In February, the USFWS removed 11 animals and 12 plants that are found on the NTS from the candidate species list.

EXECUTIVE ORDER 11988, FLOODPLAIN MANAGEMENT

There were no projects in 1996 which required consultation for floodplain management. NTS design criteria do not specifically address floodplain management; however, all projects are reviewed for areas which would be affected by a 100-year flood pursuant to DOE Order 6430.1A.

EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS

There were no projects in 1996 which required consultation for protection of

wetlands. NTS design criteria do not specifically address protection of wetlands; however, all projects are reviewed pursuant to the requirements of DOE Order 5400.1.

Field surveys were conducted from June through December to identify those natural NTS springs, seeps, tanks, and playas which could be designated by the U.S. Army Corps of Engineers as jurisdictional wetlands. A summary report of the survey findings will be completed in 1997.

EXECUTIVE ORDER 12856, FEDERAL COMPLIANCE WITH RIGHT-TO-KNOW LAWS AND POLLUTION PREVENTION REQUIREMENTS

Actions taken to comply with the requirements of this Order are discussed in Section 3.2.

3.2 CURRENT ENVIRONMENTAL COMPLIANCE ISSUES AND ACTIONS

There were numerous activities and actions relating to environmental compliance issues in 1996. These activities and actions are discussed below grouped by general area of applicability.

CLEAN AIR ACT

Modifications to the Area 1 Rotary Dryer that were completed in 1996 included the installation of new heat tiles, modifications to the storage silo, and installation of an additional baghouse. These modifications will enable the rotary dryer to operate in compliance with state opacity limits.

Internal floating lids were installed in the Areas 6 and 23 bulk unleaded gasoline tanks during June and July of 1996. The lids are expected to greatly reduce emissions of volatile organic compounds.

Under Title V, Part 70 of the CAA Amendments, all owners or operators of Part 70 sources must pay annual fees that are sufficient to cover costs of state operating permit programs. Annual maintenance and emissions fees for the NTS in 1995 were \$17,500. In 1996, the fee schedule was revised to more fairly distribute the fees to those facilities contributing the greatest amount of emissions. Annual fees for facilities generating less than 25 tons of emissions were reduced from \$3.36/ton to \$0. Annual maintenance fees for construction-related activities were reduced from \$75 per source to \$0. The total actual emissions for the NTS for 1996 were only 6.5 tons, resulting in no maintenance and emissions fees.

To offset reductions in maintenance and emissions fees, permit fees were increased. The fees for a new Class II permit, renewal, or modification were increased from \$250 to \$1,800, \$700, and \$900, respectively. A Class I permit will cost \$14,500, with fees of \$7,500 and \$1,500 for significant and minor modifications to the permit, respectively.

During a state inspection in June 1996, a Notice of Alleged Violation was issued for construction of a cement blending/holding tank at the Area 6 Cementing Services. Construction of the tank had been initiated after submitting a permit modification, but prior to receiving the modified permit. An Administrative Penalty of \$1,000.00 was issued for the violation and paid by BN, although construction had commenced prior to BN assuming the management and operation contract for the NTS in January 1996.

CLEAN WATER ACT

A NPDES permit may be issued for the NLVF as part of the state implementation of the federal storm water discharge regulations. The federal storm water regulations identify regulated facilities by a Standard Industrial Classification (SIC) code. A survey conducted in accordance with guidance received from EPA Region 9

and the Office of Management and Budget revealed that the primary SIC code for the NLVF suggested that it was not an activity subject to those regulations. A survey report was prepared and submitted to the state of Nevada requesting a formal determination on the regulatory status of the NLVF. This is still pending.

Dewatering of septage and wintertime portable toilet waste was conducted in the Area 25 Engine Test Stand Number one sewage lagoon and two Area 12 sewage lagoon secondary infiltration basins during 1996, and will be used again in 1997 for this application.

A total of 12 active septic tank systems are in service on the NTS. Two active holding tanks which require replacement with an approved system are still in service on the NTS. Nine additional septic tank systems serve unoccupied buildings but will remain on active status unless permanently closed. Facility Managers have been informed of deficiencies noted during inspections.

Construction of the Area 23 Infiltration Basin Groundwater Monitoring Well was completed on February 27, 1996. Installation of a pump with cable and discharge piping and development of a completion report are still required to finish the project. Funding for purchase and installation of this equipment and material has been requested for FY97. The monitoring well must be functional by the expiration date of the permit, January 31, 1999, to comply with groundwater protection requirements contained in state general permit GNEV93001.

The installation of engineered liners within the Area 22 Gate 100 sewage lagoons was initiated on July 1, 1996 and completed on October 21, 1996. This facility is now in compliance with groundwater protection requirements contained in the state general water pollution control permit. Raw sewage which was directed to the secondary pond for construction within the primary lagoons still must be transferred back to the primaries when staff becomes available.

A report verifying the existence of an engineered liner in the Area 12 primary sewage lagoons was submitted to the NDEP on September 6, 1996. Inspections and soil sampling activities within the lagoons revealed that a minimum six inch thick engineered liner was installed in all the primary lagoons to a vertical depth of three feet. Analytical results indicate that the saturated hydraulic conductivity of the liners is 5.0×10^{-7} cm/sec or less. The NDEP concurred with the conclusions of the report and stipulated compliance with groundwater protection requirements in the state general permit for primary lagoon depths to three feet.

A bypass sewer line for the Area 25 Central Support primary sewage lagoon was constructed from November 12 through November 18 as a result of joint efforts between the BN Waste Management Project/Technical Support (BN/WMP/TS) and U.S. Department of Energy/Yucca Mountain Site Characterization Office (DOE/YMSCO) staffs. This line will provide for operational flexibility and in-situ primary lagoon infiltration rate measurements. Effectiveness of biological clogging on the existing soils will be documented before evaluations and conceptual designs on options for compliance with groundwater protection program are initiated. Saturated hydraulic conductivity testing of soils sampled from the bottom of the secondary lagoon with Yucca Lake secondary lagoon contents will be performed to verify the infiltration rate determined through in-situ measurements. BN/WMP/TS will continue to assist DOE/YMSCO in the design and construction of improvements at this facility if they are needed to attain permit compliance.

Funding for design of engineered liner installation within the Area 25 Reactor Control Point sewage lagoons was received from DOE/Asset Management Division in October of 1996. Engineering drawings for this installation have been completed but still require approval from the lessee and DOE. Funding for construction still must be

secured by the lessee of the site after approval of the drawings.

The Area 25 Test Cell C will be taken out of service during the first quarter of 1997 to comply with SDWA regulations. No action will be required at the sewage lagoons to comply with the permit requirements at this time. Improvements will be implemented if use of the facility is needed in the future.

Soil investigations within and around the Yucca Lake secondary infiltration basins have demonstrated that existing pond bottom soils possess a saturated hydraulic conductivity which is equivalent to an engineered liner. Primary lagoons at this facility have been lined. A report is in preparation and will be submitted to the NDEP through DOE/EPD to address groundwater protection requirements at this site. No further action regarding this issue will be necessary if the NDEP concurs with the conclusions in the report and acknowledges the presence of natural barriers as in the Area 12 primary lagoons.

Soils investigations within and around the LANL Camp secondary infiltration basins are being performed in an attempt to demonstrate that existing bottom soils possess a saturated hydraulic conductivity which approaches or is equivalent to that of an engineered liner. Primary treatment lagoons at these facilities have been lined. Treated sewage used in saturated hydraulic conductivity tests will reduce the lower conductivity values of the fine soils present within the secondary basins. A report will be submitted to obtain compliance with groundwater protection requirements if an adequate barrier is illustrated within the existing basin construction.

Funding for design and installation of an engineered liner in the Area 6 Device Assembly Facility primary sewage lagoon was requested for FY97. The most feasible and cost effective method to comply with groundwater protection requirements at this site is to line the primary lagoon to attain full containment with existing flow rates.

Samples from the secondary lagoon bottom could not be obtained to perform preliminary soils investigations due to the preponderance of rocks and cobbles. Experience in performing in-situ infiltration rate testing of primary lagoons at the NTS indicates that existing soils would not attain acceptable infiltration rates to represent a natural barrier caused by biological plugging. The costs of hydrogeological modeling with site-specific soil characterization and installation of a groundwater monitoring well is currently more than the costs that would be incurred by lining the primary lagoon. The wetting front may have extended beyond the realistic depths of soil sampling or vadose zone moisture monitoring. Drilling activities would be more difficult in the local rocky soils.

Construction of the RWMS-5 sewage collection system and lagoons was completed in September 1995. Engineered liners have been installed within both primary lagoons and both secondary basins to comply with the groundwater protection requirements in the state general permit. As-built certification and sewage lagoon specifications were forwarded to the NDEP for approval and addendum to the general permit. The NDEP approved these on August 27, 1996.

SAFE DRINKING WATER ACT

Engineering design has been completed on approximately 50 buildings or facilities at the NTS requiring retrofit through installation of backflow prevention devices on water service lines. These facilities require over 110 separate installations. As of the end of 1996, work has been completed on all but one of the facilities.

The state conducted a vulnerability assessment early in 1996. Because of good operation of the system, the findings of that survey resulted in specific waivers of sampling and sampling frequencies that will reduce the operating costs of the water system.

In 1995, the state implemented a requirement to sample for synthetic organic compounds (SOCs). About 98 percent of the new requirements were met and the remainder were addressed in 1996. Since all results were below the reportable concentrations, in the vulnerability assessment report, the state agreed that SOC sampling could be waived in the third and fourth quarters of 1996 and revert to a ten-year cycle.

During 1996, several system improvements were made. A booster pump and two storage tanks were installed at Well 4A in Area 6. One new storage tank was brought online at Well UE-16d and in Mercury. The overflow/drain lines for storage tanks at Wells J-11 and J-13 were rerouted to correct a previous inspection deficiency. Lastly, approximately ten miles of water line was installed between the Well 5A booster pump and the Well 4A booster pump, which thus connected the water distribution systems servicing Areas 6 and 23.

There was a sanitary survey of the water distribution systems by the Nevada Bureau of Health Service during 1996 that resulted in several recommendations and four requirements. The four identified requirements were met by the end of 1996.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT

Other than the reporting covered in Section 3.1, there is no formal CERCLA program at the NTS. The FFACO with the state may preclude the NTS from being placed on the National Priority List. The FFACO will take more of a RCRA approach in remediating environmental problems.

HISTORIC PRESERVATION

Historic preservation studies and surveys are conducted by the Desert Research Institute (DRI), University and Community

College System of Nevada. In 1996, 23 surveys were conducted for historic properties on the NTS, and reports on the findings were prepared. These surveys identified 24 prehistoric and historic archaeological sites. Through consultation with the NSHPO, eight of these sites were considered eligible for the NR and no determination could be made for one. Work continued on historic structures associated with early NTS activities. The Historic American Building Survey data, required by the National Park Service for the Japanese Village, was accepted and the documents were forwarded to the Library of Congress. A study of the BILBY crater area documented both atmospheric and underground nuclear testing activities. Two buildings associated with nuclear rocket development were the focus of intensive research. Both were determined to be eligible for the NR. However, only the activities at E-MAD were determined to adversely affect the eligibility of the building, requiring Historic American Engineering Records documentation to be prepared in 1997.

Other efforts in 1996, included administration of the cultural resources program on the NTS, preparing management objectives and plans and promoting public relations and communications concerning the NTS archaeology and cultural resources program.

To comply with federal regulations in Title 36 C.F.R. 79, a multi-phase program is in progress to upgrade the NTS archaeological collection and archives. In 1996, DRI continued the piece-by-piece inventory of the lithic artifacts in the collection. More than 90 percent of the nearly 500,000 artifacts in the collection have been inventoried and repackaged according to federal requirements.

POLLUTION PREVENTION AND WASTE MINIMIZATION

IMPLEMENTATION

BN has published a Waste Minimization and Site Pollution Prevention Program Plan for

the NTS and NLVFs in accordance with DOE/NV and DOE/HQ requirements. This plan is a guidance document utilized to reduce waste generation and any potential pollutant releases to the environment. BN reviews the plan annually and revises accordingly, incorporating the most current waste minimization requirements and Executive Orders. This allows for the establishment of ongoing goals for further improvements and provides for increased protection of public health and the environment, as well as:

- Reduced employee exposure.
- Reduced waste management and compliance costs.
- Reduced resource usage.
- Reduced inventories of chemicals that require reporting under the SARA and the EPA 33/50 Pollution Program.
- Reduced exposure to civil and criminal liabilities under environmental laws.
- Reduced overhead costs and increased productivity through improved work processes and greater awareness.

WASTE MINIMIZATION

All DOE/NV quantitative goals and deliverables for 1996 were met or exceeded. The total NTS hazardous waste generated was reduced in 1996 compared to waste generated in 1995. The NTS program recycles and returns to productive use significant quantities of materials.

The BN Just-in-Time (JIT) supply system continues to account for nearly 90 percent of all procurement actions, providing most common use items, e.g., cleansers and lubricants, to all NTS agencies. This program has significantly reduced on-hand stores, thereby reducing administrative and handling costs, and significantly reducing waste generation due to expiration of shelf life or overstock conditions. All parties benefit in reduced waste disposal and increased productivity.

PROCUREMENT CONTROLS

The purchase of any item that requires a Material Safety Data Sheet (MSDS), including JIT purchase requisitions, is screened by the Industrial Hygiene Section and Waste Management Project (WMP) personnel. This determines the need for the hazardous material request and the review of MSDSs for products not being purchased within the BN JIT system. These products may be approved or disapproved. The approval process relies on the health, safety, and environmental issues related to the product.

Purchase requisitions for the procurement of materials outside the JIT are reviewed by the WMP and the Industrial Hygiene Section when originated. If the waste generated by these materials has the potential to be regulated under CERCLA/RCRA, or has a potential of causing harm to individuals or the environment, the reviewers will approve that purchase only if there is no approved substitute for the product and the use of the product cannot be prevented by process modification.

AFFIRMATIVE PROCUREMENT

The DOE/NV and BN established an Affirmative Procurement Program to comply with the requirements of Executive Order 12873 to procure products containing recovered materials. This program focuses on paper, lubricating oil, tires, building insulation, and fly ash. In FY96, this program had a 2 percent decrease in the use of fly ash and a 10 percent decrease in the use of recycled building insulation, due to the reduction in construction projects on the NTS. BN procured 75.1 percent of non-General Services Administration paper, containing a minimum of 20 percent post consumer content; 1.3 percent of retread tires; and 98.5 percent of re-refined lubricating oils.

CHLOROFLUOROCARBON CONTROL

EPA certified chlorofluorocarbon (Freon) recycling equipment is used at all of the NTS service and maintenance centers. The

Freon is reclaimed, recycled, and reused, therefore eliminating ozone depleting substance emissions into the atmosphere. Service personnel are trained and certified according to Section 608 of the 1990 CAA. Approximately 35 service personnel are currently certified to operate Freon recycling equipment. Additional EPA-certified equipment has been procured to assist in the systematic changeover of DOE motor vehicles from the use of R12 to R134a. The equipment reduces the use of ozone depleting chemicals and complies with EPA requirements. Approximately 25 percent of the DOE/NV fleet has been converted from R12 to R134a.

TRAINING

BN is committed to implementing an effective waste minimization, pollution prevention awareness, and recycling program. Every practical effort will be implemented to educate all employees in pollution prevention. Employee education will be accomplished through formal training, input from articles and newsletters, and other awareness program strategies.

Management and employees working in the environmental arena are instructed in BN waste minimization and pollution prevention policies and procedures. The level of instruction qualifies personnel to perform pollution prevention tasks. Environmental awareness training is presented to managers and employees, on an as needed basis.

PRODUCT SUBSTITUTION

BN substitutes chemicals to reduce hazardous waste and the potential release into the environment. In addition to the Freon substitution listed above, the following substitutions were made:

- Seventy-four mercury thermometers were replaced with electronic temperature probes and digital readouts, eliminating 2,288 g of mercury in the work place.
- The BN Fabricated Systems Support Section was utilizing a vapor degreaser

with 1,1,1-trichloroethane (TCE) to clean electronic circuit boards. The TCE is an ozone-depleting chemical and known carcinogen. A state-of-the-art aqueous cleaning system was purchased, which allows the introduction of an environmentally-friendlier product. This eliminated the use of 90 gal of TCE annually.

- The Aircraft Maintenance Section at the RSL has replaced Safety Kleen solvent with Voltz II. The synthetic solvent is environmentally safe and is managed as non-hazardous waste.

POLLUTION PREVENTION OPPORTUNITY ASSESSMENTS (PPOAs)

BN implements waste minimization options involving source reduction and elimination via product substitution, reuse, and recycle. These efforts reduce the total volume of hazardous, radioactive, mixed, and nonhazardous solid waste streams generated and disposed of. Waste streams are carefully reviewed to identify opportunities for reducing or eliminating the volume and toxicity of wastes generated through PPOAs.

BN implements pollution prevention options in accordance with the Pollution Prevention Act hierarchy that states the following criteria should be implemented to prevent or reduce pollution at the source wherever feasible:

- Recycle wastes in an environmentally acceptable manner.
- Reuse if applicable.
- Treat wastes that cannot feasibly be reused or recycled.
- Dispose of wastes, only as a last resort.

Pollution prevention is the DOE's preferred approach to environmental management. BN's activities have reduced or eliminated hazardous chemicals and generated cost savings/avoidance in disposal, product, energy, and labor costs. Progress toward

meeting mission objectives poses continuing challenges and opportunities for pollution prevention to reduce future risks and costs associated with managing wastes and pollutants.

The sitewide (NTS and NLVFs) waste reduction results have come from formal processes such as PPOAs, a Return on Investment (ROI) Project, solid and liquid waste recycling, affirmative procurement, and from employees knowledgeable with processes which generate waste or use hazardous chemicals.

PPOA is a systematic, planned, and documented procedure with the objective of identifying methods that reduce energy consumption or eliminate waste streams. The technical and economical feasibility of options are evaluated, and the most promising options are selected for implementation. Options include product substitution, cross contamination control, process change (i.e., use of different equipment or procedure), and onsite recycling. PPOAs have been conducted and implemented on items listed below.

To improve the recovery and reuse of antifreeze at the NTS Fleet Operations, a recycling machine was purchased, and a closed-loop, bulk-recycling system was manufactured onsite. The recycling unit makes the process efficient, reduces antifreeze disposal costs, and minimizes the purchase of antifreeze in the future. With the current scope-of-work at the NTS, approximately 1,000 gal will be recycled annually. If the antifreeze had to be managed and disposed of as hazardous waste, the annual cost for disposal would exceed \$40,000. (Recycling/Reuse Process, PPOA.)

Two PPOAs were conducted at the RSL Photo Lab which resulted in process modification with an annual cost saving of \$130,000. The photo lab utilizes a computerized video imaging system (CVIS) with dedicated enlargers and paper processors to analyze color negatives containing imagery for documentation, scientific, and publication applications, and

to expose and develop the associated color prints. The CVIS and the print processors and their associated waste streams were the focal point of one PPOA. The RSL's Photo/Video Section also processes numerous types of 35-mm and 120-mm color print negative films through a washless mini-lab consisting of a film and a paper processor. The washless mini-lab and associated equipment are packaged in a self-contained transport pod for emergency response deployment occurrences. The film and print processes and their associated waste streams were the focal points of the second PPOA. (Process Improvement and Modification.)

A PPOA was performed on the Special Technologies printed circuit (PC) laboratory. The most viable recommendation was to decommission the PC Lab and outsource the fabrication of the PC boards. This action decreases the Special Technologies Laboratory Facility Industrial Wastewater Discharge Permit from a Class III to a Class II. The annual sampling requirements for the facility and regulators are reduced because regulatory requirements are less stringent for a Class II Permit. Disposal costs are reduced, a hazardous waste stream is eliminated, liability to BN is reduced, and the work environment is greatly improved. The vacated floor space is available for other functions. The purchase of 13 chemicals is eliminated, and the disposal of 573 gal of chemicals ceased, for an annual cost savings of \$12,076.

The NLVF has 80 evaporative coolers, with a standard system discharging 4,050 gal of water per month. Cooler Guard was purchased and placed in the cooler reservoirs. This prevents build-up, extends pad life by a factor of three, and reduces maintenance costs. State-of-the-art bleed-off timers were installed in 14 cooler reservoirs, which will reduce water usage by at least 65 percent and enhance the cooling process. (Process Modification, PPOA.)

RETURN ON INVESTMENT (ROI)

The ROI program was initiated to demonstrate the economic benefit of implementing pollution prevention projects and focus on those with the potential for reducing operational costs. The ROI program is based upon total cost savings achieved across all DOE organizations compared to the dollars spent to implement the project. The ROI project listed below has been implemented and saves \$30,000 in operational costs annually.

Chillers are used to cool the RSL's main facility. A hot plate and frame heat exchanger were installed between the condenser water and chilled water system. This provides "tower free" cooling during intermediate weather. The cost to retrofit the chiller was \$107,000, with the energy saving pay-back period of three-and-a-half-years. (Retrofit Process, Life Cycle Cost Analysis.)

SOLID WASTE RECYCLING

The solid waste recycling program (high-grade paper, mixed paper, cardboard, and aluminum cans) at the NLVF is combined with the shredding of Operations Security (OPSEC) sensitive correspondence. During FY96, 364,000 lb of paper was redeemed for recycling, which included 103,000 lb of shredded OPSEC paper.

ENERGY-EFFICIENT PROJECTS

New T-8 fluorescent tubes and electronic ballasts were purchased for the NLVF. Consumption of electricity will be reduced, saving \$8,515 annually with a pay-back period of 2.5 years.

Solar screens were installed on the windows of the B-3 facility at the NLVF. The screens reduced the consumption of electricity by 17,170 kWh/yr for a cost avoidance of \$1,128 and a pay-back period of three years.

REPORTS

The Health Hazard Inventory database system is utilized by the Industrial Hygiene Department to track chemicals in the workplace and provide information used to author DOE/HQ, DOE/NV, local, state, and federal reports. Medgate software was purchased and installed to enhance the system. This process improvement enables the NTS to merge with the other locations using one system for gathering information to improve reports and makes it less costly to generate reports.

The SARA Section 313 chemical usage report and the 33-50 TRI Program Priority chemical usage report for CY95 were submitted to DOE/NV on May 20, 1996.

The 1995 Annual Report on Waste Generation and Waste Minimization Progress was submitted to DOE in September 1996, in accordance with the requirements of DOE Order 5400.1, "General Environmental Protection Program."

RECYCLING

BN has EPA-certified Freon recycling systems capable of capturing and regenerating Freon to be reused in the facility air conditioning systems. Other recycling activities are listed in Table 3.2.

SOLID/SANITARY WASTE

During 1996, sanitary landfills were operated in Areas 9 and 23. The amount of material disposed of in each is provided in Chapter 7.0, Table 7.6.

EPA regulations promulgated in 1991 required that Class II municipal solid waste landfills (i.e., those receiving less than 20 T/day of waste) be closed by October 5, 1995 (later delayed by two years). As the result of an agreement with the NDEP Bureau of Federal Facilities (NDEP/BoFF), the Class II landfill at U-10c Crater in Area 9

was closed on October 5, 1995, for retrofit as a Class III Site. The retrofit consisted of the installment of a barrier layer of at least four feet of native soil to segregate the different waste types and to inhibit leachate transport to the lower waste zone. In addition, five neutron monitoring tubes were installed in the barrier layer to monitor possible leachate production and water activity. Upon the NDEP approval of the installed barrier and operating plan, U-10c Crater was reopened in January 1996 as a Class III Site for the disposal of industrial solid waste and other inert waste. An application for a permit to operate U-10c Crater as a Class III industrial solid waste disposal site was submitted to the NDEP/BoFF in May 1996. The Class III permit application was revised and resubmitted in August 1996 in response to informal comments provided by the NDEP/BoFF. An application for a permit to operate the Area 23 landfill as a Class II solid waste disposal site was submitted to the NDEP/BoFF in October 1996.

Table 7.6 in Chapter 7 gives the amount of hydrocarbon contaminated soil disposed of in the Area 6 landfill in 1996. An application for a permit to operate the Area 6 hydrocarbon landfill as a Class III solid waste disposal site was submitted to the NDEP/BoFF in March 1996. Upon receipt of verbal comments from the NDEP/BoFF, a revised application was submitted in April 1996, followed by the receipt of a Notification of Completeness from the NDEP/BoFF in May 1996. An evaluation of the merits of the application was conducted and, as a result, minor changes were incorporated in the application document. A copy of the revised permit application was submitted to the NDEP/BoFF in August 1996.

Eleven inactive landfills that required closure according to solid waste regulations promulgated prior to 1991 have been identified by the NDEP/BoFF. Ten of the 11 Corrective Action Sites have been closed, and a closure report for each of the sites has been submitted to the NDEP/BoFF. The

closure report for each of these ten sites includes identification of any post-closure monitoring requirements (including future reporting of such activities) and certification that each has been closed in accordance with the approved closure plan or corrective action plan. The closure report also includes certification that the metes and bounds of the Corrective Action Sites have been appropriately noted in the land withdrawal records as "land use restricted." These ten sites are subject to post-closure monitoring (inspections) and reporting for a minimum of five years.

The eleventh Corrective Action Site, U-3aus Crater, was removed from permanent closure consideration because of its remaining unused capacity and potential for future use as a solid waste disposal site. This site has been placed in Appendix II of the FFACO.

The NTS Cleanup Project, initiated in 1994, is an activity devised to remove and dispose or recycle, where applicable, nonhazardous debris and material and readily identify hazardous debris and material. Approximately 128,700 lb of solid waste was removed from Area 2 and properly disposed of in 1996. Also, 8,988 lb of lead materials and 16,720 lb of electrical cable were delivered to the NTS Salvage Yard for recycling and reclamation. NTS cleanup activity in Area 2 will continue in 1997 as funding and manpower become available.

ENVIRONMENTAL RESTORATION/REMEDIATION ACTIVITIES

The NTS has an ongoing Environmental Restoration Program (ERP) for the characterization and restoration of contaminated facilities or areas. In 1996, characterization and restoration activities associated with the ERP included:

- Post-closure monitoring, of the Mercury Landfill Hazardous Waste Trenches RCRA Closure Unit, was conducted on a

quarterly basis for soil moisture. The covers are performing as designed with no releases occurring. Maintenance is anticipated in 1997 to seal the neutron tubes outside of the covers to prevent infiltration of water.

- Post-closure monitoring of the U-3fi Injection Well RCRA Closure Unit was conducted, on a monthly basis, for soil moisture from January to July, and quarterly thereafter, to establish a baseline. A change in the monitoring from volumetric moisture content to neutron counts was approved by the NDEP.
- Nine underground storage tanks were removed under the Environmental Restoration Program. All tank contents were removed and properly disposed, and the soil around the tanks was sampled for proper site closure.
- Closure of the Project SHOAL access shaft was completed to meet a DOE/NV milestone. The approximately 1,100-ft deep shaft was backfilled with screened granite from the existing muckpile with the concurrence of two state of Nevada regulatory divisions. The Project SHOAL area is located approximately 170 mi (274 km) northwest of the NTS.
- The Area 6 Decontamination Pond RCRA Closure Unit characterization was initiated. A ramp was constructed for drill rig access into the pond area. The characterization report, closure plan, and closure activities are planned for 1997.
- The Area 2 Bitcutter Shop and Lawrence Livermore National Laboratory (LLNL) Post Shot Containment Building Injection Wells RCRA Closure Unit were closed on September 27, 1996, to meet a DOE/NV milestone. The Bitcutter Shop injection well was closed in place without monitoring requirements. The LLNL Post Shot Containment Building Injection Well was cleaned and closed.

- The Area 25 Jr. Hot Cell disassembled materials were stored in a Radiological Management Area and monitored on a weekly basis. Attempts to locate a “party” interested in the hot cell were not successful. A sampling and analysis plan will be prepared and implemented in 1997 to evaluate potential disposal options.
- A characterization report was prepared for the Area 15 EPA Farm. Preparation of the Corrective Action Plan was temporarily halted because funding was reallocated to the Decommissioning and Decontamination activities listed next.
- Characterization of the Area 25 E-MAD Building was initiated as part of the NTS Decommissioning and Decontamination activities. Characterization and decontamination activities are anticipated to continue in 1997 for potential utilization of the facility by Kistler Aerospace.
- The Area 12 Fleet Operations Steam Cleaning Discharge Area characterization was completed. The Corrective Action Decision Document and Corrective Action Plan will be prepared and transmitted to the NDEP for concurrence during 1997. Remedial activities are planned for 1997.
- Characterization of the Area 6 Steam Cleaning Effluent Ponds RCRA Closure Unit was completed. Approximately 50 yd³ of non-hazardous hydrocarbon and 70 yd³ of hazardous soil were disposed of from the characterization activities. The Corrective Action Decision Document, Corrective Action Plan, and implementation of closure activities are planned for 1997.
- Work began in June 1996, on a process for removing plutonium contamination from the soil, at the DOUBLE TRACKS site, on the Nellis Air Force Range Complex. This activity was described in Environmental Assessment DOE/EA-1136, which had a Finding of No Significant Impact determination in March

1996. The contaminated surface soil was removed and stockpiled. The stockpiled soil was bagged and then trucked to Area 3 low-level waste site for disposal. The DOUBLE TRACKS site that was disturbed was stabilized with a short-term chemical stabilizer and reseeded in the fall as specified in the reclamation plan for the site. An irrigation study was completed at field trial plots located adjacent to the DOUBLE TRACKS site to evaluate the effectiveness of different irrigation strategies in reestablishing native plants. Information from these plots was used in designing the irrigation system and irrigation levels for the final revegetation efforts, at DOUBLE TRACKS, scheduled for winter and spring of 1997.

Also during 1996, one Corrective Action Unit under the FFAO, which described 23 abandoned lead sites at the NTS, was closed because all the lead sites were remediated; most of the material was recycled.

RADIATION PROTECTION

NTS OPERATIONS

Redesign of the environmental surveillance networks on the NTS during 1995 resulted in a reduction of monitoring costs while maintaining necessary and sufficient coverage. Results of this monitoring, during 1996, indicated full compliance with the radiation exposure guidelines of DOE Order 5400.5, "Radiation Protection of the Public and the Environment", and the Title 40 C.F.R. 141 National Primary Drinking Water Regulations. Onsite air monitoring results showed average annual concentrations ranging from 0.008 percent of the DOE Order 5400.5 guidelines for ⁸⁵Kr in air to 2.6 percent of the guidelines for ²³⁹⁺²⁴⁰Pu in air. Drinking water supplies on the NTS contained less than 0.001 percent of the DOE Order 5400.5 guideline and less than 0.004 percent of the National Primary Drinking Water Regulation for tritium. Supply wells contained 0.0 percent of the DOE Order 5400.5 guideline for ²³⁹⁺²⁴⁰Pu.

NON-NTS BN OPERATIONS

Results of environmental monitoring at the off-NTS operations performing radiological work during 1996 indicate full compliance with the radiation exposure guidelines of DOE Order 5400.5 and Title 10 C.F.R. 835. No radioactive or nonradioactive surface water/liquid discharges, subsurface discharges through leaching, leaking, seepage into the soil column, well disposal, or burial occurred at any of the BN operations. Use of radioactive materials is primarily limited to sealed sources; however, unsealed tritium is used in some operations. A small seepage of tritium into the air at the NLVF Atlas Building (reported in 1995) continued during 1996. Facilities which use radioactive sources or radiation producing equipment, with the potential to expose the general population outside the property line to direct radiation, are: STL during the operation of the sealed tube neutron generator or during operation of the Febetron; the RSL at Nellis Air Force Base; and the Atlas, NLVF A-1 Source Range. Sealed sources are tested every six months to assure there is no leakage of radioactive material. Operation of any radiation generating devices is controlled by BN procedures. At least two thermoluminescent dosimeters (TLDs) are at the fence line on each side of these facilities that are exchanged quarterly with additional control TLDs kept in a shielded safe. The TLD results were consistent with previous data indicating no exposures to the public from any of the monitored facilities.

ENVIRONMENTAL COMPLIANCE AUDITS

In March 1993, an environmental compliance assessment was conducted by Reynolds Electrical & Engineering Co., Inc. (REECo) of all active REECo facilities and work sites at the NTS. Numerous deficiencies were corrected at the time of the assessment. Those deficiencies which were not correctable were assigned a system deficiency number and are being

formally tracked by BN, the successor to REECo. The assessment identified approximately 55 of these system deficiencies. As of the end of 1996, only one of the identified deficiencies remains open.

OCCURRENCE REPORTING

Occurrences are environmental, health, and/or safety-related events which are reported in several categories in accordance with the requirements of DOE Order 5000.3B, "Occurrence Reporting and Processing of Operations Information." The reportable environmental occurrences for on-NTS facilities appear in Table 3.3. There were no reportable off-NTS environmental occurrences. An analysis of occurrences for 1996 as required by the Order showed that there were four main reasons for them: (1) management problems - 37 percent, (2) personnel error - 30 percent, (4) procedural problems - 7 percent, and (3) external phenomena - 18 percent.

LEGAL ACTIONS

On June 28, 1994, the state of Nevada filed a Complaint for Declaratory Judgement and Injunction against DOE in the U.S. District Court in Nevada. Nevada is seeking declaratory judgements that DOE has failed to comply with NEPA requirements at the NTS by not issuing a sitewide EIS for all major federal actions at the NTS and seeking orders to halt shipments of low-level radioactive waste from Fernald, as well as all other transportation, receipt, storage, and disposal of mixed waste, hazardous waste, and defense waste. The state is also seeking to enjoin DOE from pursuing any "Weapons Complex" activities, including nuclear testing, research, and development that will significantly impact the environment until publication of the sitewide EIS. In January 1995, the Court dismissed claims regarding an EIS, due to mootness, since DOE/NV had already begun the scoping

process for a sitewide EIS, dismissed Nevada's claims regarding shipment of Fernald low-level waste, and dismissed claims regarding contents of the EIS as not yet ripe for adjudication. The remaining claim is regarding disposal of low-level radioactive waste from offsite facilities, and the issue was still unsettled at the close of 1996.

DOE/NV and REECo received a notification letter regarding alleged potentially responsible party status connected with a commercial disposal site in California. The California Department of Toxic Substances Control notified DOE/NV that Omega Chemical Co., a hazardous waste treatment and storage facility which recently declared bankruptcy and is unable to clean up the site, possessed records indicating that DOE/NV had shipped hazardous waste to

the site between January 1988 and January 1992. Jurisdiction of this site has been transferred to the EPA, which has made no contact as of the close of 1996.

3.3 PERMIT SUMMARY

For facilities used in the operation and maintenance of the NTS and non-NTS facilities, the contractors providing such operation and support activities for the DOE/NV have been granted numerous permits by the appropriate regulatory authorities. In addition to the existing number of permits in 1996 (Table 3.4), the EOD Facility and the Area 5 Storage Facility of the RCRA Part B permit application were permitted, while the other units in the application are in various stages of the NDEP review for permission to construct or operate.

Table 3.1 Underground Storage Tank Activities - 1996

<u>Location</u>	<u>Tank Number</u>	<u>Action Taken</u>
Area 2, Vert. Pull Test	02-VPTF-1	Removal
Area 12, B-Tunnel	12-B-1	Removal
Area 12, Comm. Building	12-COMM-1	Removal
Area 23, Warehouse 7	23-W7-1	Removal
Area 23, Fire Station	23-425-1	Removal
Area 23, JTO Building	23-600-1	Removal
Area 25, R-MAD	25-3110-2	Removal
Area 25, E-MAD	25-3900-1	Removal
Area 26, Disassembly Building	26-2201-1	Removal

Table 3.2 NTS Recycling Activities - 1996

<u>Material</u>	<u>Quantity</u>
Office Paper	149.70 mt ^(a)
Aluminum (bulk)	314.80 mt
Aluminum cans	.90 mt
Used Motor Oil	74.40 mt
Cable	485.00 mt
Iron	3576.70 mt
Copper	201.30 mt
Batteries	326.00 mt
Tires	173.40 mt
Cardboard	.90 mt
Lead	129.00 mt

(a) metric ton (1,000 kg)

Off-NTS Recycling Activities, NLVF

Automotive Batteries	.90 mt ^(a)
Toner Cartridges	1.20 mt
SEC/High-Grade Paper	121.30 mt
Silver Recovery	.02 mt
Mixed Paper	34.60 mt
Cardboard	12.00 mt
Aluminum Cans	2.60 mt
Used Oil	1.00 mt

(a) metric ton (1,000 kg)

Table 3.3 Off-Normal Occurrences at NTS Facilities

<u>Date</u>	<u>Report Number</u>	<u>Description</u>	<u>Status</u>
03/25/96	NVOO-BNOO-NTS-1996-0004	Used oil spill (100 gal), pumper truck hose came loose	Complete
06/04/96	NVOO-BNOO-NTS-1996-0007	Petroleum Leakage from Abandoned Underground Storage Tank, Area 2	Complete
06/12/96	NVOO-BNOO-NTS-1996-0009	Radioactive Sludge released when Underground Storage Tank cut open, Area 6	Complete
09/06/96	NVOO-BNOO-NTS-1996-0014	Sewage release to ground due to clogged line, Area 12	Pending

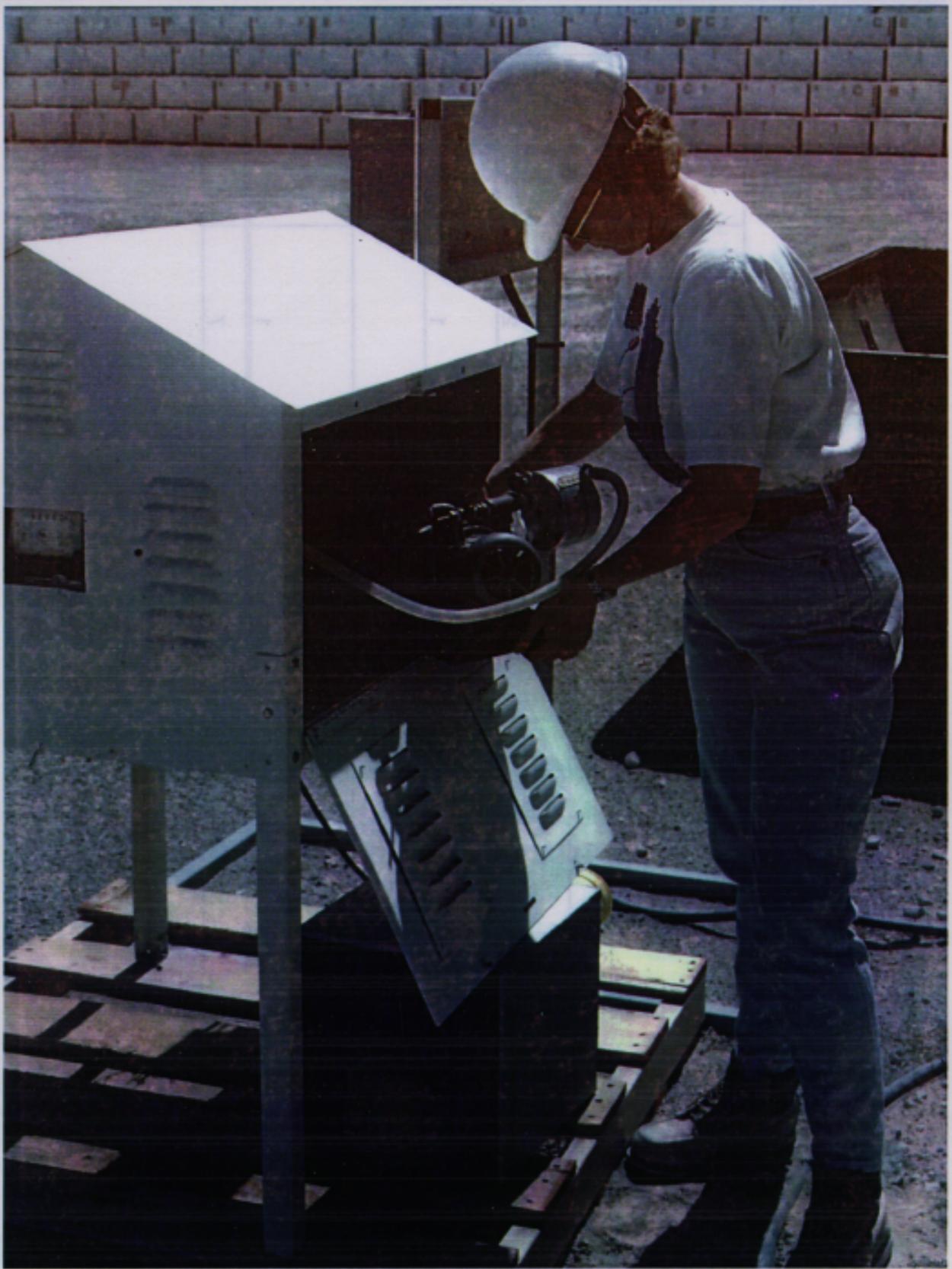
Note: There were two historic petroleum leaks discovered on July 2, 1996, and July 23, 1996, when underground storage tanks were removed. According to new reporting guidelines, these were combined into the June 4, 1996, Occurrence Report.

Table 3.4 Environmental Permit Summary - 1996

	Air Pollution	Wastewater	Drinking Water	Number of EPA Generator User IDs	Hazardous Materials Storage Permit	Endangered Species Act
NTS	17	9	8	1 ^(a)	3	2
Las Vegas Area Operations Office	15 ^(b)	2		1 ^(a)	2	
Amador Valley Operations				1	1	
Los Alamos Operations						
Special Technologies Laboratory (Santa Barbara)	1	2		2	1	
TOTAL	33	13	8	5	7	2

(a) Biennial Report Required.

(b) Routine Monitoring of Emissions is Not Required.



Air Monitoring for Compliance